Appendix A

CalEEMod Results

Pothole Trailhead Project

South Central Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	1.00	Acre	1.00	43,560.00	0
Enclosed Parking Structure	0.10	1000sqft	0.00	100.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.9	**Precipitation Freq (Days)**	37
Climate Zone	8			**Operational Year**	2017
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - enclosed parking structure (100 SF) assumed for bathroom structure.

Construction Phase - durations changed to reflect anticipated construction duration of 4 weeks. installation of bathroom would immediatley follow trail head construction and last 3 days.

Off-road Equipment - dozer and water truck assumed for site prep per construction specs.

Off-road Equipment - equipment to match construction specs. Other material handling equipment accounts for deliveries and daily truck trips

Off-road Equipment - assumes one backhoe for 3 days, one crane for 1 day, one compactor for 1 day, and material handeling equipment for delivery

Trips and VMT - building construction trips reduced to match grading and site prep, and one vendor trip to account for delivery of bathroom unit.

Construction Off-road Equipment Mitigation -

Vehicle Trips - Two trips assumed per day for trash removal and opening/closing of access gate.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	3.00
tblConstructionPhase	NumDays	2.00	15.00
tblConstructionPhase	NumDays	1.00	5.00
tblConstructionPhase	PhaseStartDate	10/29/2016	10/31/2016
tblConstructionPhase	PhaseStartDate	10/8/2016	10/10/2016
tblGrading	AcresOfGrading	5.63	0.75
tblGrading	AcresOfGrading	2.50	0.50
tblOffRoadEquipment	HorsePower	162.00	174.00
tblOffRoadEquipment	HorsePower	400.00	97.00
tblOffRoadEquipment	HorsePower	400.00	97.00
tblOffRoadEquipment	HorsePower	80.00	46.00
tblOffRoadEquipment	LoadFactor	0.38	0.41
tblOffRoadEquipment	LoadFactor	0.38	0.37
tblOffRoadEquipment	LoadFactor	0.38	0.37
tblOffRoadEquipment	LoadFactor	0.38	0.45
tblOffRoadEquipment	OffRoadEquipmentType	Graders	Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType	Tractors/Loaders/Backhoes	Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType	Tractors/Loaders/Backhoes	Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType	Welders	Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Other Material Handling Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Other Material Handling Equipment
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Building Construction

tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	6.00	2.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblProjectCharacteristics	OperationalYear	2014	2017
tblTripsAndVMT	VendorTripNumber	7.00	1.00
tblTripsAndVMT	WorkerTripNumber	18.00	8.00
tblVehicleTrips	CW_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	ST_TR	0.00	2.00
tblVehicleTrips	SU_TR	0.00	2.00
tblVehicleTrips	WD_TR	0.00	2.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.0111	0.1156	0.0873	1.0000e-004	0.0485	5.9400e-003	0.0544	0.0261	5.4700e-003	0.0316	0.0000	9.3722	9.3722	2.6600e-003	0.0000	9.4281
Total	**0.0111**	**0.1156**	**0.0873**	**1.0000e-004**	**0.0485**	**5.9400e-003**	**0.0544**	**0.0261**	**5.4700e-003**	**0.0316**	**0.0000**	**9.3722**	**9.3722**	**2.6600e-003**	**0.0000**	**9.4281**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.0111	0.0726	0.0873	1.0000e-004	0.0485	5.9400e-003	0.0544	0.0261	5.4700e-003	0.0316	0.0000	9.3721	9.3721	2.6600e-003	0.0000	9.4280
Total	**0.0111**	**0.0726**	**0.0873**	**1.0000e-004**	**0.0485**	**5.9400e-003**	**0.0544**	**0.0261**	**5.4700e-003**	**0.0316**	**0.0000**	**9.3721**	**9.3721**	**2.6600e-003**	**0.0000**	**9.4280**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**37.20**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2210	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	1.4100e-003	4.1400e-003	0.0163	4.0000e-005	2.6100e-003	5.0000e-005	2.6500e-003	7.0000e-004	4.0000e-005	7.4000e-004	0.0000	2.7311	2.7311	1.1000e-004	0.0000	2.7335
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.2224**	**4.1400e-003**	**0.0164**	**4.0000e-005**	**2.6100e-003**	**5.0000e-005**	**2.6500e-003**	**7.0000e-004**	**4.0000e-005**	**7.4000e-004**	**0.0000**	**2.7311**	**2.7311**	**1.1000e-004**	**0.0000**	**2.7335**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2210	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	1.4100e-003	4.1400e-003	0.0163	4.0000e-005	3.8000e-004	5.0000e-005	4.3000e-004	1.5000e-004	4.0000e-005	1.9000e-004	0.0000	2.7311	2.7311	1.1000e-004	0.0000	2.7335
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.2224**	**4.1400e-003**	**0.0164**	**4.0000e-005**	**3.8000e-004**	**5.0000e-005**	**4.3000e-004**	**1.5000e-004**	**4.0000e-005**	**1.9000e-004**	**0.0000**	**2.7311**	**2.7311**	**1.1000e-004**	**0.0000**	**2.7335**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**85.44**	**0.00**	**83.77**	**78.57**	**0.00**	**74.32**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	10/3/2016	10/7/2016	5	5	
2	Grading	Grading	10/10/2016	10/28/2016	5	15	
3	Building Construction	Building Construction	10/31/2016	11/2/2016	5	3	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0.75

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Rollers	1	3.00	80	0.38
Site Preparation	Rubber Tired Dozers	1	8.00	255	0.40
Site Preparation	Off-Highway Trucks	1	8.00	97	0.37
Grading	Excavators	1	4.00	174	0.41
Grading	Rubber Tired Dozers	1	2.00	255	0.40
Grading	Off-Highway Trucks	1	8.00	97	0.37
Building Construction	Cranes	1	4.00	226	0.29
Building Construction	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Rollers	1	4.00	46	0.45
Grading	Other Material Handling Equipment	1	2.00	167	0.40
Building Construction	Other Material Handling Equipment	1	2.00	167	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	8.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Clean Paved Roads

3.2 Site Preparation - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0134	0.0000	0.0134	7.2700e-003	0.0000	7.2700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.1000e-003	0.0347	0.0262	2.0000e-005		1.6100e-003	1.6100e-003		1.4800e-003	1.4800e-003	0.0000	2.0943	2.0943	6.3000e-004	0.0000	2.1076
Total	**3.1000e-003**	**0.0347**	**0.0262**	**2.0000e-005**	**0.0134**	**1.6100e-003**	**0.0151**	**7.2700e-003**	**1.4800e-003**	**8.7500e-003**	**0.0000**	**2.0943**	**2.0943**	**6.3000e-004**	**0.0000**	**2.1076**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	1.1000e-004	9.7000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1383	0.1383	1.0000e-005	0.0000	0.1385
Total	**8.0000e-005**	**1.1000e-004**	**9.7000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1383**	**0.1383**	**1.0000e-005**	**0.0000**	**0.1385**

3.2 Site Preparation - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0134	0.0000	0.0134	7.2700e-003	0.0000	7.2700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.1000e-003	0.0347	0.0262	2.0000e-005		1.6100e-003	1.6100e-003		1.4800e-003	1.4800e-003	0.0000	2.0943	2.0943	6.3000e-004	0.0000	2.1076
Total	**3.1000e-003**	**0.0347**	**0.0262**	**2.0000e-005**	**0.0134**	**1.6100e-003**	**0.0151**	**7.2700e-003**	**1.4800e-003**	**8.7500e-003**	**0.0000**	**2.0943**	**2.0943**	**6.3000e-004**	**0.0000**	**2.1076**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	1.1000e-004	9.7000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1383	0.1383	1.0000e-005	0.0000	0.1385
Total	**8.0000e-005**	**1.1000e-004**	**9.7000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1383**	**0.1383**	**1.0000e-005**	**0.0000**	**0.1385**

3.3 Grading - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0343	0.0000	0.0343	0.0187	0.0000	0.0187	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.0100e-003	0.0653	0.0476	6.0000e-005		3.4000e-003	3.4000e-003		3.1300e-003	3.1300e-003	0.0000	5.4279	5.4279	1.6400e-003	0.0000	5.4623
Total	**6.0100e-003**	**0.0653**	**0.0476**	**6.0000e-005**	**0.0343**	**3.4000e-003**	**0.0377**	**0.0187**	**3.1300e-003**	**0.0218**	**0.0000**	**5.4279**	**5.4279**	**1.6400e-003**	**0.0000**	**5.4623**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3000e-004	3.2000e-004	2.9100e-003	1.0000e-005	4.8000e-004	0.0000	4.9000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4150	0.4150	2.0000e-005	0.0000	0.4154
Total	**2.3000e-004**	**3.2000e-004**	**2.9100e-003**	**1.0000e-005**	**4.8000e-004**	**0.0000**	**4.9000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.4150**	**0.4150**	**2.0000e-005**	**0.0000**	**0.4154**

3.3 Grading - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0343	0.0000	0.0343	0.0187	0.0000	0.0187	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.0100e-003	0.0260	0.0476	6.0000e-005		3.4000e-003	3.4000e-003		3.1300e-003	3.1300e-003	0.0000	5.4279	5.4279	1.6400e-003	0.0000	5.4623
Total	**6.0100e-003**	**0.0260**	**0.0476**	**6.0000e-005**	**0.0343**	**3.4000e-003**	**0.0377**	**0.0187**	**3.1300e-003**	**0.0218**	**0.0000**	**5.4279**	**5.4279**	**1.6400e-003**	**0.0000**	**5.4623**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3000e-004	3.2000e-004	2.9100e-003	1.0000e-005	4.8000e-004	0.0000	4.9000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4150	0.4150	2.0000e-005	0.0000	0.4154
Total	**2.3000e-004**	**3.2000e-004**	**2.9100e-003**	**1.0000e-005**	**4.8000e-004**	**0.0000**	**4.9000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.4150**	**0.4150**	**2.0000e-005**	**0.0000**	**0.4154**

3.4 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.6100e-003	0.0150	8.8000e-003	1.0000e-005		9.2000e-004	9.2000e-004		8.4000e-004	8.4000e-004	0.0000	1.1824	1.1824	3.6000e-004	0.0000	1.1898
Total	**1.6100e-003**	**0.0150**	**8.8000e-003**	**1.0000e-005**		**9.2000e-004**	**9.2000e-004**		**8.4000e-004**	**8.4000e-004**	**0.0000**	**1.1824**	**1.1824**	**3.6000e-004**	**0.0000**	**1.1898**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-005	1.6000e-004	2.1000e-004	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0313	0.0313	0.0000	0.0000	0.0313
Worker	5.0000e-005	6.0000e-005	5.8000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0830	0.0830	0.0000	0.0000	0.0831
Total	**7.0000e-005**	**2.2000e-004**	**7.9000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1143**	**0.1143**	**0.0000**	**0.0000**	**0.1144**

3.4 Building Construction - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.6100e-003	0.0113	8.8000e-003	1.0000e-005		9.2000e-004	9.2000e-004		8.4000e-004	8.4000e-004	0.0000	1.1823	1.1823	3.6000e-004	0.0000	1.1898
Total	**1.6100e-003**	**0.0113**	**8.8000e-003**	**1.0000e-005**		**9.2000e-004**	**9.2000e-004**		**8.4000e-004**	**8.4000e-004**	**0.0000**	**1.1823**	**1.1823**	**3.6000e-004**	**0.0000**	**1.1898**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-005	1.6000e-004	2.1000e-004	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0313	0.0313	0.0000	0.0000	0.0313
Worker	5.0000e-005	6.0000e-005	5.8000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0830	0.0830	0.0000	0.0000	0.0831
Total	**7.0000e-005**	**2.2000e-004**	**7.9000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1143**	**0.1143**	**0.0000**	**0.0000**	**0.1144**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.4100e-003	4.1400e-003	0.0163	4.0000e-005	3.8000e-004	5.0000e-005	4.3000e-004	1.5000e-004	4.0000e-005	1.9000e-004	0.0000	2.7311	2.7311	1.1000e-004	0.0000	2.7335
Unmitigated	1.4100e-003	4.1400e-003	0.0163	4.0000e-005	2.6100e-003	5.0000e-005	2.6500e-003	7.0000e-004	4.0000e-005	7.4000e-004	0.0000	2.7311	2.7311	1.1000e-004	0.0000	2.7335

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	2.00	2.00	2.00	6,916	6,916
Total	2.00	2.00	2.00	6,916	6,916

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	9.50	7.30	7.30	100.00		0.00	100	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.475556	0.050584	0.196883	0.155811	0.063197	0.009350	0.016382	0.017319	0.001432	0.001292	0.006987	0.000832	0.004375

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2210	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Unmitigated	0.2210	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0505					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1705					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**0.2210**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0505					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1705					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**0.2210**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Greenhouse Gas Emission Worksheet

N20 Mobile Emissions VG Prop Invstmnts New Med Ofc Bldg

From URBEMIS 2007 Vehicle Fleet Mix Output:

Annual VMT: 6,916

Vehicle Type	Percent Type	CH4 Emission Factor (g/mile)*	CH4 Emission (g/mile)**	N2O Emission Factor (g/mile)*	N2O Emission (g/mile)**
Light Auto	46.0%	0.04	0.0184	0.04	0.0184
Light Truck < 3750 lbs	10.3%	0.05	0.00515	0.06	0.00618
Light Truck 3751-5750 lbs	23.2%	0.05	0.0116	0.06	0.01392
Med Truck 5751-8500 lbs	12.2%	0.12	0.01464	0.2	0.0244
Lite-Heavy Truck 8501-10,000 lbs	2.1%	0.12	0.00252	0.2	0.0042
Lite-Heavy Truck 10,001-14,000 lbs	0.5%	0.09	0.00045	0.125	0.000625
Med-Heavy Truck 14,001-33,000 lbs	1.0%	0.06	0.0006	0.05	0.0005
Heavy-Heavy Truck 33,001-60,000 lbs	2.9%	0.06	0.00174	0.05	0.00145
Other Bus	0.1%	0.06	0.00006	0.05	0.00005
Urban Bus	0.1%	0.06	0.00006	0.05	0.00005
Motorcycle	1.1%	0.09	0.00099	0.01	0.00011
School Bus	0.1%	0.06	0.00006	0.05	0.00005
Motor Home	0.4%	0.09	0.00036	0.125	0.0005
Total	**100.0%**		**0.05663**		**0.070435**

Total Emissions (metric tons) =
Emission Factor by Vehicle Mix (g/mi) x Annual VMT(mi) x 0.000001 metric tons/g

Conversion to Carbon Dioxide Equivalency (CO2e) Units based on Global Warming Potential (GWP)

CH4	21	GWP
N2O	310	GWP
1 ton (short, US) =	0.90718474	metric ton

Annual Mobile Emissions:

	Total Emissions		Total CO2e units	
N20 Emissions:	0.0005	metric tons N2O	**0.15**	metric tons CO2e
		Project Total:	***0.15 metric tons CO2e***	

References

* from Table C.4: Methane and Nitrous Oxide Emission Factors for Mobile Sources by Vehicle and Fuel Type (g/mile).
in California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009.
Assume Model year 2000-present, gasoline fueled.

** Source: California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009.

*** From URBEMIS 2007 results for mobile sources

Appendix B

Cultural Resources Records Search Results

56-001562

Permanent Trinomial: CA- - Supplement_____

HISTORIC SITE RECORD

Common Name: Bill King' place

Page 1 of 7 Forest Service No.:05-07-55-160

1. County: Ventura

2. USGS Quad:Cobblestone Mtn. CA 15'___ 7.5'_x_ Year: 1979 Photorevised:

3. UTM Coordinates: Zone 11 - 338040m. Easting x 3819080m. Northing

4. Township 5N.,Range 18W.; SE1/4 of SW1/4 of SW1/4 of Section 15 San Bernadino Meridian.

5. Map Coordinates: 540mm S x 445mm E (from NW map corner)

6. Elevation: 1050

7. Location: From Lake Piru Recreation Area, travel north along FS Road 4N132 for five miles. Turn left on a small dirt rad that travels through a falt area towards the lake. Travel northeast for 0.1 miles. The corral and remnants of the site are located on the left side of the road next to a large eucalyptus tree. (est. DBH-60", ht. 90').

8. Prehistoric___Historic_xx_Protohistoric____ 9. Site Description: The site consists of a stock corral built on a fractured concrete pad..

Site Type:

___ Trail/Road	___ Military/War
_x_ Homestead/Ranch	___ Pastoral Camp
___ Hunters Camp	___ Burial/Cemetary
___ Logging	___ Mining
___ Civilian Conservation Corps	___ Forest Service
___ Other (_____)	___ Rail Road

10. Area: 55 m. Length (EW Axis) x 37 m. Width (NS Axis) = 2,035sq.m.
(180.5 ft. x 121.4 ft. = 0.5 acs.)

Method of Determination: pacing

11. Depth: unknown cm. Method of Determination:

12. Features: Fractured cement pad and corral built on pad.

___ House/Cabin	___ Stamp Mill	___ Prospect
___ Dump	___ Tailings	___ Mine Shaft
___ Well	___ Ditch	___ Mine Tunnel
___ Wood Fence	___ Cut	___ Claim Post
___ Rock Fence	___ Rock Foundations	___ Adit
___ Rock Alignment	___ Cement Foundations	_x concrete pad

HISTORIC SITE RECORD

Permanent Trinomial: CA- - **Date:**
Common Name: Bill King's place
Forest Service No.: 05-07-55-160

13. **Artifacts:** There were few artifacts and consisted of a blade from a hay shear or flail, several rusty lids, and concrete fragments.

___ Bottles/Glass	___ Ceramics	___ Cans (Food)
___ Buttons	___ Shoes/Boots	___ Beer Cans
___ Misc. Domestic	___ Harness/Tack	___ Cooking Utensils
_x_ Farm Equipment	___ Mining Equipment	___ Round Nails
___ Square Nails	_x_ can lids_____	_x concrete fragments

Chronology:

___ WWII - Modern (1940+)	___ Turn-of-the-Century (1900 -1909)
_x_ Depression (1930 - 1939)	___ 1890's
___ Post WWI (1920 - 1929)	___ 1870's - 1880's
___ WWI (1910 - 1919)	___ Pre-1870 (Emigrant/Early Settlement)

14. **Non-Artifactual Constituents:** None.

15. **Date Recorded:** 8/12/97

16. **Recorded By:** Priscilla Peterson and Kathy McCovey.

17. **Affiliation and address:** Plumas National Forest and Six Rivers National Forest.

18. **Human Remains:** None.

19. **Site Disturbances:** None.

(Site Condition: Excellent:___ Good:___ Fair:_x_ Poor:___)

20. **Nearest Water (Type, distance and direction):** Lake Piru is located approximately on quarter mile to the east.

21. **Vegetation Community (site vicinity):** Chaparral community.

22. **Vegetation (on site):** Flora observed in the site area included Pepper trees (Schinus molle), Native Walnut (Juglans californica), eucalyptus, Interior live oak (Quercus wislizneii), Wild tobacco (Nicotania glauca), Yerba santa (Eriodictyon californicum), Purslane (Portulacaeae), water motives, coyote brush (Baccharis pilularis), ceanothus (ceanothus spp.) poison oak (Toxicodendron diversilobum).

23. **Site Soil:** Silty sandy loam, light brown.

24. **Surrounding Soil:** Brown silty sandy loam.

25. **Geology:** Quarternary alluvium.

HISTORIC SITE RECORD

Permanent Trinomial: CA- - Date:
Common Name: Bill King's place
Forest Service No.: 05-07-55-160

26. Landform: Alluvial fan.

27. Slope: 2° (Aspect: eastern) 28. Exposure: open

29. Landowner(s) (and/or tenents) and address: U.S.D.A., Los Padres National Forest, 6144 Calle Real, Goleta, CA 93117

30. Remarks: None.

31. References: None.

32. Name of Project: Hopper Fire

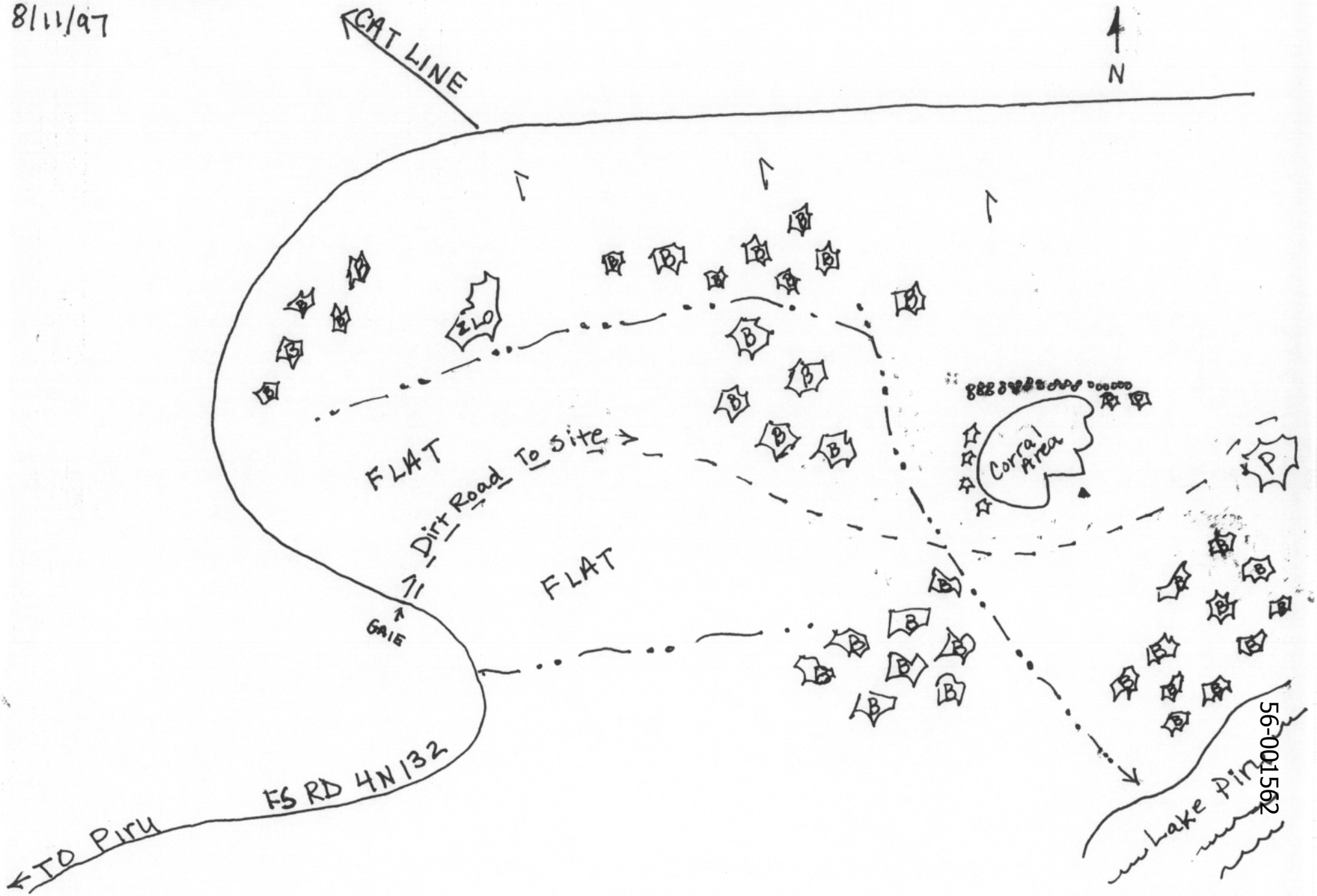
33. Type of Investigation: Archaeological reconnaissance.

34. Artifact Accession No.: N/A Curated At: N/A

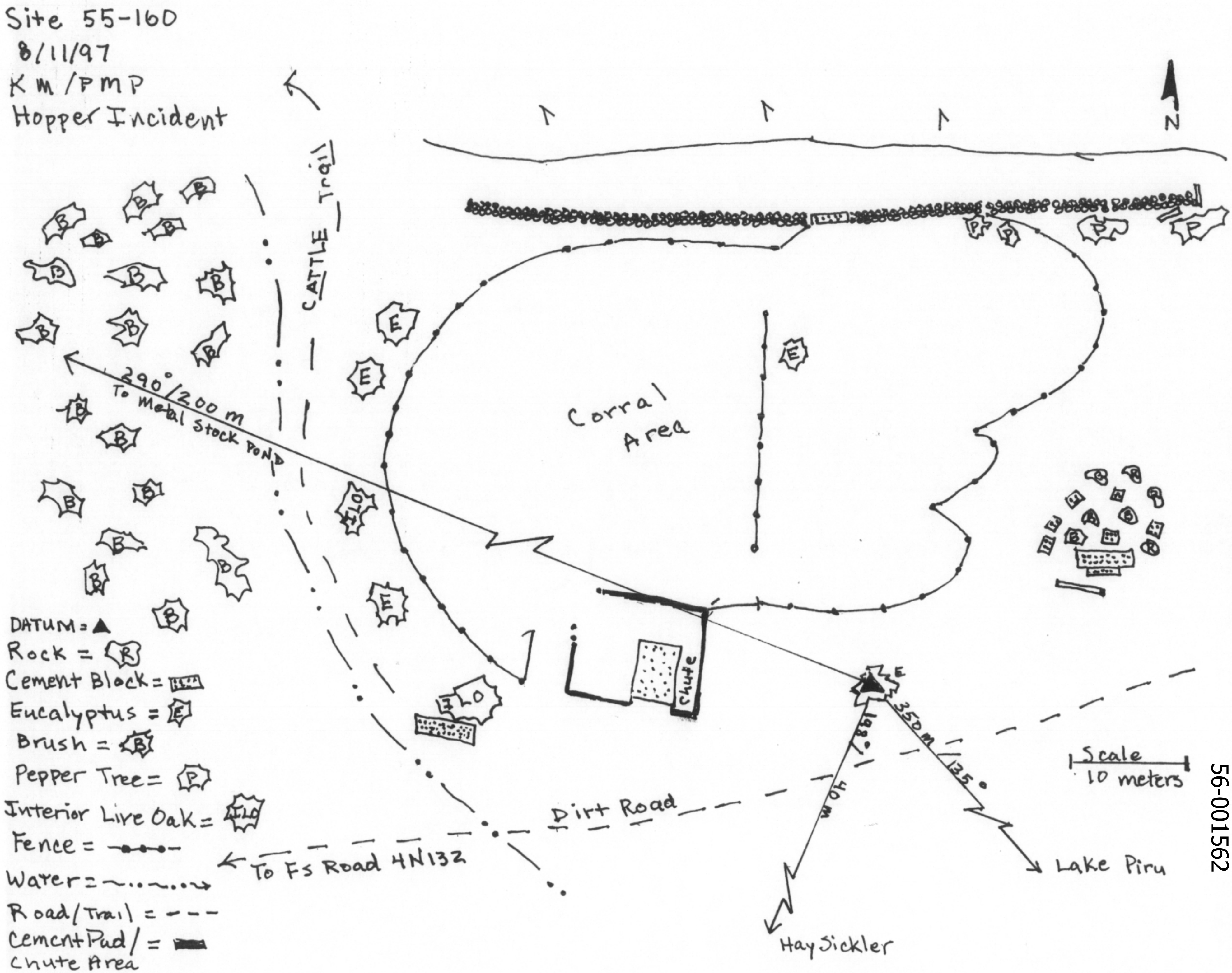
35. Photos (Type): Color Taken By: K.McCovey, P.Peterson

Accession No.: LPF 97:26 25-15 Negatives At: Heritage Resource Center
HC58 Paradise Road
Santa Barbara, CA 93110

55-162
Bill KINGS Property
Hopper Incident
8/11/97



56-001562


Site 55-160
8/11/97
KM/PMP
Hopper Incident
N
CATTLE Trail
Corral Area
290°/200 m
To Metal Stock POND
Chute
E
350 m / 135°
198° / 40 m
Hay Sickler
Lake Piru
Dirt Road
To FS Road 4N13Z
Scale
10 meters
DATUM =
Rock =
Cement Block =
Eucalyptus =
Brush =
Pepper Tree =
Interior Live Oak =
Fence =
Water =
Road/Trail =
Cement Pad/ =
Chute Area

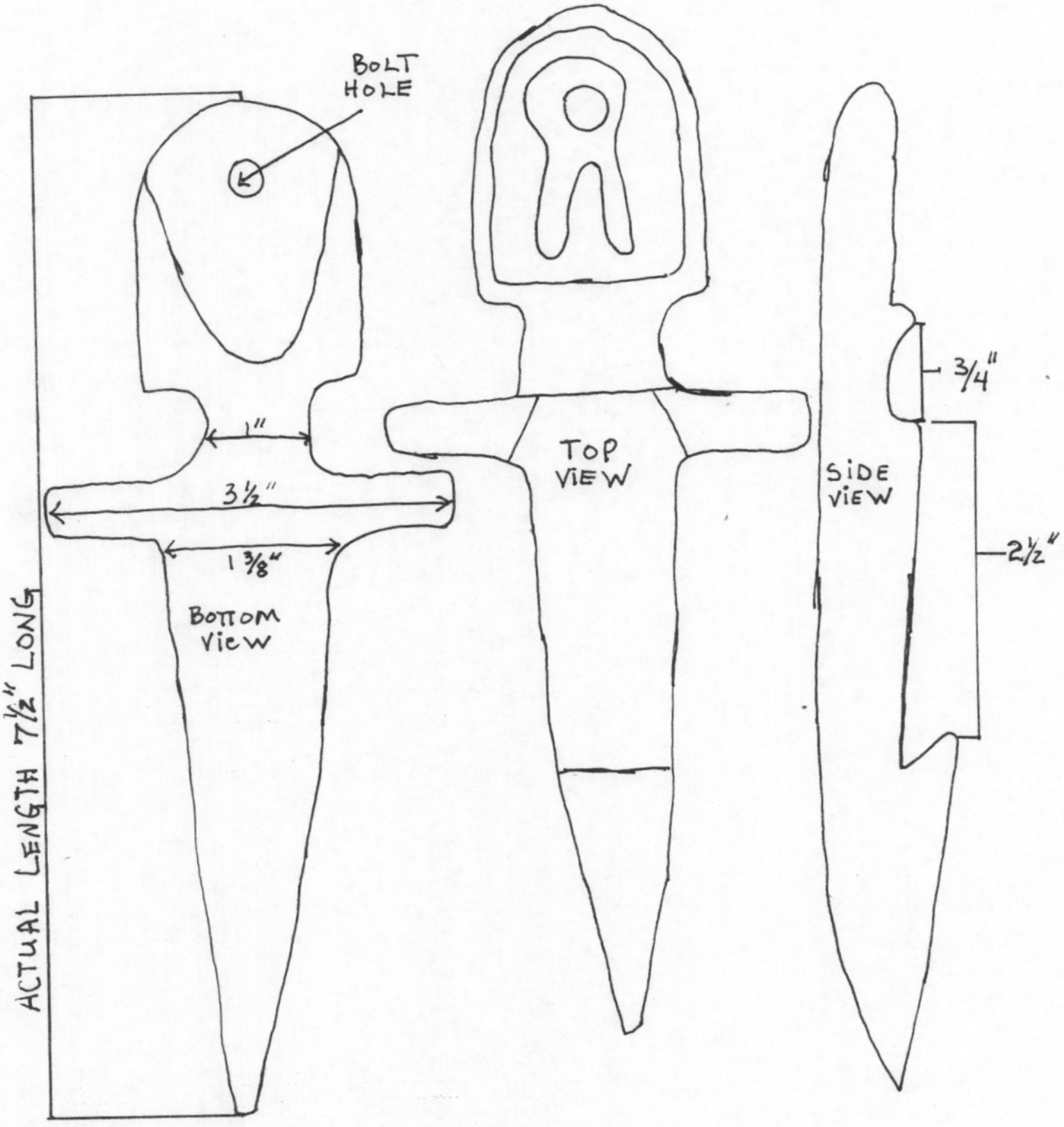
56-001562

Site 55-160 PiRu LAKe

Hopper INCidENT - Private Property Bill KiNG OWNer
Recorded BY K. mC Covey & P. Peterson 56-001562

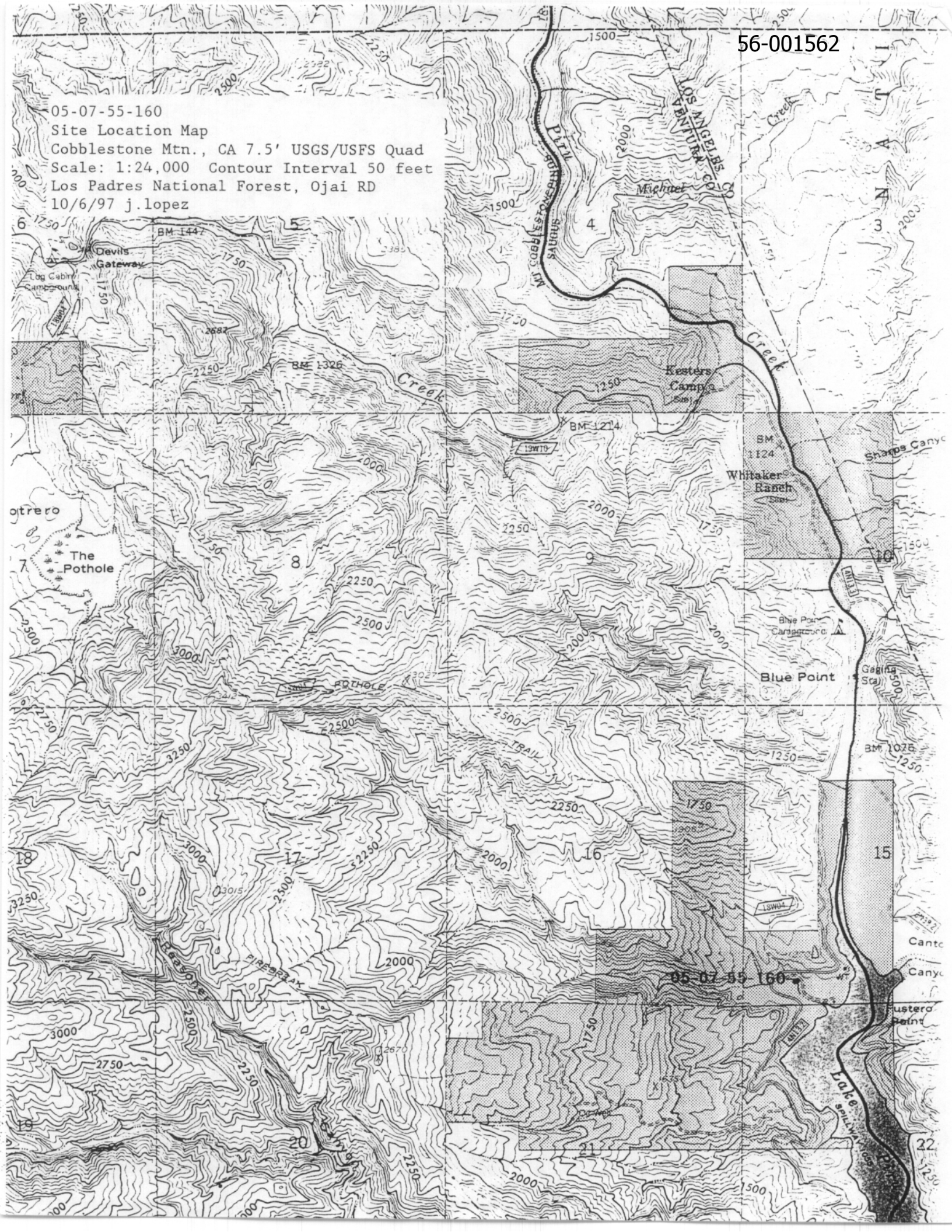
BLADe of Sickle BaR
ATTAChes to TRaCTOR
FOR Hay CuttiNG

SCALE 1:1



56-001562

05-07-55-160
Site Location Map
Cobblestone Mtn., CA 7.5' USGS/USFS Quad
Scale: 1:24,000 Contour Interval 50 feet
Los Padres National Forest, Ojai RD
10/6/97 j.lopez



56-001625

State of California-The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI#
Trinomial
NRHP Status Code
Other Listings Los Padres National Forest 55-07
Review Code Reviewer Date

Page 1 of 3 *Resource Name or #: 55-07

P1 Other Fustero Monument

*P2. Location: ☐ Not for Publication ☒ Unrestricted

*a. County Ventura

*b. USGS 7.5' Quad Cobblestone Date 1978 T 5N ; R 18W NW 1/4 of NW 1/4 of Sec 22 SBM B.M.

c. Address

d. UTM: Zone 11 338319 mE 3820051 mN

e Other Locational Data:

Monument is immediately east of the road up Piru Canyon and is marked as a grave on USGS maps

*P3a. Description: (Describe resource and its major elements. Include design,. materials, condition,alterations,, size , setting, and boundaries)

The northwest quarter of Section 22, T5N, R18W was pattented to Juan Jose Fustero on October 1, 1883. This was the first land in the grazing allotment transfered from federal lands. (552 CACAAA 076472). The Fustero monument and apparently the Fustero home and cemetery sites are located east of the road up Piru Canyon.

*P3b. Resource Attributes: HP26

*P4. Resources present: ☐ Building ☐ Structure ☒ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5b. Description of Photo.: View to east of Fustero Monument

*P6 Date Constructed/Age ☒ Historic ☐ Prehistoric ☐ Both

*P7 Owner and Address: unknown

*P8 Recorded by: Chester King. Topanga Anthropological Consultants P.O. Box 826, Topanga, CA 90290

*P9 Date Recorded: 8-14-01, 9-

*P10. Survey Type: reconnissance survey

*P11. Report Archaeological Survey of the Potholes Allotment by Chester King. Prepared for National Forest Service, Los Padres National Forest November 5, 2001

*Attachments: ☐ None ☒ Location Map ☒ Continuation Sheet ☐ Building Structure and Object Record ☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐ Other (List):

56-001625

State of California-The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

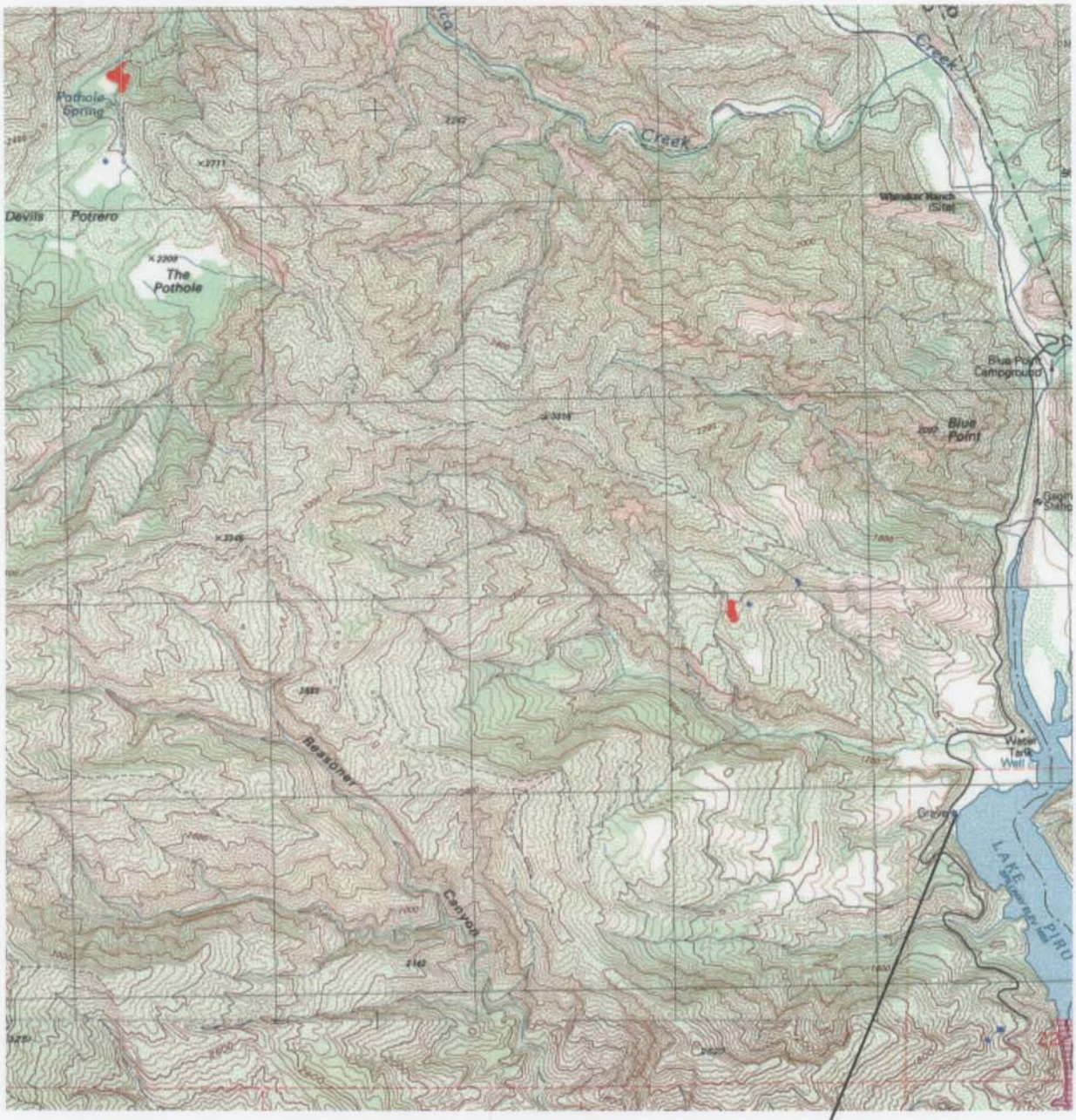
Primary # _____

LOCATION MAP

Trinomial _____

Page 2 of 3 *Resource Name or #: Fustero Monument 55-07

*Map Name: Cobblestone Mountain USGS 7.5' Quad *Scale 1:24,000 *Date of Map 1979



Fustero Monument

State of California-The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Primary # _____

ILLUSTRATIONS

Trinomial _____

 *Resource Name or #: Fustero Monument 55-07

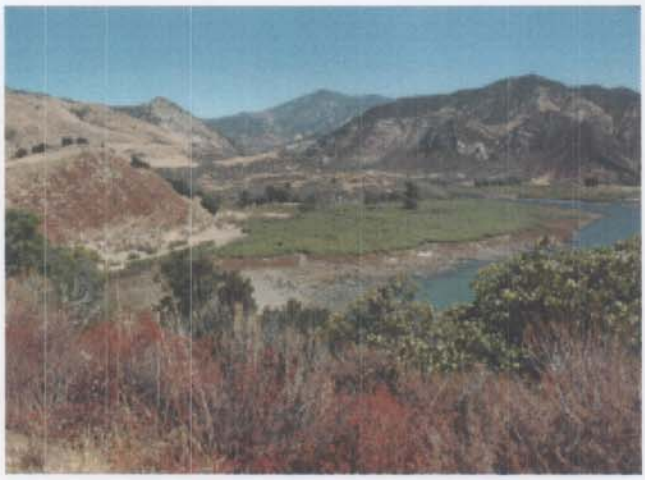
Fustero plaque

Crucifix and chain on Fustero monument

View northeast of Fustero monument and mouth of Canton Canyon.

View southeast of Fustero monument and Piru Lake

View of Historic site VEN-1562 (55-160)'Bill King place'.



View north from south of Fustero monument of Piru Creek floodplain.

56-100210

ISOLATE/LOCALITY RECORD
(Field Use Only)

Artifact Assession #:_____
ARR NUMBER:05-07-55-90:34

Page 1 of ___.

1. County: Ventura 2. Date Recorded: 5-5-90

3. Recorded By: Lisa Schub and Adam Stellmacher, SO Archaeologists.

4. USGS Quad: Cobblestone Mtn. 15'___ 7.5' X Year:1958 Photorevised: 1974

5. UTM Coordinates: Zone 11 - 3820560 Northing 338680 Easting

6. Township ___ N.,Range 18 W.; SE 1/4 of NE 1/4 of SW 1/4 of Section 15 San Bernardino Meridian.

7. Elevation: 1100 Feet above sea level 8. Air Photo No.:_____

9. Location description (Include description of general area and specific location where isolate was found): Site is located on a knoll which was used as an access road. The knoll is bare, with very little vegetation, only containing grasses. Below the knoll is a floodplain to the east with willows and Sycamores by Piru Creek.

10. Isolate description: The site consists of Juan Fustero's grave, a Shoshone Indian There is a sandstone slab shaped like a mushroom, that is the grave marker. It is located fifty meters from the east side of the road. The grave marker is four meters by four meters.

11. Water (Type, Distance and Direction): Lake Piru, a perennial creek 100 meters east of knoll.

12. Vegetation Community: Riparian Zone

13. Geology: Unnamed Sandstone.

14. Landform: Knoll

15. Slope: 2% 16. Aspect: East 17. Exposure: open

Artifact Assession #:_____
ARR NUMBER:05-07-55-90:34

18. Landowner(s) (and/or tenants) and address: Forest Service, 6144 Calle Real, Goleta, CA. 6144

19. Remarks: There is some graffiti on the tombstone.

20. Ethnographic Territory: Ventureno

21. Reference:

22. Name of Project: Pothole Rehabilitation Trail

23. Artifact Accession No.:_____ Curated At:_____

24. Photos (Type):Colored Slides Taken By: Adam Stellmacher

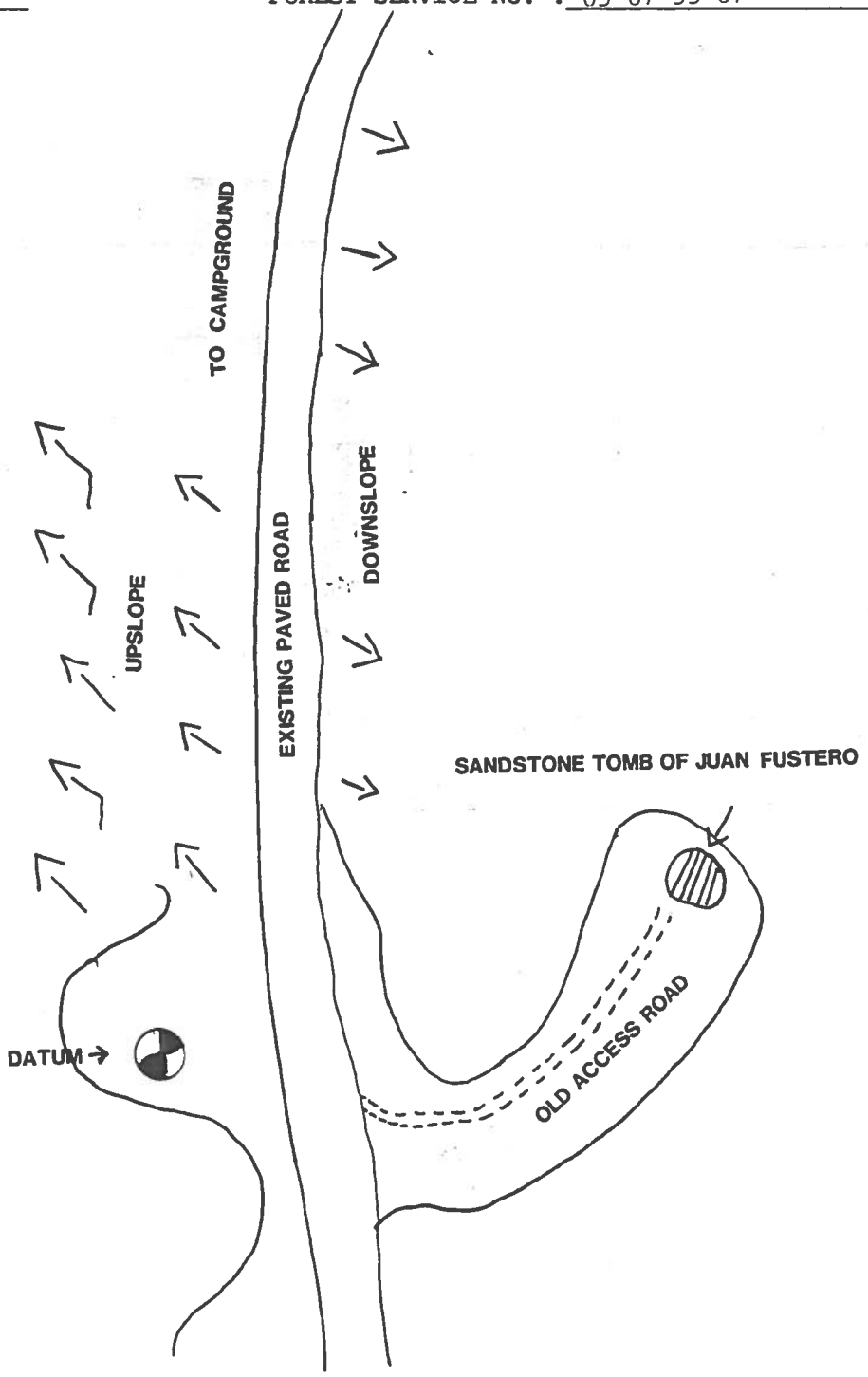
Accession No.: 13,14,15 Negatives At: Supervisors Office

25. Map attached: Yes X No____

56-100210

PAGE ___ OF ___
TYPE OF MAP Site Map

PERMANENT TRINOMIAL: _____
FOREST SERVICE NO. : 05-07-55-07



LEGEND
● = DATUM
◍ = SITE PERIMETER

INDICATE TRUE NORTH

A.R.R. NO.: 05-07-55-90:34
PROJECT AREA: Potholes Trail
SITE NAME: Juan Fustero's Grave
SCALE: _____
DATE: 4-5-90
DRAWN BY: Lisa Schub
TAPED _____ PACED X BOTH _____

(5/87)

CHRIS Information Center Records Search Data Sheet

Project Name: Pothole Trailhead Parking

Project Number: 16-03004 Date: 7/14/16

Information Center: SCCIC

Search Radius: Half Mile: X One Mile: _____ Other: _____

USGS Quadrangle: Cobblestone Mtn.

Public Land Survey System (PLSS): Township: 5N Range: 18W Section: 15,16,21,22

County: Los Angeles / Ventura

Previously Recorded Sites: 100210, 1562, 1625 1pg

Previous Studies: 1598, 839, 1844, 2163 1pg.

National Register of Historic Places:	Copies:	Y	N
California Register of Historical Resources:	Copies:	Y	N
California Points of Historical Interest:	Copies:	Y	N
California Historical Landmarks List:	Copies:	Y	N
Archaeological Determinations of Eligibility:	Copies:	Y	N
California Historical Resources Inventory:	Copies:	Y	N

Historic Maps: Whitaker Peak (NO scanned version)

Notes: _____

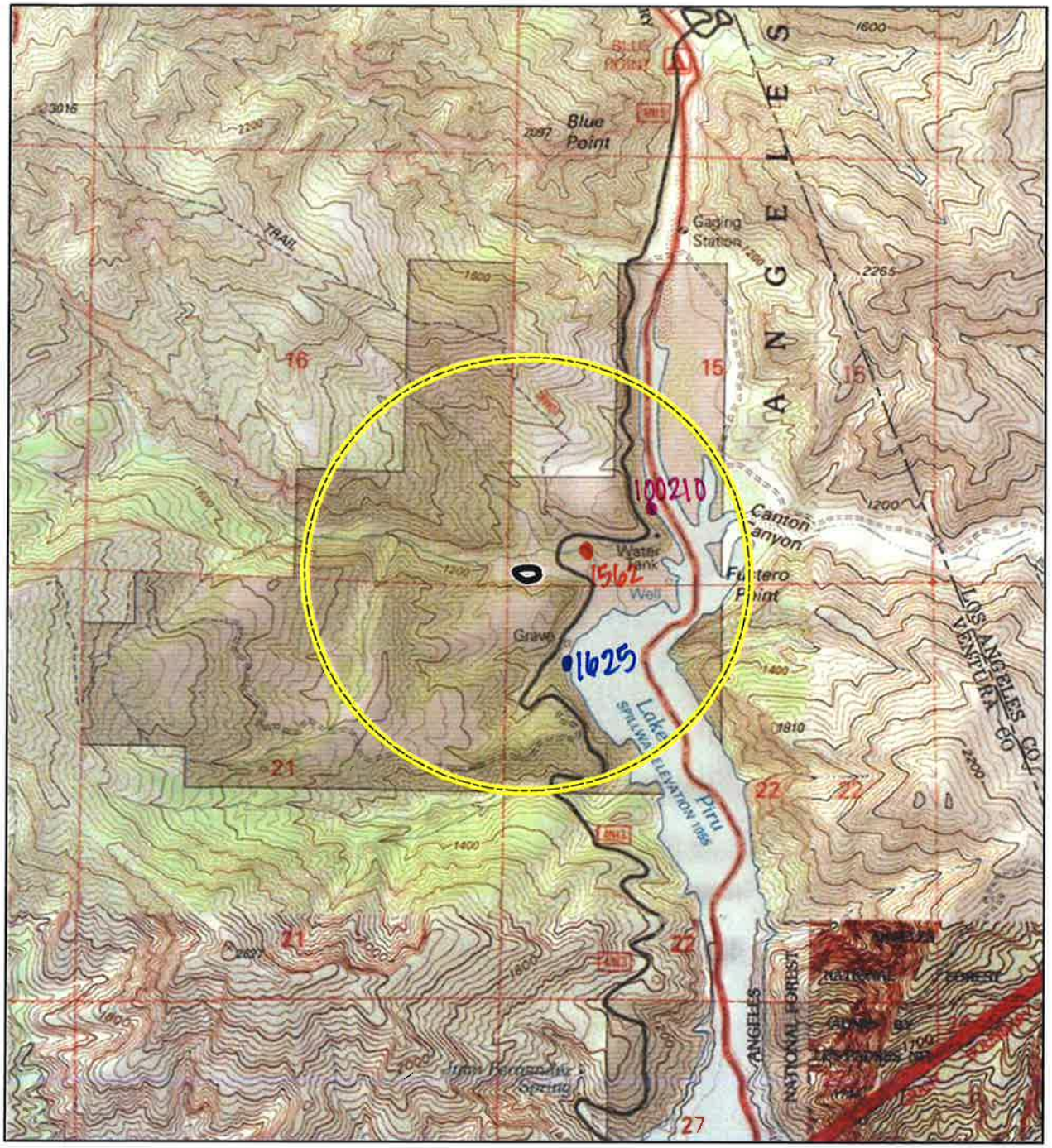
rincon

Record Search Resources Proximity Sheet

Project Name: Pothole Trailhead Parking

Resource Number	Within Project Site	Adjacent to Project Site	Outside of Project Site
100210			X
1562			X
1625			X

Resources



Imagery provided by National Geographic Society, ESRI and its licensors © 2016. Cobblestone Mtn Quadrangle. T05N R18W S15,16,21,22. The topographic representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may have changed since the original topographic map was assembled.

Project Boundary

Half-Mile Buffer

N

0 1,000 2,000 Feet

0 250 500 Meters

1:24,000

Records Search Map

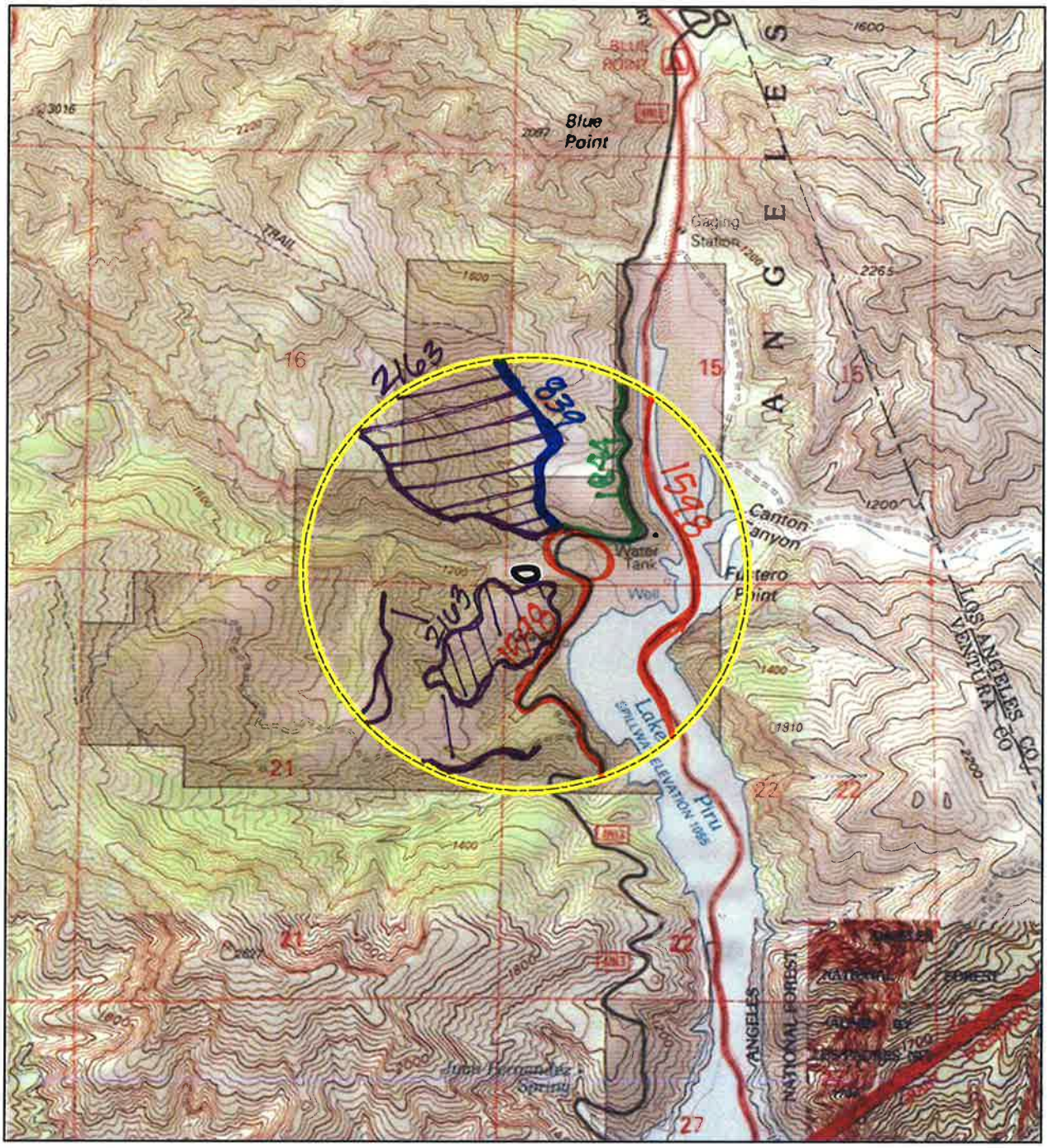
rincon

Record Search Report Proximity Sheet

Project Name: Pothole Trailhead Parking

Report Number	Within Project Site	Adjacent to Project Site	Outside of Project Site
1598			X
839			X
1844			X
2163		X	

Reports



Imagery provided by National Geographic Society, ESRI and its licensors © 2016. Cobblestone Mtn Quadrangle. T05N R18W S15,16,21,22. The topographic representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may have changed since the original topographic map was assembled.

Project Boundary

Half-Mile Buffer

N

0 1,000 2,000 Feet

0 250 500 Meters

1:24,000

Records Search Map

VN 216 3

Firm: **Topanga Anthropological Consultants**
P.O. Box 826
Topanga, California 90290
(310) 455-2981

Cobblestone

Title: # Archaeological Survey of the Potholes Allotment

Author: by Chester King

Arch. sites:
56-001624
56-001625
56-001622
56-100153

Pages: 14
Type: (1) Arch. survey
Acres: 7600 ac

Agency: Prepared for
National Forest Service
Los Padres National Forest

Date: November 5, 2001

Introduction

Chester King and Michael Merrill conducted an archaeological survey of the Potholes Allotment in Piru Canyon.

The archaeological survey was conducted to identify archaeological sites that might be damaged by grazing or activities associated with grazing. This report describes the procedures employed during the survey and presents the results of the survey.

Survey Procedures and Conditions

Records of previous surveys and site records for sites in the vicinity of the project were provided by Janine McFarland of the Los Padres National Forest Heritage Resource Center prior to initiation of fieldwork. A prefieldwork study had been prepared by James Lopez of the Los Padres National Forest. additional information was obtained through a record search at the South Central Coastal Archaeological Information Center at California State University, Fullerton. A report of the record search for the Potholes and Piru Allotments is attached. Few surveys have been conducted within the project area and no sites or isolates were recorded in the project area.

Michael Merrill and/or Chester King walked the transects indicated on the project area map on the following page. Survey was concentrated in areas that appeared to be favorable for human settlement. The survey was conducted on July 25, July 30, August 2, and 3 (we stayed overnight at Devil's Potrero), August 14, September 11, and several hours on September 13, 2001. Many days were 10-12 hours long.

Ground cover varied depending on slope, presence and type of soil and amount of exposure to the sun. Grassland areas are the most important for cattle grazing. The grassland areas varied from areas where Hemizonia and annual grasses predominated to areas that appear to have been grazed so that most plants remaining are not eaten by cattle. Turkey Mullen and Vinegar Weed predominate in these areas. Other areas near grasslands have stands of mallow or Yerba Santa. Soil is usually visible in these areas. In areas with Live Oaks along streams or on northfacing slopes the ground is often covered with leaf litter. In areas with dense stands of chamise chaparral, Ceanothus, and/or Purple or Black sage often little ground surface was visible and survey transects were difficult to walk. In the Sespe Wilderness area around the Potholes ground cover was generally dense and in grassland areas little soil was visible.

Cattle activity results in trampling earth and cropping of vegetation. Areas where cattle spend more time have less vegetation and are most heavily trampled. Cattle trails connect springs or other water sources, shaded areas where cattle rest during the heat of the day, and grazing areas. The survey emphasized study of the areas most heavily used by cattle. These were the areas where visibility of the ground surface was best, the areas where residential sites were most apt to be found, and the areas where grazing causes the greatest impact.

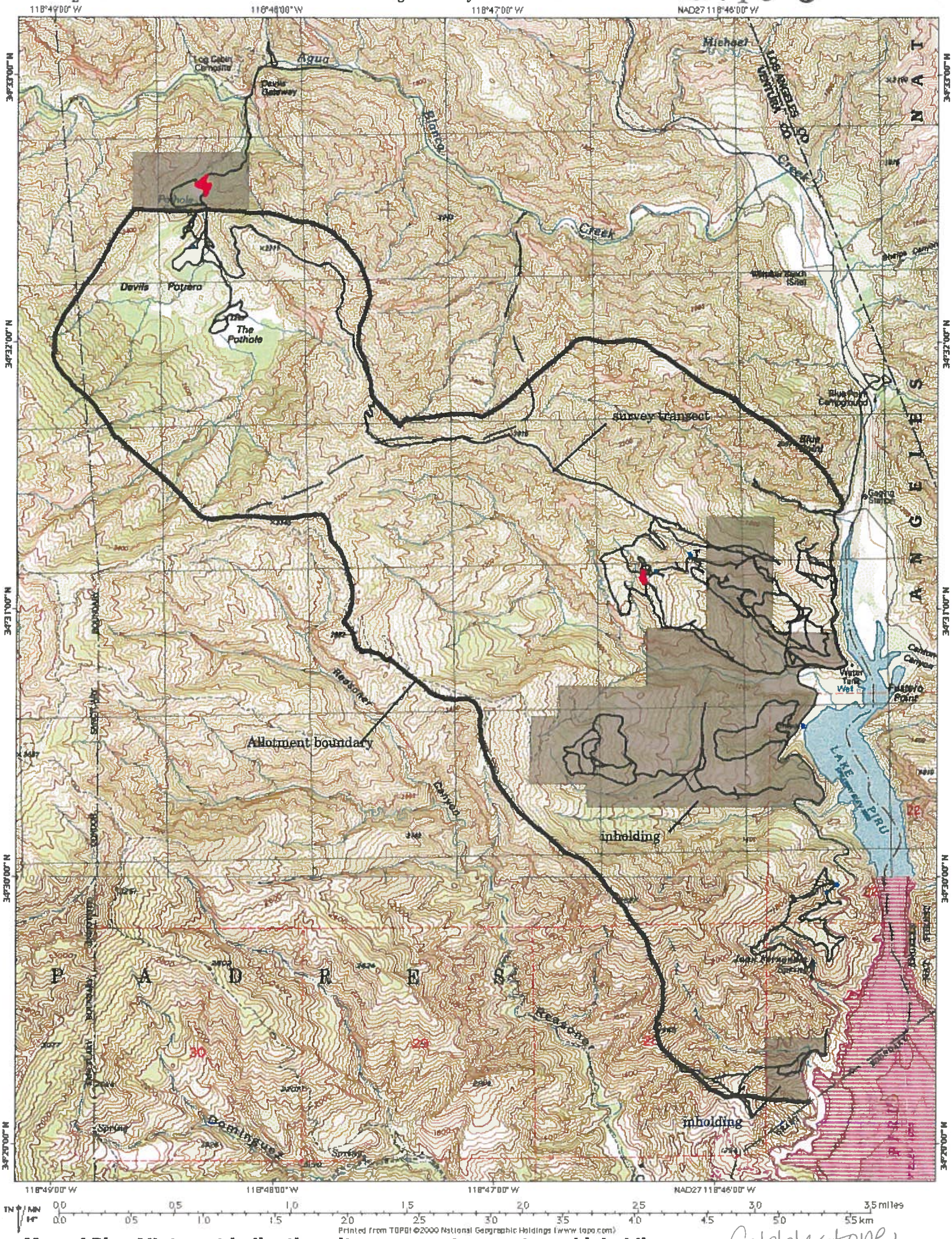
Photographs of sites, artifacts and features were organized as part of the process of filling out site record forms. The site record forms and this report contain the information gathered concerning the sites including illustrations of artifacts, and sites.

Devel: (1) unknown
Quad: 1644, Cobblestone Mtn.

Acknowledgments

At the Los Padres National Forest Heritage Resource Center, Janine McFarland assisted with the organization of the study and joined us at the beginning of our first day in the field, Steve Horne assisted in scoping the project, Joan Brandoff Kerr, and Karen Klemic assisted in obtaining sources identified by James Lopez. Catharine Wood, staff archaeologist at the South Central Coastal Archaeological Information Center at California State University, Fullerton conducted a search of information center records. John Johnson of the Santa Barbara Museum provided information concerning ethnohistory of the area.

VN 2 1 6 3



Map of Piru Allotment indicating sites, survey transects and inholdings.

Cobblestone

Survey transect
Allotment boundary
Blanca
Creek
Potrero
Devils
The Pothole
Reabener
LOS ANGELES CO
VENTURA CO
LAKE

Background

Native Settlements in Vicinity of the Potholes Allotment

At the time of Spanish colonization, the vicinity of the project area was the location of settlements of Tataviam people. Most Tataviam people were recruited into San Fernando Mission and many of their descendants continue to live in the San Fernando area. The Tataviam language was most closely related to Tongva/Gabrieleno, Serrano and other southern California Takic languages that are members of the Uto-Aztecan language family. Archaeological discoveries including the discovery of a cache of ceremonial artifacts at Bower's Cave, excavations of cemeteries, recording of rock paintings and an area survey to gather data to be used for interpretation of the settlement at Vasquez Rocks County Park have increased our knowledge of pre-mission Tativiam society.

The names of most historic period settlements are recorded in Spanish mission registers. The Potholes Allotment is several miles north of the historic Tataviam settlement of Piru. People from Piru were baptized at San Fernando Mission Most were baptized in 1803 and 1804. People from Piru were married to people from several other Tataviam settlements.

Pajauvinga was a one family settlement recruited before Piru and Camulus. When she was baptized, Fb612 of Pirubit was married to Fb572 of **Pajauvinga** (Fm139) and had a 7 year old daughter (Fb510) by Fb572. She also had a 5 year old son (Fb589) by Gb1988 of **Tochonanga** who had transferred from San Gabriel to San Fernando Mission (Fd36). The son was said to be a brother of the witness at his baptism (Fb362) who was from **Encino**.

Tochononga was perhaps the most important Tataviam settlement and was recruited before Piru. One Tochonanga tie is described above. Marriage Fm 161 was between a man, Fb708 of Chonabit [**Tochononga**] and a woman, Fb719 of Piru.

Soon after her baptism, Fb748 of Piru married Fb502 (Fm 170) brother of a woman (Fb293) who was wife of a man (Fb301) with parents from **Passenga**.

The daughter of the chief of **Coyabit** (Fb932) was married to a man from Piru (Fb915), Fm185b. Coyabit was a three or more family settlement recruited at same time as Piru. John Johnson suggests that Coyabit may be the Tataviam name of Camulus

A man of **Tochaboronga** (Fb1207) was married to a woman from Piru (according to John Johnson compilation) (Fb1224), Fm269. Tochaboronga was a medium sized Tataviam settlement recruited at same time as the later recruits from Piru.

The chief of **Pabuttan** (Fb1867) was married to a woman from Piru (Fb1890), Fm511. The wife of a Piru man (Fb914) was from **Pauvit** (Fb933), Fm186. Two natives of this possibly one family settlement (it may be the Tataviam name of a known Chumash settlement) were recruited after Piru in 1811. Pabuttan was probably north of Piru

The daughter (Fb1203) of the chief of **Taapu**, the Chumash settlement south of Piru, was married to a Piru man (Fb1202), Fm267. A Piru man Fb859 was husband of a woman (Fb864) from the Chumash village of **Quimisac** located southwest of Piru.

Small settlements such as Camulus (Coyabit) may have been satellite settlements of the Piru village. Piru was the main settlement in the vicinity of the study area. It is possible that small satellite settlements were present in or near the project area prior to European colonization.

Settlements west and north of Piru were Chumash settlements. They included the settlements of Sespe, Chumpache, Matapjahua (place of the fox *ha'w* according to Harrington consultant Jose Juan Olivas (Jam. paKahung= reed place)), and Suijuijos. Matapjahua and probably Suijuijos were in the upper Piru drainage.

Archaeological and ethnographic data indicate that the Piru settlement recruited into San Fernando Mission was located at La Esperanza, now under Piru Lake. Harrington recorded from Fustero:

> pidukung= La Esperanza, place (plain, huerto) three miles below Fustero's place. This is in the Castec [Tataviam] language. Fustero's mother's father talked that dialect which is much like the one that Fustero talks [Johnson and Earle 1990:198].

Van Valkenberg observed:

> [Esperanza Ranch] was the site of the main Indian cemetery of the Piru Canyon. The last burial made there was that of Juan Fustero alias Lugo in 1879. A few years later Stephen Bowers, Dr.Guillberson and William Whitcare [sic.] excavated in the same cemetery [Van Valkenberg 1935:site 13].

This is apparently the Santa Felicia Canyon site prospected at by Bowers on May 22, 1879 (Benson 1997:133). Robert Lopez described the site:

> ..it was located on Rancho Esperanza which was later called Temescal Flats and which now is part of Lake Piru. The village site occupied a small knoll at the northern extent of the Temescal Flats area, and today during periods of low water in Lake Piru people flock to "Indian Island" and hunt for relics, ... The extent of the midden represented indicates the village may very well have dated from a period prior to Spanish contact [1974:50-51].

Eugenia (Eug.) told Harrington: pi'iruKung was not situated where the town of El Piru is, but at the point of the hill that juts out to this side of the town. Casamiro once told Eug. that the real pi'iruKung was by point of hill just below where J.J. Fustero lives now. Old cemetery there. Eug. remembers distinctly what he told Eug. .

Harrington notes: Setimo Lopez (San Fernando Tongva): pi'i'ruk - is a place above Camulo. pi'iruknga - this name means tule in Serrano [Tataviam]; it is Serrano informant volunteers.

After secularization of the missions, native people lived in several settlements in the Piru area. Juan Jose Fustero lived in the project area when he was interviewed by Kroeber and Harrington. Recent genealogical research demonstrates that Serrano speaking Juan Fustero had Tataviam ancestors baptized at San Fernando Mission. His father was a child of parents born at La Liebre, a Tataviam settlement. His mother's father was born at Piru. His mother's mother was of Serrano ancestry (Johnson and Earle 1990:198-201).

In 1857, Don Ygnacio del Valle purchased the Rancho Temescal. Smith observed:

> But he found most of Piru Canyon's grasslands occupied by Indians. Determined to run his herds on the virgin grass along Piru Creek, he induced Juan and other "survivors" of smallpox to move upstream. They settled on and near what is now the Lisk Ranch; and when the Jaynes bought some of the area upon the father's death in 1878, Juan pestered them for several years, claiming they had not paid enough for the land [1969:5].

Smith said that del Valle gave Juan 40 horses to move out of the Temescal grant in 1857 (1969:4).

Harrington notes: Juventino del Valle: Name of grant is Temescal - named from the Temescal in the Piru Canyon was outside of Temescal Ranch. Piru is Indian name of the Creek. Van Valkenberg stated concerning the settlement of Akavavi:

> The last Indian occupation was that of the mixed Haminot-San Fernandiño Fusteros, who were bribed by the Del Valles to vacate so that the title might be cleared.. The remains of the Temescal can still be seen. This was last used in 1867 [Van Valkenberg 1935:site 11].

Van Valkenberg listed a site near the present town of Piru. He said:

> ... in the year of 1861 the Indian population of forty persons were made up of Ventureño Chumash, Kitanemuk, Haminot, San Fernandiño, and occasional San Luiseno and Yokuts [Van Valkenberg 1935:site 10]..

This is probably the same settlement visited by Stephen Bowers on May 24, 1879.

> About one mile above the mouth of the Piru we visited some Indians who are living in houses thatched with grass. Saw some fine metates and mortars.[Benson 1997:133].

A list of Chumash settlements made by Juan Esteban Pico and Herbert Henshaw includes a Chumash name for Piru "61. El piru Cashtu, Kac-tu'" . Harrington notes: Fustero: Chumash kashtu = Jam.[Serrano-Jaminot] aKavavea, they used to have a sweathouse at aKavavea. kashtu = Ventureno Chumash. 'the ear' (Applegate 1975:32). The Serrano name also means ear. Whether these were the pre-mission names given by Chumash and Kitanemuk Serrano for the Piru village or were names of a later settlement in Piru canyon is not known. Van Valkenberg identified a site downstream from the Santa Felicia Dam as the site of Akavavi.. He translated the Serrano name as place of the roadrunner"s mortar. Harrington's notes list a place: puhjɨt átiKwishr (Jam.) Means roadrunner's mortar. Only Fustero has known this name.

Richard Van Valkenberg applied placenames to archaeological sites in the Piru area. Most of the placenames were names recorded by Kroeber and Harrington. Unfortunately he was often confused and tried to assign a name to every settlement site.

Development of Southern California Societies

Archaeological research uses physical remains left as a result of human activity to discover the history of development of human societies. Archaeologists have concentrated on the study of settlement, mortuary and quarry sites. However, it is possible for archaeologists to study the entire landscape to discern the history of landscape management. Archaeologists observe changes in artifacts features, and plant, animal and mineral refuse and the distributions of these items to identify changes in past behavior.

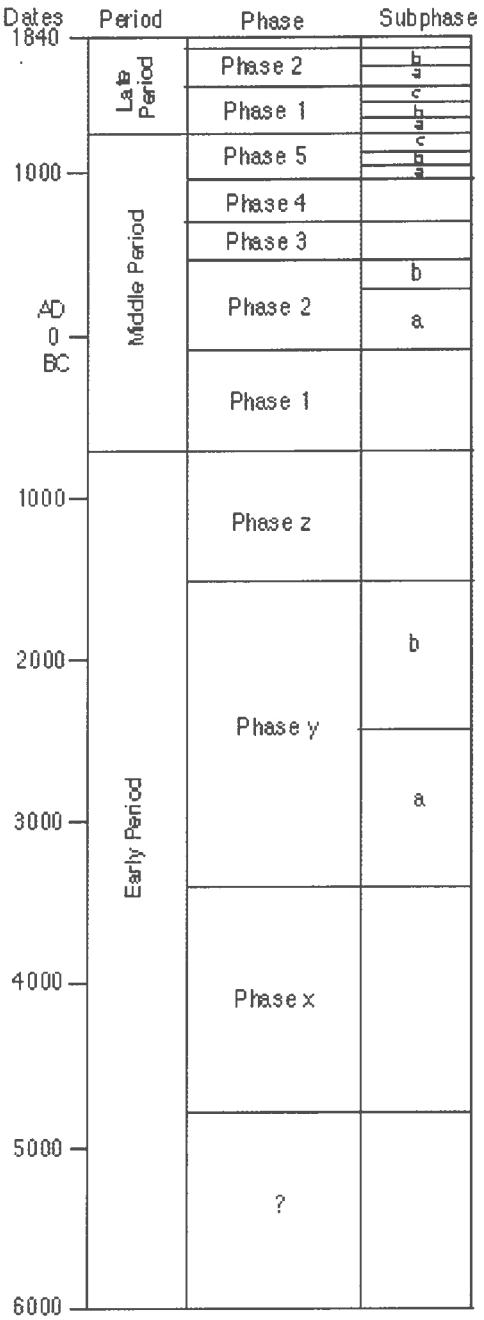
Continuity in mortuary practices and continuity in the development of artifacts used in social activities indicate that Chumash society developed within its historic boundaries for over 7,500 years. It appears that Tataviam society developed within its historic boundaries over the last 2,500 years. The long period of development of Chumash society was possible because, prior to colonization by the Spanish, the Santa Barbara Channel area contained a higher concentration of resources than adjacent areas, and the society occupying the area was more powerful than the societies surrounding it. The length of time during which the indigenous Santa Barbara Channel society developed was long compared to the majority of extant societies that have acquired their territories more recently. At the time of the first European contact, Chumash and Tataviam societies were uniquely adapted to their environments, and were uniquely organized because of their evolution over long periods of time. Most of the information in this section is abstracted from King (1990).

Population increased as a consequence of the evolution of more complex forms of social organization that allow for more efficient use of available resources. Increases in population, in turn, enabled further growth in social complexity. It is possible that a positive relationship between social complexity and population growth, plus the ever present need to maintain societies that could successfully compete with their neighbors for available resources, explains all observed changes in the evidence for social organization. Adjustments in the organization of bordering societies relating to immigration of social groups, may explain apparent rapid social changes. It is possible that climatic changes, over-exploitation of resources, or other non-social changes provided impetus for some social modifications.

Information concerning changes in the distribution of activities at sites is important for reconstructing social evolution. Studies of California Indian societies have related historic documentation of distribution of settlements and types of artifacts, with specific archeological sites and artifact types. This has enabled the establishment of baselines that have assisted in the interpretation of the archeological record. California archeologists have emphasized two lines of research that use historic sources to aid in the understanding of archeological remains. One is the study of settlements and the other is the study of artifacts used to maintain social organization.

Because Chumash and Tataviam societies tied together many different areas by trade, religion, and political alliances, the study of the evolution of Chumash and Tataviam societies entails research concerning the development of society in all areas of Chumash and Tataviam territory. Archeological sites in the Piru Creek and adjacent areas are important because they contain a unique record of the development of Chumash and Tataviam society and the interface between these societies.

Research concerning the archeology of central and southern California has resulted in the recognition of a sequence of at least fifteen periods before Cabrillo's 1542 voyage and two time periods after it on the basis of changes in ornaments, beads, and other artifacts. Continuity in the development of artifacts used to maintain social relationships, continuity in burial practices, and the absence of closely related languages, indicate Chumash society developed locally in the Santa Barbara Channel region from Early period societies (King 1990). The adjacent figure indicates the approximate duration of each recognized time period. Archeological data indicates that the beginning of the Middle period around 2,800 years ago in the area historically occupied by the Tataviam and related Tongva was marked by the establishment of cremation mortuaries. It appears that the Tataviam and related Takic speaking groups are the descendents of Uto-Aztecan speakers who moved into Southwestern North America, 2,500-3,000 years ago.



Sequence of time periods recognized in Southern California prehistory. Time periods are based on the sequence of changes in beads and ornaments (King 1990b), Correlations with calendar dates are based on interpretation of carbon 14 dates and cross dating with Southwestern and Great Basin sequences. The dates of the begining and end of many phases and subphases have not been determined, Serriation indicates that the discovered sequence is complete after Phase z of the Early period. Prior to Phase z it is probable that bead and ornament which have been studied do not represent a complete sequence. The bead and ornament sequence discovered for southern California is similar to the sequence discovered in Central California (Bennyhoff and Hughes 1987).

Evidence of Earliest Occupation

Knowledge of occupations during the Pleistocene in southern California is very limited. This is due to several causes including the small size of early groups and the limited potential that charcoal, bones, and shells will be preserved in earlier sites. Some early coastal sites were probably inundated or eroded away by the rise in sea level associated with the melting of ice at the end of the Pleistocene. Also, it is difficult to define the earliest occupations at most early sites due to poor preservation of stratigraphic features. The earliest date of human occupation in the Piru area has not been determined, although it is believed that the area was settled by human populations prior to 11,000 years ago when human occupation throughout North America is documented by archeological evidence. The association of large fluted points in stratigraphic contexts with large Pleistocene animals at sites in the Great Plains and the Southwest indicates that the earliest populations in the western United States hunted large game animals. Recent discoveries of large fluted points on the California coast, including one in western Santa Barbara County, in addition to those found at Tulare Lake and at dry lakes in eastern California indicate the presence of early large game hunters in southern California. The end of the Pleistocene was marked by a climatic warming and resulting changes in environmental conditions which led to extinction or geographical displacement of most Pleistocene large animals. The changes in plants and animals caused by a changing environment, coupled with the growth of human populations resulted in changes in subsistence patterns.

Early Period

The Early period, which dates from approximately 6000 to 800 B.C., is the earliest period identified by archeologists in California that contains the preserved remains of permanent settlements with associated cemeteries. Types of ornaments, charms, and other artifacts changed little throughout the period, although the numbers of artifact types increased indicating a growth in social complexity. Several cemetery and residential contexts have been excavated in Chumash territory that are approximately 7,000 years old. Artifacts and food remains recovered from these contexts indicate that people living along the coast were fishing with bone hooks, using boats or rafts to trade with the Channel Islands, and occasionally were taking sea mammals and large fish. The presence of deer bones, other animal bones, stone points, and knives indicates that hunting was also important.

Early mainland residential sites frequently contain large numbers of milling stones (manos and metates) used to process seeds. The mortar and pestle, historically used to pulp acorns and islay (wild cherry pits), although present, are not found in large numbers in sites occupied during the earlier part of the Early period. After 3-4000 BC mortars began to be frequently used. Because large seeds such as acorns and islay are not as consistently produced as smaller seeds, their use as staples required storage of large quantities for use in years of low crop yields. Obtaining and using new sources of energy required the development of a society able to store more food and make greater capital investments, such as building large boats and making large nets. The storage of ample amounts of food enabled people to increase their reliance on crops with widely fluctuating yields. There was a comparable increase in reliance on marine fishing on both the mainland and the islands.

Most early settlements consisted of small hamlets defensively situated on elevated landforms. During the Early period, some settlements increased in size with the largest containing several hundred people. Large settlements were often less defensively situated than their smaller predecessors. Analysis of artifacts used to maintain social relationships and their distribution in mortuary contexts indicates that political power was largely dependent on the acquisition of wealth and ritual power (King 1990).

Differences have long existed between archeologists concerning the permanence of Early period settlements. This diversity of opinion is a result of both inadequate information concerning the range of types of Early period sites and the absence of a consensus regarding the causes of permanent settlements. The discovery of cemetery areas at many excavated Early period sites, the similar frequencies of artifact types found at most sites, and the frequent presence of later time period residential sites near Early period sites have been interpreted as reflecting the use of many Early period sites as settlements (King 1990). Large Early period sites are surrounded by smaller, and possibly less permanent sites, of the same period. The distribution of sites indicates that Early period populations were distributed differently than those of the Middle and Late periods. Evidently, during the Early period, regional ceremonial centers were located at a few large settlements at major features of the landscape such as points and sloughs. During the latter part of the Early period, these centers were large even in comparison with historic villages. Away from major centers, small to medium sized Early period settlements are found near historic settlements and other Late period sites as well as on ridge tops, where little evidence for long term occupation during later periods has been found. It appears that between large Early period regional centers, most settlements were smaller and populations more dispersed than during later periods. Visits between settlements may have resulted in seasonal and even longer abandonment of many small settlements.

Differences in the contents of burial lots found at large and small Early period settlements on Santa Cruz Island indicate that the occupants of large ceremonial centers had more valuable ceremonial regalia than those of small settlements. The inhabitants of small villages probably lived at more than

one settlement during the year, and the inhabitants of large settlements may have maintained only one residence. Although the Early period settlement pattern apparently resulted in the formation of many sites which were not continuously inhabited, the degree to which the population was sedentary may differ little from the period of European conquest.

Middle Period

The end of the Early period and the beginning of the Middle period (ca. 800 B.C.) is marked by changes in ornaments and other artifacts, as well as changes in the organization of cemeteries which indicate the development of hereditary control of political and economic power. The presence of separate cemetery areas containing a predominance of either ritual objects or wealth objects at early Middle period sites indicates the presence of a system of checks and balances between chiefs and priest-judge-executioners. At the beginning of the Middle period, the more powerful ritual objects, such as stone pipes, libation vessels, stone effigies, and pointed charmstones, were owned by people who were not political leaders but who had inherited rights to perform rituals. Similar systems of checks and balances were necessary to maintain stability in social systems throughout California, and these systems evolved shortly after the development of hereditary leadership positions. Similar changes in social organization occurred at the time of the Early-Middle period transition throughout North America and were accompanied by migrations into areas that were marginal to major population centers.

There was a tendency over time to choose less defensive village locations as villages became integrated into larger political units, and those away from important boundaries were less often the focus of surprise attacks. Changes in warfare and settlement situations indicate that, as economic integration increased in importance, there was a corresponding increase in the importance of political integration of large areas to protect the operation of the economic system. The importance of reducing warfare to enable trade is indicated by descriptions of Chumash traditional history recorded from Fernando Librado by John P. Harrington. The descriptions indicate that one reason for the political integration of the Lulapin (central Chumash) was to reduce warfare that adversely affected trading (Hudson et al. 1977).

Late Period

Differentiation of bead types indicates the development of new economic subsystems. After ca. A.D. 1100, there was a rapid growth of systems which culminated in the highly developed economic system observed by early Spanish explorers. After the 1542 Cabrillo voyage, many small settlements were abandoned and some of the largest historic towns were founded. This change in population distribution can be attributed to growth in importance of trade centers and the development of more integrated political confederations which were necessary to encourage trade. The economic system enabled the southern California people to make efficient use of the wide diversity of environments present within their territory. Most of the plants and land animals used as food on the mainland, were completely absent or present in low densities on the Channel Islands. Foods that could be easily stored, such as acorns, wild cherry pits, and seeds, were obtained by islanders in trade from the mainland. Since environments of people living in inland valleys lacked marine resources, fish and other sea foods were obtained from people living on the coast and from islanders trading at mainland coastal villages. The pooling of resources that resulted from the development of the economic system, served to reduce the negative affects of local crop failures (King 1976, 1990).

Religious institutions regulate behavior by molding perceptions of society and the physical world. Changes in the types and distribution of objects used in ritual contexts indicate corresponding changes in religious systems. The rarity of ritual objects in Late period burial lots reflects control over religion by institutions that owned the ritual objects. By the Late period, more powerful objects were controlled by institutions. Changes in whistles, historically used in the organization of ceremonies, indicate a growth in the importance of organized ceremonies. Objects associated with supernatural power, such as charmstones, effigies, and sunstick stones, did not change greatly over time. It appears that many Tataviam ceremonies had their roots in the Early period when objects similar to those used historically were regularly placed in mortuary associations and owned by religious leaders.

Activities and Types of Sites

Archeological sites are places where human activity has altered the earth. The sites of the villages that were recruited from by the Spanish missions are located in places where settlements were occupied during most of the last 8000 years. Between these sites are sites of other settlements occupied during preconquest periods when there were more but smaller settlements. Most people apparently inhabited the major settlements during most of the year. In addition to permanent settlement sites, other sites were occupied during particular seasons while people were conducting activities away from their villages. These camp sites include sites occupied while gathering and roasting yucca and sites occupied while gathering acorns. Presence of grinding tools at small sites in the near vicinity of larger apparently contemporary settlements indicate that people sometimes stayed overnight in the near vicinity of settlements perhaps some Early period sites are the remains of field houses where people lived to scare off animals before harvests. Some sites may be camps used by people attending ceremonies. In addition to occupation sites, archeological sites include ovens used to roast yucca and other foods, bedrock mortar sites used to process acorns and

other seeds, rockshelters used for storage, sites where stone materials were quarried, rockshelters that contain pictographs (paintings) and rocks with cupules (circular depressions).

Historic and archeological data indicate the settlements contained houses, storehouses, dancing and game areas, and cemeteries. Communal structures, including sweat lodges and menstrual lodges, were also associated with most settlements. The archeological sites that are the remains of these settlements are open air sites that contain visible quantities of shell, shell beads, and remains of plants and animals which were obtained during all seasons of the year. They also contain a wide variety of tool types and usually contain evidence of manufacturing activity including the manufacture of arrow points, mortar and pestle manufacture, and bead manufacture. Most of these village sites were adjacent to bodies of freshwater and large springs and were along the major corridors used for travel through the area.

Non-village protohistoric occupation sites have smaller midden areas than most village sites and were usually vacant during most of the year. These sites include areas with rock paintings and places where raw materials were obtained for stone artifact manufacture. Information concerning the full range of protohistoric, non-village sites has not been obtained due to a lack of emphasis on systematic excavation at these sites. Non-village occupation sites were usually only occupied during particular seasons and were the activities conducted at them were often limited to gathering and processing a small range of resources. There are a wide variety of sites in this category. Carbonized plant remains are good indicators of types of gathering activity and season. Unfortunately, they have not been systematically recovered or studied from many sites and the seasons that sites were used can not be established with much confidence from available sources. At CA-VEN-1020 in the Simi Hills, residential areas were often apart from yucca ovens (King et al. 1991).

Many Yucca ovens have been identified in the territory of Tataviam who lived in an area with many large stands of *Yucca whipplei*. A yucca oven was excavated at Vasquez Rocks at site CA-LAN-373. CA-LAN-373 contained no flaked stone or other artifacts. Excavations encountered charred yucca shoots at 30 cm (12 inches) below the surface of the site. The pit was from 45-60 cm (18-24) inches deep and 240-270 cm (eight or nine feet) in diameter. The bottom of the oven was lined with larger rocks than were found in the fill which contained rocks broken by heat during firings of the oven. The CA-LAN-373 oven was not used after the burial of a young woman in the oven (Allen and Hanks 1970). Over 20 yucca ovens were identified during an archeological survey of an area extending in a radius approximately 3 miles around Vasquez Rocks. They were identified on the basis of surface observations of areas of dark soil that contained white calcined rocks. It was concluded that the main determinants of oven location were: 1) the presence of fuel which could be used to fire the ovens, 2) the presence of an area of soil which could be used as a matrix for the pit, and 3) the presence of dense stands of yucca in the vicinity (King 1974: 15-16). A yucca oven feature was also excavated in a Middle period site in Elderberry Canyon (CA-LAN-324) (now under Castaic Reservoir). This feature was described by Jon Ericson. He noted "the size and angularity of the rocks in the feature increased with depth terminating at the sterile layer approximately 90 centimeters below the present ground surface." He observed that the rocks exposed in a section through the oven feature indicated the presence of two ovens, "one later and shallower oven overlaying an earlier and deeper oven" (Ericson 1972:16, 22, 37-43).

A large yucca oven was excavated in a Middle period component of the Serrano or Tongva village of Tuhunga. Many large ovens were also excavated to the north along the lower Cuyama River near the Chumash village of Huenejel in sites with Middle period and Late period components. These ovens ranged between 1.5-2 meters in diameter and 1-2 meters in depth. The ovens often had a layer of charcoal at the bottom. The pits were lined with fire blackened cracked and fused cobbles of various sizes. Ash deposits were above these rocks and the pits were filled with layers of rocks (Martin and Satow 1971: 22-27, 32, 55-57, 79-80). Yucca ovens have been excavated in the Las Flores ranch area in the upper part of the Mojave River drainage. Carbon dates indicate they were used as early as 1000 BC (Phil DeBarros, personal communication 1991). Yucca ovens were apparently used in all areas of California where there are substantial stands of *Yucca whipplei*. They are found in village sites as well as in soil deposits near stands of yucca and firewood.

In addition to the types of archeological sites that were created during the protohistoric period, a similar range of sites was created during earlier periods. During many time periods, there were more settlement sites than there were during the protohistoric period. During earlier time periods, populations were often dispersed among more small settlements. Observation of greater nucleation of protohistoric settlements is consistent with similar observations in other parts of southern California.

Features Associated with Food Processing

Food was cooked by boiling in baskets or pots, roasting on coals or rocks, parching with coals, and steaming and baking in earth ovens. Hearths (used for roasting or to produce coals) and earth ovens are features that can be observed in the archeological record. Artifacts used for harvesting, hunting, fishing, food preparation, or to make or repair artifacts used for these activities are also part of the archeological record.

Barrett and Gifford reported the following concerning Miwok cooking which was similar in most respects to Chumash cooking:

> Stone boiling in baskets, boiling in steatite vessels, baking or steaming in the earth oven, parching with hot coals in a basket, broiling over coals and roasting in hot ashes and coals were the principal methods of cooking ...
>
> The larger mammals were skinned and sliced with the obsidian knife and broiled on the coals of the open fire, though sometimes boiled. The smaller mammals were sometimes roasted directly on the coals or in hot ashes, either whole, skinned or eviscerated. In the later case coals were put inside to make the cooking more rapid and even.
>
> Birds and fishes were usually roasted whole in the ashes and picked or skinned after cooking. Sometimes they were opened first and live coals placed within to facilitate the cooking (1933:138)
>
> Bulbs, greens and grasshoppers were cooked in the earth oven, which was a pit in the ground. This was thoroughly heated and lined with a layer of hot stones, over which was placed a layer of green leaves ..... Upon these a layer of food was spread. This was covered with more leaves and then a layer of hot stones, then more leaves, more food, more stones and so on until the pit was filled. Finally a layer of earth was heaped over the pit and often a fire built on top of it. The baking proceeded throughout the night, or sometimes for twenty-four hours. This oven, with the heated stones interspersed so as to evenly distribute the heat, would remain at a reasonable temperature for many hours, and the food would be hot and delicious almost anytime during the following day. Sometimes water was poured around the edges of the oven in order to steam the food. If several families cooked in one oven the lots of food were separated.
>
> Hot stones for boiling or baking were handled with two wooden sticks, pointed at one end. The pointed ends were used to hold the stones (1933:139).
>
> The earth oven for the bulbs [of Harvest Brodiaea] consisted of a hole about a foot or foot and a half deep and three feet in diameter, excavated with the digging stick. Stones were heated in a fire beside the pit. When the fire had burnt down the coals were raked into the pit and the hot stones put on top of them. Over the stones were put the broad leaves of the *Wyethia helenioides* Nutt. When the stones were completely covered by the leaves, the bulbs were poured into the pit to a depth of about six inches. These bulbs were covered with leaves, on which hot stones were placed. The whole was covered with earth. Then water was poured around the edges of the pit, so that it worked down to the hot stones and coals, thus producing steam for the cooking which lasted about one hour (1933: 156).

Earth ovens were used by the Wintun and other California Indians to bake acorn bread. Concerning the Wintun, DuBois reported:

> To bake [acorn] bread, rock-lined pit heated for nearly one day; rocks then covered with maple leaves; damp flour patted into this pit oven and covered with leaves, dirt, and rocks; finally a fire built over pit. Allowed to cook all night, next morning bread done. Was of a rich greasy consistency; would keep for months. Distributed like other foods, to all members of local group. A baking considered necessary every week or two (1935: 19).

Harrington recorded the use of earth ovens for cooking Brodiaea and yucca; most descriptions are of their use for cooking yucca (Hudson and Blackburn 1983: 213-214). One by Fernando Librado describes the cooking of Brodiaea:

> The cacomite [any edible bulb, but especially Brodiaea (*Dichelostema pulchellum*)] they roast in pits, then take it out and spread to dry, one or two days later, they take it and gather it and put it in a dish and rub it between their hands and then winnow it in an abalone shell a little at a time [JPH/FL:Craig 1967:117].

Ovens have been recognized in the archeological record. The most thoroughly studied have been yucca ovens found in the area of the Tataviam and southern Chumash. Some archeological reports describing yucca ovens are Allen and Hanks (1970), Ericson (1972), and Johnson (1966).

Ovens were probably often used in the spring to process soaproot and Brodiaea bulbs and for steaming greens. Ovens used for amole cooking were possibly larger and contained rocks heated to higher temperatures than those used for Brodiaea and greens.

Hearths, both stone lined and ash lens types, have been found in Chumash sites. In addition to heating, hearths were used to make coals from oak bark for seed parching, to heat stones for stone boiling or stones for cooking greens, to make hot ashes and coals for roasting meat (especially small animals) and other food including bulbs, broiling over coals, heating stone bowls for boiling, and heating steatite comales for frying. Larger outdoor hearth like fires were used for roasting large animals on spits.

Rocks were apparently chosen for their heating qualities. Fire altered rock found in archeological sites should therefore reflect the types of cooking. For example quartzite (conducts heat well) was probably often used for stone boiling and sandstone (holds heat well) for ovens (Pierce 1984).

Artifacts used to Process or Obtain Food

In addition to features and fire altered rocks, other types of artifacts indicate the activities which were conducted at sites. Most of these artifacts are portable and many were used to process stored seeds or other stored foods as well as crops which were being harvested and can be expected at any site where meals were prepared. These types of artifacts are expected to be found in most sites. The frequencies of types of tools should reflect the types of equipment which was being used to obtain and process food and the equipment should reflect the activities of the occupants of sites. Both artifacts which were parts of equipment such as stone arrow points and artifacts used to manufacture and repair equipment such as spoke shaves and shaft straighteners should indicate the types of equipment which was being used. Descriptions of many of the artifacts used by the Chumash and Tataviam have been presented by Hudson and Blackburn

(1982,1983, 1985, 1986, 1987).

Expectations Regarding the Contents of Archaeological Sites

Identification of the time of the year temporary sites were used can be based on the expected frequencies of evidence of activities. Differences in the artifacts in relationship to similar differences in artifacts found at various sites used during the same time periods, can be used to reconstruct and explain the function of the sites. Ethnohistoric data shed light on the types of activities conducted at different types of locations. Ethnohistoric data indicate types of artifacts used to process different foods and manufacture and maintain artifacts used to obtain or process foods. Some processing probably occurred at sites used while gathering foods. The adjacent table indicates the locations, types of activity, months of activity, and archeological remains expected to be associated with important food gathering activities.

Activities conducted away from permanent settlements resulted in the formation of camp sites. Each type of camp site was determined by the particular undertakings of the occupants at that site. Most camp sites were used while harvesting

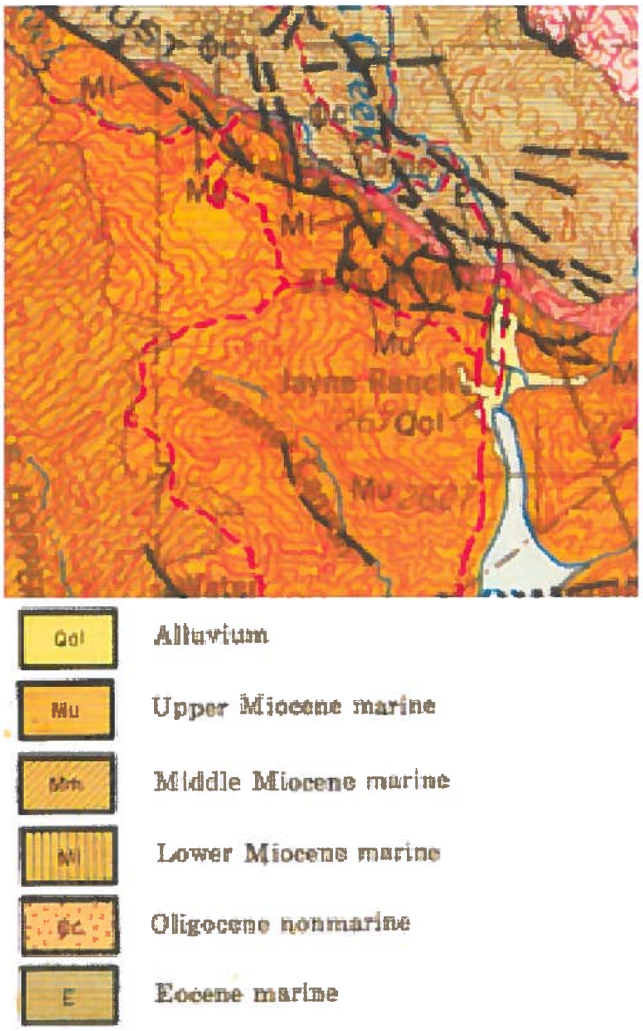
Setting	Activity	Months	Archeological Evidence
Ridge tops and foothills	early winter greens gathered, late winter and spring yucca collected and bulbs dug	February--April	Ovens for baking yucca and bulbs and steaming greens, burned yucca and bulb parts also expected. Also artifacts and features associated with hunting and camping including hearths. The hunting of quail and other animals might have been done with the use of traps, tools used to make and repair traps may be present. The remains of postholes of pole structures for supporting mats and house depressions may be present at some sites.
Open areas-beginning in thin sandy soils of foothills and ending in clay soils of valley bottoms	seeds harvested	April-August	Burned chia and other seeds and carbonized oak bark used to parch seeds are expected at seed gathering sites as well as mortars and pestles. The remains of postholes of pole structures for supporting mats and house depressions may be present at some sites.
Chaparral	manzanita was harvested	July-September	If people stayed overnight, artifacts associated with hunting and camping including hearths are expected. Also burned manzanita berries and seeds.
Wetlands	seeds gathered	August-September	Burned seeds of species which were gathered, carbonized oak bark used to parch seeds, mortars and pestles.
Chaparral	islay gathered	September--October	If people stayed overnight, artifacts associated with hunting and camping including hearths are expected. Also burned islay hulls.
Riparian	berries and greens gathered	June-September	If people stayed overnight, artifacts associated with hunting and camping including hearths are expected. Burned berries may be present
Riparian	acorns gathered	September-November	Carbonized parts of attachment scars and hulls, fire altered rocks, quartzite or other rocks which conduct heat well may be present and fire altered. Artifacts associated with hunting and camping including hearths are expected at acorn gathering camps. The remains of structures may be present at some sites.
Riparian	toyon berries gathered	November--February	People possibly camped overnight and left artifacts associated with camping. Burned berries may be present.

Activities and Expected Archeological Indicators.

plant and animal foods. Different places were chosen during the year depending on their proximity to particular resources. This resulted in the formation of a variety of camp sites. Sites associated with the gathering of crops might have included temporary structures covered with tule mats, although many camps possibly did not contain structures. The population of camps was small, consisting of less than 30 people. Locations of food resources that were important would determine the general location of many camp sites. The full range of variability, including length of stay and range of activities, has not been defined with archeological data for most camp sites.

Stone Resources in the Potholes Allotment

The adjacent geological map indicates the Potholes allotment is entirely within Upper Miocene marine sediments. Small pieces of silty chert were observed along the potholes trail. There are apparently no sources of chert in the area that were used for tools. Our observations at archaeological site 55-161 indicate that andesite cobbles were the most important stone tool material obtained from local sources..



Geological map of project area (from Charles W. Jennings and Rudolph G. Strand, 1969)

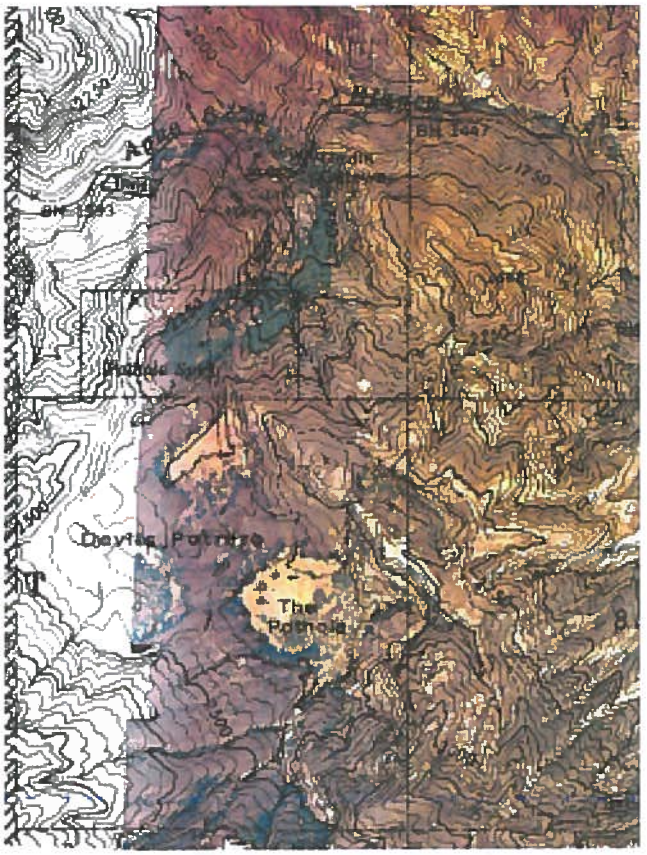
Landscape of the Potholes Allotment

A large portion of the area included in the Potholes allotment is steep mountain terrain. Areas suitable for cattle grazing include flatter areas in the vicinity of Jayne Ranch and flatter areas in the eastern part of the allotment including The Pothole and Devil's Potrero.

The Pothole, Devil's Potrero and Pothole Spring were created by a large prehistoric landslide. The landslide created areas where soil and water are concentrated. The concentration of soils and water in this area provide an environment that supports unique plant resources. The landslide blocked of drainage out of a large area and created "The Pothole"; a feature that might be called a vernal lake. The Pothole is a flat bottomed depression that is approximately 70 feet deep and drains only by percolation through landslide and old valley floor sediments.

The Devil's Potrero is a large meadow with deep colluvial and alluvial soils. It was also formed by a finger of the landslide that blocked of drainage but the drainage breached the landslide after the area filled with alluvial soils. The Devil's Potrero drains down to Pothole Spring.

The Pothole Spring is a large marsh fed by water percolating through sediments to old bedrock surfaces in The Pothole



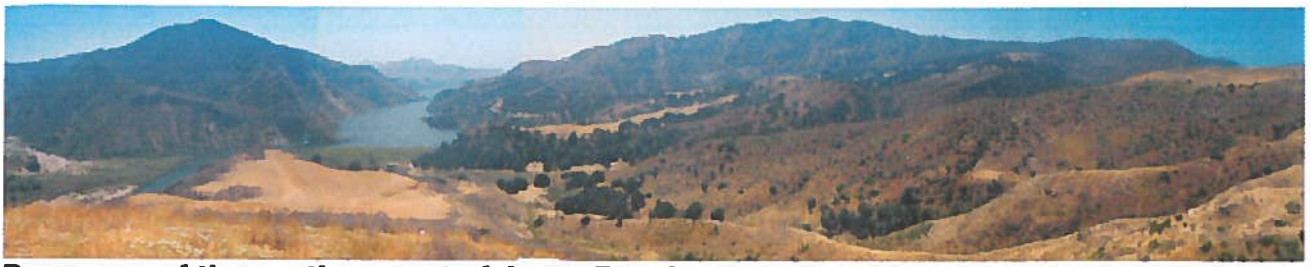
Air photo of the potholes area with superimposed contours.

The Pothole

and Devil's Potrero. The spring provides a permanent source of water and supports a large area of wetland vegetation including Cottonwood trees. The higher land immediately northeast of the spring marsh is relatively flat. The spring is within an inholding and is immediately north of the allotment boundary.

The eastern part of the allotment drains east into Piru Creek and Piru Lake. Truly flat land is only present in small alluvial valley areas long the lower parts of the largest streams.. Most flatter grazing areas are on the least steep hill areas where soils support grasslands. The air photo with superimposed contours below indicates the largest areas of grassland is in the Jayne Ranch area.

Airphoto of Jayne Ranch area with superimposed USGS Map

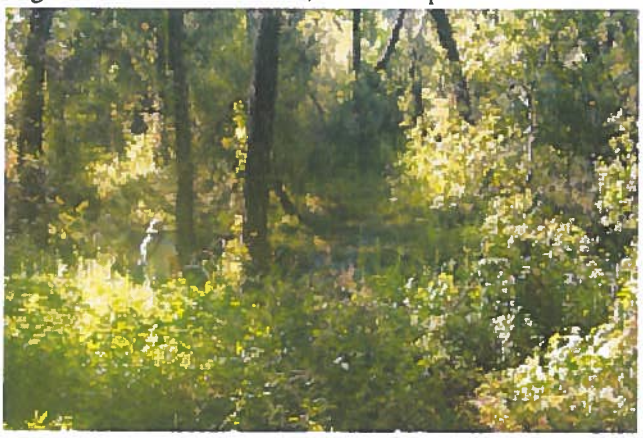


Panorama of the southern part of Jayne Ranch

Panorama of the northern part of Jayne Ranch

Springs and Other Water Sources in the Area

Springs and other water sources have always been important to human and animal occupants of the project area. Human settlements are usually located near water sources. Water sources are also important in determining the distribution of cattle in the grazing allotment.. Prior to the construction of the Santa Felicia Dam, Piru Creek flowed along the eastern edge of the allotment . Now, Piru Lake provides a source of water. Cattle that graze along the eastern part of the allotment use Piru Creek and Piru Lake as water sources.



Pothole Spring

Juan Fernandez Spring is near the southeastern edge of the allotment. It is near Piru Lake and is not the only source of water in the area. A concrete cattle trough and the remains of a plumbing system indicate that this spring was once developed as part of cattle operations in the area. The spring is now heavily trampled by cattle and we observed the skeleton of

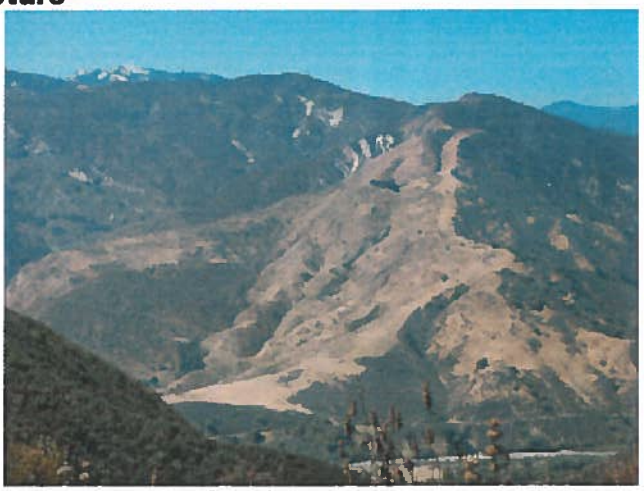
Juan Fernandez Spring

Sycamore Spring

Sycamore Spring

Sycamore Spring from east near center of picture

Sycamore Spring from southwest



Sycamore Spring from east

one cow in the spring. The spring is heavily used by cattle grazing in the area.

Sycamore Spring is not recorded on maps of the Potholes Allotment and has not been developed. This spring and a series of seeps that do not now flow on the surface were observed during our survey. This spring is approximately one kilometer west of Piru Creek and there are apparently no other regular sources of water in its vicinity. Development of cattle trails and intensity of grazing in the vicinity of the spring indicates that cattle that graze in the area north and west of the spring use the spring as a source of water. This spring or a similar seep located closer to archaeological site 55-161 probably were the water sources for occupants of the site.

Potholes Spring is the largest and most permanent spring in the vicinity of the grazing allotment.. The spring and the potholes are in the Sespe Wilderness Area and cattle no longer use the area. Black bears live neat to the spring and use it as a source of water and plant foods.

Plant Resources in the Potholes Allotment

During our survey we observed the presence of vegetation important to native people. Many of the areas with clay soils contained stands of Tarweed *(Hemizonia fasiculata)*. The seeds of these plants were an important food for southern California Indians. Live oak trees and walnut trees on northfacing slopes and along riparian areas were sources of acorns and nuts. In chaparral areas, Islay (*Prunus ilicifolia*) were important sources of nutmeats and Manzanita bushes provided fruits that were dried and used to make cider by most California Indians.

Three plants important to native societies, not found frequently in many places south of the study area are tobacco, Chiquihulte and Indian-hemp. Stands of these plants were found in the Pothole, the Pothole Spring and in the Devils Potrero.

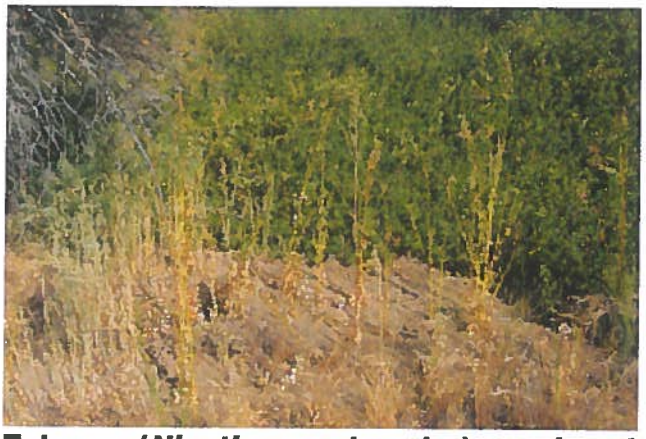
Chiquihulte (*Rhus trilobata*) was found in dense stands near the western end of the Potholes Trail, around the perimeter of the meadow at Devil's Potrero and in the lower area between The Pothole and Devil's Potrero. Timbrook wrote:

> *Rhus trilobata* Nutt. ex T.&G.) Chiquihulte; shu'nay (B), shuna'y (I,V). Shoots used split and peeled in coiled basketry, whole in twined baskets, reinforcing for carrying nets, armatures for dance headdresses; bundles of stems used as brooms [1990:250].

Indian Hemp (*Apocynum cannabinum*) was a rarer and more important source of fiber. We observed stands of Indian Hemp around the margins of the Pothole meadow and at Pothole Spring. The wetland areas at the Potholes apparently provide an ideal environment for growth of Indian Hemp. Timbrook wrote:

> *Apocynum cannabinum* L. **Tok** (B,I,V) Bast fiber for cordage used in making bowstrings, fishing lines,

Tobacco (*Nicotina quadravalus*) at Devil's Potrero



Tobacco (*Nicotina quadravalus*) margins of meadow at Devil's Potrero

construction, nets, clothing, ornamentation and ritual paraphernalia and for canoe construction [1990:251[.

Smith noted that J.J. Fustero would take lassos (Spanish-*reatas*) made of native grasses to Los Angeles to sell (1969:5). Perhaps they were made of Indian Hemp from the Potholes.

Tobacco (*Nicotina quadravalis*) was valued by the Chumash and Tataviam. We observed stands of Tobacco around the margins of the meadow at Devil's potrero in a zone between the grassland and thickets of *Rhus trilobata*. José Juan Olivas told Harrington that the Chumash name for Fustero's place was kashowshow= V. 'much tobacco'. It is probable that the name referred to the Devil's Potrero. Timbrook wrote:

> *Nicotiana bigelovii* [*Nicotina quadravalis] (Torr.)* Wats. **Pespibata; show.** Leaves ground, often mixed with lime from burned shells, eaten or drunk mixed with water by men as emetic for health and social activity; tobacco smoked principally in curing or ritual contexts. Tobacco -lime mixture drunk to relieve stomach pains, poultice applied as topical anesthetic. Tobacco was an important ceremonial offering [990:25].

Archaeological Research in the Area

The first recorded research in the vicinity of the project area was an expedition of Stephen Bowers on May 22, 1879. He recorded:

> Moved to Santa Felicia Canyon and prospected one Indian rancheria, but found nothing.[Benson 1997:133].

Between 1932 and 1935, the Los Angeles County Natural History Museum sponsored research in the Piru Canyon area.

Indian hemp (*Apocynum cannabinum*) stands around margins of the Pothole

Indian hemp (*Apocynum cannabinum*) stand in the Pothole

Richard Van Valkenberg interviewed local people with knowledge of archaeological sites. Richard Van Valkenberg, Malcom Farmer, Iral Alcock, Eugene Robinson, Arthur Woodward and others assisted in the excavation of many rockshelters in the Piru Canyon area. None of the rockshelters were in the project area.

Robert Lopez conducted research for his masters thesis on the lower Piru Creek drainage. His research began in June 1970 and continued through 1973. He attempted to relocate sites that had been previously reported by Van Valkenberg and checked areas to locate previously unrecorded sites (1974:45-46). In the project area he apparently spent most of his time surveying in the Potholes area. He wrote:

> ,,, for eight days I crawled over every inch of Pot Holes. There was little in the way of evidence of site location, however a very probable location was located in the area of the natural sink but at the time of my survey the location was under about five m. of water [1974::56].

Prior to July 1974, George Roby, Resource Assistant, at the Los Padres National Forest interviewed Dale King and recorded several sites in the vicinity of the project area including a site at the potholes area (05-07-55-2) and the Fustero monument (05-07-55-7) immediately east of the grazing allotment.

Recent surveys within the project area, include a survey of the Potholes Trail, a survey of Juan Fernandez Spring and two surveys of Piru Canyon Road (Schub 1990, Stellmacher 1991, Lopez 1997, and Lopez 2000), None of these surveys discovered archaeological sites in the project area. The Hopper Fire study involved survey of the road and recorded an historic site (VEN-1562H) on the east side of the road (Lopez 1997). This site is adjacent to the east edge of the project area.

James Lopez conducted pre-field research for the Potholes Allotment and preliminary research concerning the adjacent Piru Allotment to the east of the project area.

Description of Archaeological Sites

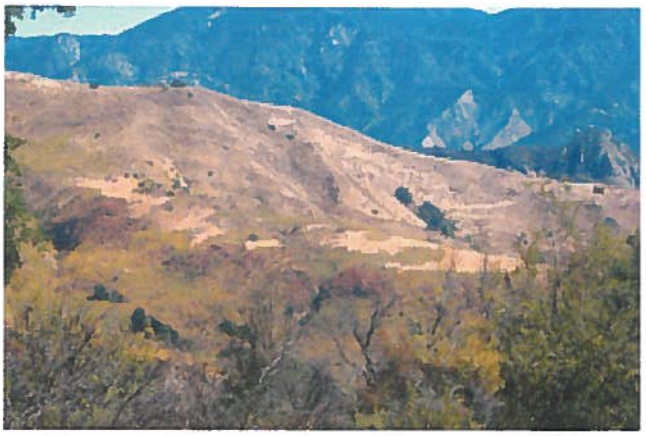
Mano-Hammer Site (55-161)

The "Mano-Hammer Site" (55-161) was discovered by our survey on July 30, 2001. The site was identified by the observation of two manos, core hammerstones an end battered hammerstone and a pulping plane on its surface.. We returned to the site to more thoroughly survey the area and locate nearby springs on September 11, 2001. During our second visit, we located additional artifacts in a larger area.

It appears, the site was occupied only during the Early period. The site is on a hilltop with a good view of the surrounding area. This is the type of location often selected for Early period settlements. Artifacts found at the site include two biface manos, a basin metate fragment, and a very patinated chunk of fused shale. These artifacts characterize Early period occupations. No evidence of later occupation was observed. Sycamore Spring is 350 meters east-northeast of the Mano-hammer site. The Spring may have served as a water source for the site. Sycamores and other plants found at Sycamore Spring are present in a situation similar to Sycamore Spring 100 meters east of the site. This location was possibly used as a source of water by occupants of the site.

Air photo of Mano-hammer site and Sycamore Spring

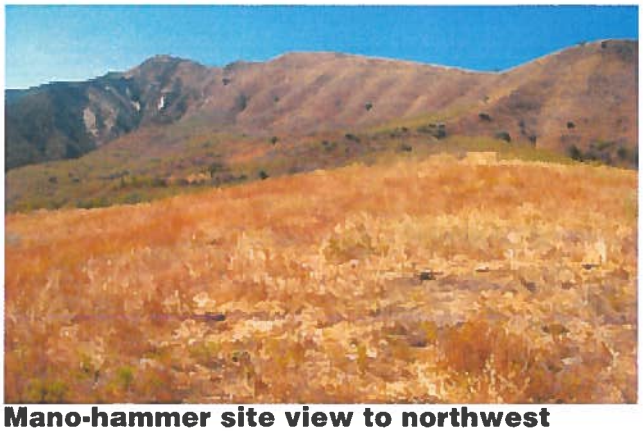
Mano-hammer site view to west



Mano-hammer site view from southwest

Mano-hammer site closeup from southwest

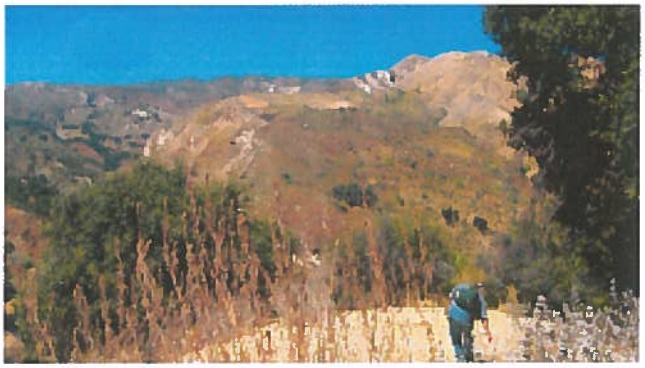
Mano-hammer site view to southeast



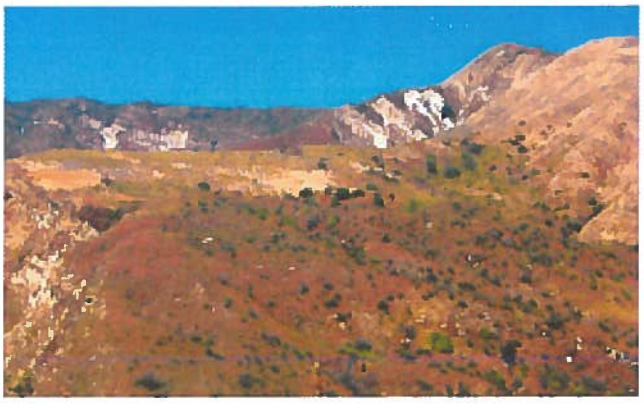
Mano-hammer site view to northwest

View of mano hammer site from east

View of mano hammer site from south



View of mano hammer site from southeast



Closeup view of mano hammer site from southeast

Artifacts from the Mano-hammer site

Artifacts from the Mano-hammer site

Mano-hammer site from north end of site

Mano-hammer site closeup

Map of Mano-hammer site showing locations of artifacts illustrated on previous pages. Numbers correspond to numbers with illustrations

Mano-hammer site from Potholes Trail view to southeast

The site is in an area of clay soils and there is a high concentration of Tar Weed (*Hemizonia fasiculata*) in the area.

The artifacts found at the site are illustrated on the proceeding two pages. The map to the left indicates the locations of artifacts found on the surface of the site. The artifact distribution indicates that the site is approximately 80 meters long and 25 meters wide. It is probable that most artifacts at the site are near the base of the soil as they are at similar sites where bioturbation results in the formation of rock layers (Pierce 1988, 1992). The groundstone and hammerstones are concentrated near the crest of the hill and are in locations similar to the locations where the same types of artifacts associated with residences at other Early period settlements.

Fustero Ranch (55-7)

Richard Van Valkenberg identified the Juan José Fustero Ranch as an archaeological site. There is no information concerning the location, boundaries, or types of artifacts and features that were present at the site. It is possible that the site was first used in 1857 when the Fustero family moved north of the Temescal land grant. Van Valkenberg provided the following information concerning the site.

> 17. Piru Canyon- Fustero Ranch - Küvüng "yellow flowers" The site of the present Fustero Ranch is on the site of Küvüng, a small Haminot village. Juan Jose Fustero, his wife Rosa, and some of his children are buried here. His son Jose still lives on the ranch, and is the last Haminot in the region [Van Valkenberg 1935].

Van Valkenberg did not leave descriptions of many sites including the Fustero Ranch. He did describe sites apparently including the Fustero Ranch site as poorly developed:

> Historic sites in the Piru Canyon show a definite lower San Joaquin Valley influence. The sites are small and poorly developed, this condition indicating that the period of habitation by Haminot in the Piru Canyon was over a rather short period. [Van Valkenberg 1935].

Robert Lopez described the site:

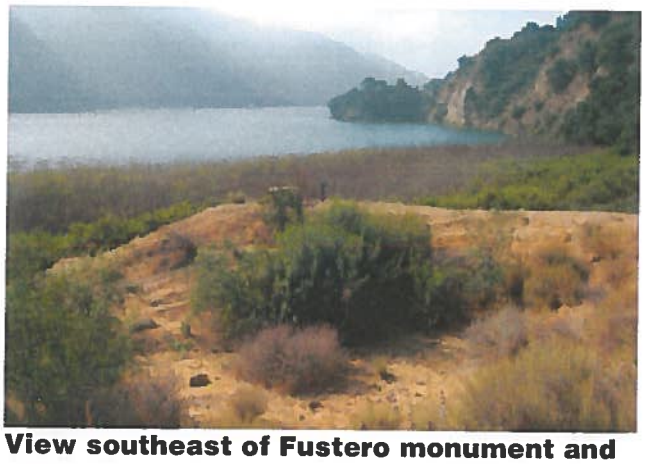
> Kuvung (Koovung) meaning "the place of the yellow flowers" was completely destroyed as a result of the activities connected with the construction of Lake Piru. It was never reputed to have been a large or important village site, however its importance lies in the fact that this was the home of the Fusteros, the last aboriginal occupants of the Piru Creek Drainage Basin. And it was at this site that Juan Jose Fustero, the last full-blooded Allikllik, was laid to rest in 1921 [1974:54].

Lopez does not say where the site was located or how it was destroyed during construction of the reservoir. It may be covered with water and may not be destroyed. Smith said:

Fustero plaque

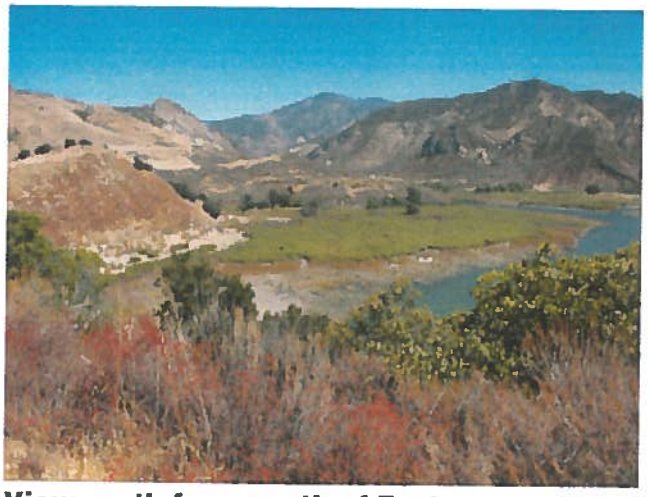
Crucifix and chain on Fustero monument

View northeast of Fustero monument and mouth of Canton Canyon.



View southeast of Fustero monument and Piru Lake

View of Historic site VEN-1562 (55-160)'Bill King place'.



View north from south of Fustero monument of Piru Creek floodplain.

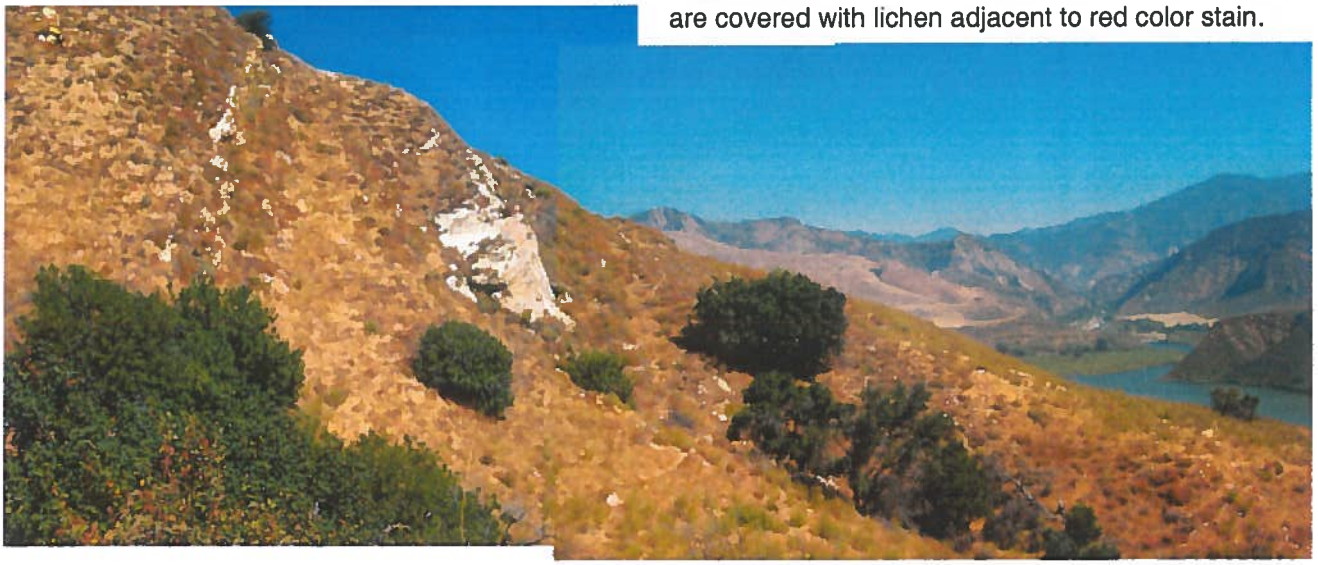
> Juan himself, his father and the two girls apparently were the only members of the immediate family to be buried under what is now lake Piru. When the lake began to fill, a huge round rock was moved to the road above and now commemorates the last of the Pirus with a bronze plaque [1969:8].

The northwest quarter of Section 22, T5N, R18W was pattented to Juan Jose Fustero on October 1, 1883. This was the first land in the grazing allotment transfered from federal lands. (552 CACAAA 076472). The documents in the homestead file should show the locations of improvements made by the Fusteros. It is difficult to understand how Fustero land was transfered to Jayne in 1878 before the homestead was patented as Smith says (1969:5).

The Fustero monument and apparently the Fustero home and cemetery sites are located east of the Potholes Allotment. The Fustero homestead lands extend into the allotment and Fustero may have made improvements within the allotment. Immediately north of the Fustero homestead, Henry C. Dunton obtained a patent on lands along Piru Creek on April 17, 1899 (3321 CACAAA 076483). This was the second homestead in the allotment. These lands were considered by Van Valkenberg to be part of Fustero's land and it is possible that Fustero made improvements in the area. Site VEN-1562 (55-160) is in this area and is immediately east of a flat area within the allotment with a large concrete lined watering hole and scattered historic artifacts that indicate other historic features may be present.

Initials BM in sandstone outcrop.

Back of small shelter without a floor. Areas are covered with lichen adjacent to red color stain.



Bench with granite cobble behind farther large oak. Outcrop is left of oak, view to north

Manuport Isolate

A granite cobble was found on a small bench of land near a stone outcrop with a small shelter. There were nosimilar gravels in the vicinity and it is probable that the cobble was brought to the site. The probable manuport indicates that activities were conducted on the bench.

The initials BM are carved in the outcrop near the small shelter. The small shelter has no floor and consists of a slight rock overhang. The shelter has Giant ryegrass (*Lymus condensatus*) growing infront of it. A resident rattlesnake prevented us from making a thorough examination of the shelter. The rear wall of the shelter is largely covered with lichen. The lichen is outlined in part by an area of red stain.

Bench with granite cobble manuport in front of large oak tree, view from above to south.

Granite cobble manuport

C. King standing in shallow depression in meadow at Devil's Potrero

Closeup of C. King standing in shallow depression in meadow at Devil's Potrero

Pothole Spring - Devil's Potrero (55-2)

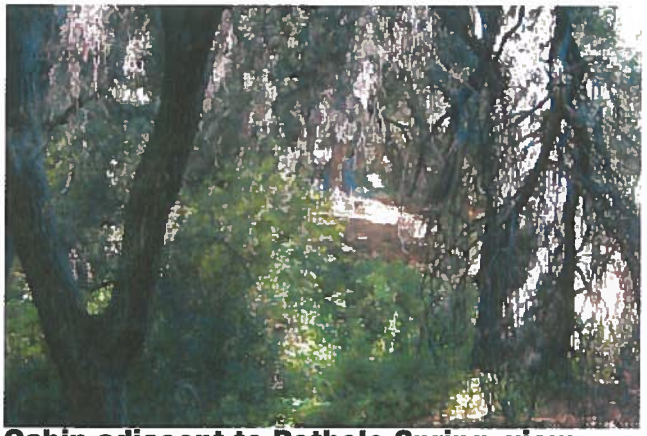
On May 20, 1879, Bowers observed:

> At the narrows, (Devils Gateway on the Agua Blanca) the creek has cut through conglomerate rocks to form a narrow gorge some three or four feet deep and but little more than a rod wide. The scenery is very fine. Here we left the creek and went up to Devil's Potrero where we found an old deserted house. The snow in winter has broken the limbs from the trees. A fine spring rises at this place [Benson 1997:130].

Van Valkenberg interviewed William Whittaker who said "Skeletons were found at the Devils Potrero one mile below the mouth of the Agua Blanca". Van Valkenberg places the site on National Forest land We discovered a depression in the meadow at Devel's Potrero slightly short of a mile south of Agua Blanca Creek. The depression was probably caused by excavation in the area. This may be the location where burials were found.

During our survey on August 2 and 3, 2001, we observed a standing structure, old farm equipment and recent cooking

Cabin adjacent to Pothole Spring, view from east



Cabin adjacent to Pothole Spring, view from east southeast

Inside of cabin adjacent to Pothole Spring,

Inside of cabin adjacent to Pothole Spring,

Detail of graffiti with date 1977 inside cabin at Pothole Spring,

Cooking area adjacent to cabin at Pothole Spring,

Farm equipment adjacent to cabin at Pothole Spring,

areas adjacent to Pothole Spring. The soil on relatively flat land adjacent to the structure is dark and may include prehistoric midden deposits. The ground in most of the area is covered with dried leaves or grasses that reduced our ability to observe artifacts. Old farm equipment at the site was probably brought in over the potholes trail to the inholding. The inholding was sold by the U.S. Land Office to William B. Whitaker on November 16, 1891 (3934 CACAAA 076479).

Cooking area adjacent to cabin at Pothole Spring,

Wagon wheels with axles and plow stacked together adjacent to cabin at Pothole Spring,

Hay rake in draw a short distance north of southern boundary of Pothole Spring inholding,

Significance of Sites

Archaeological sites are places where human activity has altered the earth. Throughout much of Southern California, archaeological sites can be classified into several major time periods. The earliest period represents over 9000 years and ended with the beginning of the Spanish colonization of California in 1769 and the maintenance of archives of historical documents. Present knowledge is much less detailed

concerning this Precolonial period than later periods. The next period is the Mission period which ended in approximately 1834. The Mission period ended with the secularization of the missions and the granting of the best range and farm lands to Mexican citizens. The post mission Mexican period ended when California became part of the USA.

Precolonial sites contain the evidence of the life ways and history of the American Indian societies that developed over long periods of time in California. The societies that lived in the vicinity of the project area relied on the collection of native plants and animals for food and construction material. Archaeological research in California has resulted in the recognition of regularities in changes of artifacts used in most areas of the state. Analysis of collections from the region has resulted in relatively detailed knowledge of changes in many artifacts. Our knowledge of the sequences of house types, settlement plans, and food remains is, however, comparatively limited. Archaeological sites contain the remains of features and artifacts that reflect their organization. Discovery of the history of the Piru Creek area prior to mission recruitment requires study of archaeological sites.

The area is adjacent to an important ethnographic boundary. The Pothole Allotment contains an area with much native tobacco and Indian hemp. The domestication of tobacco may have occured in the area of the Potholes allotment. Further archaeological research in the area has a high potential for increasing our knowledge of California's Precolonial history.

Recommendations

Historic research should be conducted to identify and evaluate historic sites in the Potholes Allotment. The research should include study of homestead patent files and chain of title of the inholdings in the allotment. This research would provide important information concerning how Juan José Fustero obtained and lost his land.

It is recommended that the Mano-Hammer site (55-161) be protected from disturbance by cattle. Cattle should be discouraged from using the site area.

If grading or other excavations are planned in conjunction with spring improvements, road improvements, fence construction or other developments it is recommended the affected areas be evaluated.

If site areas are affected by cattle raising activities data recovery or other treatment programs should be conducted before important information is destroyed.

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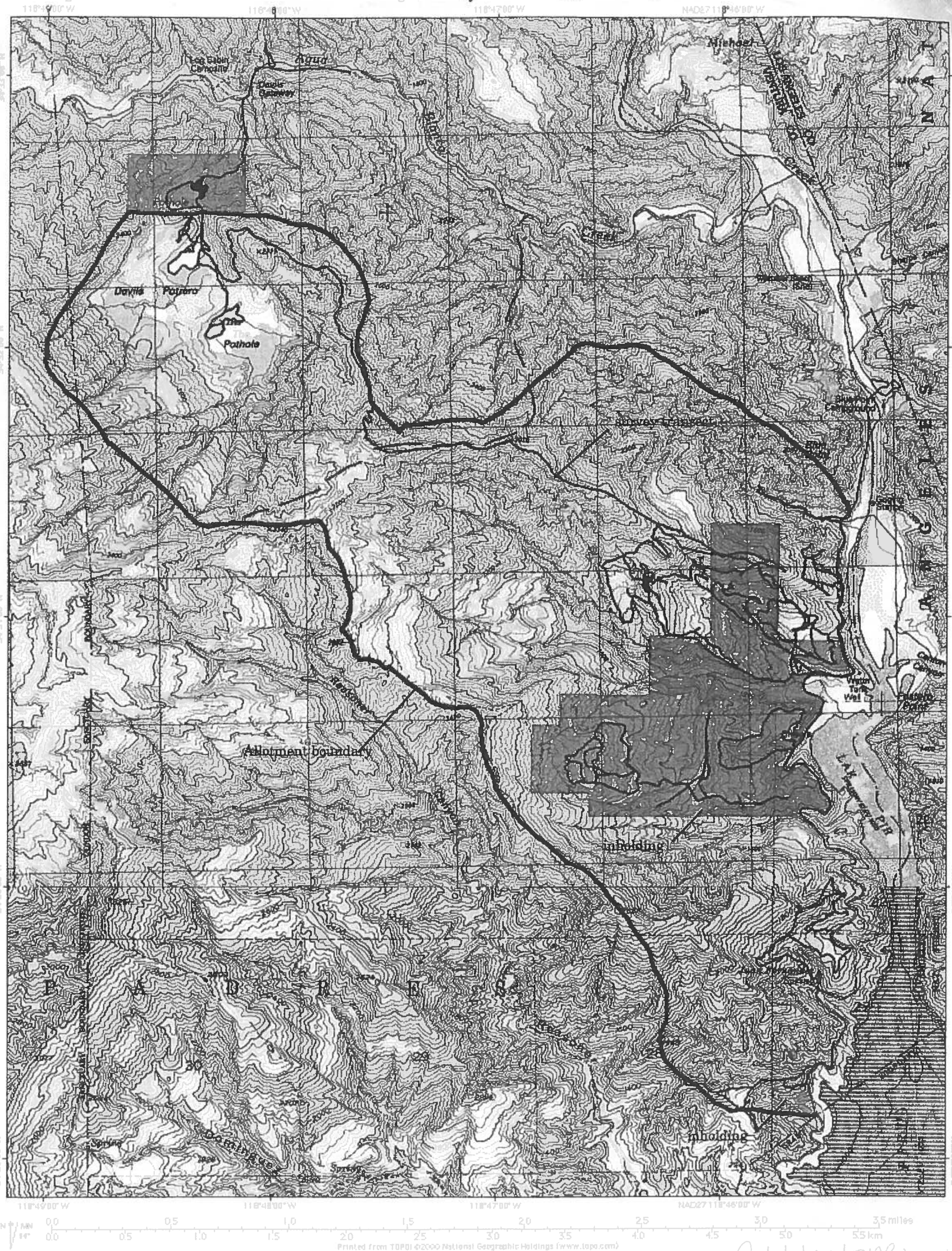
Appendix: Site Records

VN 216 3



Map of Piru Allotment indicating sites, survey transects and inholdings.

Cobblestone

Appendix C

NAHC Response

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
(916) 373-3710
(916) 373-5471 FAX

July 21, 2016

Meagan Szromba
Rincon Consultants

Sent by E-mail: mszromba@rinconconsultants.com

RE: Proposed Pothole Trailhead Parking Area Project, Community of Piru; Cobblestone Mountain USGS Quadrangle, Ventura County, California

Dear Ms. Szromba:

Attached is a contact list of tribes with traditional lands or cultural places located within the boundaries of the above referenced counties. A search of the SFL was completed for the USGS quadrangle information provided with negative results.

Our records indicate that the lead agency for this project has not requested a Native American Consultation List for the purposes of formal consultation. Lists for cultural resource assessments are different than consultation lists. Please note that the intent of the referenced codes below is to avoid or mitigate impacts to tribal cultural resources, as defined, for California Environmental Quality Act (CEQA) projects under AB-52.

As of July 1, 2015, Public Resources Code Sections 21080.3.1 and 21080.3.2 **require public agencies** to consult with California Native American tribes identified by the Native American Heritage Commission (NAHC) for the purpose mitigating impacts to tribal cultural resources:

> **Within 14 days** of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section. (Public Resources Code Section 21080.3.1(d))

The law does not preclude agencies from initiating consultation with the tribes that are culturally and traditionally affiliated with their jurisdictions. The NAHC believes that in fact that this is the best practice to ensure that tribes are consulted commensurate with the intent of the law.

In accordance with Public Resources Code Section 21080.3.1(d), formal notification must include a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation. The NAHC believes that agencies should also include with their notification letters information regarding any cultural resources assessment that has been completed on the APE, such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

   - A listing of any and all known cultural resources have already been recorded on or adjacent to the APE;
   - Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
   - If the probability is low, moderate, or high that cultural resources are located in the APE.

   - Whether the records search indicates a low, moderate or high probability that unrecorded cultural resources are located in the potential APE; and

- If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

   - Any report that may contain site forms, site significance, and suggested mitigation measurers.
   - All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for pubic disclosure in accordance with Government Code Section 6254.10.

3. The results of any Sacred Lands File (SFL) check conducted through Native American Heritage Commission.

4. Any ethnographic studies conducted for any area including all or part of the potential APE; and

5. Any geotechnical reports regarding all or part of the potential APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS is not exhaustive, and a negative response to these searches does not preclude the existence of a cultural place. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the case that they do, having the information beforehand well help to facilitate the consultation process.

The results of these searches and surveys should be included in the "Tribal Cultural Resources" subsection of the Cultural Resources section of the environmental document submitted for review.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance we are able to assure that our consultation list contains current information.

If you have any questions, please contact me at my email address: gayle.totton@nahc.ca.gov.

Sincerely,

Gayle Totton, M.A., PhD.
Associate Governmental Program Analyst

Native American Heritage Commission
Native American Contact List
Ventura County
7/21/2016

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chumashtribe@sbcglobal.net

Coastal Band of the Chumash Nation
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Santa Ynez Band of Mission Indians
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This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Pothole Trailhead Parking Area, Ventura County.

Native American Heritage Commission
Native American Contact List
Ventura County
7/21/2016

yak tityu tityu - Northern Chumash Tribe
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