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CONCEPTUAL PLAN OF DEVELOPMENT
AND
OPERATION
EAST SIDE OF OCS P-0240

Prepared For
U. S. Department of the Interior
Geological Survey

by
The Superior Oil Company
Marathon Oil Company
Sun Production Company

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1.0 INTRODUCTION

This report was prepared in compliance with directives of the United States Department of the Interior, Geological Survey. Its purpose is to present the approach of Sun Production Company, The Superior Oil Company, and Marathon Oil Company to the development and operation of the east side of OCS P-0240, Santa Barbara Channel, California. The exploitation of OCS P-0240 will adhere to the principles of developing the maximum quantity of reserves by the optimum method as determined by prudent operation

The proposed development consists of the design, construction and installation of a 30-slot Platform Henry at a location 3600' SNL and 1500' WEL of OCS P-0240. The platform will be connected to Platform Hillhouse with a maximum of three 8-inch pipelines for the transportation of crude oil, natural gas and produced water. All production will be processed and sold through existing equipment on Hillhouse. Following installation of the platform a self-contained drilling rig will be installed and approximately 21 wells drilled and completed.

This document contains the concept for the proposed development of the east side of OCS P-0240. It recognizes that current Pacific OCS Orders require specific applications for approval of the platform design, process equipment, pipelines and development wells. As a result, these items are briefly described and detailed applications will be submitted only after approval of this plan in concept.

2.0 PLATFORM HENRY DISCUSSION

Platform Henry will be a conventional template-type, 30-slot, self-contained drilling and production platform. The eight-pile platform will be similar to Platform Hillhouse and will be designed in accordance with API RP-2A and the requirements of applicable OCS Orders.

The platform is proposed for installation in an approximate water depth of 175 feet at Lambert Coordinates, Zone VI of X = 1,000,580', and Y = 804,240'. This location was chosen as the expected center of the volumetric accumulation of oil and gas reserves. The platform site will be investigated for installation hazards and soil properties prior to determination of design criteria.

Platform Henry will be equipped with aids to navigation in compliance with U. S. Coast Guard regulation for Class "A" offshore structures. In addition all appurtenances and their operation will conform to all applicable state and federal regulations and codes.

A drawing illustrating the approximate dimensions of Platform Henry is included in the appropriate section of the report. Final dimensions will be determined after equipment selections are made and the structural design of the platform is completed.

3.0 SUBMARINE PIPELINES AND CABLE DISCUSSION

A maximum of three (3) submarine pipelines will be utilized to transport the produced oil, produced brine and natural gas from Platform Henry to Platform Hillhouse. The pipelines will be designed, constructed, and installed according to existing OCS Orders and

3.0 SUBMARINE PIPELINES AND CABLE DISCUSSION (continued)

with regard for any other applicable federal regulations. Upon approval of this conceptual plan, an application according to OCS Order No. 9 will be submitted to provide the necessary details.

In addition to the submarine pipelines, approval for the use of an electrical submarine cable is requested. This cable will provide emergency electrical power for Platform Henry and provide communications for the platform. The design and installation of the cable will conform to applicable electrical codes.

4.0 OPERATIONS AND PROCESS EQUIPMENT

4.1 General:

Production facilities will consist of gas and liquid separation and limited processing necessary to prepare the produced fluids for transport in submarine pipelines to Platform Hillhouse for final processing and sales with the Hillhouse production. The combined production will be sent ashore and undergo final processing through existing pipelines connecting Platform Hillhouse to onshore facilities at Rincon. The onshore processing facility has sufficient capacity to handle Henry production without expansions or modification.

4.2 Safety Devices:

The facilities on Platform Henry will be equipped with surface and subsurface control devices to ensure that appropriate alarms will indicate any malfunctions and the platform will be shut-in automatically if the malfunction constitutes

4.0 OPERATIONS AND PROCESS EQUIPMENT

4.2 Safety Devices: (continued)

any operational hazard or if any emergency situation exists. All shutdown systems will be manual reset. The shut-in controls for safety and pollution control equipment and procedures will conform to OCS Order No. 8.

4.3 Method of Lifting:

Artificial lift will be utilized after the wells cease to flow. The method selected will be designed to maximize recovery and efficiency and to conform to all OCS regulations. The equipment required to artificially lift the wells will be installed on Platform Henry.

4.4 Personnel:

Initially, all operations will be controlled by one operator. A work shift schedule will provide 24-hour surveillance. The maintenance crews, foremen and supervisors will be available when required.

5.0 GEOLOGY

5.1 Exploration:

Subsequent to acquiring the lease on OCS P-0240, The SSM Group drilled four exploratory wells on the east side which are indicated by red circles on Map I. The deepest stratigraphic penetration occurred in OCS P-0240 No. 1 which was drilled to 5000' TD and probably penetrated Upper Miocene siltstone. All four wells penetrated the entire hydrocarbon bearing section of the Lower Pliocene Repetto formation: The SSM Group exploration

5.0 GEOLOGY5.1 Exploration: (continued)

program justified the development of the east side of the OCS P-0240. The east side productive accumulation is an extension of the Carpinteria Field developed on the eastern adjacent tract OCS P-0166.

5.2 Structure:

The geologic structure underlying the east side is that of an east plunging anticlinal fold broken by an east-west trending over-thrust fault and several transverse normal faults (see Maps II through IX). The principal westerly trapping mechanism is a cross fault or fault zone separating wells OCS P-0240 No. 1 and OCS P-0240 No. 7 and it is based primarily on differences in hydrocarbon accumulations and their oil-water contacts at these wells.

In December, 1976 and January, 1977, the SSM Group drilled exploratory wells OCS P-0240 No. 9 and OCS P-0240 No. 10 to further refine the geologic interpretation. These wells are indicated by green circles on Map I. Study of data gathered in these wells indicate the presence of several intervening cross faults of small magnitude. Maps II through IX represent an updated and current geologic interpretation of the east side of OCS P-0240.

The conceptual development plan is indicated on Map I which shows the proposed location of the platform and the proposed bottom hole locations for 21 wells. Actual bottom hole locations may

5.0 GEOLOGY5.2 Structure: (continued)

be altered as development progresses. Lease line offset wells are tentatively targeted at a 150-foot offset with a 50-foot tolerance.

6.0 RESERVOIR ENGINEERING6.1 Reservoir Properties:

Analysis of fluids from sidewall cores in the area and fluid samples obtained during production tests of wells P-0240-1, P-0240-9 and P-0240-10 indicate that east side fluid properties are in the normal range for 23-27° API black oil. Fluid properties are expected to show a definite correlation with depth.

6.2 Primary Performance:

The initial primary recovery mechanism is expected to be solution gas drive because no gas caps are evident in any of the crestal wells. There is a probability of relatively shallow dips, and vertical discontinuity which would minimize gravity drainage. The wells should flow at relatively high initial potentials, but will experience rapid declines early in their life even with artificial lift. The decline rate will probably become less severe with time as the reservoir pressure decreases permitting the effects of a limited water drive to develop.

6.3 Reservoir Control:

Proper reservoir control is essential to the success of the primary recovery program.

6.0 RESERVOIR ENGINEERING6.3 Reservoir Control: (continued)

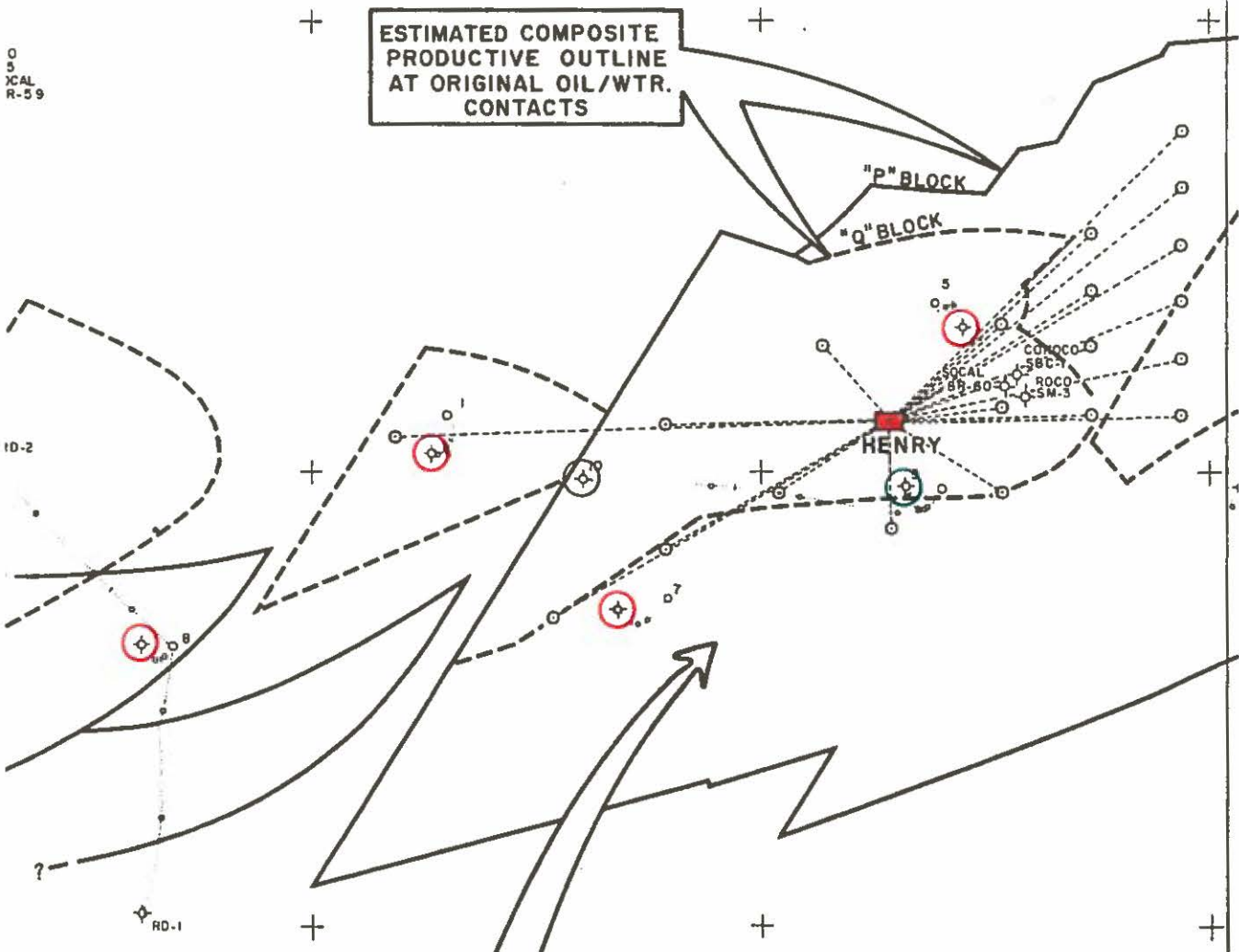
Monthly tests on producing wells will be a minimum requirement. Production logging tools may be used to determine the point of water entry in producing wells for water control.

The reservoir will be modeled on a digital computer using the best information available. This study will serve as a basis for planning and controlling the recovery program. The plan will be updated and refined as new performance data and a better understanding of reservoir mechanics are gained.

6.4 Reservoir Development:

The initial plans are to drill and complete approximately twenty-one wells to properly develop and drain the productive sands. The resultant spacing will be approximately eight acres per well. Platform drilling slots will be available for nine additional wells if required. The actual number and location of wells to be drilled will be determined as the development program progresses.


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**ESTIMATED COMPOSITE
PRODUCTIVE OUTLINE
AT ORIGINAL OIL/WTR.
CONTACTS**

**PROPOSED LOCATION
PLATFORM HENRY
3600' SNL & 1500' WEL
OR
LGZ COORDINATES
X=1,000,580
Y=804,240**

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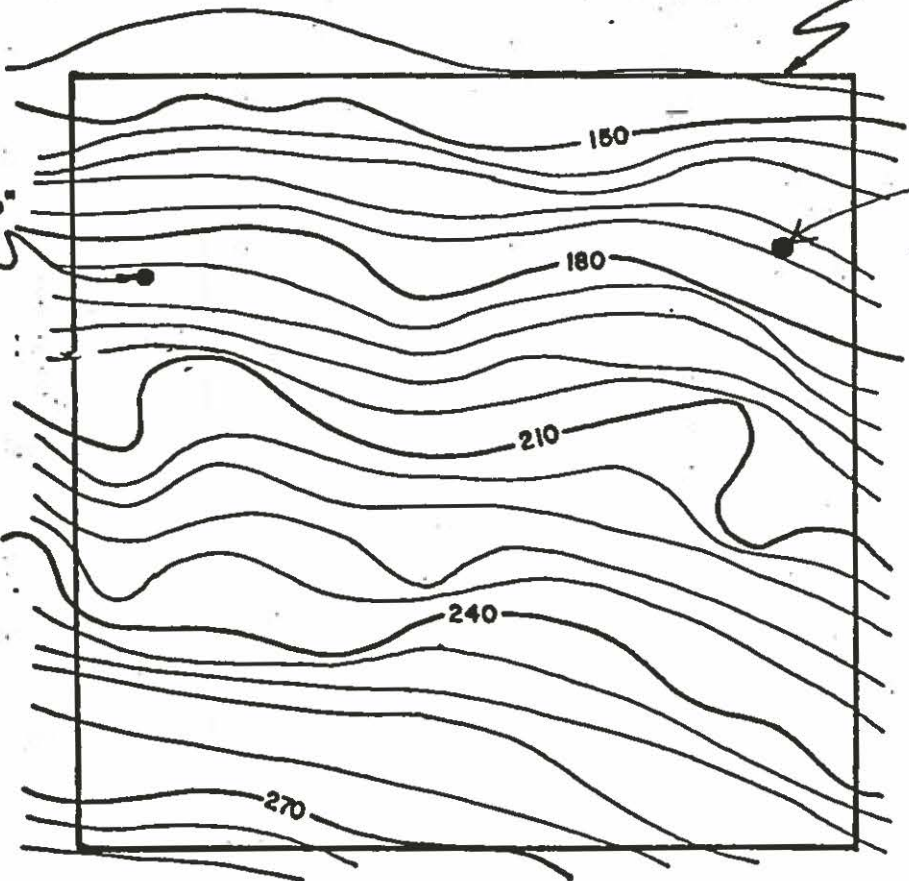
		SUN OIL COMPANY VENTURA CALIFORNIA	
OCS P-0240 LOCATION MAP			
Interpretation by	Drawn by	Scale	Date
	GJW	1" = 500'	6-6-77

MAP I

Platform "Hillhouse"

OCS-P-0240

Proposed Location
Platform Henry

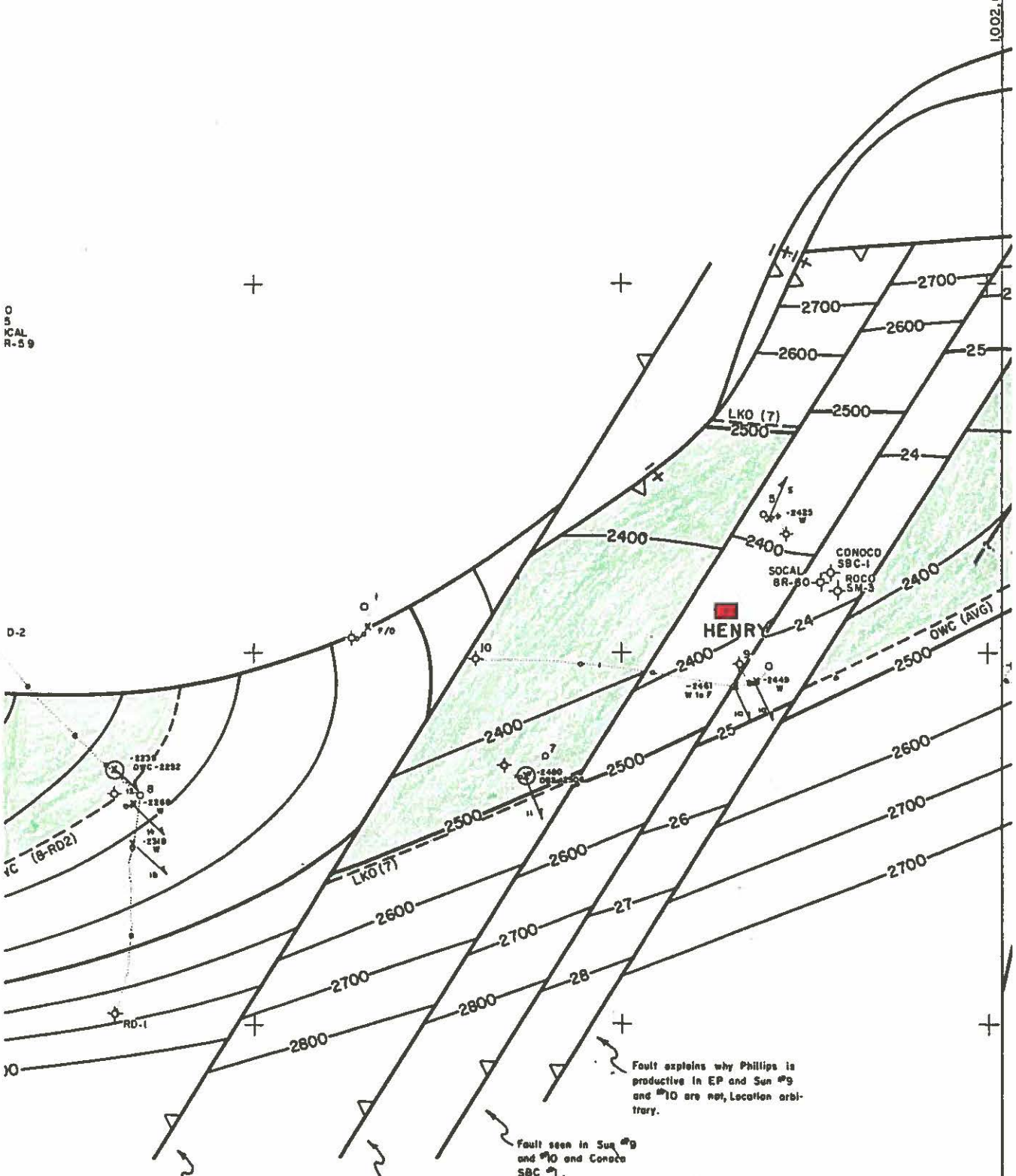


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MAP II

OCS-P-0240
BATHYMETRIC MAP
Contour Interval
6 ft
Scale 1"=4000'
1-20-69

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West bounding fault explains why Sun #7 is productive in EP and Sun #8 is not. Loc. arbitrary.

Fault explains why Sun #7 is productive in EP and Sun #5 is not. Location arbitrary.

Fault seen in Sun #9 and #10 and Conoco SBC #1.

Fault explains why Phillips is productive in EP and Sun #9 and #10 are not, Location arbitrary.

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		SUN OIL COMPANY VENTURA CALIFORNIA	
OCS P-0240 EP STRUCTURE			
Interpretation by	Drawn by	Scale	Date
	GJW	1" = 500'	6-6-77

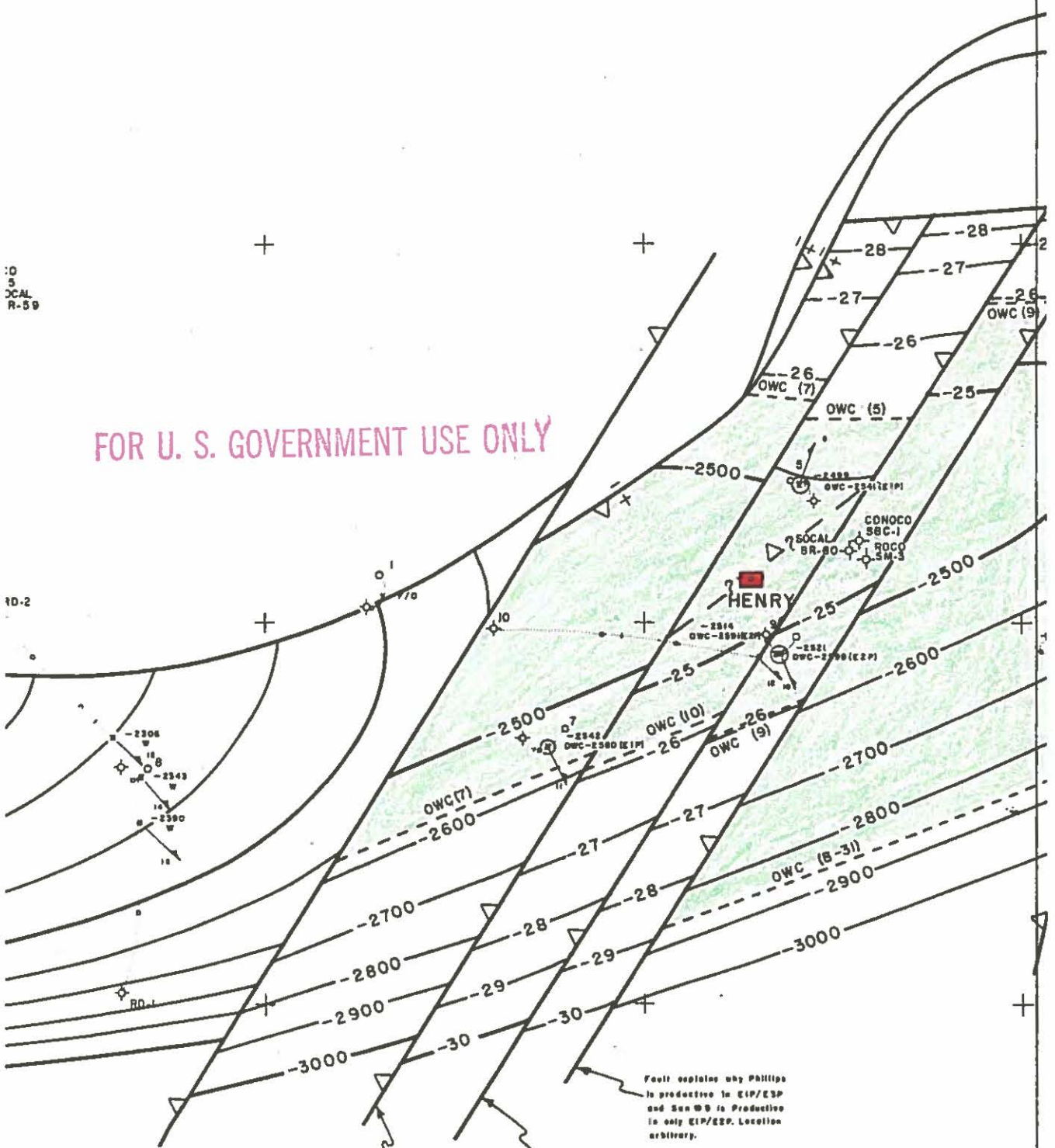
MAP III

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10-2



Fault explains why Sun #7 has different OWC in EIP than does Sun #3 or Sun #10. Location arbitrary.

Fault explains why Sun #9 is productive in EIP/E3P but Sun #3 is productive in only EIP located.

Fault explains why Phillips is productive in EIP/E3P and Sun #8 is productive in only EIP/E3P. Location arbitrary.



SUN OIL COMPANY

VENTURA

CALIFORNIA

OCS P-0240

EIP - E3P

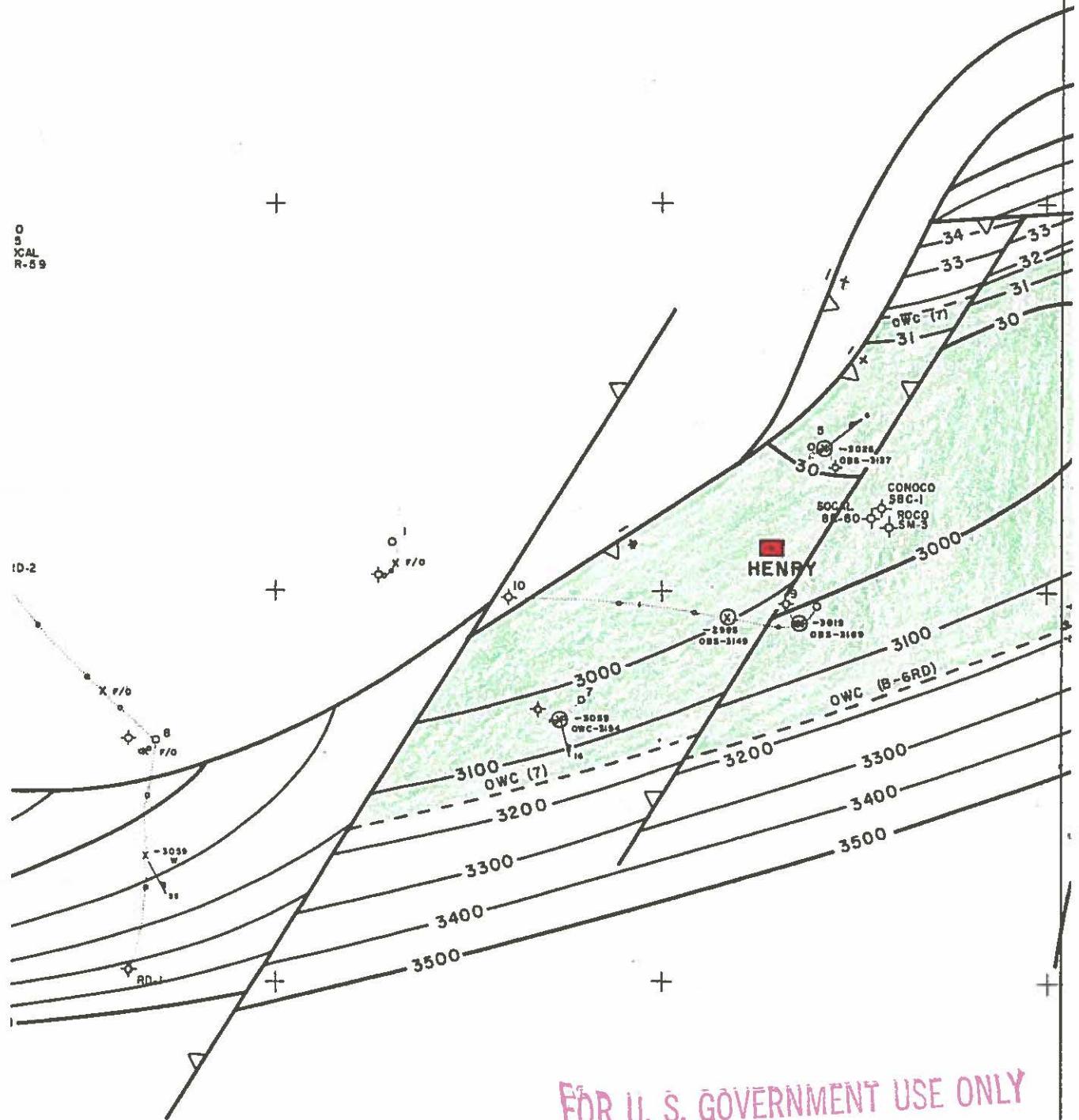
STRUCTURE

MAP IV


Interpretation by	Drawn by	Scale	Date
	GJW	1" = 500'	6-6-77

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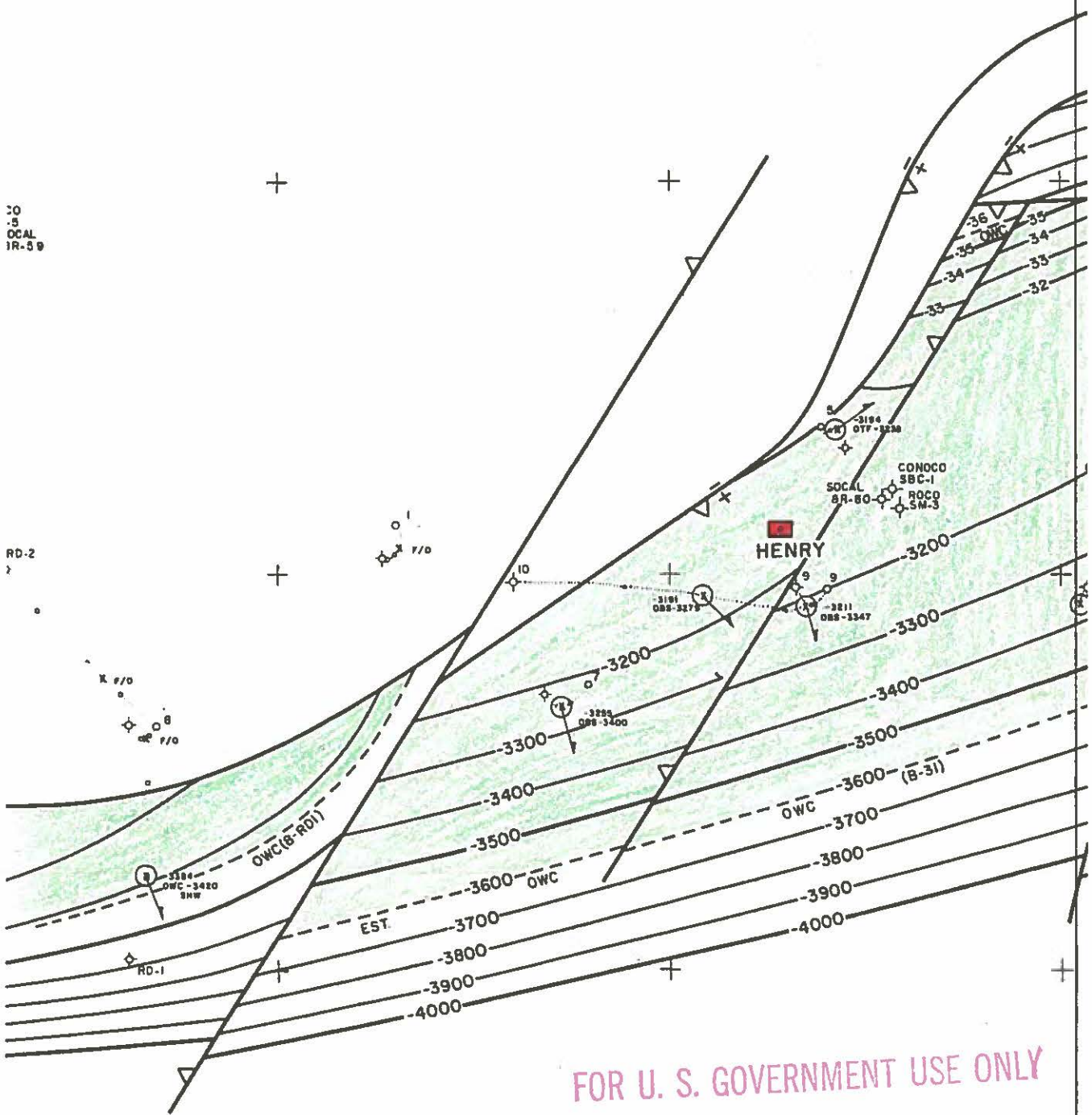
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		SUN OIL COMPANY VENTURA CALIFORNIA	
OCS P-0240 F 3 P STRUCTURE			
Interpretation by	Drawn by	Scale	Date
	GJW	1" = 500'	6-6-77

MAP V


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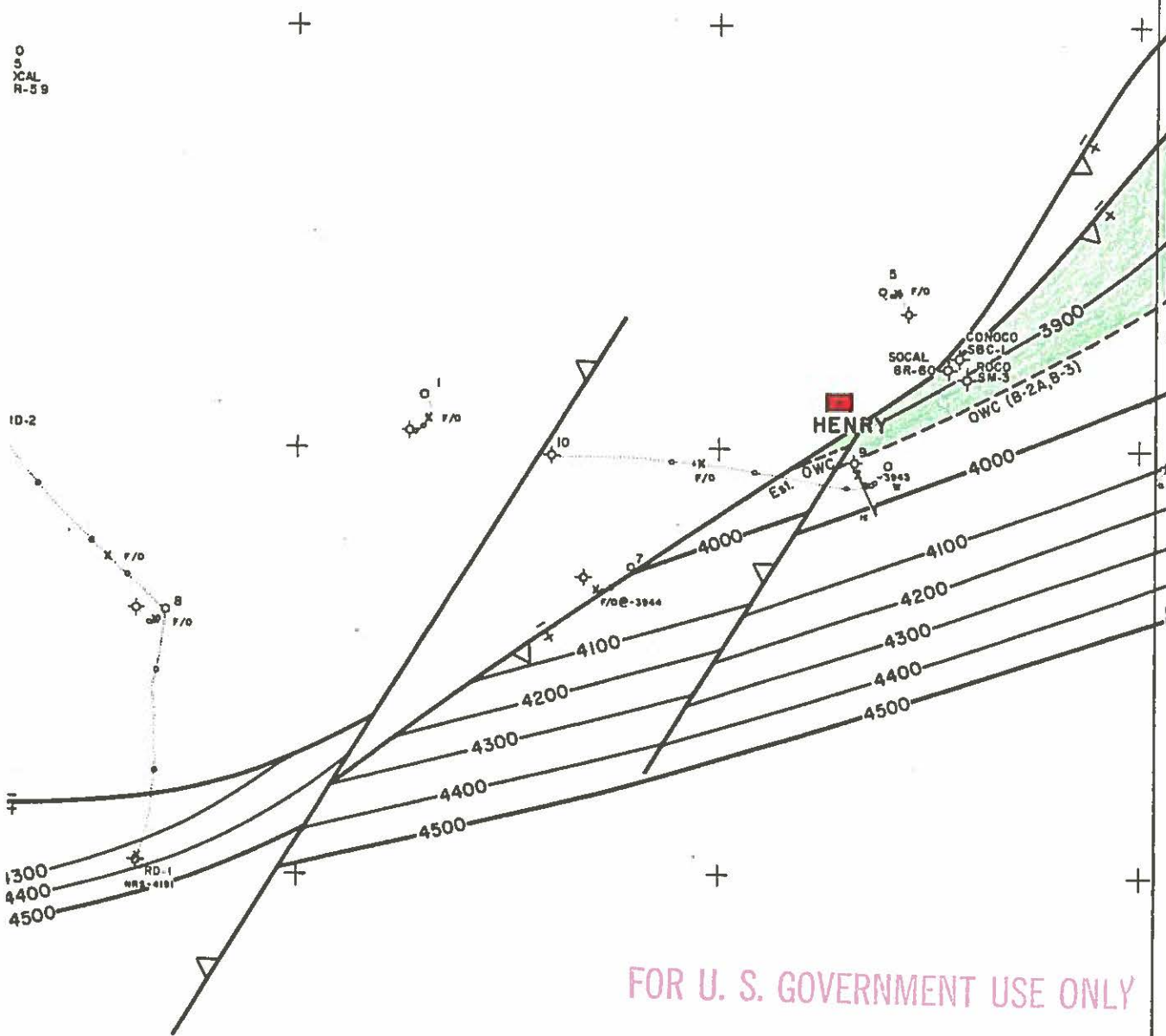


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MAP VI

 SUN OIL COMPANY VENTURA CALIFORNIA			
OCS P-0240 GP STRUCTURE			
Interpretation by	Drawn by	Scale	Date
	GJW	1" = 500'	6-6-77

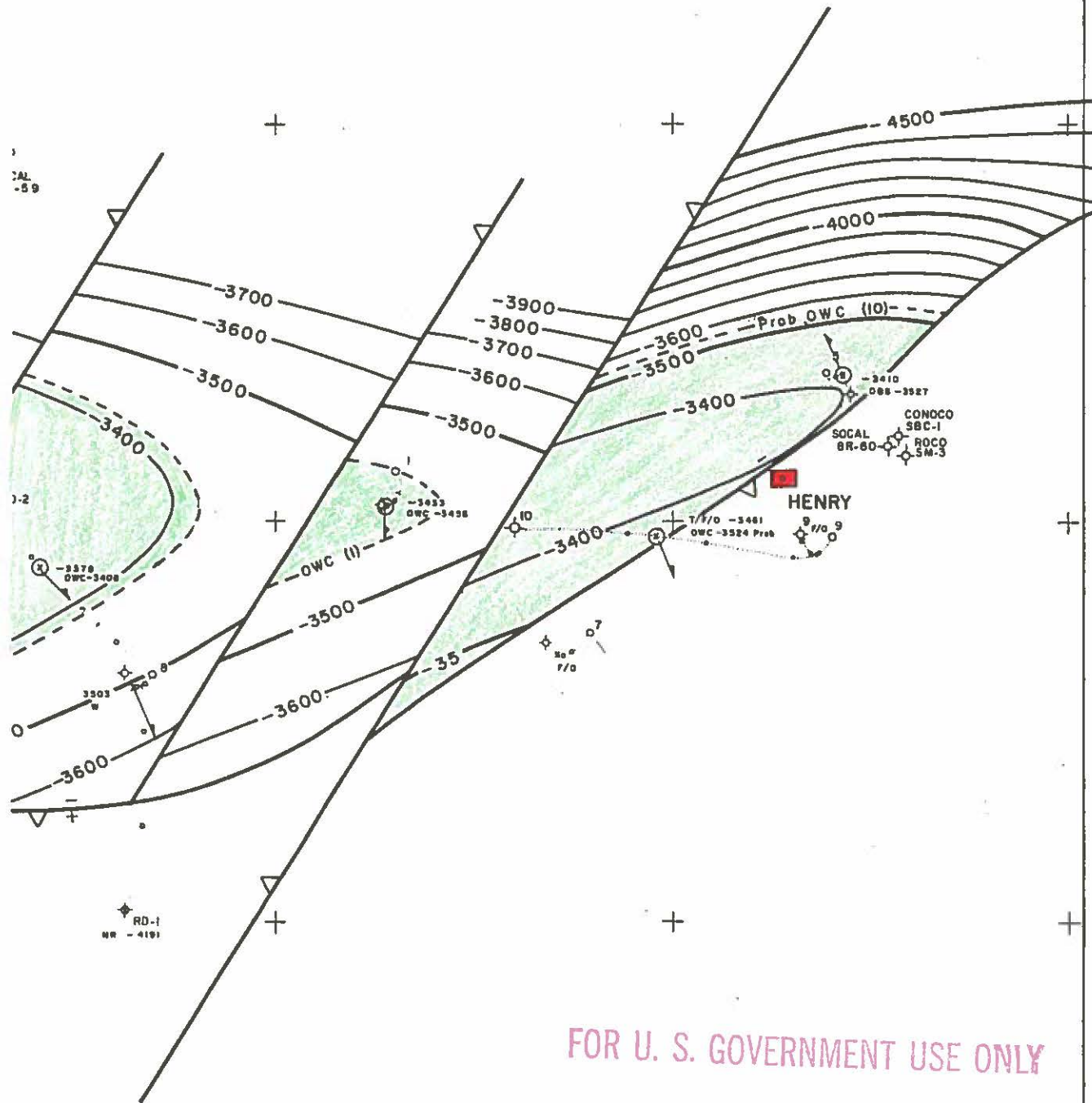
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		SUN OIL COMPANY	
VENTURA		CALIFORNIA	
OCS P-0240			
HIP STRUCTURE			
Interpretation by	Drawn by	Scale	Date
	GJW	1" = 500'	6-6-77

MAP VII

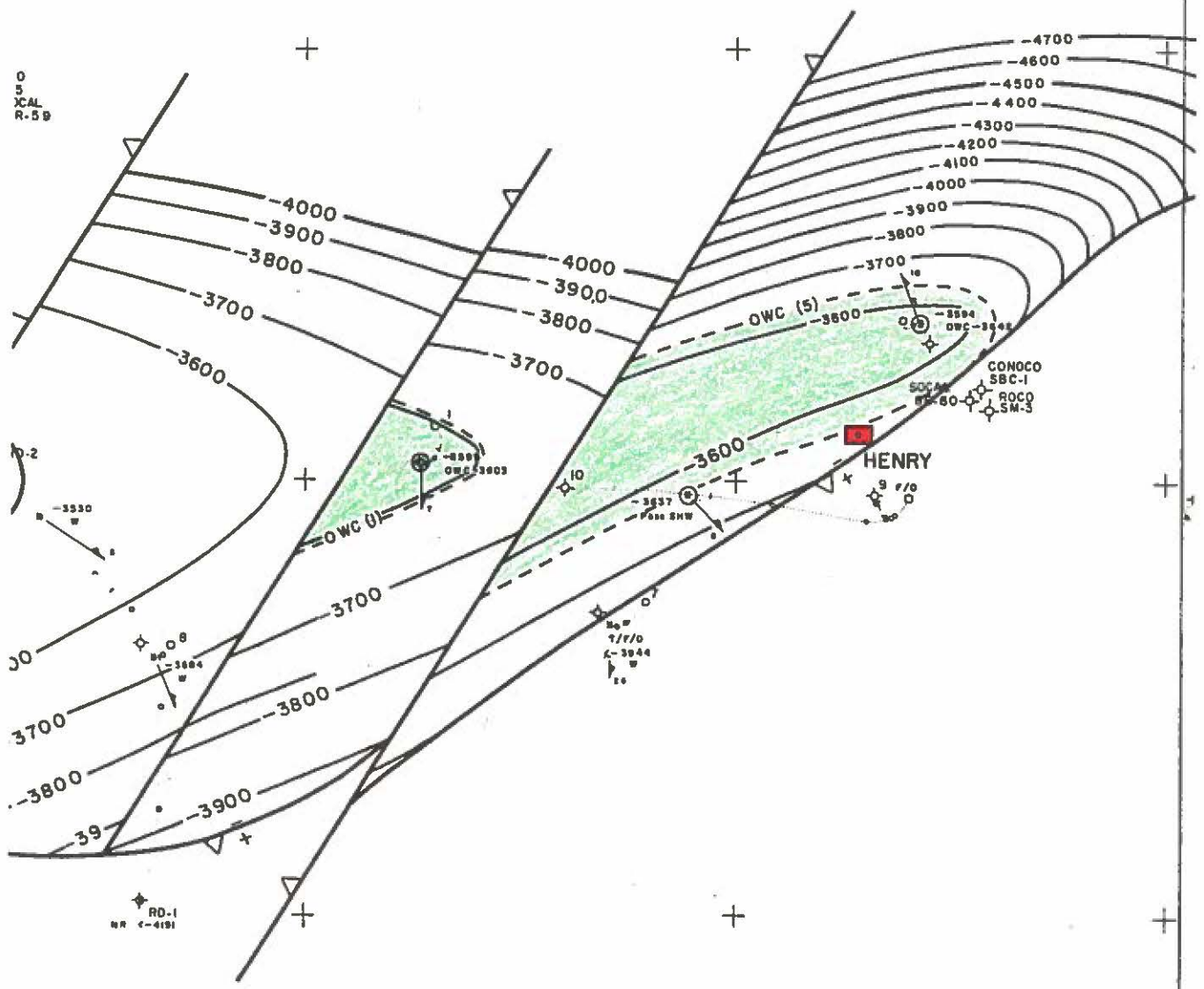


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MAP VIII

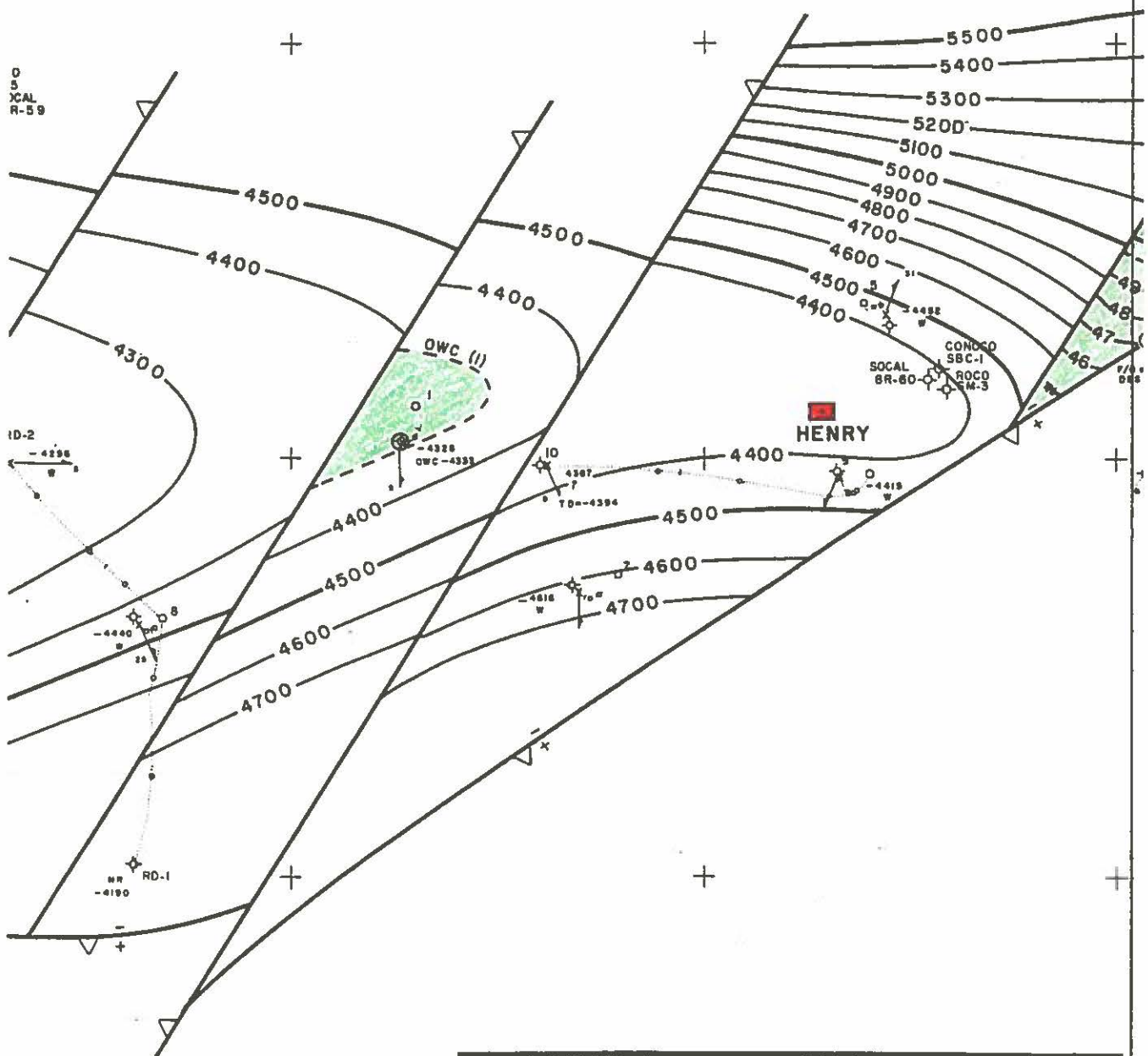
		SUN OIL COMPANY VENTURA CALIFORNIA	
OCS P-0240 F 3 Q STRUCTURE			
Interpretation by	Drawn by	Scale	Date
	GJW	1" = 500'	6-6-77


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MAP IX

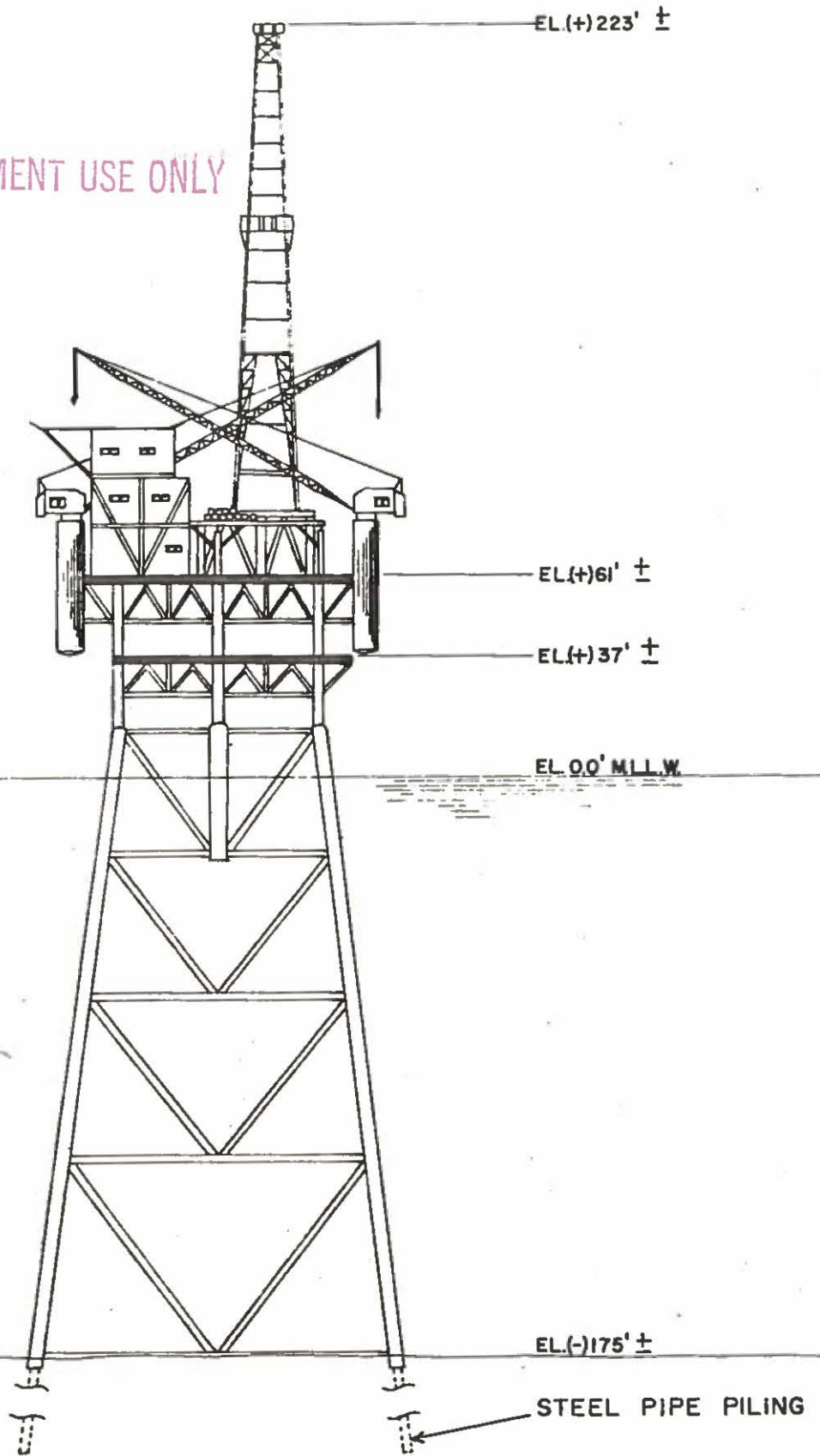
 SUN OIL COMPANY VENTURA CALIFORNIA			
OCS P-0240 G Q STRUCTURE			
Interpretation by	Drawn by	Scale	Date
	GJW	1" = 500'	6-6-77



		SUN OIL COMPANY	
VENTURA		CALIFORNIA	
OCS P-0240 HIQ STRUCTURE			
Interpretation by	Drawn by	Scale	Date
	GJW	1" = 500'	6-6-77

MAP X

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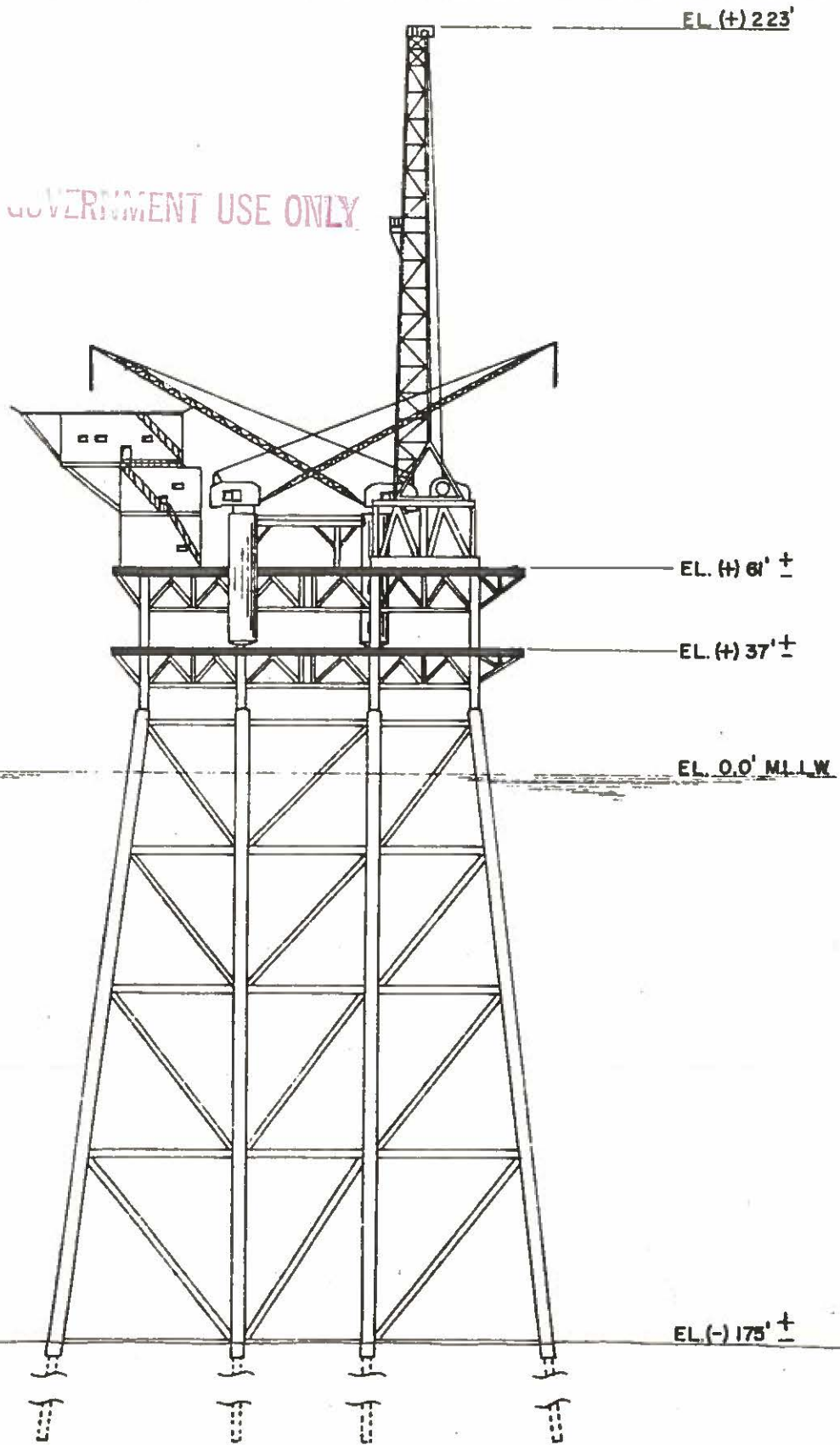


ELEVATION
LOOKING WEST

Drawing No. 1

SUN PRODUCTION CO.	
OCS-P-0240 Ventura	SSM GROUP California
Proposed Drilling & Production Platform "Henry"	
Scale 1"=50'	

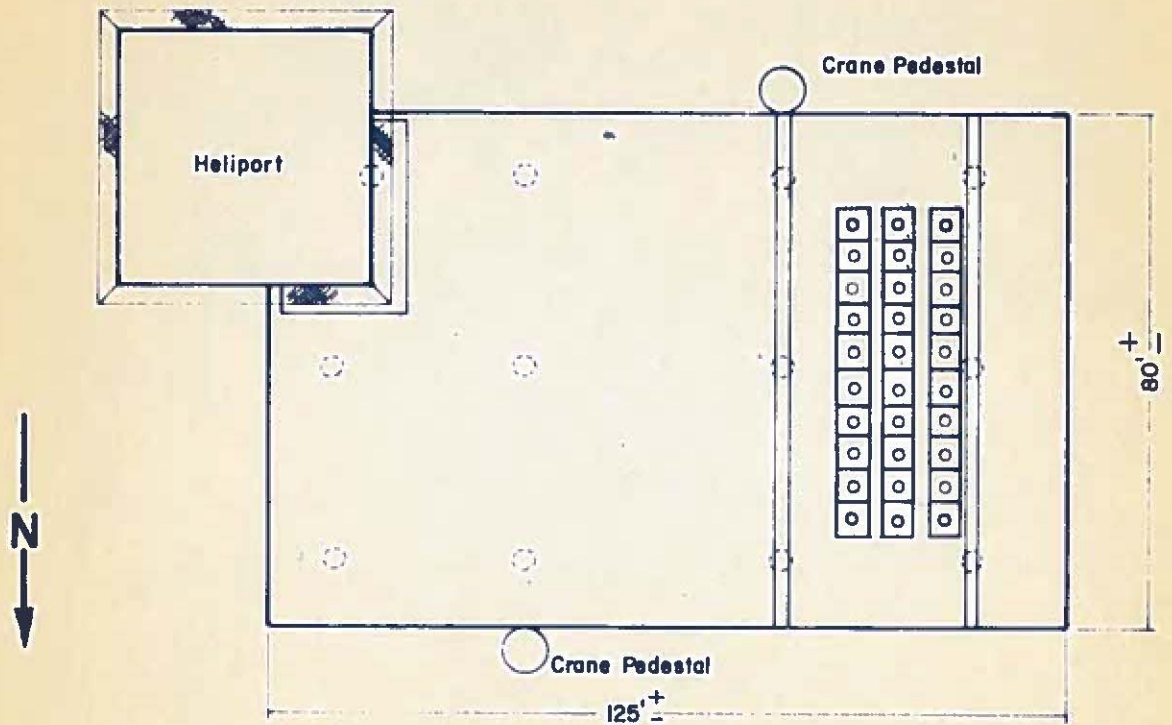
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ELEVATION
LOOKING SOUTH

Drawing No. 2

SUN PRODUCTION CO.	
OCS-P-0240 Ventura	SSM GROUP California
Proposed Drilling & Production Platform "Henry"	
Scale 1"=50'	

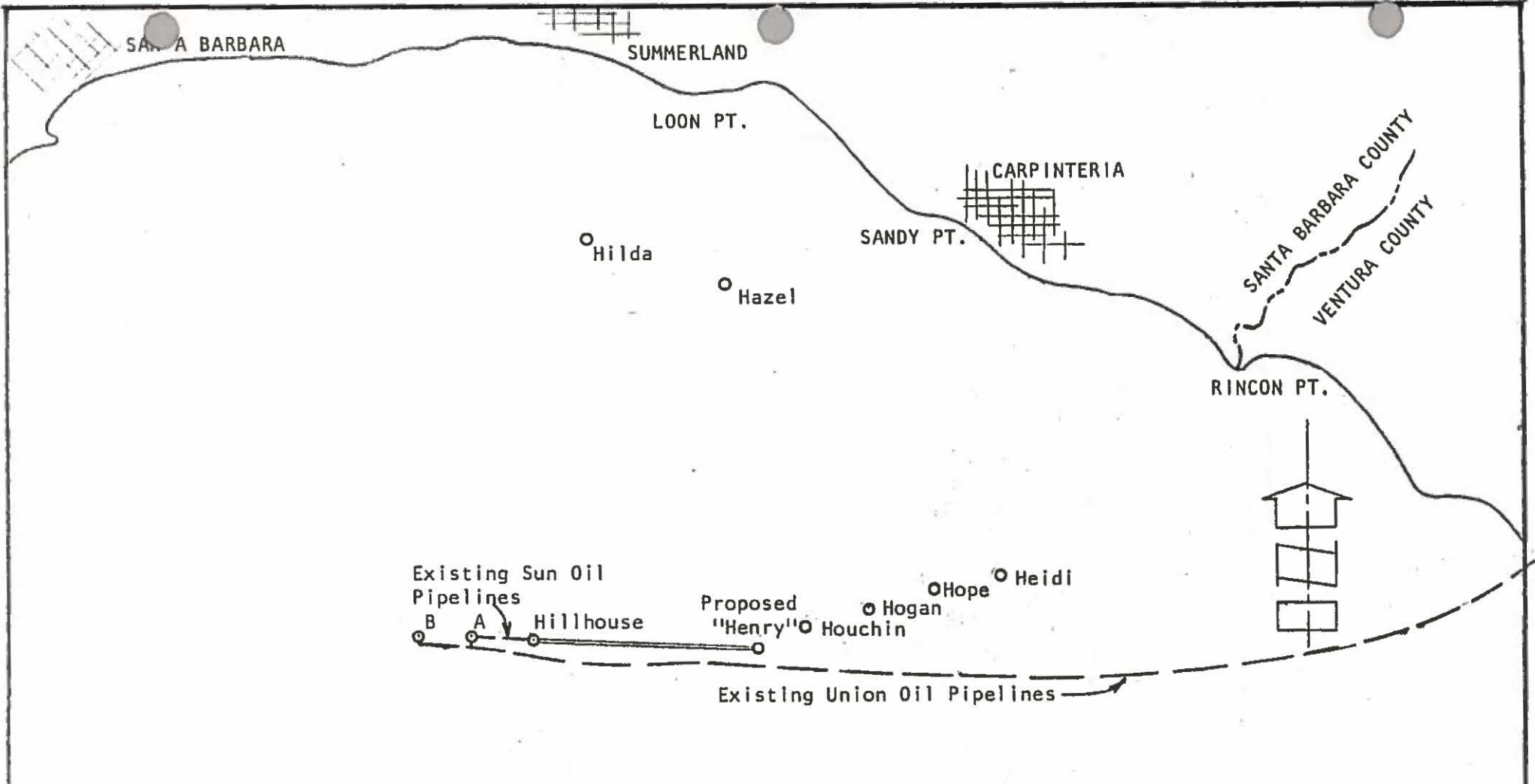


DRILLING DECK PLAN

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Drawing No. 3

<p>SUN PRODUCTION CO. OCS-P-0240 Ventura</p>	<p>SSM GROUP California</p>
<p>Proposed Drilling & Production Platform "Henry"</p>	
<p>Scale 1" = 30'</p>	



VICINITY MAP

1"=8000'

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SUN PRODUCTION CO.

OCS-P-0240

PROPOSED PLATFORM
HENRY
PIPELINES

Drawing No. 4

OCS-P-0241

OCS-P-0240

UNION OIL CO.
PLATFORM 'A'

SUN OIL CO.
PLATFORM HILLHOUSE
X=987,640
Y=803,940
Lat.=34° 19' 52.9"
Long.=119° 36' 11.7"

PROPOSED
SUN OIL CO.
PLATFORM HENRY
X=1,000,580
Y= 804,240
Lat.=34° 19' 59.9"
Long.=119° 33' 37.6"

Existing Sun Oil Co.
Submarine Pipelines

W.D.=190'

N 88° 40' W 12,940'

Proposed Sun Oil Co.
Submarine Pipelines:

W.D.=175'

Existing Union Oil Co.
Submarine Pipelines

Bearings, distances and coordinates
shown on this sketch conform to the
California Coordinate System
Lambert Projection (Zone VI).

PLAN

Scale: 1" = 2000'

Drawing No. 5

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SUN PRODUCTION CO.
PROPOSED SUBMARINE PIPELINES

In: Santa Barbara Channel Off: Carpinteria
County of: Santa Barbara State of Calif.