

## TRANSMITTAL

Date: 28 January 2004

From: Lynn Marie Hornecker

**To: Rafat Abbasi**  
State of California Environmental Protection Agency  
Department of Toxic Substances Control (DTSC), Region 4  
Site Mitigation Branch, Base Closure Unit  
5796 Corporate Avenue  
Cypress, CA 90630

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Remedial Project Manager  
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3737 Main Street, Suite 500  
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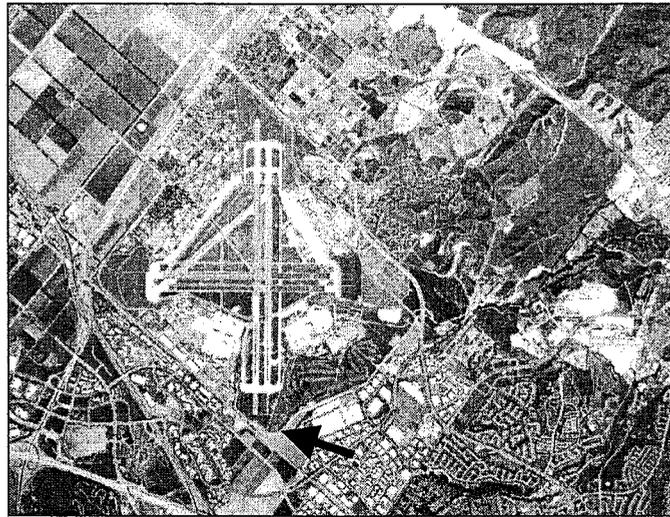
Subj: Aerial Photograph Anomalies APHO 93 (SAIC 121) and APHO 97 (SAIC 135)  
Former Marine Corps Air Station, El Toro

Provided for your review as the attachment is the Information Package for APHO 93 and APHO 97 at the Former Marine Corps Air Station (MCAS), El Toro. The information presented in the attachment is intended to supplement our response to Comment 5 of the DTSC letter dated 12 May 1999.

APHO 93 was identified as anomaly 121 by Science Applications International Corporation (SAIC) on an aerial photograph taken in 1961; the anomaly is described as an excavation with possible extraction. APHO 97 was identified as anomaly 135 by SAIC on an aerial photograph taken in 1964; the anomaly is described as a trench and an area of disturbed ground. The anomalies are located between the Perimeter Road and the railroad tracks, south of the south end of Runway 34R, approximately 500 feet west of APHO 103 (SAIC 175). Due to the proximity of APHO 93 to APHO 97, the two anomalies will be addressed together in this transmittal and will be designated as APHO 93/APHO 97.

The study area for APHO 93/APHO 97 is approximately 300 feet long by 200 feet wide. APHO 93/APHO 97 is located adjacent to Borrego Canyon Wash that was investigated as Solid Waste Management Unit (SWMU) Number 5 during the Resource Conservation and Recovery Act Facility Assessment (RFA). APHO 93/APHO 97 may have been located at the edge of a slough of Borrego Canyon Wash during the 1960's, before the most recent channel improvements were constructed. The slough may have been responsible for the appearance of an excavation, trench, or area of disturbed ground on the historical aerial photographs.

The approximate location of APHO 93/APHO 97 is shown by the arrow on the following aerial photograph of Former MCAS El Toro.



Approximate Date of Photograph: 1997

The APHO 93/APHO 97 study area and the surrounding property were identified as agricultural use parcel AG-7 in the 2003 update to the Environmental Baseline Survey (EBS). The EBS included field sampling at parcel AG-7 and the results of the sampling activities are presented in the appendix to the information package.

The historical records and facility plans do not show industrial or waste disposal activities at or near APHO 93/APHO 97.

We propose to document no further action for APHO 93 (SAIC 121) and APHO 97 (SAIC 135) in the next BRAC Business Plan update. We believe the information presented in the attachment substantiates our recommendation to designate no further action with environmental condition of property category 3 for APHO 93/APHO 97 based upon the results of the EBS sampling at agricultural use parcel AG-7 and the results of sampling at SWMU 5 during the RFA. A formal transmittal letter may follow.

If we do not receive comments from your office within sixty (60) days of receipt of this transmittal, then we will assume that you concur with our recommendation.

Please do not hesitate to contact me if you have questions pertaining to this transmittal.

Attachment  
Information Package (SWDIV January 2004)

CF:

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CSO El Toro

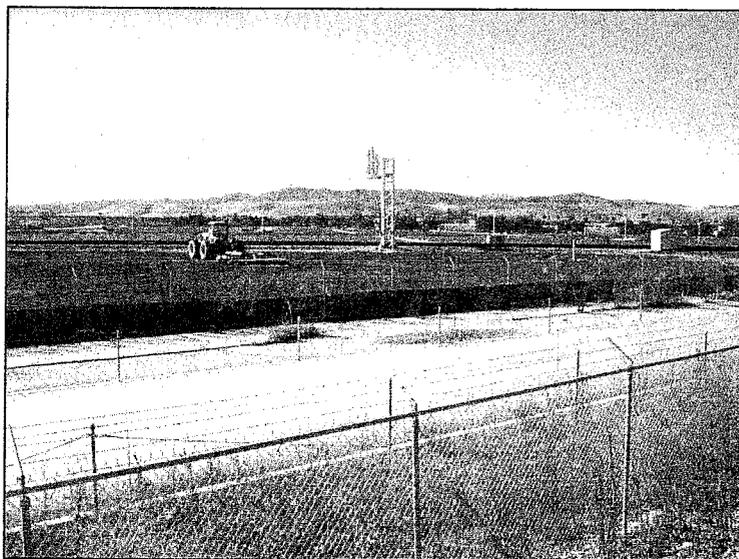
Project File (MCAS El Toro)



## Information Package

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Aerial Photograph Anomalies APHO 93 (SAIC 121) and APHO 97 (SAIC 135)  
Former Marine Corps Air Station, El Toro



28 January 2004

*Prepared by:*  
Naval Facilities Engineering Command  
Southwest Division  
BRAC Operations  
San Diego, California

# **Information Package Contents**

## **APHO 93 (SAIC 121) and APHO 97 (SAIC 135)**

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## Summary

### APHO 93 (SAIC 121) and APHO 97 (SAIC 135)

#### Former Marine Corps Air Station El Toro

Dates of Visual Inspections: 13 and 21 November 2003; 9 and 16 December 2003;  
12, 20, and 23 January 2004

**APHO 93 (SAIC 121)** was identified by Science Applications International Corporation (SAIC) on a photograph dated 18 August 1961, and the SAIC description follows (SAIC 1993). "Excavation (EX) with possible extraction (EXT) is noted on the south side of Perimeter Road, at the southern tip of the activity. Investigation of site history as a possible disposal area is recommended."

**APHO 97 (SAIC 135)** was identified by SAIC on a photograph dated 16 September 1964, and the SAIC description follows. "There are a trench (TR) and disturbed ground (DG) about 1000 feet northeast of the area noted in the previous comment. The disturbed ground may be a backfilled trench. Purpose of the activity is unknown, but it could be a disposal site. Additional investigation is recommended."

For reference, the previous anomaly, SAIC 134 on the same 1964 photograph is described as "Light-toned mounded material (MMLT) can be seen on the north side of the railroad tracks near the approach end of Runway 34R. The materials appear to be soil and vegetation from earthmoving activities. No additional investigation is recommended at this time."

DTSC recommended further evaluation of SAIC 121 and SAIC 135 in their letter dated 12 May 1999.

APHO 93 (SAIC 121)/APHO 97 (SAIC 135) is located between Perimeter Road and the railroad tracks, south of the south end of Runway 34R as shown on Figure 1. The anomaly is located within the approach zone for Runway 34R. The study area for the anomaly is approximately 300 feet long by 200 feet wide.

Historical records were acquired and reviewed, and an overview of the information contained in the historical records is presented in the Summary Table. Additionally, excerpts from historical reports and maps are included in the Appendix.

The historical maps show a former slough on Borrego Canyon Wash located near or at the edge of APHO 93/APHO 97. It is possible that one of the branches of the slough caused the appearance of an excavation, or trench, or area of disturbed ground on the 1961 and 1964 aerial photographs. Due to channel improvements and maintenance activities on Borrego Canyon Wash, the slough areas were filled in with soil over the years. The area designated as a slough

on the 1948 map has been used for agricultural purposes for many years.

APHO 93/APHO 97 is located adjacent to and approximately east of the approach lighting structures for Runway 34R. Runway approach lighting structures are shown on historical plans dated 1958 and on the electrical system utility maps dated 1988. It is possible that construction of or repairs to the underground electrical lines for the lighting structures caused the appearance of an excavation, trench, or area of disturbed ground.

APHO 93/APHO 97 is located within Environmental Baseline Survey (EBS) parcel AG-7, an agricultural use area. Soil samples were collected from three locations within AG-7 during the recent EBS update of 2003. The EBS recommended no further action for AG-7.

Visual inspections were conducted of the APHO 93/APHO 97 vicinity in November 2003, December 2003, and January 2004. The ground surface is relatively flat and no large trees or shrubs were observed. The APHO 93/APHO 97 vicinity was in use for agricultural activities at the time of the visual inspections in January 2004. A tractor was preparing the ground surface at APHO 93/APHO 97 during the January 2004 site visits. No evidence of current or historical industrial or waste disposal activities was observed during the visual inspections. No evidence of excavations, trenches, or areas of disturbed ground was observed during the visual inspections. The approach lighting structures for Runway 34R were observed near the location of APHO 93/APHO 97. Photographs from the inspections are included in the Appendix.

**Summary Table – Overview of Historical Information for APHO 93/APHO 97.**

<b>Identifier</b>	<b>Date of Information</b>	<b>Comments</b>
Drainage Plan (Yards and Docks Drawing Number 224,525)	1942	The drainage plan shows APHO 93/APHO 97 near a slough on Borrego Canyon Wash.
Map showing Conditions as of 30 June 1948	1948	The map shows APHO 93/APHO 97 near a slough on Borrego Canyon Wash.
Master Plot Plan dated 17 January 1950 (Master Plot Plan, Existing and Future Facilities)	1950	The plan shows APHO 93/APHO 97 at the edge of a slough on Borrego Canyon Wash. The plan shows that the anomalies are located within a feature designated as the Flight Cone, south of the end of the north-south runways.
Excerpt from New Perimeter Roads, Extension to Runway 16L & 34R and Installation of Approach Lighting	1958	The map shows APHO 93/APHO 97 adjacent to the perimeter road.
Excerpt from 1962 General Development Map	1962	The map shows APHO 93/APHO 97 within the approach zone for Runways 34R & 34L.
Excerpt from 1973 Station Map	1973	The map shows APHO 93/APHO 97 located in the vicinity of Gate 14A.
Excerpt from 1978 General Development Map	1978	The map shows APHO 93/APHO 97 located in the vicinity of the approach lighting structures for Runway 34R.
Area 29, Electrical Distribution Plan (U.S. Marine Corps Air Station, El Toro, Public Works Department, Revised 14 April 1988)	1988	The plan shows APHO 93/APHO 97 near the runway approach lighting structures for Runway 34R.

**Summary Table – Overview of Historical Information for APHO 93/APHO 97  
 (continued)**

Identifier	Date of Information	Comments
<p>Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) Report (Jacobs Engineering Group (JEG) July 1993)</p>	<p align="center">1993</p>	<p>The RFA documentation shows the Solid Waste Management Unit (SWMU) Number 5 (Borrogo Canyon Wash) is located near APHO 103 (SAIC 175). Soil samples were collected from two sixty-foot angle borings – 005A1 and 005A2 - adjacent to the wash in 1992. Samples were collected at 10-foot intervals. The borings were located approximately 500 feet north of APHO 103 (SAIC 175). No further action was recommended for SWMU Number 5 in the RFA. Data for SWMU 5 follows:</p> <p>The maximum Total Recoverable Petroleum Hydrocarbon (TRPH) concentration was 105 milligrams per kilogram in boring 005A1. Gasoline was not detected in samples from either boring. Diesel was detected at 35 mg/kg in one sample from boring 005A1; diesel was not detected in the other samples from 005A1 and 005A2. The petroleum concentrations at SWMU 5 are comparable to residual petroleum concentrations at sites that have achieved no further action status in the petroleum corrective action program.</p> <p>Toluene was detected at a maximum concentration of 4 micrograms per kilogram (ug/kg) "J" in boring 005A1. The USEPA Residential PRG for toluene is 520,000 ug/kg.</p> <p>Pyrene was detected at a maximum concentration of 22 ug/kg "J" in boring 005A1. The PRG is 2,300,000 ug/kg.</p> <p>The maximum diethylphthalate concentration was 56 ug/kg "J" in boring 005A1. The PRG is 44,900,000 ug/kg.</p> <p>The maximum silver concentration was 0.67 mg/kg "B" (detected below reporting limits but above instrument detection limits) in boring 005A2. The PRG is 390,000 ug/kg.</p> <p>Pesticides/PCBs were not detected at or above reporting limits in samples from 005A1 and 005A2.</p>

**Summary Table – Overview of Historical Information for APHO 93/APHO 97  
 (continued)**

<b>Identifier</b>	<b>Date of Information</b>	<b>Comments</b>
<p>Final Report, Aerial Photograph Assessment, MCAS El Toro (SAIC 1993)</p>	<p align="center">1993</p>	<p>The SAIC report includes maps showing the locations of anomalies identified by USEPA and SAIC.</p> <p>No anomalies were identified by USEPA in APHO 93/APHO 97 vicinity.</p> <p>The nearest SAIC anomaly, SAIC 120, is located on the northern side of Perimeter Road in the Golf Course green area, north of APHO 93/APHO 97. The SAIC description of SAIC 120 (1961) follows: "Possible wet soil (WS) can be seen, and liquid (LQ) is flowing southwestward from Marine Memorial Golf Course, south of the threshold of Runway 34R. The apparent wet soil (WS) may be caused by vegetation and irrigation of golf course. No additional investigation is recommended at this time."</p> <p>SAIC anomaly 175 (also known as APHO 103) is located several hundred feet east of APHO 93/APHO 97. An information package was submitted for APHO 103 in January 2004.</p>
<p>Draft Final Environmental Baseline Survey, Former Marine Corps Air Station, El Toro, California (Earth Tech 2003)</p>	<p align="center">2003</p>	<p>APHO 93/APHO 97 is located within an agricultural use parcel AG-7, that was evaluated during the Environmental Baseline Survey. Soil samples were collected from three locations in parcel AG-7. Contaminants were detected in samples from parcel AG-7, however, the concentrations did not exceed the USEPA Region 9 Preliminary Remediation Goals (PRGs) for residential soil. The EBS recommended no further action for AG-7.</p>

**Summary Table – Overview of Historical Information for APHO 93/APHO 97  
(continued)**

<b>Identifier</b>	<b>Date of Information</b>	<b>Comments</b>
Visual Inspections	November 2003, December 2003, and January 2004	<p>During January 2004, the APHO 93/APHO 97 vicinity was in use for agricultural activities. A tractor was operating at the site during the visual inspections on 20 and 23 January 2004. A photograph taken in January 2004 showing agricultural equipment in use at the anomaly is included in the Appendix. Additionally, the photograph on the cover of this information package, taken on 23 January 2004, shows agricultural equipment in use.</p> <p>No excavations, trenches, or areas of disturbed ground were observed during the inspections. The Runway 34R lighting structures were observed near the location of APHO 93/APHO 97.</p>

## **Findings and Recommendations**

Based upon the review of historical documentation and the results of the visual inspections, it appears that the features identified on the 1961 and 1964 aerial photographs, known as APHO 93 (SAIC 121)/APHO 97 (SAIC 135), were probably caused by a former slough along Borrego Canyon Wash, by channel maintenance and/or improvements along Borrego Canyon Wash, or by construction or maintenance of the nearby approach lighting structures for Runway 34R. The APHO 93/APHO 97 vicinity has been used for agricultural purposes for many years and agricultural activities were observed during the January 2004 visual inspections. Additionally, APHO 93/APHO 97 is located within the designated approach zone for the north-south runways (34R and 34L). No excavations, trenches, or areas of disturbed ground were observed during the visual inspections of 2003 and 2004. No records indicating historical industrial or waste disposal activities at or near APHO 93/APHO 97 were found.

Field sampling activities were conducted along Borrego Canyon Wash near APHO 93/APHO 97 during the RFA sampling visit for SWMU 5, and no further action was recommended. Additionally, sampling was conducted at agricultural use parcel AG-7, that includes APHO 93/APHO 97, during the Environmental Baseline Survey (EBS) and the results indicated that residual chemical concentrations were less than the USEPA Region 9 PRGs for residential soil. The EBS recommended no further action for parcel AG-7.

No further action is recommended for APHO 93 (SAIC 121)/APHO 97 (SAIC 135) with Environmental Condition of Property (ECP) category 3.

## **References and/or Sources of Information.**

California Department of Toxic Substances Control Letter to Marine Corps Air Station, El Toro dated 12 May 1999.

Earth Tech, Inc. 2003. Final Environmental Baseline Survey, Former Marine Corps Air Station, El Toro, California. [Navy Contract N62742-94-D-0048, CTO 104]

Jacobs Engineering Group (JEG). 1993. Installation Restoration Program, Final Resource Conservation and Recovery Act Facility Assessment Report for Marine Corps Air Station, El Toro, California. [Navy Contract N68711-89-D-9296, Contract Task Order 193]

Jacobs Engineering Group (JEG). 1993. Marine Corps Air Station, El Toro: Installation Restoration Program, Phase I Remedial Investigation Technical Memorandum. [Navy Contract N68711-89-D-9296, Contract Task Order 145]

Jacobs Engineering Group (JEG). 1995. Marine Corps Air Station, El Toro, El Toro, California, Final Environmental Baseline Survey Report. April. [Navy Contract N68711-89-D-9296, Contract Task Order 284]

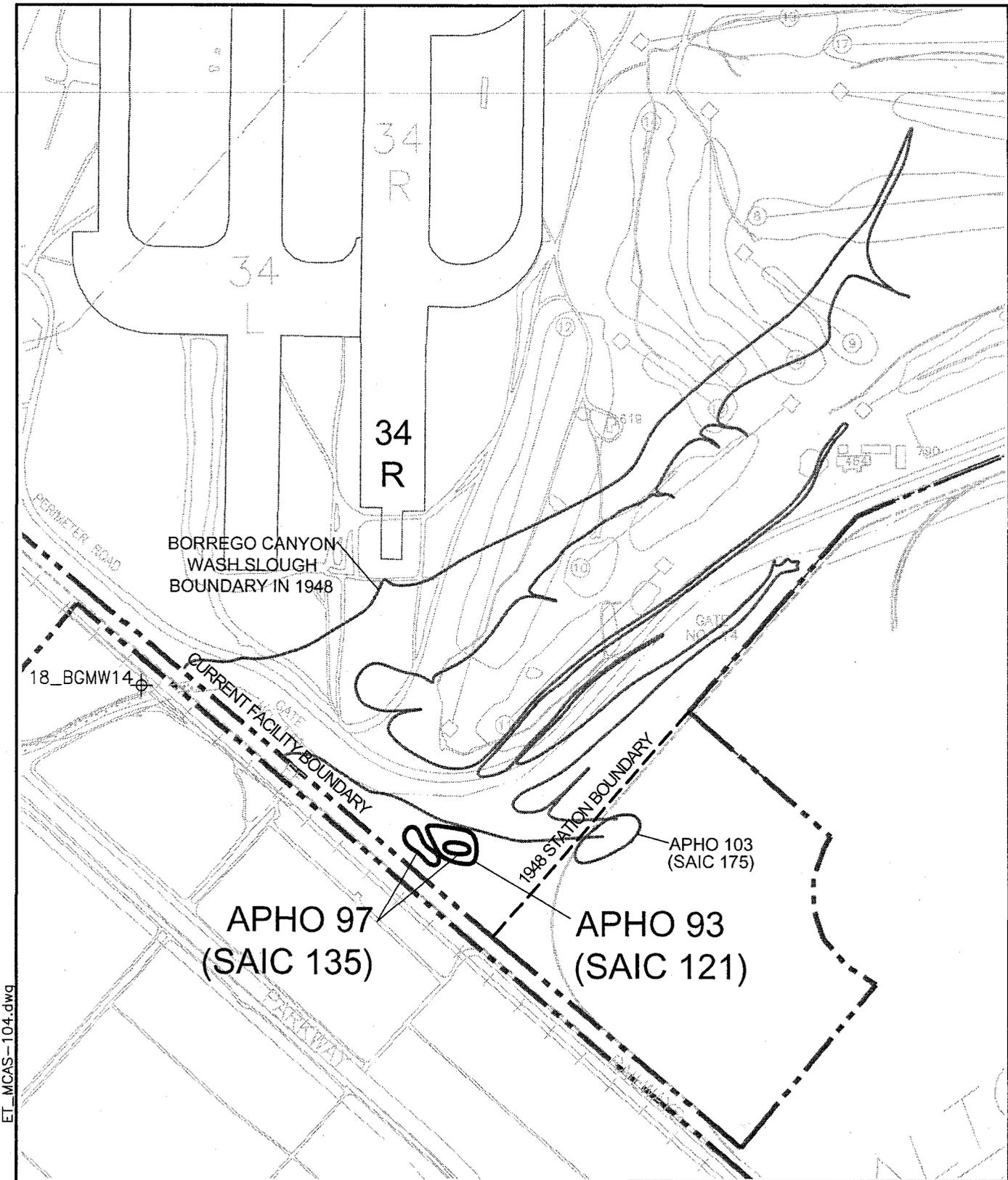
Science Applications International Corporation (SAIC). 1993. Final Report, Aerial Photograph Assessment, MCAS El Toro. [Contract N68711-91-D-4658, Delivery Order 0002, SAIC Project No. 01-0892-0817]

Southwest Division, Naval Facilities Engineering Command. 1999. Technical Memorandum, Aerial Photograph Anomalies, Marine Corps Air Station, El Toro, California. April.

United States Environmental Protection Agency. 1991. Site Analysis, El Toro MCAS, Orange County, California.

United States Marine Corps Air Station, El Toro. 1997. Draft Final Record of Decision, Operable Units 2A and 3A, No Action Sites, Marine Corps Air Station, El Toro, California. September.

United States Marine Corps Air Station, El Toro. Various dates. Regulatory correspondence for environmental compliance program, environmental compliance program closure documents, historical building guides, facility maps and plans, and property records.



BORREGO CANYON  
WASH. SLOUGH  
BOUNDARY IN 1948

18\_BGMW14

CURRENT FACILITY BOUNDARY

1948 STATION BOUNDARY

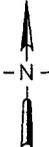
APHO 97  
(SAIC 135)

APHO 93  
(SAIC 121)

APHO 103  
(SAIC 175)

ET\_MCAS-104.dwg

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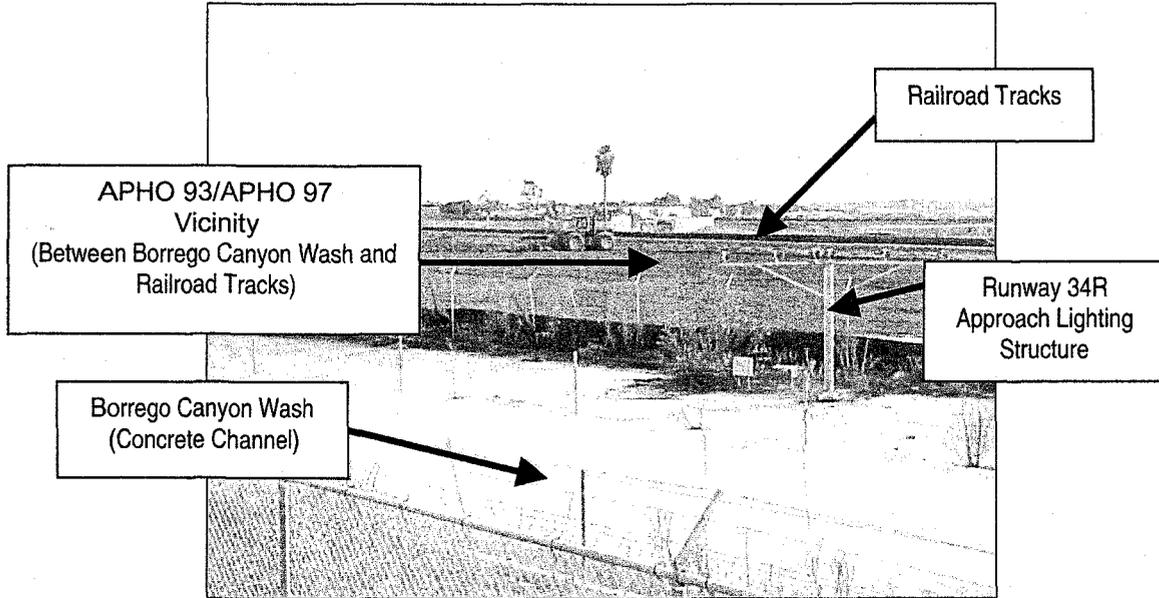


NOTE: SLOUGH BOUNDARY TAKEN FROM "MAP OF MARINE CORPS AIR STATION, EL TORO, CALIF., ELEVENTH NAVAL DISTRICT, SAN DIEGO, CALIF. SHOWING CONDITION ON JUNE 30, 1948".

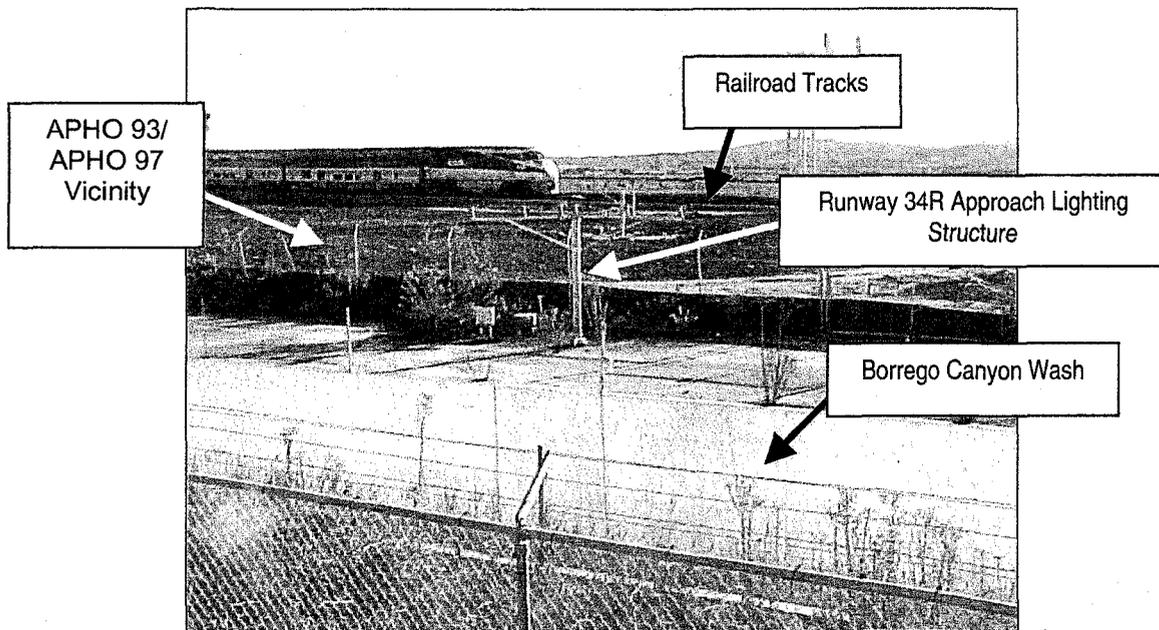
<b>SOUTHWEST DIVISION NAVAL FACILITIES ENGINEERING COMMAND</b>		
FORMER MCAS EL TORO, CA		
APHO 93/APHO 97 VICINITY		
FILE NO. ET_MCAS-104	Figure 1	DATE 1/30/04

## **APPENDIX**

**Photograph 1. APHO 93/APHO 97 Vicinity**  
Borrego Canyon Wash, Between Railroad Tracks and Perimeter Road  
Former Marine Corps Air Station, El Toro  
Date of Photograph: 20 January 2004



**Photograph 2. APHO 93/APHO 97 Vicinity**  
Borrego Canyon Wash, Between Railroad Tracks and Perimeter Road  
Former Marine Corps Air Station, El Toro  
Date of Photograph: 10 December 2003

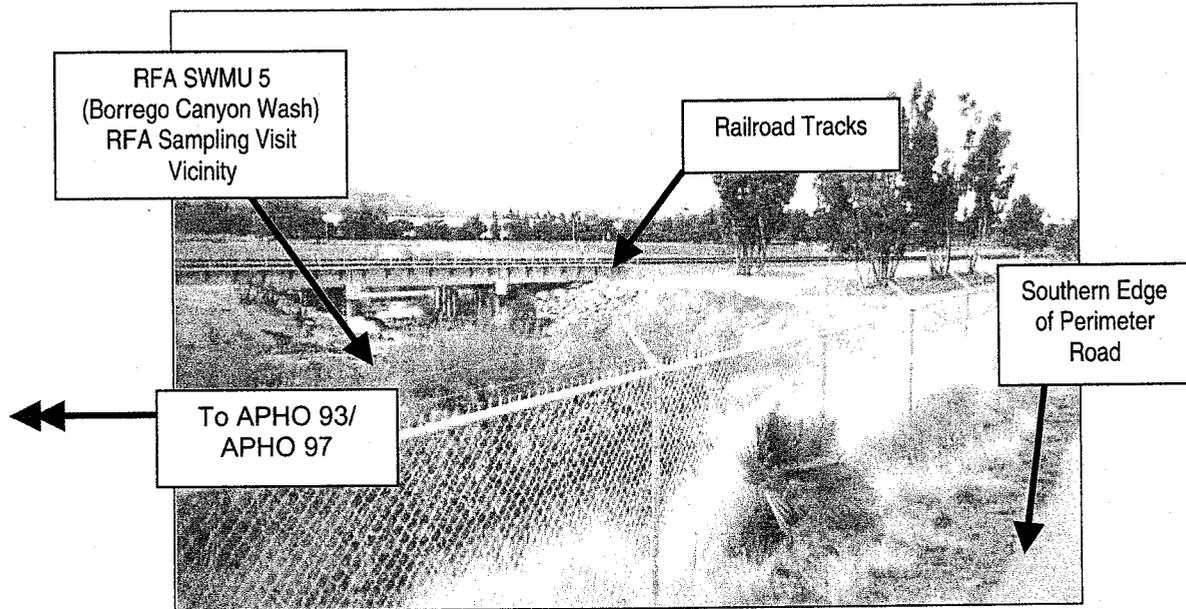


**Photograph 3. Vicinity of SWMU 5 (Borrego Canyon Wash)  
RFA Sampling Visit Area**

Approximately West of APHO 93/APHO 97.

Former Marine Corps Air Station, El Toro

Date of Photograph: 13 November 2003



## Historical Documentation

California Department of Toxic Substances Control (DTSC) Letter  
Dated 12 May 1999



# Department of Toxic Substances Control

Edwin F. Lowry, Director  
5796 Corporate Avenue  
Cypress, California 90630



Gray Davis  
Governor

Don H. Hickox  
Secretary for  
Environmental  
Protection

May 12, 1999

Mr. Joseph Joyce  
BRAC Environmental Coordinator  
U.S. Marine Corps Air Station - El Toro  
AC/S, Environmental (1AU), BRAC Building #899  
P. O. Box 95001  
Santa Ana, California 92709-5001

Dear Mr. Joyce:

## COMMENTS ON TECHNICAL MEMORANDUM, AERIAL PHOTOGRAPH ANOMALIES, MARINE CORPS AIR STATION (MCAS) EI TORO

The Department of Toxic Substances Control (DTSC) has reviewed the above subject document dated April 1999. The Technical Memorandum presents summary data from the evaluation of historical aerial photographs and recommendations for the future management of more than 700 anomaly sites at MCAS El Toro. According to the memorandum, the Department of Navy (DoN) acquired and reviewed both historical Station maps and the results of investigations associated with the Installation Restoration Program (IRP) and environmental compliance program sites. The DoN then confirmed previous recommendations or developed refined recommendations based upon the most recently collected data. The DoN recommended no further action status for all the anomaly sites except five (5) Aerial Photograph Anomaly Areas. The five Anomaly Areas consist of nineteen (19) anomaly sites proposed for further evaluation.

DTSC comments are as follows:

1. *Introduction, page 1:*

The investigation of aerial photograph anomalies was initially conducted by U.S. EPA as part of the Preliminary Assessment/Site Inspection (PA/SI) to identify CERCLA sites at MCAS El Toro. An additional aerial photograph study was conducted by Science Applications International Corporation (SAIC). Since these investigations were conducted as part of the PA/SI, all aerial photograph anomalies should be considered potential CERCLA sites until sufficient investigations have been conducted. It is premature to recommend that sites be recommended for No Further Action or minimal sampling based

solely on a record review. The photograph anomalies may indicate areas where hazardous substances were spilled, released or buried prior to accurate records having been kept at the base.

2. *Recommendations Section, page 3:* Anomaly Areas 1, 2, 4, and 5 are proposed for shallow soil sampling for petroleum hydrocarbons and volatile organic compounds; the results of field investigations are then to be submitted to the Regional Water Quality Control Board (RWQCB). This approach is not acceptable to DTSC because there is no evidence that the spills were as a result of petroleum hydrocarbon releases only. These areas should be investigated for the same suite of constituents of concern as all other Temporary Accumulation Areas and the results of investigation should be submitted to the regulatory agencies. Based on the results of analysis, the areas with petroleum contamination only can then be deferred to the RWQCB for assessment.
3. *Aerial Photograph Anomaly Area 3, page 5:* The reference to the location of Area 3 should be the northeast section of the Station not the northwest.
4. *Table 2, Proposed List of Aerial Photograph Anomalies (APHOs):* Most of the APHOs listed in the table are recommended for No Further Action (NFA) status based upon review of historical records. DTSC is of the opinion that a visual site inspection should be conducted for every anomaly database tracking location (i.e., APHO 1 through APHO 68) to check for sign of past spills or releases of hazardous constituents. The APHOs should be visually inspected, photographed, and a written evaluation report submitted to the agencies before a No Further Action (NFA) status can be agreed to by DTSC. The report should be prepared in a format similar to the Resource Conservation and Recovery Act (RCRA) Facility Assessment report conducted for the Temporary Accumulation Areas at MCAS El Toro.
5. *Exhibit 1, Table 2, SAIC Aerial Photograph Anomaly List:* The Technical Memorandum did not provide adequate explanation of the criteria/rationale used by DoN to recommend No Further Action on several anomaly sites that SAIC recommended for Further Investigations (FI). The following anomalies should be visually inspected and the reports submitted to the agencies. If a previous investigation or cleanup was conducted in the same location as an APHO, sufficient information should be provided to demonstrate that the APHO was investigated. Simply noting that investigations or cleanups were conducted adjacent to an APHO is not sufficient. Site inspections and reports should be provided for the following SAIC numbered anomalies: 117, 133, 270, 404, 405, 523, 525, 8, 66, 67, 88, 111, 112, 145, 147, 149, 157, 199, 217, 260, 284, 285, 458, 35, 68, 135, 176, 177, 246, 303, 305, 342, 348, 488, 528, 570, 58, 121, 125, 127, 163, 175, 364, 413, 452, and 219.

Also, please provide page numbers and table header for the pages following page 1.

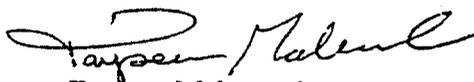
Mr. Joseph Joyce

May 12, 1999

Page 3

If you have any questions, please contact me at (714) 484-5418.

Sincerely,



Tayseer Mahmoud  
Remedial Project Manager  
Office of Military Facilities  
Southern California Operations

cc: Mr. Glenn Kistner, SFD-8-2  
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Ms. Lynn Hornecker  
Remedial Project Manager  
Naval Facilities Engineering Command  
Southwest Division - Code 5BME.LH  
1220 Pacific Highway  
San Diego, California 92132-5187

Excerpts from the Final Report, Aerial Photograph Assessment, MCAS El Toro  
(SAIC 1993)

NOTE: Excerpts pertaining to the aerial photograph anomalies APHO 93 (SAIC 121) and  
APHO 97 (SAIC 135) are presented.

Final Report  
Aerial Photograph Assessment  
MCAS El Toro  
Contract No. N68711-91-D-4658  
Delivery Order 0002  
SAIC Project No. 01-0892-02-0817

Submitted to:

Naval Facilities Engineering Command  
Southwest Division  
1220 Pacific Highway, Room 18  
San Diego, CA 92132-5181

Submitted by:

Science Applications International Corporation  
Engineering Sciences Division  
10260 Campus Point Drive, MS F1  
San Diego, CA 92121

October 25, 1993

## 2.6 1961 PHOTOGRAPHS

FIGURE: 7  
DATE: 18 AUGUST 1961  
PHOTOGRAPHS: C-24153-215 and C-24153-217

NOTE: The original negatives for these photographs no longer exist. The photographs have poor resolution, in part, because they are copies of a photograph, rather than being made from an original negative. There is only partial coverage of the site.

c 119. There is a possible vertical tank (VT) near the south side of the railroad tracks, north of Agua Chinon Canyon Wash. The tank should be verified and its contents determined.

c 120. Possible wet soil (WS) can be seen, and liquid (LQ) is flowing southwestward from Marine Memorial Golf Course, south of the threshold of Runway 34R. The apparent wet soil (WS) may be caused by vegetation and irrigation of golf course. No additional investigation is recommended at this time.

→ c 121. Excavation (EX) with possible extraction (EXT) is noted on the south side of Perimeter Road, at the southern tip of the activity. Investigation of site history as a possible disposal area is recommended.

c 122. There are possible vertical tanks (VT) in the field south of Marine Memorial Golf Course, located about 400 and 600 feet southeast of Perimeter Road. They may be chemical storage tanks or related to irrigation system. Verification of the vertical tanks and determination of their contents are recommended.

c 123. There is a probable horizontal tank (HT) about 100 feet north of Trabuco Road, east of Perimeter Road. Verification of the tank and its contents is recommended.

b 124. Wet soil (WS) and probable flowing liquid (LQ) can be seen near the southwest edge of aircraft parking apron at Drop Tank Drainage Area No. 1 (Site 6). The site is located about 200 feet west of hangar (Building 481) and the flow is westerly toward the taxiway. Additional investigation may be advisable.

c 125. Wet soil (WS) can be seen on the east side of the taxiway south of Drop Tank Drainage Area No. 1 (Site 6). Expansion of the Drop Tank Drainage Area No.1 (Site 6) field investigation program to include this area is recommended.

c 126. There is wet soil (WS) on the east side of the taxiway south of the Drop Tank Drainage Area No. 1 (Site 6), adjacent to the fairway for the 14th hole of the Marine Memorial Golf Course. The cause of the wetting is probably golf course irrigation water. However, expansion of the Drop Tank Drainage Area No.1 (Site 6) field investigation program to include this area is recommended.

Aerial Photographic Interpretation  
 MCAS El Toro  
 Santa Ana, California

1961

Figure 7

Sheet 2 of 2

August 18, 1961

Photo Number C-24153, 217

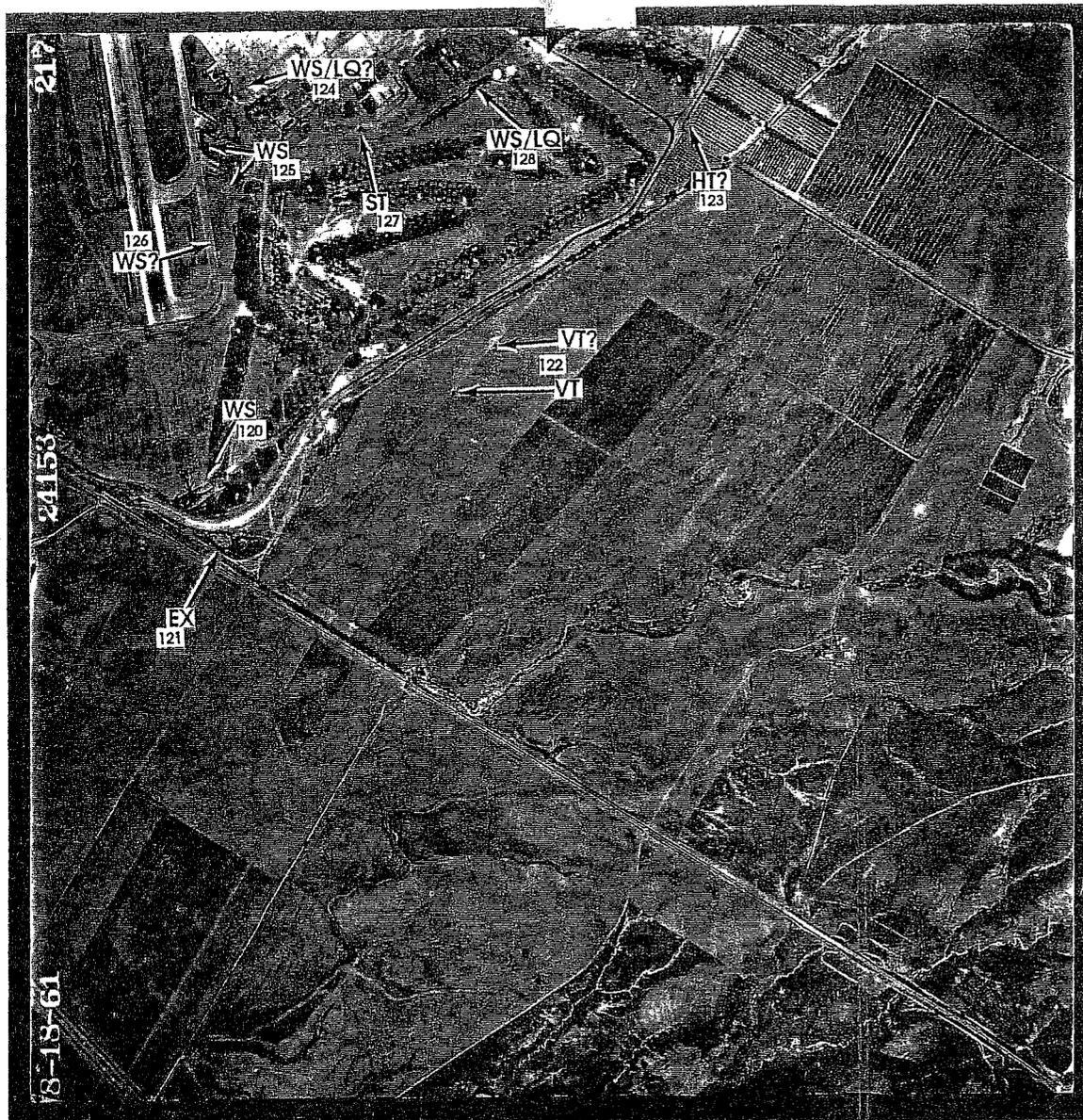
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 Whittier, California

Prepared for:

Southwest Division

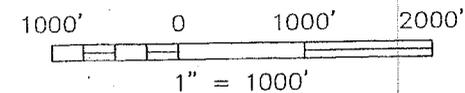
Naval Facilities Engineering Command

Contract N68711-92-D-4658



LEGEND:

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
B	Building	IM	Impoundment
D	Drums	LQ	Liquid
DB	Debris	LT	Light-Toned
DG	Disturbed Ground	M	Material
DK	Dark-Toned	MM	Mounded Material
EX	Excavation	OS	Open Storage
EXT	Extraction	R	Refuse
FA	Fill Area	ST	Stain
FBR	Fuel Bladder	TR	Trench
	Revetment	UO	Unidentified Object
GR	Graded Area	VT	Vertical Tank
GS	Ground Scar	WS	Wet Soil
HT	Horizontal Tank		



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## 2.7 1964 PHOTOGRAPHS

FIGURE: 8  
DATE: 16 SEPTEMBER 1964  
PHOTOGRAPHS: C24848, VII-ORA-5-225 and C24848, VII-ORA-5-227  
NOTE: The photographs have poor resolution. do not cover the entire site, and provide only partial stereographic coverage.

c 133. There is a dark-toned unidentified object (UO), a possible stained (ST) area, and wet soil (WS) or an excavation (EX) south of Perimeter Road near the railroad tracks. Additional investigation is recommended.

c 134. Light-toned mounded material (MMLT) can be seen on the north side of the railroad tracks near the approach end of Runway 34R. The materials appear to be soil and vegetation from earthmoving activities. No additional investigation is recommended at this time.

→ c 135. There are a trench (TR) and disturbed ground (DG) about 1000 feet northeast of the area noted in the previous comment. The disturbed ground may be a backfilled trench. Purpose of the activity is unknown, but it could be a disposal site. Additional investigation is recommended.

c 136. There are four probable vertical tanks (VT) on the southeast side of the railroad tracks, southeast of the features noted in the previous comment. The tanks may be used for chemical or fuel storage. Verification of the tanks and determination of their contents are recommended.

c 137. Stains (ST) are observed in the cleared or graded area easterly of Building 360 and the DRMO Storage yard (Site 8). Additional investigation of the site is recommended due to the persistence of the features over several years, and the use of the area for open storage.

c 138. There is an open storage (OS) area about 500 feet southeasterly of the southeast corner of the aircraft parking apron. There are also probable stains (ST) and probable drums (D). The Drop Tank Drainage Area No. 2 (Site 7) investigation area should be expanded to include this area.

c 139. Stains (ST) can be seen in the vicinity of Building 325, near S 14th Street and R Street. The cause is unknown and additional investigation is recommended.

c 140. Stains (ST) can be seen on westerly side of Building 324, near S 14th Street and R Street. Additional investigation is recommended.

Aerial Photographic Interpretation  
 MCAS El Toro  
 Santa Ana, California  
 1964

Figure 8  
 Sheet 2 of 2

September 16, 1964

Photo Number C-24848, VII-ORA-5, 2-27

Source: Map and Imagery Library,  
 University of California, Santa Barbara

Prepared for:

Southwest Division  
 Naval Facilities Engineering Command  
 Contract N68711-92-D-4658



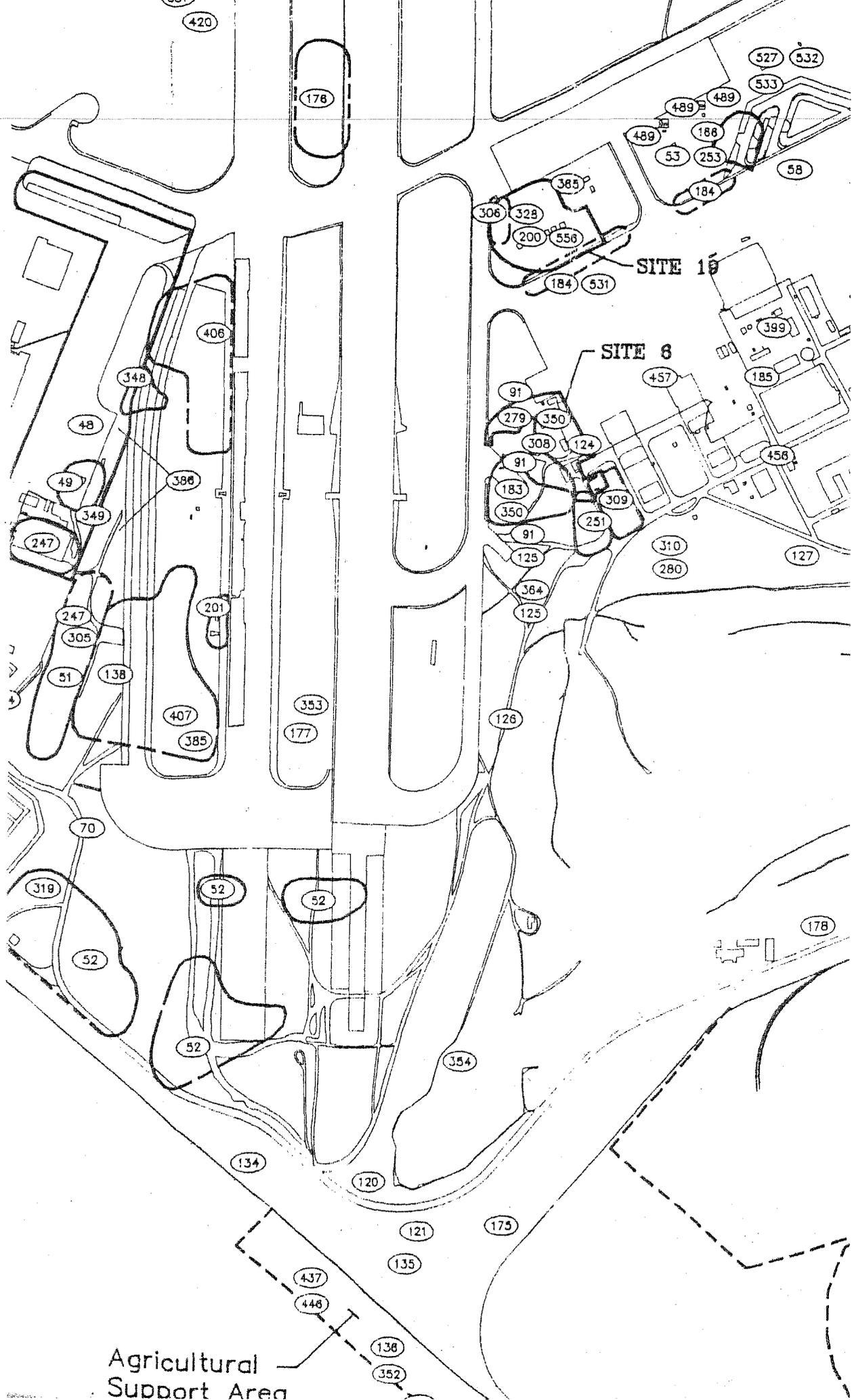
LEGEND:

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
B	Building	IM	Impoundment
D	Drums	LQ	Liquid
DB	Debris	LT	Light-Toned
DG	Disturbed Ground	M	Material
DK	Dark-Toned	MM	Mounded Material
EX	Excavation	OS	Open Storage
EXT	Extraction	R	Refuse
FA	Fill Area	ST	Stain
FBR	Fuel Bladder	TR	Trench
	Revetment	UO	Unidentified Object
GR	Graded Area	VT	Vertical Tank
GS	Ground Scar	WS	Wet Soil
HT	Horizontal Tank		



1000' 0 1000' 2000'  
 1" = 1200'

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SITE 1

SITE 6

Agricultural Support Area

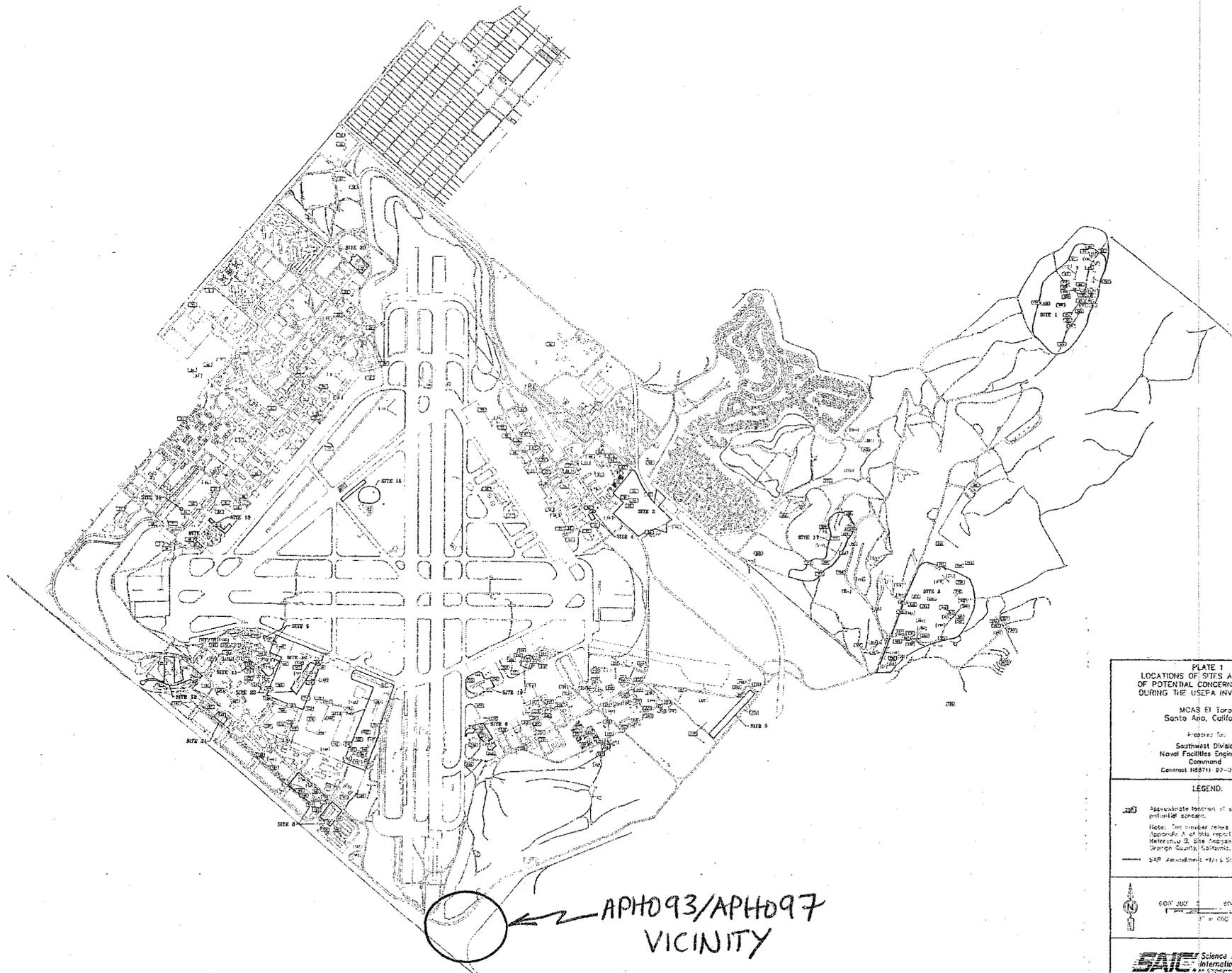


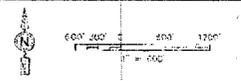
PLATE 1  
LOCATIONS OF SITES AND AREAS  
OF POTENTIAL CONCERN IDENTIFIED  
DURING THE USEPA INVESTIGATION

MCAS El Toro  
Santa Ana, California

Prepared for:  
Southwest Division  
Naval Facilities Engineering  
Command  
Contract 1428711-87-3-4653

LEGEND:

- 
 Appropriate portions of site or area of potential concern.
- Note: Site number refers to comments in Appendix A of this report. See also Reference 2, Site Inventory, El Toro Airport, Orange County, California, USEPA, 1991.
- 
 SAP Amendment - 17-1 Sites



## Excerpts from Resource Conservation and Recovery Act Facility Assessment (RFA) Report (JEG 1993)

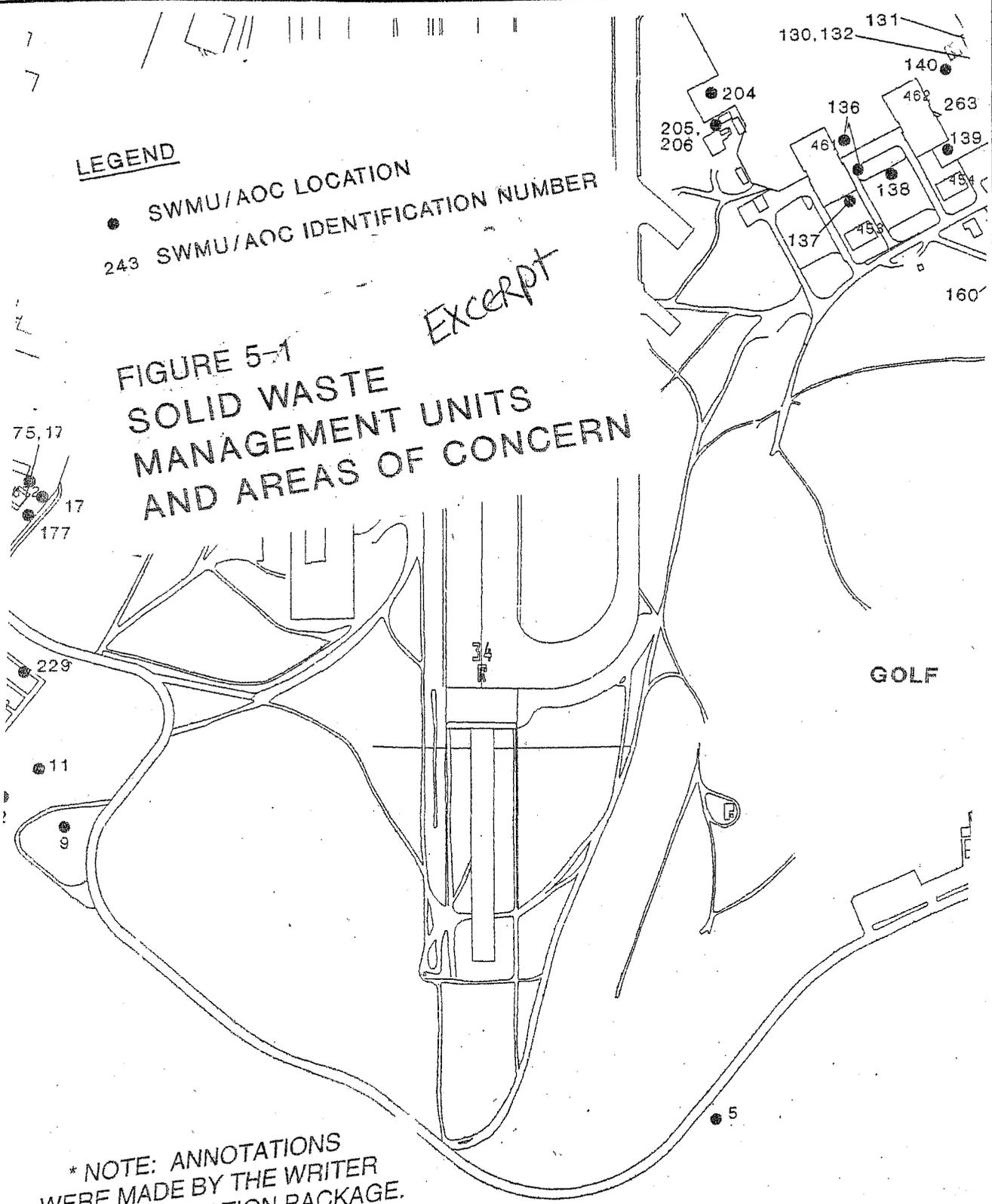
NOTES: (1) The excerpt from the RFA map (Figure 5-1) is annotated with an open circle symbol to show the approximate location of APHO 93/APHO 97. (2) The RFA map also shows the location of SWMU 5 (Borrego Canyon Wash), and SWMU 5 sampling visit information is presented.

**LEGEND**

- SWMU/AOC LOCATION
- 243 SWMU/AOC IDENTIFICATION NUMBER

**FIGURE 5-1  
SOLID WASTE  
MANAGEMENT UNITS  
AND AREAS OF CONCERN**

*EXCERPT*



\* NOTE: ANNOTATIONS  
WERE MADE BY THE WRITER  
OF THE INFORMATION PACKAGE.  
THE LOCATION OF APHO 103  
IS ESTIMATED.

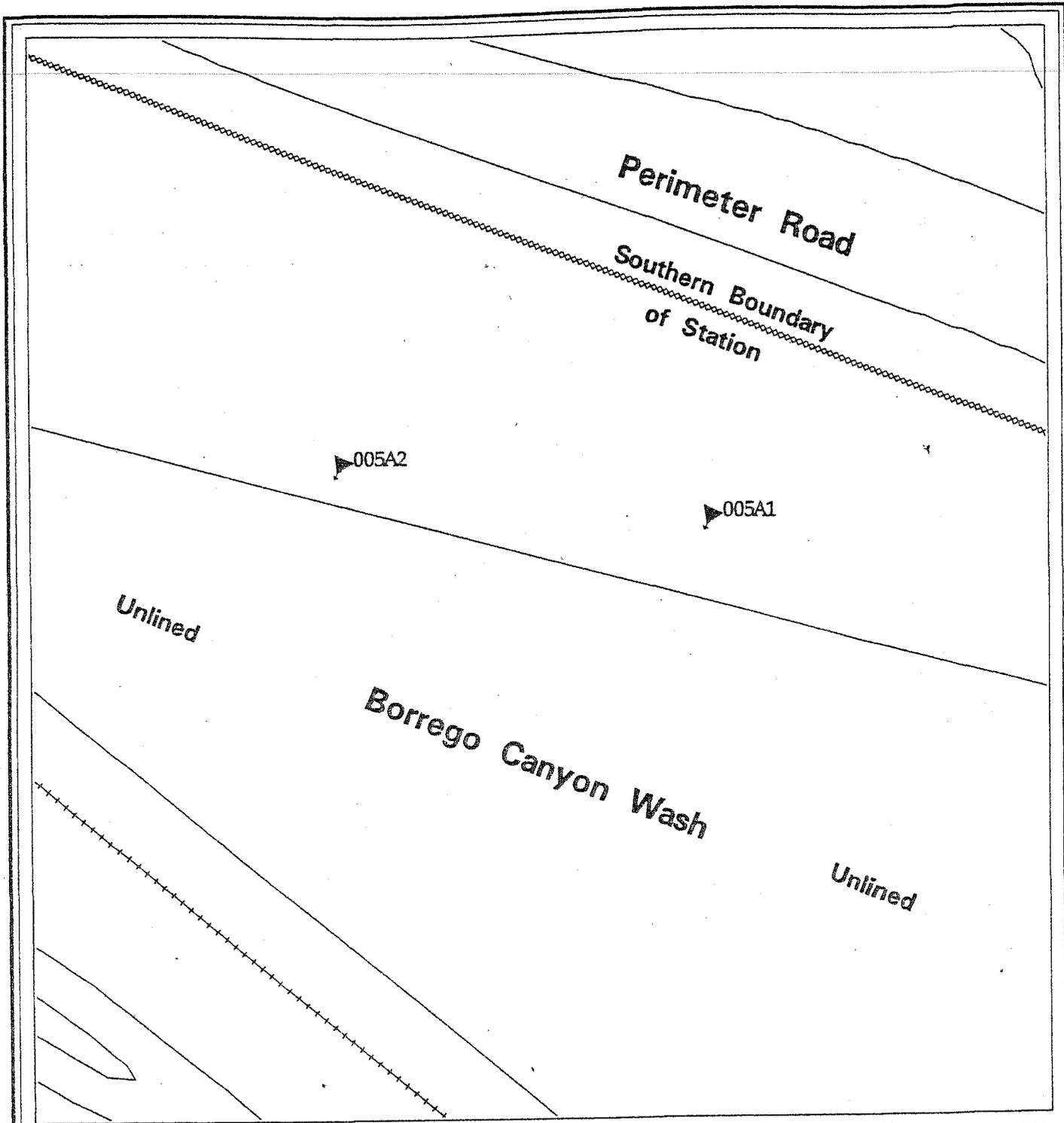
○ ← APHO 103  
VICINITY \*

Table 6-15  
Recommendations for SWMUs/AOCs  
MCAS El Toro RFA

SWMU No.	SWMU Description	Recommendation (FA/NFA)	Description of Further Action	Rationale for Further Action
3	Marshburn Channel	NFA	--	--
4	Bee Canyon Wash	NFA	--	--
5	Borrego Canyon Wash	NFA	--	--
6	Landfarming site	NFA	--	--
7	Transformer storage area	NFA	--	--
8	Abandoned Well 50-3285	NFA	--	--
9	Fuel bladder	NFA	--	--
11	Agua Chinon Wash	NFA	--	--
13	Drop Tank Storage Area	NFA	--	--
14	Drop Tank Fuel Storage Area	NFA	Repair cracks in pavement	Prevent future migration of petroleum hydrocarbons
15	Wash Water Runoff Site	NFA	--	--
16	Wash Water Runoff Site	NFA	--	--
20	Underground Storage Tank	NFA	--	--
26	Hazardous Waste Storage Area	FA	Excavate shallow, stained soil	Moderate petroleum hydrocarbon contamination
27	Hazardous Waste Storage Area	NFA	--	--
30	Drum Storage Area	NFA	--	--
33	Hazardous Waste Storage Area	FA	Excavate shallow, stained soil	Petroleum hydrocarbon contamination
39	Hazardous Waste Storage Area	NFA	--	--
41	Vehicle Wash Rack	NFA	--	--
45	Drum Storage Area	NFA	--	--
46	Vehicle maintenance and parking	FA	Additional boring(s)	Petroleum hydrocarbon contamination, unknown extent
48	Underground Storage Tank	NFA	--	--
49	Underground Storage Tank	NFA	--	--
57	Underground Storage Tank	NFA	--	--
59	Underground Storage Tank	NFA	--	--
65	Underground Storage Tank	NFA	--	--
70	Hazardous Waste Storage Area	NFA	--	--
73	Hazardous Waste Storage Area	NFA	--	--
76	Oil/Water Separator	NFA	--	--
83	Hazardous Waste Storage Area	NFA	--	--
84	Oil/Water Separator	FA	Leak test/inspection of separator	Moderate petroleum hydrocarbon contamination at 10-foot de
88	Drum Storage Area	NFA	--	--
90	Former Sewage Treatment Plant Site	NFA	--	--

**MCAS EL TORO RCRA FACILITY ASSESSMENT - SAMPLING VISIT RESULTS**

SWMU/AOC NUMBER	SWMU/AOC TYPE (FIGURE)	BORING NUMBER	SAMPLE DEPTH (FEET)	ANALYTICAL TEST RESULTS							RECOMMENDATIONS		
				TPH (mg/kg)	TFH (mg/kg)		VOCs (ug/kg)	SVOCs (ug/kg)	PESTICIDES/PCBs (ug/kg)	METALS (mg/kg)	Action	Rationale	
					Gasoline	Diesel							
5	Borrego Canyon Wash (3)	A1	10	105	ND	35 Z	Methylene Chloride-6 BJ * Toluene-4 J	ND	ND	ND	Silver-ND	NFA TPH/TFH < 1000 ppm VOCs < CRDL SVOCs < CRDL Pest/PCB < CRDL Metals < ETM & PRG  CRDL - Contract Required Detection Limit	
			20	ND	ND	ND	Methylene Chloride-7 BJ * Acetone-6 BJ *	Diethylphthalate-56 J Di-n-butylphthalate-29 J Pyrene-22 J	ND	ND	Silver-ND		
			30	ND	ND	ND	Methylene Chloride-7 BJ * Toluene-3 J	ND	ND	ND	Silver-ND		
			40	45.6	ND	ND	Methylene Chloride-6 BJ * Acetone-4 BJ *	Diethylphthalate-22 J Di-n-butylphthalate-21 J	ND	ND	Silver-ND		
			50	ND	ND	ND	Methylene Chloride-6 BJ *	Diethylphthalate-23 J Di-n-butylphthalate-30 J Bis(2-Ethylhexyl)phthalate-68 BJ *	ND	ND	Silver-ND		
			60	66	ND	ND	Methylene Chloride-7 BJ * Toluene-2 J	Bis(2-Ethylhexyl)phthalate-120 BJ *	ND	ND	Silver-ND		
		A2	10	ND	ND	ND	Methylene Chloride-5 BJ *	Di-n-butylphthalate-22 J	ND	ND	ND		Silver-ND
			20	ND	ND	ND	Methylene Chloride-12 B *	Diethylphthalate-21 J Di-n-butylphthalate-23 J	ND	ND	ND		Silver-ND
			30	ND	ND	ND	Methylene Chloride-8 BJ *	Bis(2-Ethylhexyl)phthalate-210 BJ *	ND	ND	ND		Silver-ND
			40	ND	ND	ND	Methylene Chloride-6 BJ * Acetone-8 BJ *	Diethylphthalate-19 BJ * Bis(2-Ethylhexyl)phthalate-95 BJ *	ND	ND	ND		Silver-0.67 B
			50	ND	ND	ND	Methylene Chloride-12 B *	Bis(2-Ethylhexyl)phthalate-22 BJ	ND	ND	ND		Silver-ND
			50 (Duplicate)	ND	ND	ND	Methylene Chloride-8 BJ *	Di-n-butylphthalate-27 BJ * Bis(2-Ethylhexyl)phthalate-32 BJ *	ND	ND	ND		Silver-ND
			60	ND	ND	ND	Methylene Chloride-7 BJ *	Diethylphthalate-25 BJ * Bis(2-Ethylhexyl)phthalate-31 BJ *	ND	ND	ND		Silver-ND



**Figure 3 Sample Location Map**

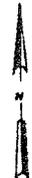
SWMU/AOC Number and Type:  
5 - Borrego Canyon Wash

Boring Location and Number:

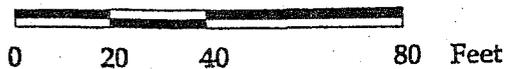
Features:

- ⊕ 123H4 5' Deep Boring
- ⊙ 123B4 25' Deep Boring
- ▲ 123A4 60' Long, Angle Boring

-  Building
-  Concrete
-  Fence
-  Railroad



Scale



MCAS El Toro  
RCRA Facility Assessment

Annotated Excerpts from the Environmental Baseline Survey, Former Marine  
Corps Air Station, El Toro, California (Appendix C – Baseline Verification  
Summary Report, Agricultural Use Areas) (Earth Tech 2003)

NOTES: (1) The approximate location of APHO 93/APHO 97 (within the agricultural use study area AG-7) is identified with a large solid circle symbol on the map. (2) Detected analytes from parcel AG-7 and an excerpt from the text are presented.

Cabinet 13  
Shelf # top

Final

# Environmental Baseline Survey

FORMER MARINE CORPS AIR STATION

EL TORO, CALIFORNIA

EXCERPTS

September 2003

Department of the Navy  
Commander, Southwest Division  
Naval Facilities Engineering Command  
San Diego, California 92132-5190

Comprehensive Long-Term Environmental Action Navy II  
Contract Number N62742-94-D-0048, CTO 0104

### 6.3 PARCEL AG-3

Eleven samples were collected from four locations at parcel AG-3. 4,4'-DDD was detected in five samples, with a maximum concentration of 6 µg/kg. 4,4'-DDE was detected in six samples, with a maximum concentration of 42 µg/kg. 4,4'-DDT was detected in six samples, with a maximum concentration of 14 µg/kg. Alpha-chlordane was detected in six samples, with a maximum concentration of 51 µg/kg. Dieldrin was detected in three samples, with a maximum concentration of 2 µg/kg. Gamma-chlordane was detected in seven samples, with a maximum concentration of 52 µg/kg. Heptachlor epoxide was detected in one sample, at a concentration of 1 µg/kg. All detected analytes had concentrations below their respective residential PRG.

### 6.4 PARCEL AG-4

Eleven samples were collected from four locations at parcel AG-4. 4,4'-DDD was detected in six samples, with a maximum concentration of 23 µg/kg. 4,4'-DDE was detected in six samples, with a maximum concentration of 72 µg/kg. 4,4'-DDT was detected in six samples, with a maximum concentration of 43 µg/kg. Alpha-chlordane was detected in three samples, with a maximum concentration of 3.7 µg/kg. Gamma-chlordane was detected in four samples, with a maximum concentration of 2 µg/kg. All detected analytes had concentrations below their respective residential PRG.

### 6.5 PARCEL AG-5

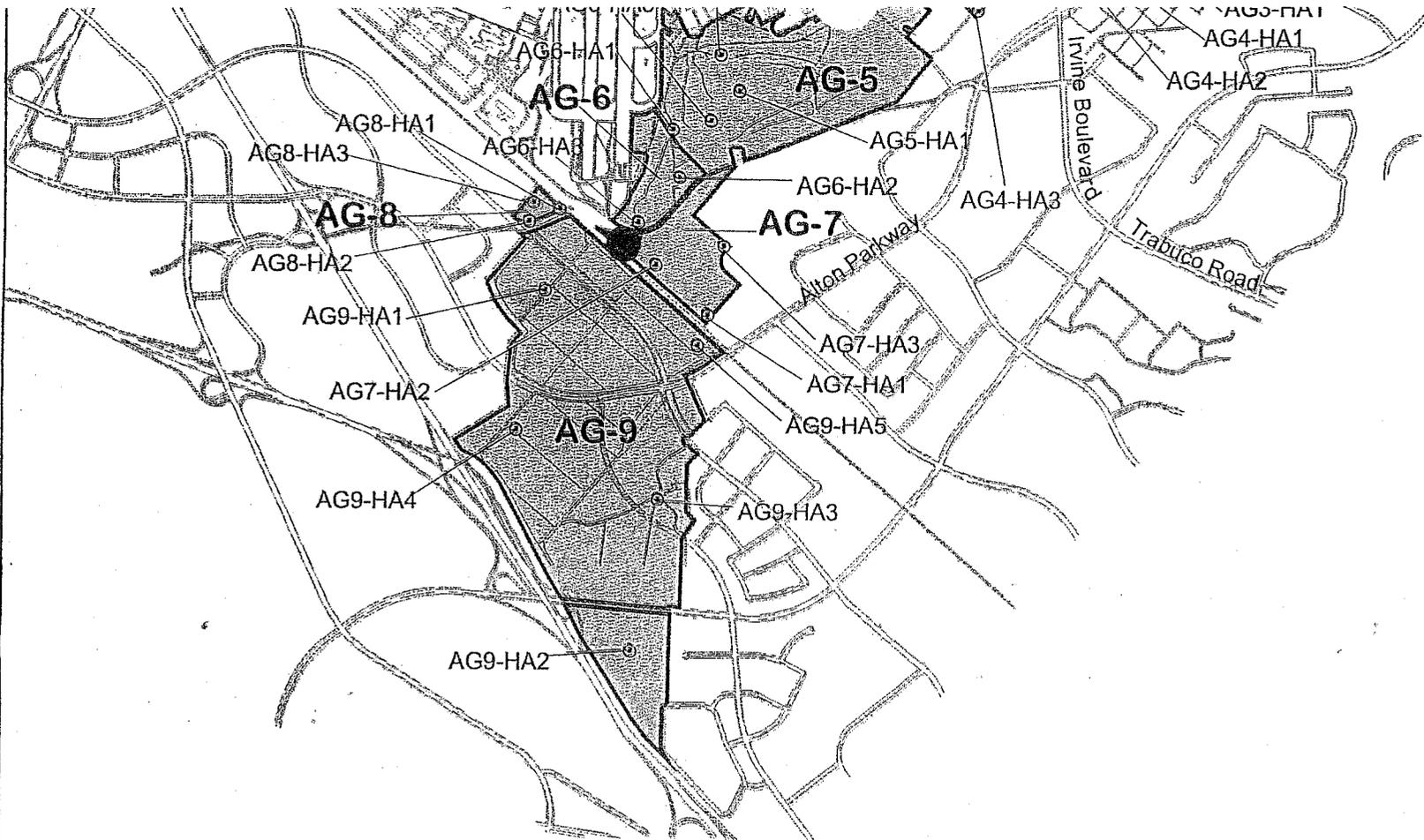
Nine samples were collected from three locations at parcel AG-5. 4,4'-DDD was detected in one sample, at a concentration of 3 µg/kg. 4,4'-DDE was detected in four samples, with a maximum concentration of 8 µg/kg. 4,4'-DDT was detected in three samples, with a maximum concentration of 6 µg/kg. Dieldrin was detected in one sample, at a concentration of 0.4 µg/kg. Methoxychlor was detected in one sample, at a concentration of 1 µg/kg. All detected analytes had concentrations below their respective residential PRG.

### 6.6 PARCEL AG-6

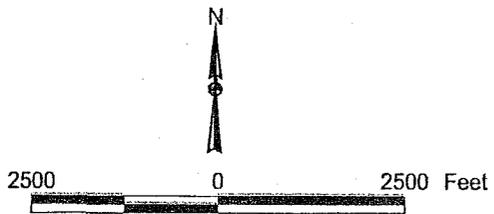
Nine samples were collected from three locations at parcel AG-6, including one duplicate. 4,4'-DDD was detected in three samples, with a maximum concentration of 4 µg/kg. 4,4'-DDE was detected in seven samples, with a maximum concentration of 54 µg/kg. 4,4'-DDT was detected in two samples, with a maximum concentration of 0.9 µg/kg. Alpha-chlordane was detected in two samples, with a maximum concentration of 4.8 µg/kg. Endrin Aldehyde was detected in one sample, at a concentration of 0.7 µg/kg. Gamma-chlordane was detected in two samples, with a maximum concentration of 3.7 µg/kg. Methoxychlor was detected in one sample at a concentration of 2 µg/kg. All detected analytes had concentrations below their respective residential PRG.

### 6.7 PARCEL AG-7 ←

Six samples were collected from three locations at parcel AG-7. 4,4'-DDD was detected in three samples, with a maximum concentration of 56 µg/kg. 4,4'-DDE was detected in all six samples, with a maximum concentration of 192 µg/kg. 4,4'-DDT was detected in five samples, with a maximum concentration of 137 µg/kg. Alpha-chlordane was detected in three samples, with a maximum concentration of 8.5 µg/kg. Dieldrin was detected in three samples, with a maximum concentration of 6 µg/kg. Endosulfan sulfate was detected in two samples, with a maximum concentration of 15 µg/kg. Endrin aldehyde was detected in two samples, with a maximum concentration of 9 µg/kg. Gamma-chlordane was detected in three samples, with a maximum concentration of 4.9 µg/kg. Heptachlor epoxide was detected in one sample, at a concentration of 2 µg/kg. All detected analytes had concentrations below their respective residential PRG.



*Excerpt*



**Features:**

-  Soil Sampling Location
-  Agricultural Parcel
-  Roads
-  Buildings

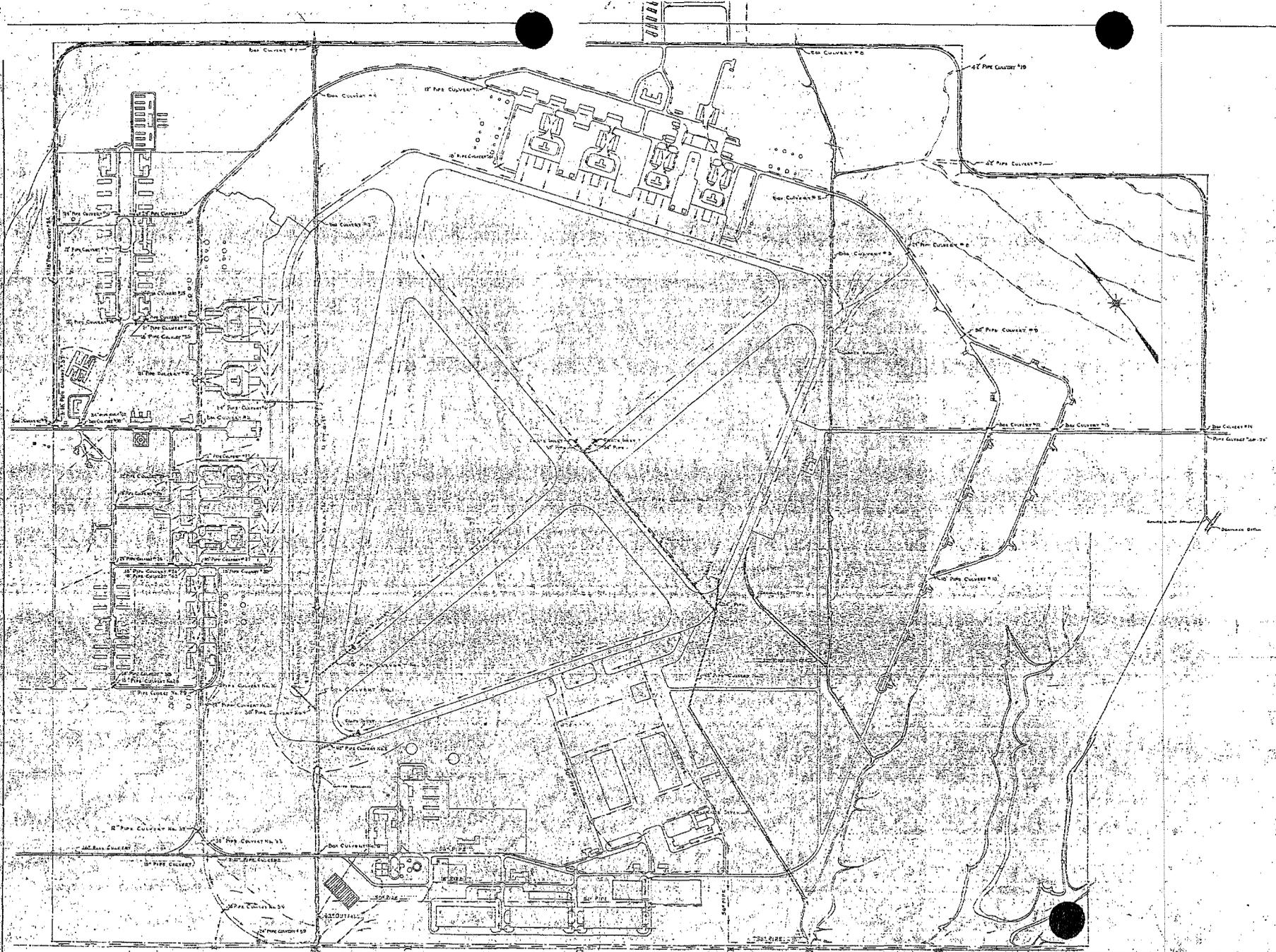
**Figure 1**  
**MCAS El Toro**  
**Agricultural Parcels**  
**Former MCAS El Toro**  
**California**

Table C.1-7: Analytical Results, Parcel AG-7

Analyte	Units	MCAS El Toro Background Concentration	Residential Soil PRG	Residential Cancer Risk Screening Level	Residential Noncancer Risk Screening Level	AG7-HA1	AG7-HA1	AG7-HA2	AG7-HA2	AG7-HA3	AG7-HA3
						1 foot bgs LJ030	4 feet bgs LJ031	1 foot bgs LJ028	4 feet bgs LJ029	1 foot bgs LJ026	4 feet bgs LJ027
Organochloride Pesticides											
4,4'-DDD	µg/kg	36.1	2.4E+03	2.4E+03	--	56	3.5 U	9.7	3.3 U	26	3.4 U
4,4'-DDE	µg/kg	145	1.7E+03	1.7E+03	--	192	0.4 J	66	3 J	90	1 J
4,4'-DDT	µg/kg	236	1.7E+03	1.7E+03	3.6E+04	137	3.5 U	22	0.7 J	56	0.4 J
Aldrin	µg/kg	--	2.9E+01	2.9E+01	1.8E+03	2 U	2 U	1.8 U	1.9 U	1.9 U	1.9 U
Alpha-BHC	µg/kg	--	9.0E+01	9.0E+01	3.5E+04	2 U	2 U	1.8 U	1.9 U	1.9 U	1.9 U
Alpha-Chlordane	µg/kg	2.24	1.6E+03	1.6E+03	3.6E+04	8.5	1.2 U	1	1.1 U	5.2	1.1 U
Beta-BHC	µg/kg	--	3.2E+02	3.2E+02	1.4E+04	2 U	2 U	1.8 U	1.9 U	1.9 U	1.9 U
Delta-BHC	µg/kg	--	--	--	--	2 U	2 U	1.8 U	1.9 U	1.9 U	1.9 U
Dieldrin	µg/kg	19.9	3.0E+01	3.0E+01	3.1E+03	5	3.5 U	2 J	3.3 U	6	3.4 U
Endosulfan I	µg/kg	0.179	3.7E+05	--	3.7E+05	3.6 U	3.5 U	3.2 U	3.3 U	3.3 U	3.4 U
Endosulfan II	µg/kg	2.22	3.7E+05	--	3.7E+05	3.6 U	3.5 U	3.2 U	3.3 U	3.3 U	3.4 U
Endosulfan Sulfate	µg/kg	3.1	3.7E+05	--	3.7E+05	15	5.9 U	5.4 U	5.5 U	7	5.6 U
Endrin	µg/kg	2.22	1.8E+04	--	1.8E+04	3.6 U	3.5 U	3.2 U	3.3 U	3.3 U	3.4 U
Endrin Aldehyde	µg/kg	2.22	1.8E+04	--	1.8E+04	9	3.5 U	3.2 U	3.3 U	4	3.4 U
Endrin Ketone	µg/kg	--	1.8E+04	--	1.8E+04	3.6 U	3.5 U	3.2 U	3.3 U	3.3 U	3.4 U
Gamma-BHC (lindane)	µg/kg	--	4.4E+02	4.4E+02	2.1E+04	2 U	2 U	1.8 U	1.9 U	1.9 U	1.9 U
Gamma-Chlordane	µg/kg	2.7	1.6E+03	1.6E+03	3.5E+04	4.9	1.2 U	0.4 J	1.1 U	2	1.1 U
Heptachlor	µg/kg	--	1.1E+02	1.1E+02	3.1E+04	2 U	2 U	1.8 U	1.9 U	1.9 U	1.9 U
Heptachlor Epoxide	µg/kg	--	5.3E+01	5.3E+01	7.9E+02	2 J	2 U	1.8 U	1.9 U	1.9 U	1.9 U
Methoxychlor	µg/kg	--	3.1E+05	--	3.1E+05	12 U	12 U	11 U	11 U	11 U	11 U
Toxaphene	µg/kg	--	4.4E+02	4.4E+02	--	120 U	120 U	110 U	110 U	110 U	110 U
Organophosphorus Pesticides											
Azinphos Methyl	µg/kg	--	--	--	--	120 U	120 U	110 U	110 U	110 U	110 U
Bolstar (sulprofos)	µg/kg	--	--	--	--	59 U	59 U	54 U	55 U	56 U	56 U
Chlorpyrifos	µg/kg	--	1.8E+05	--	1.8E+05	59 U	59 U	54 U	55 U	56 U	56 U
Coumaphos	µg/kg	--	--	--	--	120 U	120 U	110 U	110 U	110 U	110 U
Demeton-O	µg/kg	--	2.4E+03	--	2.4E+03	59 U	59 U	54 U	55 U	56 U	56 U
Demeton-S	µg/kg	--	--	--	--	59 U	59 U	54 U	55 U	56 U	56 U
Diazinon	µg/kg	--	5.5E+04	--	5.5E+04	59 U	59 U	54 U	55 U	56 U	56 U
Diazinon	µg/kg	--	5.5E+04	1.7E+03	3.1E+04	59 U	59 U	54 U	55 U	56 U	56 U
Dichlorvos	µg/kg	--	1.7E+03	--	3.1E+04	59 U	59 U	54 U	55 U	56 U	56 U
Dichlorvos	µg/kg	--	2.4E+03	--	2.4E+03	59 U	59 U	54 U	55 U	56 U	56 U
Disulfoton	µg/kg	--	--	--	--	59 U	59 U	54 U	55 U	56 U	56 U
Ethoprop	µg/kg	--	--	--	--	59 U	59 U	54 U	55 U	56 U	56 U
Fensulfthion	µg/kg	--	--	--	--	59 U	59 U	54 U	55 U	56 U	56 U
Fenthion	µg/kg	--	--	--	--	59 U	59 U	54 U	55 U	56 U	56 U
Merphos	µg/kg	--	1.8E+03	--	1.8E+03	59 U	59 U	54 U	55 U	56 U	56 U
Methyl Parathion	µg/kg	--	1.5E+04	--	1.5E+04	59 U	59 U	54 U	55 U	56 U	56 U
Mevinphos	µg/kg	--	--	--	--	59 U	59 U	54 U	55 U	56 U	56 U
Naled	µg/kg	--	1.2E+05	--	1.2E+05	59 U	59 U	54 U	55 U	56 U	56 U
Phorate	µg/kg	--	1.2E+04	--	1.2E+04	59 U	59 U	54 U	55 U	56 U	56 U
Ronnel	µg/kg	--	3.1E+06	--	3.1E+06	59 U	59 U	54 U	55 U	56 U	56 U
Tetrachlorvinphos (stirophos)	µg/kg	--	2.0E+04	2.0E+04	1.8E+06	59 U	59 U	54 U	55 U	56 U	56 U
Tokuthion (prothiofos)	µg/kg	--	--	--	--	120 U	120 U	110 U	110 U	110 U	110 U
Trichloronate	µg/kg	--	--	--	--	120 U	120 U	110 U	110 U	110 U	110 U
Chlorinated Herbicides											
2,4,5-T	µg/kg	--	6.1E+05	--	6.1E+05	12 U	12 U	11 U	11 U	11 U	11 U
2,4,5-TP (silvex)	µg/kg	--	4.9E+05	--	4.9E+05	12 U	12 U	11 U	11 U	11 U	11 U
2,4-D	µg/kg	--	6.9E+05	--	6.9E+05	12 U	12 U	11 U	11 U	11 U	11 U
2,4-DB	µg/kg	--	4.9E+05	--	4.9E+05	12 U	12 U	11 U	11 U	11 U	11 U
Dalapon (dichloroacetic acid)	µg/kg	--	1.8E+06	--	1.8E+06	24 U	24 U	22 U	22 U	22 U	23 U
Dicamba	µg/kg	--	--	--	--	12 U	12 U	11 U	11 U	11 U	11 U
Dichloroprop	µg/kg	67.2	--	--	--	12 U	12 U	11 U	11 U	11 U	11 U
Dinoseb (DNBP)	µg/kg	--	6.1E+04	--	6.1E+04	24 U	24 U	22 U	22 U	22 U	23 U
MCPA	µg/kg	28,500	--	--	--	2,400 U	2,400 U	2,200 U	2,200 U	2,200 U	2,300 U
MCPP	µg/kg	--	6.1E+04	--	6.1E+04	2,400 U	2,400 U	2,200 U	2,200 U	2,200 U	2,300 U

µg/kg = micrograms per kilogram

U = not detected (including not present because of blank contamination)



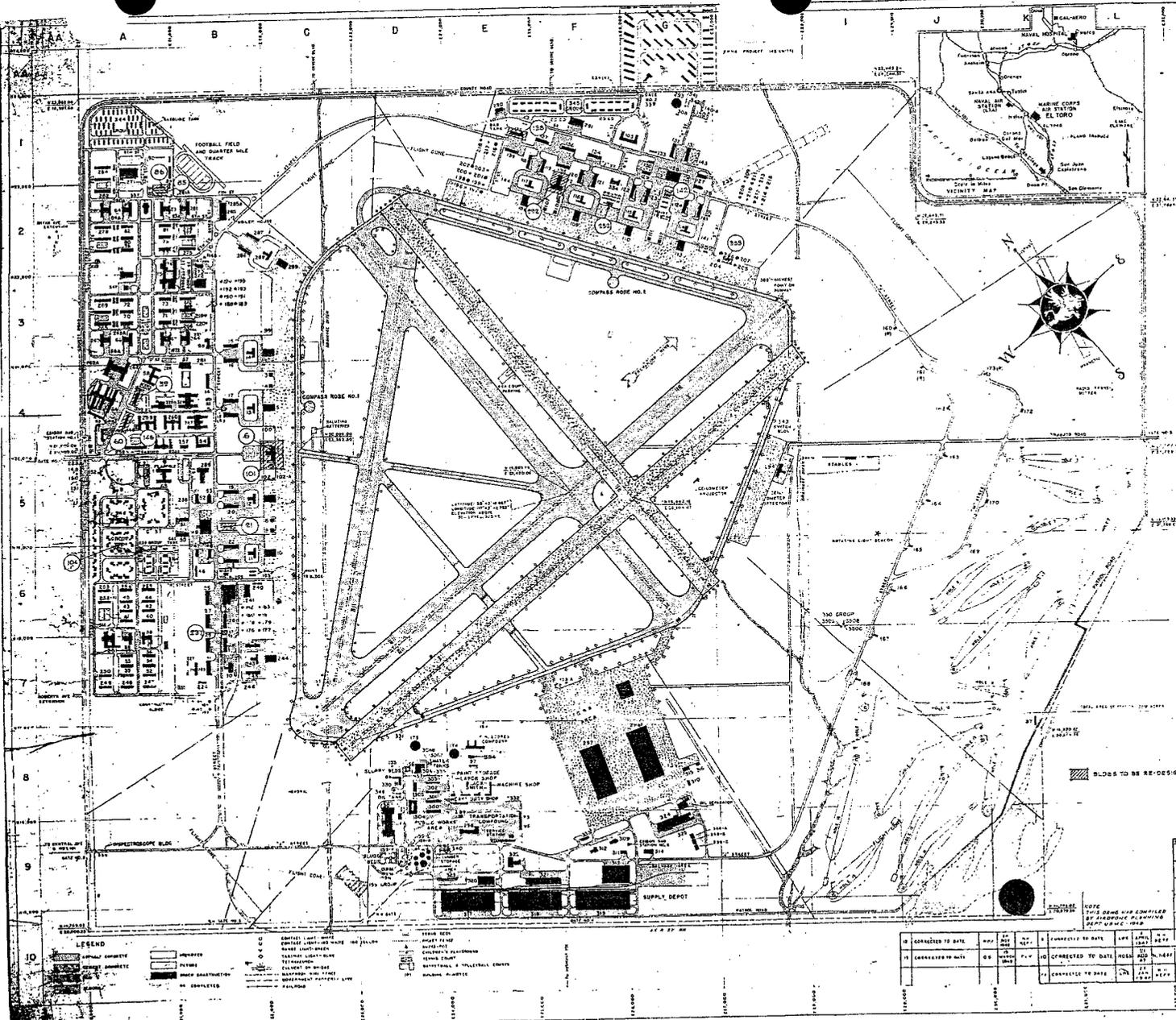
ELEVENTH NAVAL DISTRICT SAN DIEGO, CALIF.  
 MARINE CORPS AIR STATION  
 EL TORO, CALIF.  
**DRAINAGE**  
**KEY PLAN**  
 Approved 1962

DRAWN BY: [Signature]  
 CHECKED BY: [Signature]  
 NO. 5421  
 224,525

11/22/62  
 224,525  
 11/22/62

## Historical Master Plot Plan dated 17 January 1950

NOTE: The 1950 plan is annotated with a solid circle symbol to show the approximate location of APHO 93/APHO 97.



LEGEND OF P.			
NO.	LOC.	DESC.	USE
1	101	OFFICER'S QUARTERS	OFFICER'S QUARTERS
2	102	OFFICER'S QUARTERS	OFFICER'S QUARTERS
3	103	OFFICER'S QUARTERS	OFFICER'S QUARTERS
4	104	OFFICER'S QUARTERS	OFFICER'S QUARTERS
5	105	OFFICER'S QUARTERS	OFFICER'S QUARTERS
6	106	OFFICER'S QUARTERS	OFFICER'S QUARTERS
7	107	OFFICER'S QUARTERS	OFFICER'S QUARTERS
8	108	OFFICER'S QUARTERS	OFFICER'S QUARTERS
9	109	OFFICER'S QUARTERS	OFFICER'S QUARTERS
10	110	OFFICER'S QUARTERS	OFFICER'S QUARTERS
11	111	OFFICER'S QUARTERS	OFFICER'S QUARTERS
12	112	OFFICER'S QUARTERS	OFFICER'S QUARTERS
13	113	OFFICER'S QUARTERS	OFFICER'S QUARTERS
14	114	OFFICER'S QUARTERS	OFFICER'S QUARTERS
15	115	OFFICER'S QUARTERS	OFFICER'S QUARTERS
16	116	OFFICER'S QUARTERS	OFFICER'S QUARTERS
17	117	OFFICER'S QUARTERS	OFFICER'S QUARTERS
18	118	OFFICER'S QUARTERS	OFFICER'S QUARTERS
19	119	OFFICER'S QUARTERS	OFFICER'S QUARTERS
20	120	OFFICER'S QUARTERS	OFFICER'S QUARTERS
21	121	OFFICER'S QUARTERS	OFFICER'S QUARTERS
22	122	OFFICER'S QUARTERS	OFFICER'S QUARTERS
23	123	OFFICER'S QUARTERS	OFFICER'S QUARTERS
24	124	OFFICER'S QUARTERS	OFFICER'S QUARTERS
25	125	OFFICER'S QUARTERS	OFFICER'S QUARTERS
26	126	OFFICER'S QUARTERS	OFFICER'S QUARTERS
27	127	OFFICER'S QUARTERS	OFFICER'S QUARTERS
28	128	OFFICER'S QUARTERS	OFFICER'S QUARTERS
29	129	OFFICER'S QUARTERS	OFFICER'S QUARTERS
30	130	OFFICER'S QUARTERS	OFFICER'S QUARTERS
31	131	OFFICER'S QUARTERS	OFFICER'S QUARTERS
32	132	OFFICER'S QUARTERS	OFFICER'S QUARTERS
33	133	OFFICER'S QUARTERS	OFFICER'S QUARTERS
34	134	OFFICER'S QUARTERS	OFFICER'S QUARTERS
35	135	OFFICER'S QUARTERS	OFFICER'S QUARTERS
36	136	OFFICER'S QUARTERS	OFFICER'S QUARTERS
37	137	OFFICER'S QUARTERS	OFFICER'S QUARTERS
38	138	OFFICER'S QUARTERS	OFFICER'S QUARTERS
39	139	OFFICER'S QUARTERS	OFFICER'S QUARTERS
40	140	OFFICER'S QUARTERS	OFFICER'S QUARTERS
41	141	OFFICER'S QUARTERS	OFFICER'S QUARTERS
42	142	OFFICER'S QUARTERS	OFFICER'S QUARTERS
43	143	OFFICER'S QUARTERS	OFFICER'S QUARTERS
44	144	OFFICER'S QUARTERS	OFFICER'S QUARTERS
45	145	OFFICER'S QUARTERS	OFFICER'S QUARTERS
46	146	OFFICER'S QUARTERS	OFFICER'S QUARTERS
47	147	OFFICER'S QUARTERS	OFFICER'S QUARTERS
48	148	OFFICER'S QUARTERS	OFFICER'S QUARTERS
49	149	OFFICER'S QUARTERS	OFFICER'S QUARTERS
50	150	OFFICER'S QUARTERS	OFFICER'S QUARTERS
51	151	OFFICER'S QUARTERS	OFFICER'S QUARTERS
52	152	OFFICER'S QUARTERS	OFFICER'S QUARTERS
53	153	OFFICER'S QUARTERS	OFFICER'S QUARTERS
54	154	OFFICER'S QUARTERS	OFFICER'S QUARTERS
55	155	OFFICER'S QUARTERS	OFFICER'S QUARTERS
56	156	OFFICER'S QUARTERS	OFFICER'S QUARTERS
57	157	OFFICER'S QUARTERS	OFFICER'S QUARTERS
58	158	OFFICER'S QUARTERS	OFFICER'S QUARTERS
59	159	OFFICER'S QUARTERS	OFFICER'S QUARTERS
60	160	OFFICER'S QUARTERS	OFFICER'S QUARTERS
61	161	OFFICER'S QUARTERS	OFFICER'S QUARTERS
62	162	OFFICER'S QUARTERS	OFFICER'S QUARTERS
63	163	OFFICER'S QUARTERS	OFFICER'S QUARTERS
64	164	OFFICER'S QUARTERS	OFFICER'S QUARTERS
65	165	OFFICER'S QUARTERS	OFFICER'S QUARTERS
66	166	OFFICER'S QUARTERS	OFFICER'S QUARTERS
67	167	OFFICER'S QUARTERS	OFFICER'S QUARTERS
68	168	OFFICER'S QUARTERS	OFFICER'S QUARTERS
69	169	OFFICER'S QUARTERS	OFFICER'S QUARTERS
70	170	OFFICER'S QUARTERS	OFFICER'S QUARTERS
71	171	OFFICER'S QUARTERS	OFFICER'S QUARTERS
72	172	OFFICER'S QUARTERS	OFFICER'S QUARTERS
73	173	OFFICER'S QUARTERS	OFFICER'S QUARTERS
74	174	OFFICER'S QUARTERS	OFFICER'S QUARTERS
75	175	OFFICER'S QUARTERS	OFFICER'S QUARTERS
76	176	OFFICER'S QUARTERS	OFFICER'S QUARTERS
77	177	OFFICER'S QUARTERS	OFFICER'S QUARTERS
78	178	OFFICER'S QUARTERS	OFFICER'S QUARTERS
79	179	OFFICER'S QUARTERS	OFFICER'S QUARTERS
80	180	OFFICER'S QUARTERS	OFFICER'S QUARTERS
81	181	OFFICER'S QUARTERS	OFFICER'S QUARTERS
82	182	OFFICER'S QUARTERS	OFFICER'S QUARTERS
83	183	OFFICER'S QUARTERS	OFFICER'S QUARTERS
84	184	OFFICER'S QUARTERS	OFFICER'S QUARTERS
85	185	OFFICER'S QUARTERS	OFFICER'S QUARTERS
86	186	OFFICER'S QUARTERS	OFFICER'S QUARTERS
87	187	OFFICER'S QUARTERS	OFFICER'S QUARTERS
88	188	OFFICER'S QUARTERS	OFFICER'S QUARTERS
89	189	OFFICER'S QUARTERS	OFFICER'S QUARTERS
90	190	OFFICER'S QUARTERS	OFFICER'S QUARTERS
91	191	OFFICER'S QUARTERS	OFFICER'S QUARTERS
92	192	OFFICER'S QUARTERS	OFFICER'S QUARTERS
93	193	OFFICER'S QUARTERS	OFFICER'S QUARTERS
94	194	OFFICER'S QUARTERS	OFFICER'S QUARTERS
95	195	OFFICER'S QUARTERS	OFFICER'S QUARTERS
96	196	OFFICER'S QUARTERS	OFFICER'S QUARTERS
97	197	OFFICER'S QUARTERS	OFFICER'S QUARTERS
98	198	OFFICER'S QUARTERS	OFFICER'S QUARTERS
99	199	OFFICER'S QUARTERS	OFFICER'S QUARTERS
100	200	OFFICER'S QUARTERS	OFFICER'S QUARTERS

JAN 17, 1950 454 594

**U.S. MARINE CORPS STATION  
EL TORO, SANTA ANA AND CALIFORNIA**

**MASTER PLOT PLAN**

EXISTING AND PROPOSED BUILDINGS

DRAWN BY: [Name]

CHECKED BY: [Name]

DATE: [Date]

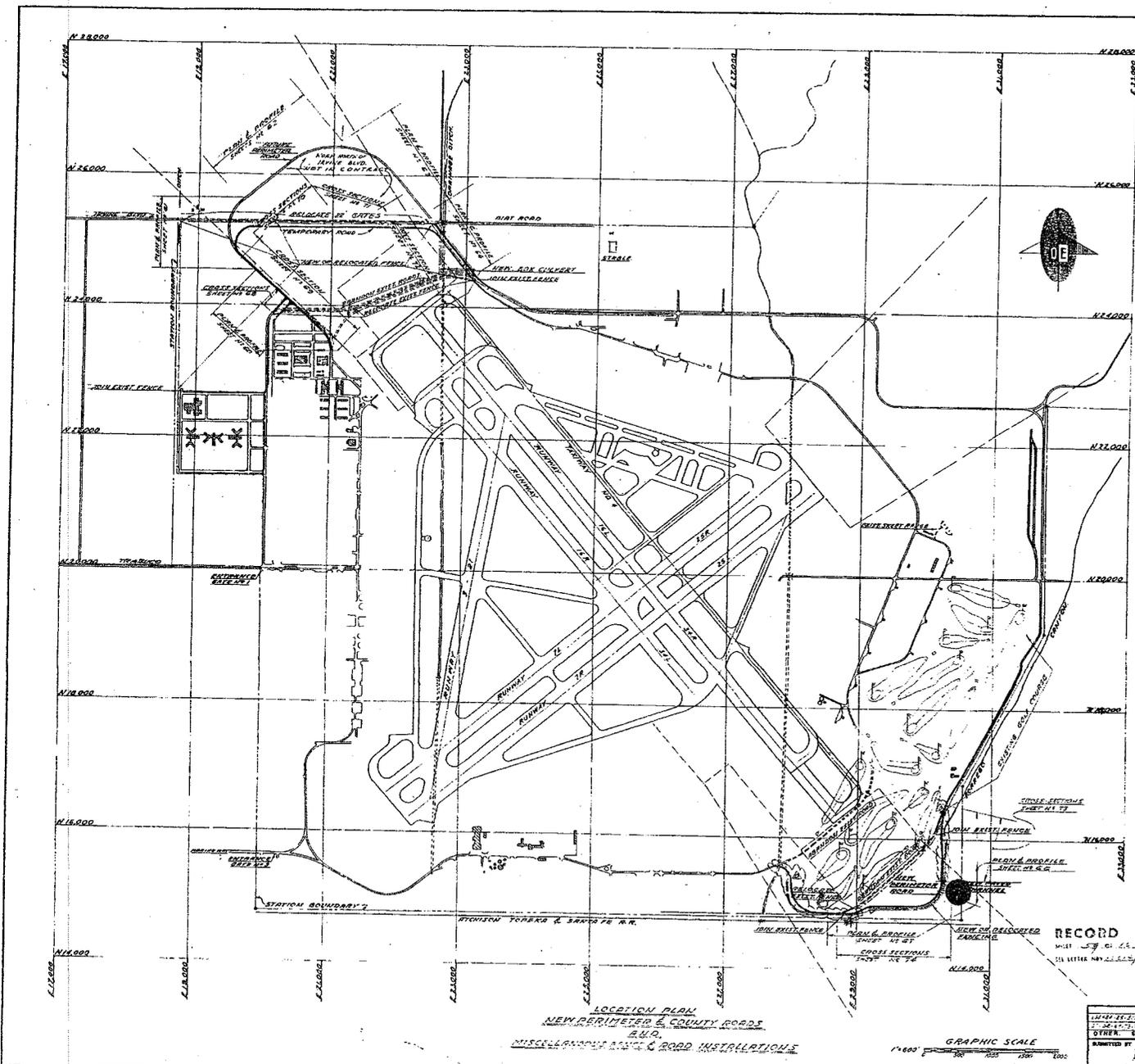
SCALE: [Scale]

SHEET NO. [Number]

1261-3-35

Excerpt from Location Plan, New Perimeter Roads, Extension to Runway 16L –  
34R & Installation of Approach Lighting (Yards and Docks Drawing 817790,  
Sheet 59 of 75, dated 1958)

NOTE: The excerpt from the plan shows the new alignment for the perimeter road in the  
vicinity of APHO 93/APHO 97 and the paved channel for Borrego Canyon Wash near  
APHO 93/APHO 97.



NOTE:  
SEE PLAN TO ROAD DRAWING  
FOR DETAILS OF  
CONSTRUCTION

LOCATION PLAN  
NEW PERIMETER & COUNTY ROADS  
B.U.D.  
MISCELLANEOUS DRIVE & ROAD INSTALLATIONS

GRAPHIC SCALE  
1" = 600'

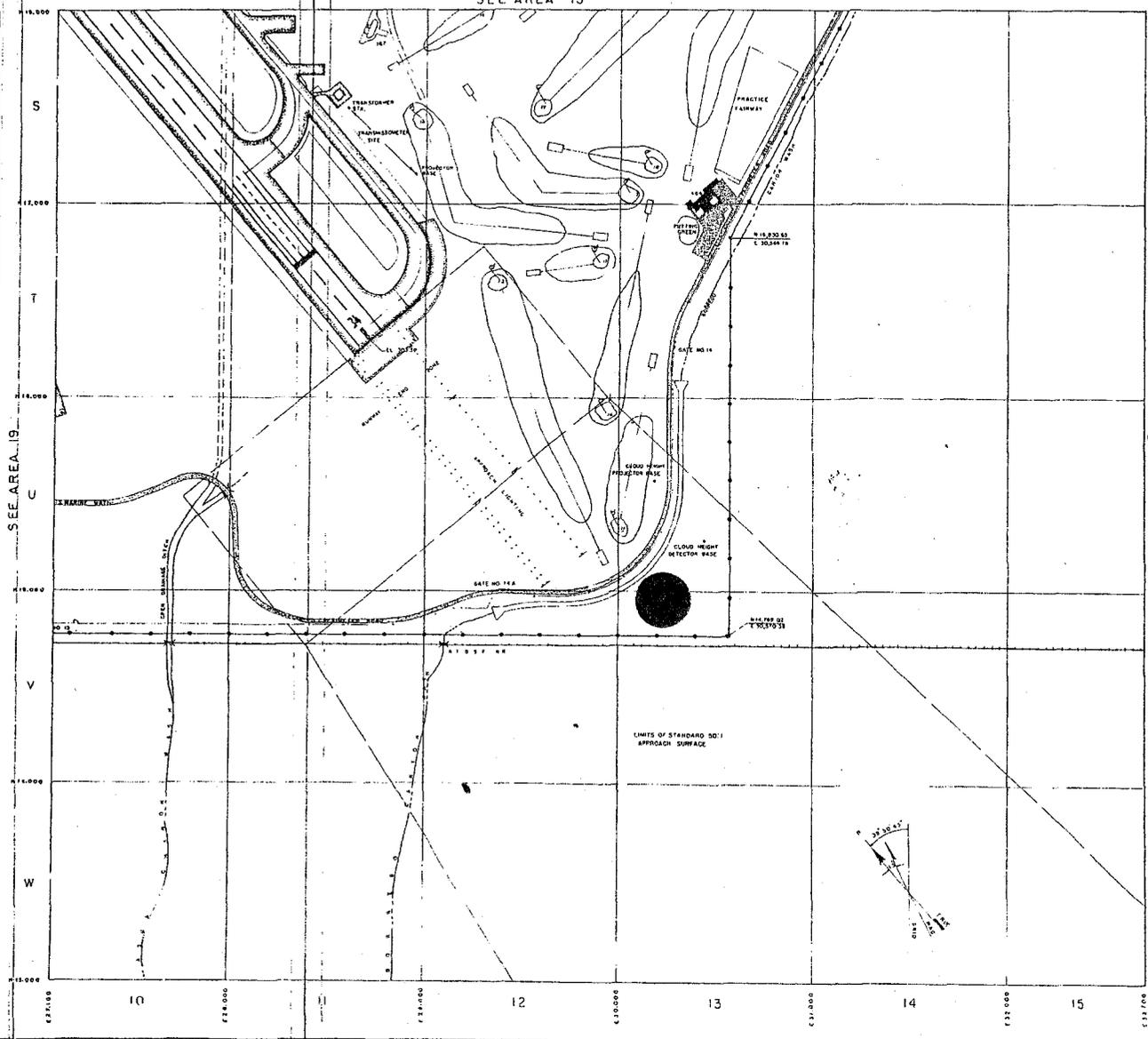
RECORD DRAWING  
SHEET 57 OF 62  
DATE 10/1/57

DESIGNED BY	ISSUED LOCATION OF IMPROVED ROAD	DATE	APPROVAL
DRAWN BY	DESCRIPTION	DATE	APPROVAL
REVISIONS			
A & E JOB NO.	DEPARTMENT OF THE ARMY	BUREAU OF AIRS AND ROCKS	
5721	ENGINEER BUREAU DISTRICT P. M. O. SAN FRANCISCO	SAN FRANCISCO, CALIFORNIA	
A & E DRAWING NO.	QUINTON ENGINEERS, LTD.		
57	SAN FRANCISCO, CALIFORNIA		
OWNER & CONTRACTOR	MARINE CORPS AIR STATION		
EL TORO	EL TORO (SANTA ANA), CALIFORNIA		
EXTENSION TO RUNWAY 16L-34E	6 INSTALLATION OF APPROACH LIGHTING		
LOCATION PLAN			
NEW PERIMETER ROADS			
DATE	SCALE	SHEET	DATE
10/1/57	AS NOTED	57 OF 62	10/1/57
DATE	SCALE	SHEET	DATE
10/1/57	AS NOTED	57 OF 62	10/1/57
DATE	T & E DRAWN BY: S. J. T. G.		

**General Development Map dated 1962**  
(Yards and Docks Drawing Number 826784)

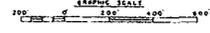
NOTE: The map shows the approximate location of APHO 93/APHO 97 with a solid circle symbol.

SEE AREA 15



LEGEND

- EXISTING STRUCTURES TO BE RETAINED
- EXISTING STRUCTURES TO BE REMOVED
- PLANNED PEACETIME STRUCTURES
- PLANNED MOBILIZATION STRUCTURES
- EXISTING ROADS OR PAVED AREA TO BE RETAINED
- EXISTING ROADS OR PAVED AREA TO BE REMOVED
- PLANNED PEACETIME ROADS OR PAVED AREA
- PLANNED MOBILIZATION ROADS OR PAVED AREA
- EXISTING AIRFIELD PAVING TO BE RETAINED
- EXISTING AIRFIELD PAVING TO BE REMOVED
- PLANNED PEACETIME AIRFIELD PAVING
- PLANNED MOBILIZATION AIRFIELD PAVING
- EXISTING RAILROAD TO BE RETAINED
- EXISTING RAILROAD TO BE REMOVED
- PLANNED PEACETIME RAILROAD
- PLANNED MOBILIZATION RAILROAD
- EXISTING NAVY PROPERTY BOUNDARY WITHOUT FENCE TO BE RETAINED
- EXISTING NAVY PROPERTY BOUNDARY WITHOUT FENCE TO BE REMOVED
- PLANNED PEACETIME NAVY PROPERTY BOUNDARY WITHOUT FENCE
- PLANNED MOBILIZATION NAVY PROPERTY BOUNDARY WITHOUT FENCE
- EXISTING NAVY PROPERTY BOUNDARY WITH FENCE TO BE RETAINED
- EXISTING NAVY PROPERTY BOUNDARY WITH FENCE TO BE REMOVED
- PLANNED PEACETIME NAVY PROPERTY BOUNDARY WITH FENCE
- PLANNED MOBILIZATION NAVY PROPERTY BOUNDARY WITH FENCE
- EXISTING FENCE TO BE RETAINED
- PLANNED PEACETIME FENCE
- PLANNED MOBILIZATION FENCE
- MAIN STATION ENTRANCE
- BOUNDARIES OF END & APPROACH ZONE
- TRANSMISSION LINE



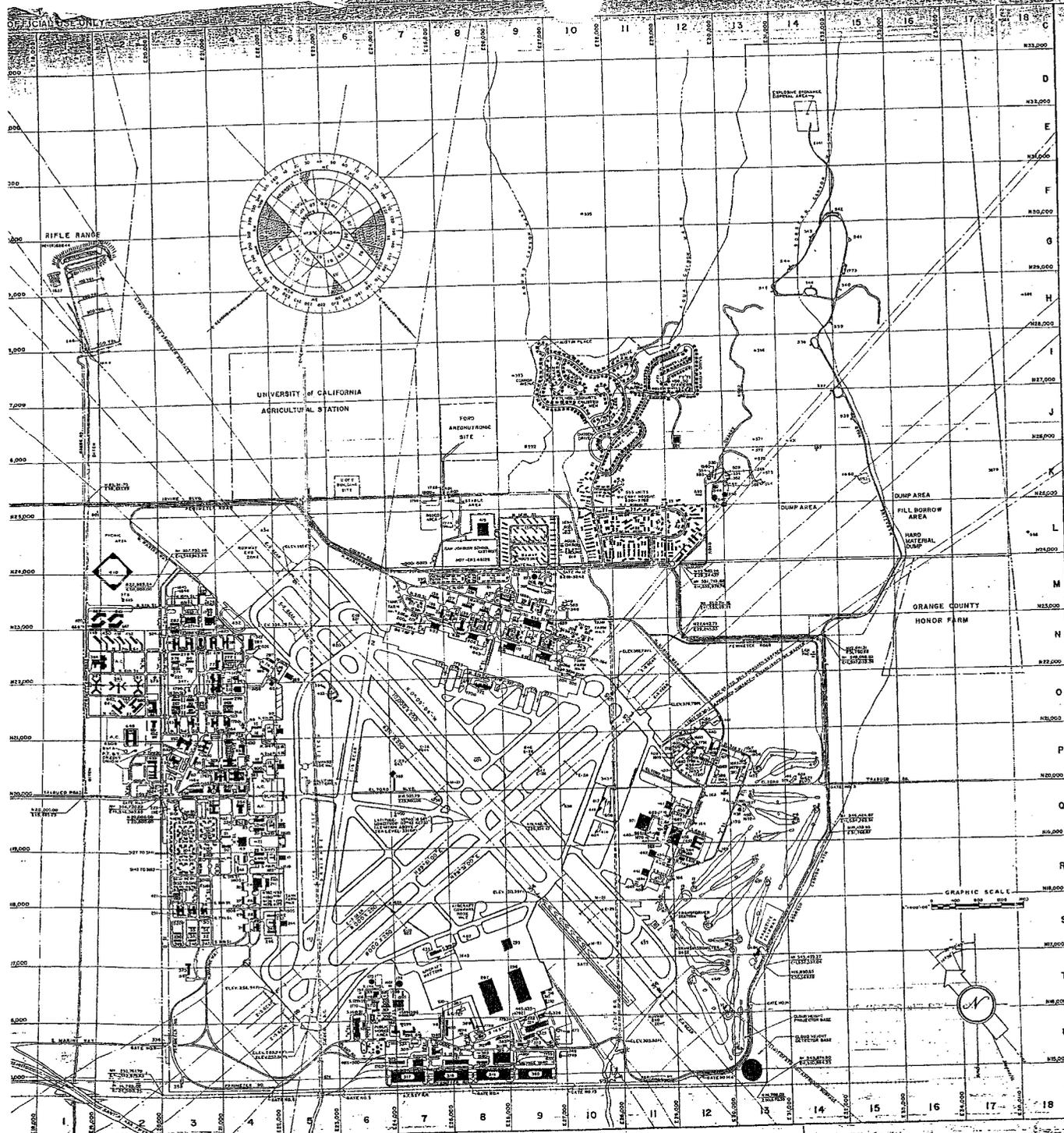
SEE AREA 19

SEE AREA 17

CON.	FOR APPROV BY THE BUREAU OF THE CHIEF OF ENGINEERS	DATE	APPROVED
COPIES	FOR THE RECORD AND FOR THE USE OF THE BUREAU OF THE CHIEF OF ENGINEERS	DATE	APPROVED
NO.	DESCRIPTION OF AMENDMENT OR CORRECTION	DATE	APPROVED
DEPARTMENT OF THE NAVY - BUREAU OF NAVAL STORES			
<b>MCAS EL TORO</b> SANTA ANA, CALIFORNIA GENERAL DEVELOPMENT MAP AREA 18			
EXISTING & PLANNED PRE-M DAY			
SUBMITTED - DRAWING NO. 1000000000		SCALE GRAPHIC	
APPROVED BY WOODS		F&R OPS NO.	
		SHEET 15 OF 22	
		826784	

### Excerpt from 1973 Station Map (Public Works Drawing S-2010)

NOTE: The excerpt from the Station Map shows the locations of Gate 14, Gate 14A, Borrego Canyon Wash, Perimeter Road, and the approximate location of APHO 93/APHO 97 (denoted by a solid circle symbol).



S.I.M.B.A. REPRODUCED & MODIFIED SYMBOL DESCRIPTION DATE 27 MAR 53	MAR 73 DAY 1 MONTH 1
DRAWN BY: S.I. MCTEYSON, P.F. CHECKED BY: [Signature] SUBMITTED BY: [Signature] REVISIONS: [Signature] APPROVED: [Signature]	DEPARTMENT OF THE NAVY U.S. MARINE CORPS AIR STATION EL TORO - SANTA ANA CALIFORNIA <b>STATION MAP</b> SCALE: 1"=400' SHEET 1 OF 1 P.W. DRAWING NO. 8-2010

FOR OFFICIAL USE ONLY

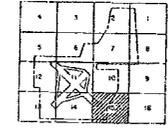
**1978 General Development Map, Sheet 15 of 18**  
(NAVFAC Drawing Number 6084147)

NOTE: The approximate location of APHO 93/APHO 97 is shown with a solid circle symbol.

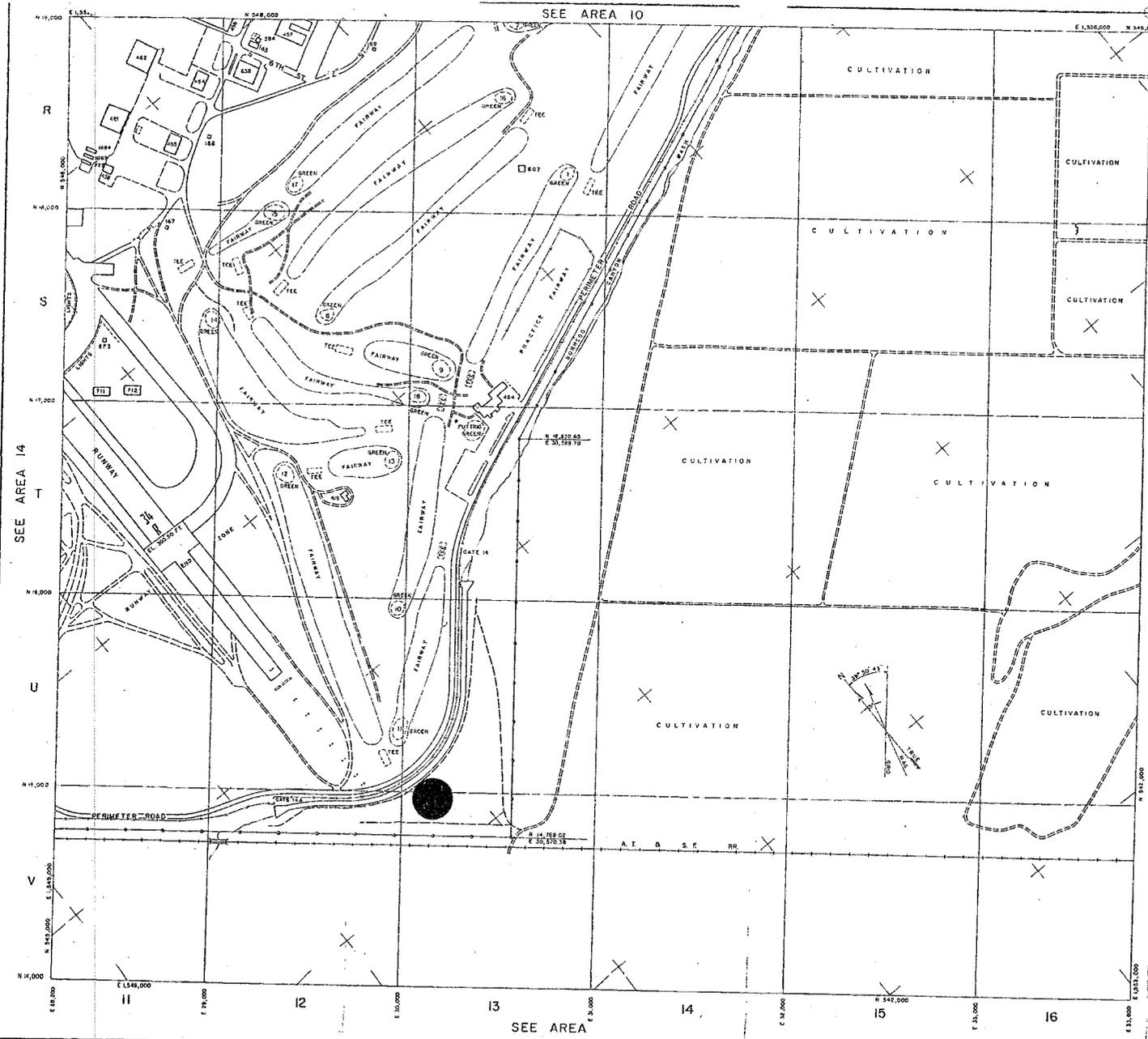
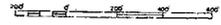
SEE AREA 10

LEGEND

- EXISTING STRUCTURES
- EXISTING ROADS OR PAVED AREA
- DIRT ROADS
- SIDEWALK
- CONCRETE SLAB
- TRAIL
- EXISTING RAILROAD
- NAVY PROPERTY BOUNDARY
- NAVY PROPERTY BOUNDARY WITH FENCE
- FENCE
- MAIN STATION ENTRANCE
- BOUNDARIES OF END B APPROACH ZONE
- TRANSMISSION LINE
- OBSTRUCTION LIGHT
- TANKS
- CATCH BASIN
- TOWER
- BENCH MARK
- HORIZONTAL CONTROL
- UNDERGROUND TANK
- MONUMENT
- HIGH VOLTAGE
- FUEL PUMP



MAP LOCATOR  
NO SCALE

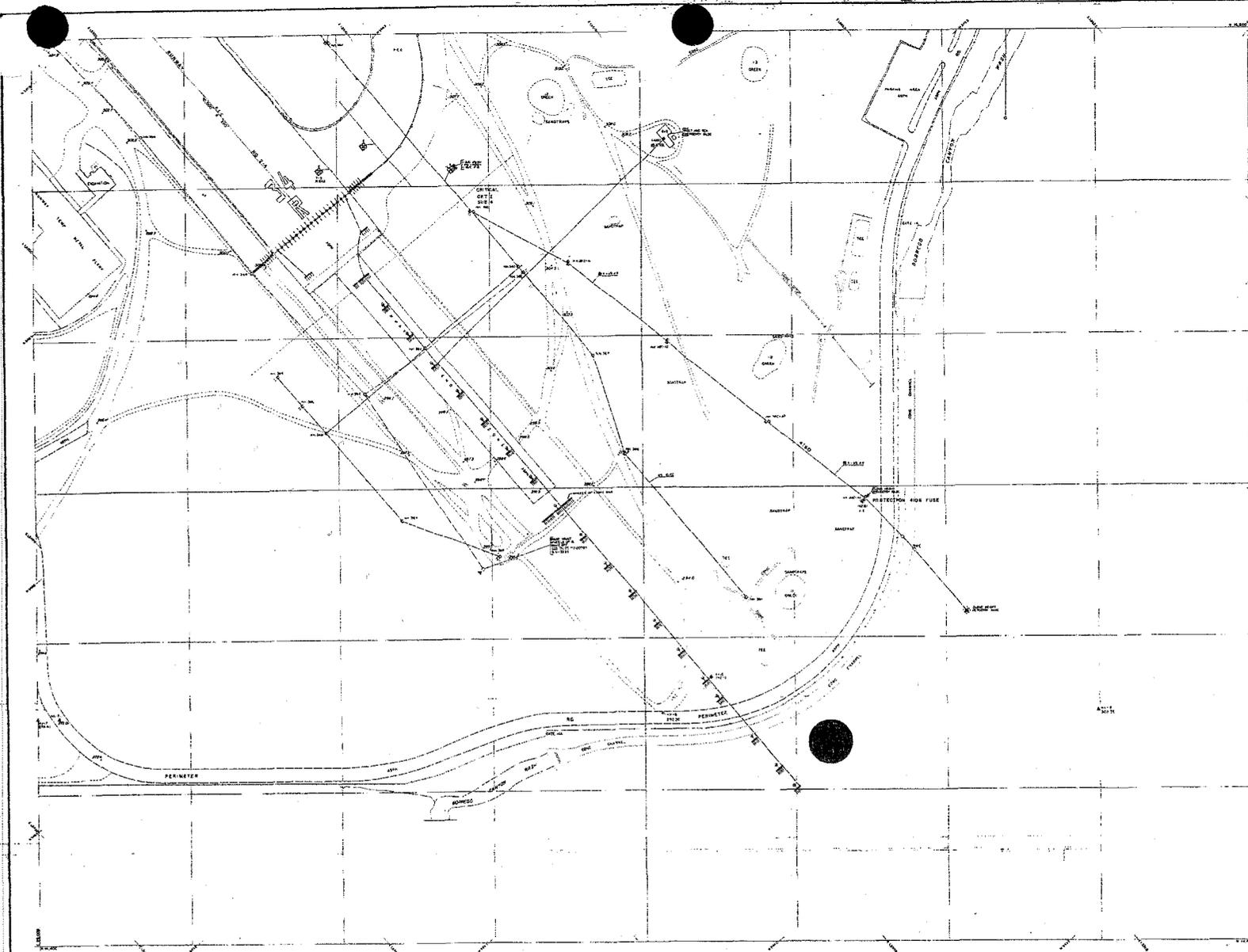


NO.		REVISION DESCRIPTION	PREP'D BY	DATE	APPROVED
U.S. AIR FORCE DEPARTMENT OF THE ARMY WESTERN DIVISION, SAN BRUNO, CALIF.					
CARTOGRAPHER <i>C. Burkholder</i> BRANCH HEAD <i>W. Miller</i> DIRECTOR <i>W. Hansen</i> APPROVED <i>W. Miller</i> DATE			MCAS EL TORO SANTA ANA, CALIFORNIA GENERAL DEVELOPMENT MAP EXISTING CONDITIONS		
SCALE	8000:1	DATE	NOV 1954	MAPSHEET NO.	6084147
SCALE	1"=200'	SHEET	18 OF 18		P

ORIGINAL

Excerpt from Area 29, Electrical Distribution Plan (U.S. Marine Corps Air Station,  
El Toro, Public Works Department, Revised 14 April 1988)

NOTE: The excerpt from the electrical distribution plan has been annotated with a solid circle symbol for the approximate location of APHO 93/APHO 97 near the approach lighting structures for Runway 34R.



			1	2
		3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25
26	27	28		

SHEET INDEX

DESIGNED BY  
**ARMSTRONG**  
 SURVEYING, INC.  
 101 WEST STREET, SUITE 100 - SANTA ANA, CALIF. 92701  
 TELEPHONE (714) 241-1700

PREPARED BY  
**MALCOLM LEWIS**  
 ASSOCIATE ENGINEER  
**CONSULTING ENGINEERS**  
 101 WEST STREET, SUITE 100 - SANTA ANA, CALIF. 92701  
 TELEPHONE (714) 241-1700

SCALE 1:1200

NOTE THE LAST TWO DIGITS OF THE CALIF STATE PLANE COORDINATE GRID HAS BEEN OMITTED THUS N 550.5 + N 550,500

AREA 29  
 ELECTRICAL DISTRIBUTION

REVISED		4-14-58
REVISED TO DATE	BY	DATE
PROJECT		
11 S MARINE CORPS AIR STATION		
PUBLIC WORKS DEPARTMENT		
DRAWN BY		
CHECKED BY		
DATE		
PROJECT NO.		
SHEET NO.		
TOTAL SHEETS		
DATE PLOTTED		
DRAWN BY		
CHECKED BY		
DATE		

SOUTHWESTNAVFACENGCOM  
Code 06CC.LMH  
1220 Pacific Highway  
San Diego, CA 92132  
Telephone: (619) 532-0783/Fax: (619) 532-0780

File: eltoroar.doc

## TRANSMITTAL

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Date: 25 March 2004

From: Lynn Marie Hornecker  
MCAS El Toro

To: Diane Silva  
Code ~~05G.DS~~ Code 05G.DS

Subj: CERCLA Administrative Record Materials  
Marine Corps Air Station, El Toro

*Installation:* Marine Corps Air Station, El Toro

*UIC Number:* M60050

*Document Title (or subject):*

*Author:*

*Recipient:*

*Record Date:*

*Approximate Number of Pages:*

*EPA Category:* 01.1

*Sites:* APH093 + APH097

*Key Words:* No further action, POST

*Contract:* N/A

*CTO Number:* N/A

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