NATIONAL PARK SERVICE
JOSHUA TREE NATIONAL PARK

Prescribed Burning Unit Plan

BURN UNIT NAME: BOUNDARY II
Project Number: 9801
Funds Available: $9,900

Prepared by: _____ Date 07/26/97
Prescribed Burn Boss Trainee

Reviewed by: Tom Patterson Date 8/1/97
Prescribed Burn Boss/FMO

_____ Date
Chief Ranger

_____ Date
Chief Resource Management

Approved by: _____ Date
Superintendent

Complexity level: 160

Copies of approved plan sent to: NPS-PWFA and Mojave Air Pollution District

I. Burn Unit Description

Location:
T.1S R.5E Sec.23,24 and T.1S R.6E Sec.19
Latitude: N 34 04
Longitude: W 116 25

Drainage Name: Blackrock and Little Long Canyon

Land Form: Hill slope and drainage

Threatened and Endangered Species: Desert Tortoise habitat

Cultural Resources: None

Critical Sites to Protect: None

Size: 120 acres

Elevation (ft.): Top 4200 Bottom 3900 Avg. 4050

Description of Boundaries: The Blackrock Campground and Fire station is immediately east of the burn unit. The park boundary and access road to South Park is north of unit and dirt access road from San Andreas is western end of unit. The south boundary of the unit is the base of the slopes west and above the Blackrock Campground.

Slopes: Max. 20% Min. 0% Avg. 5%

Aspect: N

Vegetation Type	% of Burn Unit	NFFL	NFDRS
Blackbrush scrub	95	5	
Pinyon/Juniper	5	2	T

II. Fuel Loading and Dead Fuels:
Fuel loading by size class: <1/4" = .1 T/A
1/4"-1" = .9 T/A

III Vicinity Map (attached)
Shows relationship of the project to the overall geographic area.

IV. Project Map (attached)
USGS topo sheets show the project, boundaries, line construction and firing pattern.

V. Goals and Objectives:

1. To protect human life and property.
2. To reduce or eliminate not less than 70% of the hazardous fuel threats to life and property by directly reducing biomass or indirectly through type converting blackbrush and Pinyon Juniper range. (reference FMP Sec. 7.3.2)
3. Manage smoke concentrations to insure that it will not adversely impact Yucca Valley.
4. Maintain integrity of burn - no escapes.

VI. Complexity: See attached complexity chart.

VII. Burn Organization:

FBA/FBWS (Jeff Ohlfs) ----- **BURN BOSS** (Keith Kelly/Tom Patterson) ---------- **SAFETY OFFICER** (Keith Kelly)

HOLDING SPECIALIST (Brian Scott) ------- | ------ **IGNITION SPECIALIST** (Tom Patterson)

CREWS
Engine 3632

CREWS
NPS

MOP-UP BOSS
(Keith Kelly)

CREWS
NPS

Total persons needed: 10

VII. Costs:

PROJECTED PERSON HOURS:

	Hours	Projected Costs*
Unit Preparation:	25	600
Burning:	145	3350
Holding:	145	3350
Monitoring:	10	300
Mop-up/Evaluation:	10	300

EQUIPMENT:

		Projected Costs*
Tools:		100
Engines:		100
Fuel:		300
Mileage:		0
Aircraft:		0
Misc.		1500

*Record required actual cost data on attached page.

IX. Scheduling:

Proposed Ignition Date: 11/17/97

Projected Burn Duration: 5 days

Actual Ignition Date: _____

Date Declared Out: _____

Date DI-1202 Submitted: _____

Note any dates when the burn may not be conducted during the proposed window: (out of weather prescription, emergency shut down, etc...)

Air quality-no burn days; Regional prep. level IV or V; out of prescription.

X. Pre Burn Considerations:

A. Preparation Needs:

On Site: Site survey for endangered Desert Tortoise and burrows.

Entire perimeter will be blacklined by summer fire crews beginning after this plan is approved and completed before scheduled ignition date of 11/17/97.

mitigation action & review of plan by USF&W

If weather forecasts indicate that conditions will be at the upper end of prescriptions, a hoselay may be created on the unit perimeters.

Off Site: News release to local media.

B. Special Precautions/Regulations (utility lines historical sites, safety, etc.):

1. All burn personnel will wear the full compliment of Personal Protective Equipment

2. All standard wildland fire fighter safety rules will be strictly enforced.

3. EMT will be on site. (attach Medical Plan)

4. Endangered Desert Tortoise is known to be in this area in low densities. Mitigating measures must be strictly adhered too.

5. Safety briefings will be held by the Safety officer before each shift.

XI. Burning Prescriptions and Observed Conditions:

Fuel Model NFFL: 5

Prescription

Weather	Acceptable Range	Optimum	Observed*
Temperature:	35-85 F	60	
Relative Humidity	below 50%	25%	
Wind Direction:	all	W - SW	
Wind Speed:	2-10mph	5	
Fuel Moisture:*			
1 hour	5-20%	7	
10 hour	<20	12	
100 hour			
1000 hour			
Woody (live)	<50%	<50%	
Herb. (live)	80-130	100	

*At Time of ignition

Prescription

Characteristic	Acceptable Range	Optimum	Observed*
Rate of Spread	0-30 CPH	5	
Heat/Unit Area	100-500 BTU	250	
Flame Length	1-5'	3	

* At time of ignition and 1400 hr. (Ex. 65/80)
** Additional Fire Weather and Behavior Observations will be recorded on form FMH-1 & 2 throughout the burn on a schedule set up by the Burn Boss or the Lead FBWS.

Dates of Burn: 11/17/97 - 11/21/97

XII. Firing Techniques and Holding Methods:

A. Firing and ignition:

Assuming the winds are from the SW or W, a test fire will be ignited at the NE corner of the burn. Following a successful test burn, ignition will proceed starting from the east end of the unit. Hand held drip torches will be used to ignite a backing fire extending from north to south across the units east perimeter. If necessary, the north perimeter will be strengthened as well with backing fire. When the blacklines prove sufficient, firing will proceed using a strip head firing pattern back and forth across the entire unit. Conditions may dictate that drip torches concentrate on black bush individually, in order to meet objectives. Ignition will never be allowed to out pace the capabilities of the holding crew. This firing pattern can be adopted to accommodate any wind direction.

B. Approved holding actions:

Access to much of the unit will be by way of the dirt road to South Park and the Power line and dirt road west of San Andreas Rd. and Warren Vista. Permission will be obtained from the Superintendent to operate the engine on the well established horse trail from the High View Nature Trail and up into Little Long Canyon.

The holding crew will consists of an NPS 5 person engine crew and 1 Type 3 engine.

All holding actions will follow MIST tactics and will be facilitated by the forces on hand. If additional forces are necessary to contain a slop over or spot or if the progress of the project is impacted due to committing too many on site resources to holding the prescribed fire, then the fire will be declared a wildfire and suppression efforts will be initiated.

The engine will be placed along the access roads and will follow the progression of the fire. The fires perimeter will be patrolled frequently to quickly spot any slop overs.

A lookout will advise the PBB directly in the event of spots across the holding lines or other unusual fire behavior. If fire spots across the line, the holding crew will be dispatched and all further ignition will cease until the spot is extinguished. Suppression of the spots will be the responsibility of the Holding Specialist until they are extinguished or become too

large for holding forces. At that time, the fire will be declared wild and appropriate action will be taken.

XIII. Contingency Plan:

In the event of an escaped fire, all ignition will cease and the Prescribed Burn Boss will become the Initial Attack Incident Commander of the escape.

The holding crew will become an initial attack resource under the direction of the crew boss. The ignition crew will hold the perimeter of the prescribed burn which was in progress. The Fire Behavior Weather Specialist will become a field observer and continue to record weather and fire behavior data.

The identified contingency forces will be ordered as needed to contain the escape. Available contingency forces are as follows: Engines JTP-E-3632, CDD-E-3636, local FD's from Yucca valley, Joshua Tree and 29 Palms.

XIV. Weather Information:

A Fire Behavior Weather Specialist will be assigned to monitor fire weather and fire behavior parameters every hour. A spot weather forecast will be obtained from the National Weather Service prior to ignition by the FBWS.

XV. Protection of Sensitive Features:

This entire area is Wilderness area. Motor vehicle use will not be permitted except for special permission from the superintendent obtained in advance for a specific area and for specific reasons.

The endangered desert tortoise is found in low densities in this area. In the event that a tortoise or burrow is located, mitigating measures set up by Joshua Tree Resource Staff, will be strictly adhered to.

XVI. Smoke Management:

Smoke observations will be recorded on form FMH-3 on a schedule set up by the PBB.

The following air quality variables will be monitored:

1. Visibility
2. Total smoke production
3. Mixing height
4. Transport and surface wind speed and directions
5. Documented complaints

Smoke levels will be maintained to meet air quality regulations for particulate matter limits as prescribed for human health under Federal and California Clean Air Standards.

A burning permit will be requested at least 7 days in advance of the planned ignition date, from the Mojave Air Pollution Control District, 15505 Civic Drive, Victorville, CA 93292. Waivers will be requested for no-burn days.

Residents will be notified of possible smoke concentrations prior to ignition. The Yucca Valley Fire Protection District and the California Division of Forestry will be notified of possible diurnal smoke concentrations in the basin.

An observer will monitor concentration of smoke on Joshua Lane and San Andreas road especially during diurnal conditions.

If smoke flow or other fire activity is predicted to impact the roads, a road closure to vehicle traffic will be initiated. Foot traffic may be allowed to continue. Mitigation will be through early mop up to allow reopening of the road at the earliest possible time.

XVII. Coordination and Public Involvement:

Coordination with other agencies will be through notification of the Federal Interagency Communications Center.

Public notification will be through press releases to the local media.

XVIII. Notification:

Park service personnel will be notified on the day of the burn on the park radio and at the VC's.

XIX. Public and Personal Safety:

Mitigating reduced visibility:

The following steps are to mitigate for reduced visibility

if Joshua Ln or San Andreas Rd is affected by smoke. These actions are presented in order of decreasing visibility; implementing step 3, for example, means that steps 1 and 2 have been taken.

1. Post "Smoke on Road" signs when visibility is twice the MAV (minimum acceptable visibility) value or less. In this case the posted rate of speed is 25 mph so this is mandatory when the sight distance is reduced to 220 feet.

2. Reduce posted speed limit when visibility is at MAV or less.

3. Utilize a lead car or stop traffic by road closure if lead car is not available, when the ratio of actual visibility to MAV is 1/2 or less.

4. When the ratio of actual visibility to MAV is less than 1/5, close the road to all but administrative use.

5. Notify SBSO

MAV for 25 mph posted limits:

MAV = (EB + FB) (AF)
108'= 27 + 34.7 x 1.75

If visibility drops below 108', lower the posted speed limit. 76' = 20 mph; 31' = 15mph; 28' = 10mph; <28' close rd

XX. Monitoring and Evaluation Procedures:

Monitoring will be done in accordance with the procedures specified in the approved FMP, appendix O.

XXI. Reports:

1. Grand total of all personnel, equipment and transportation: $
2. Cost per acre: $
3. Person days per acre: $

XXII. Rehabilitation:

Very little rehab needs are foreseen. Tracks from engines, if any will be racked. All flagging will be removed.

XXIII. Briefing guide

Key briefing elements:

1. Prescribed burn objectives.

2. Organization:
   a. Personnel (firing, holding etc.
   b. Equipment
   c. Responsibilities

3. Communications:

4. Burn size/time frame

5. Firing techniques and equipment:
   a. Drip torches
   b. Blackbrush consumption

6. Fire behavior expected

7. Contingency plans:
   a. procedures
   b. escape routes/safety zones

8. Safety hazards/precautions

9. Sensitive resources

Go-No-Go checklist attached

XIV. Persons contacted:

1. CDF (760) 365-4411
2. BLM (909) 697-5355
3. Yucca Valley Fire (760) 365-3335
4. FICC (909) 383-5652
5. Mojave Air Pollution Control District (619) 245-5402
6. KDHI-KQYN (760) 362-4264
7. KCDZ (760) 366-8471
8. KROR (760) 365-0891
9. Desert Trail
10. Hi-Desert Star
11. SBSO
12. CHP

System flow
The progressiv[illegible]hy of positions [illegible] a prescribed fire organization, from entry l[illegible] [illegible] prescri[illegible]re crewmember (PCM) and progressing [illegible] qualification as p[illegible]ibed fire manager (PFM) has been designed to utilize existing skills, a[illegible] supplement these skills with additional training and/or experience for qualification at the next higher position. For the normal pr[illegible]ed fire [illegible]tion, the vertical succession of positions as displayed (normal structure column), is the minimum acceptable organization. How[illegible]r complex burning operations (large acreage, difficult terrain, heavy smoke production, heavy fuels, etc.), prescribed fire speciality positions ([illegible] I, PBB I, PFM) may be required (complex structure column.). For larger parks, reserv[illegible]ations/a[illegible]uments, it may be desirable to maintain permanently trained persons in these positions.

Job certifiers (Prescribed Burn Facilitators):
Persons functioning in this role have to be currently qu[illegible]fied in the position and so certified by NPS/BIA at BIFC. Regions/Area will work with BIFC to ensure that an adequate number of qualified job certifiers are maintained per Region/Area, given each Agency's needs.

For initial certification as Pre[illegible]ibed Burn Boss II (PBB II), a minimum of two certification burns are required. Initial certification burns can be conducted in any NFFL fuel [illegible]fel, however, certi[illegible]ation is by NFFL model. It is not necessary or desirable for a PBB to be certified in all 13 NFFL models, [illegible]her only th[illegible] models [illegible]esent in [illegible]/her base unit. For certifi[illegible]a by fuel model, at least 1/3 of a given burn block should be dominated by th[illegible] fuel model [illegible]hich certification is desired. Theoretically, a PBB could be certified in 3 models by conducting one certification burn with 3 fuel models present in a single burn block, each occupying 1/3 or 33% of the total acreage to be burned.

Prescribed Fire Complexity

To determine the requisite management level of a prescribed fire, determine the Burn Complexity, using the below factoring criteria, then refer to the Prescribed Fire Qualification System flowchart.
Rate each element on a scale of 1 to 10, there multiply by the weighting factor to determine the weighted subvalues to determine the total weighted value, and thence the required staffing structure.

PRESCRIBED BURNS:

COMPLEXITY ELEMENT/ (WEIGHTING FACTOR)	RATING VALUE	WEIGHT SUBVALUE	LOW BURN COMPLEXITY	HIGH BURN COMPLEXITY
1. Potential for escape. (10)	1	10	Very Low probability.	High probability.
2. Values at risk. (10)	9	90	Very little risk to people, property, resources.	Great risk to people, property, resources
3. Fuels/fire behavior. (5)	1	5	Mostly uniform & predictable.	Great variability & unpredictability. Prescription includes very low fuel moisture conditions.
4. Fire duration. (5)	3	15	Fires gen. of short duration & require little management.	Fires of long duration & require continous management.
5. Smoke/air quality. (7)	3	21	Smoke impacts are low or insignificant.	Smoke sensitive are frequently affected.
6. Ignition methods. (3)	1	3	Simple & rarely hazardous.	Highly technical or freq. hazardous.
7. Management team size. (3)	3	9	Burn requires a few generalized positions.	Burn requires large team of separate, specialized positions.
8. Treatment objectives. (7)	1	7	Objectives simple & easy to achieve. Prescriptions are broad & encompass safe burning conditions.	Objectives are difficult to achieve. Prescriptions are restrictive or burning conditions are risky.
Total Weighted Value:		160		

*STAFFING STRUCTURE:
NORMAL STRUCTURE: 50-338 weighted value points.
COMPLEX STRUCTURE: 339 - 500 weighted value points.

PRESCRIBED NATURAL FIRE:

1. Potential for escape. (10)			Very Low probability.	High probability of escape.
2. Values at risk. (10)			Very little risk to people, property, resources.	Great risk to people, property, resources.
3. Fuels/fire behavior. (5)			Mostly uniform & predictable.	Great variability & unpredictability. Prescription includes very low fuel moisture conditions.
4. Fire duration. (5)			Fires gen. of short duration & require little management.	Fires of long duration & require continous management.
5. Smoke/air quality. (7)			Smoke impacts are low or insignificant.	Smoke sensitive areas are frequently affected.
Total Weighted Value:				

*STAFFING STRUCTURE:
NORMAL STRUCTURE: 37 - 247 weighted value points.
COMPLEX STRUCTURE: 248 - 370 weighted value points.

*A Prescribed Fire Manager (PFM) is required when agency administered lands are involved with 5 or more burns of low complexity, more than 1 burn of high complexity or any combination of the two.

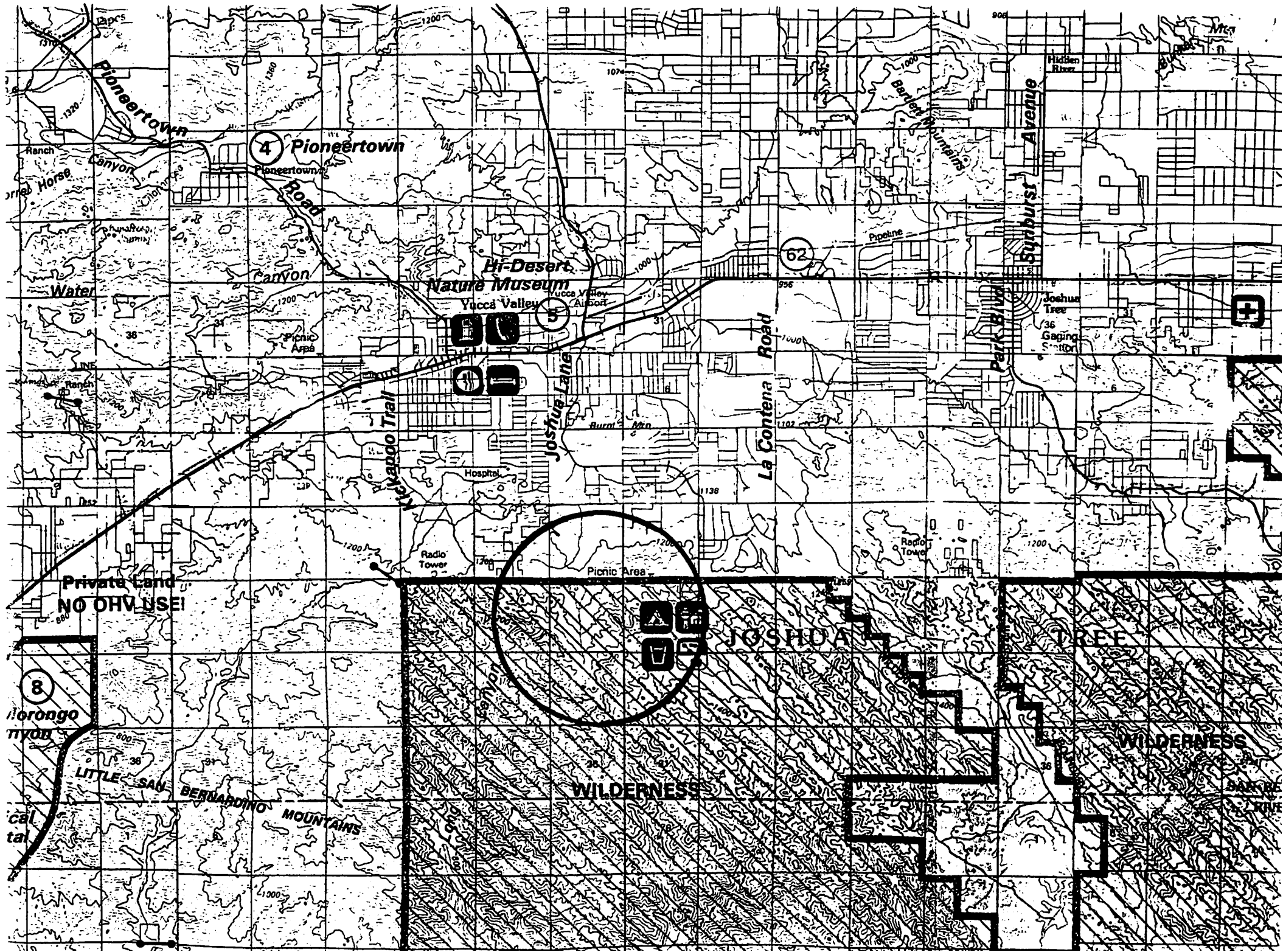
[illegible] PBBT 7/27/97

ATTACHMENT

Go-No-Go Checklist

(A "No" response to any item means stop!)

1. Is burn plan complete and approved?
2. Are **all** fire prescription specifications met?
3. Are **all** smoke management prescriptions specifications met?
4. Is the current and projected fire weather forecast favorable?
5. Have **all** air quality considerations and smoke requirements been met?
6. Are **all** personnel required in the prescribed burn plan on site?
7. Have **all** personnel been briefed on the prescribed burn plan requirements?
8. Have **all** personnel been briefed on safety hazards, escape routes and safety zones?
9. Is **all** of the required equipment in place and in working order?
10. Are available (including backup) resources adequate for containment of escapes under worst-case conditions?
11. Are answers to all of the above questions yes?
12. In your opinion, can the burn be carried out according to plan and will it meet the planning objective?
13. Is there an adequate contingency plan developed?


Pioneertown
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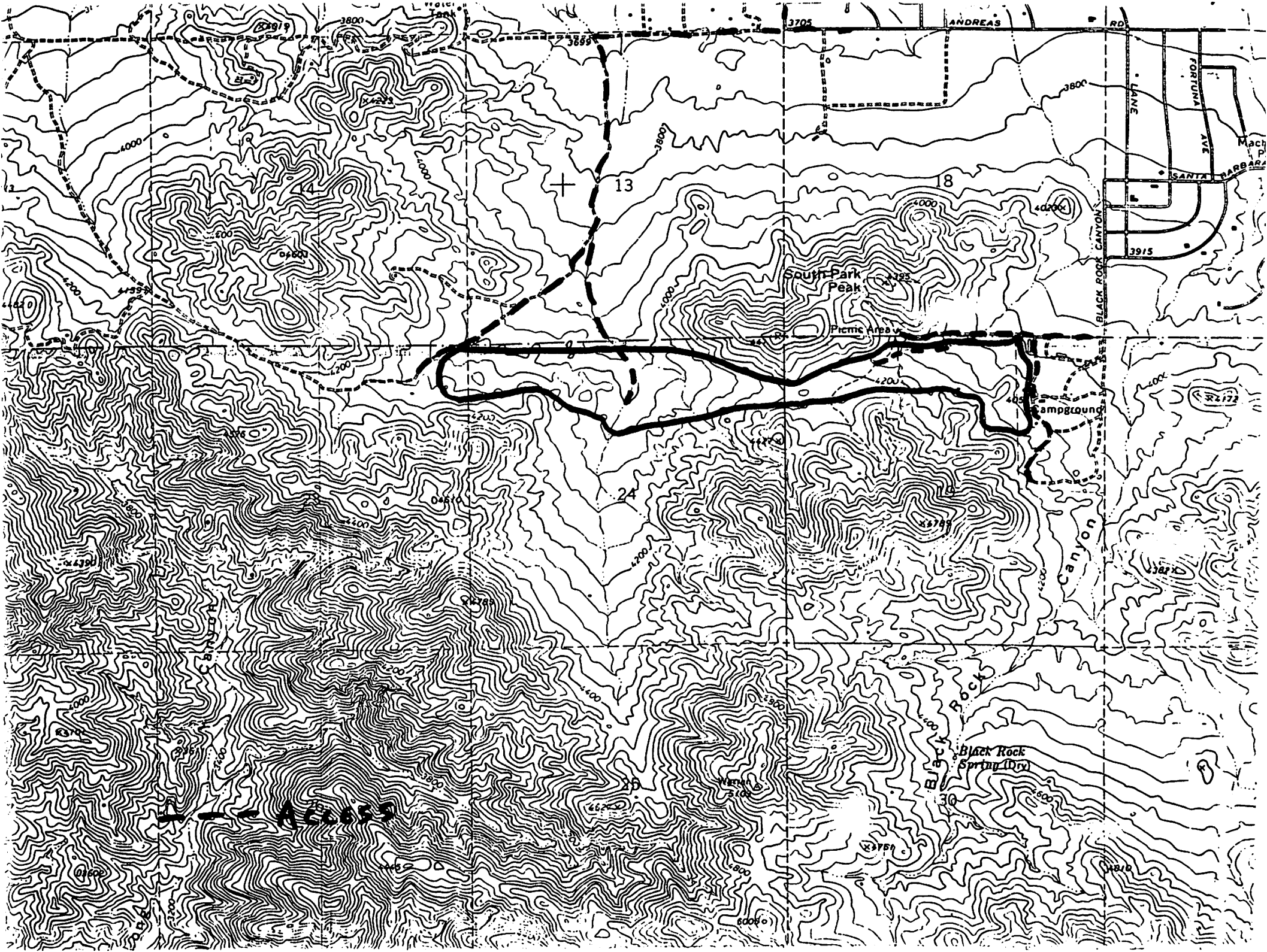
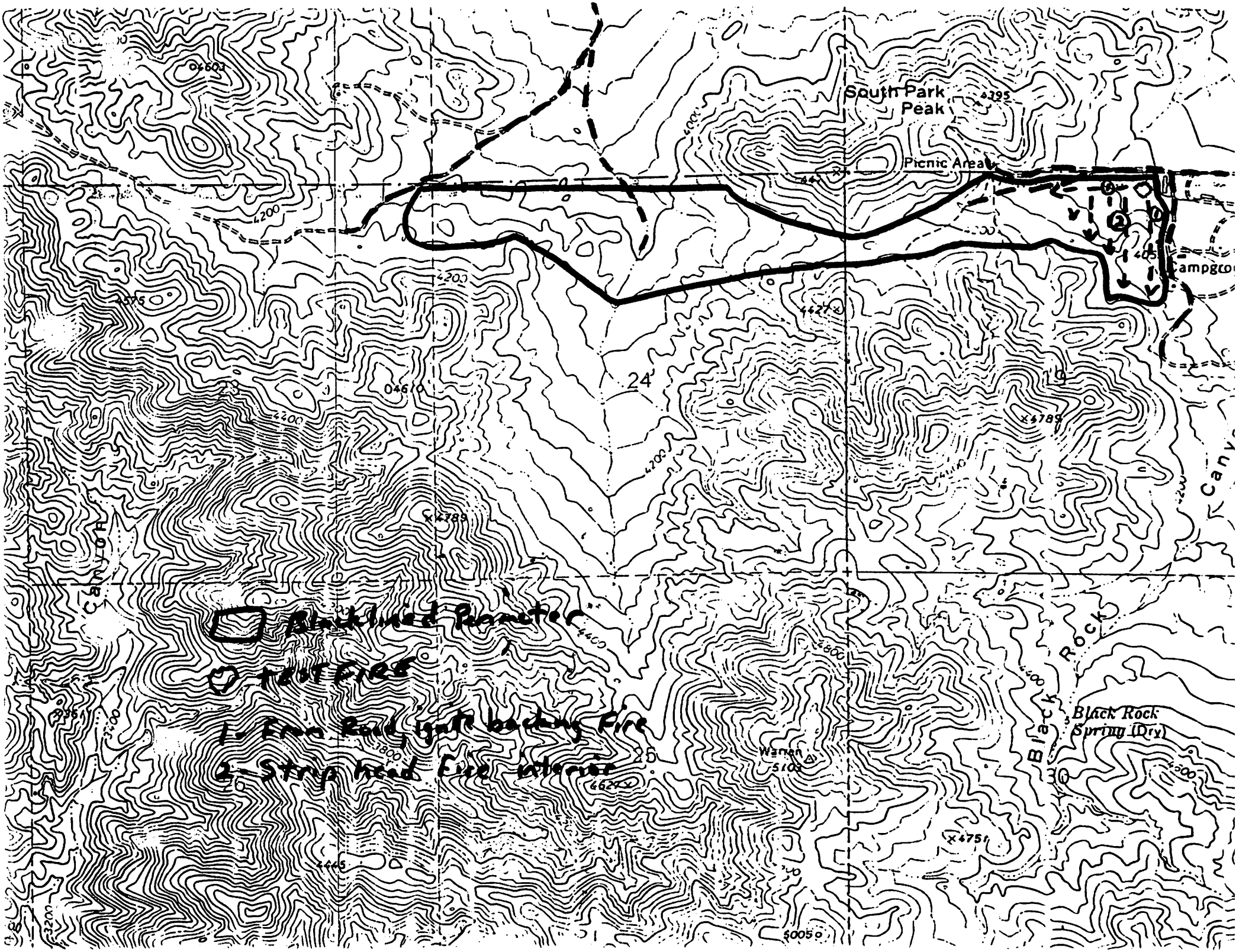
Canyon
Water
Hi-Desert Nature Museum
Yucca Valley
Yucca Valley Airport
Picnic Area
Joshua Lane
Burnt Mtn
Hospital
Yucca Trail
La Contena Road
Park Blvd
Sunburst Avenue
Hidden River
Bartlett Mountains
Pipeline
Joshua Tree
Gaging Station
Radio Tower
Picnic Area
Private Land
NO OHV USE!
JOSHUA
TREE
WILDERNESS
WILDERNESS
LITTLE SAN BERNARDINO MOUNTAINS
Morongo
Canyon


ANDREAS
RD
LANE
FORTUNA
AVE
SANTA
BARBARA
BLACK ROCK CANYON
South Park Peak
Picnic Area
Campground
Black Rock Canyon
Black Rock Spring (Dry)
Access
13
14
18
24
25
30


South Park Peak
Picnic Area
Black Rock Spring (Dry)
Black Rock
Canyon
Warren
24
19
25
30
Black lined Perimeter
Test Fire
1- Fire Road, gate backing fire
2- Strip head fire intense