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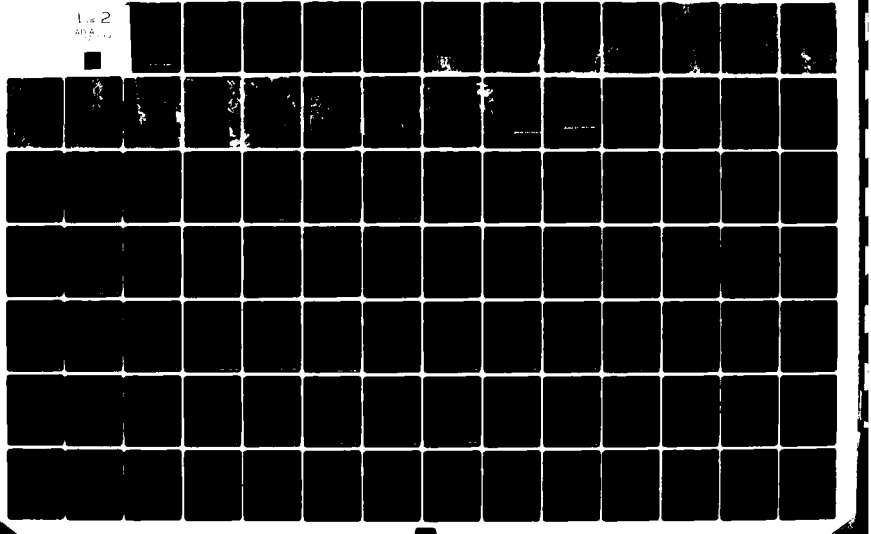

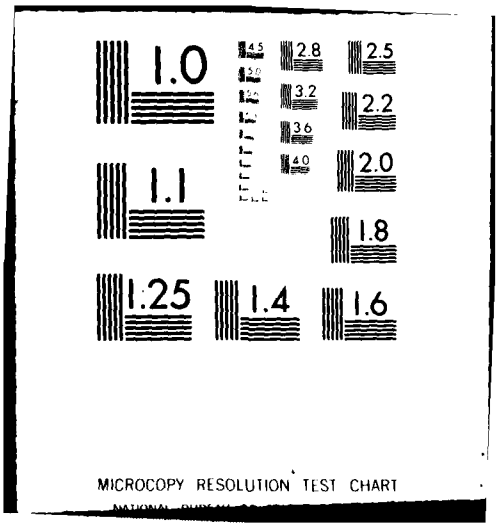
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MX SITING INVESTIGATION
GEOTECHNICAL EVALUATION

AD A112773

PRELIMINARY GEOTECHNICAL INVESTIGATION PROPOSED OPERATIONAL BASE SITE COYOTE SPRING VALLEY, NEVADA

VOLUME II - GEOTECHNICAL DATA

PREPARED FOR
BALLISTIC MISSILE OFFICE (BMO)
NORTON AIR FORCE BASE, CALIFORNIA

Ertec

FUGRO NATIONAL, INC.
Consulting Engineers and Geologists

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number): This report contains maps of boring, Trench and test pit logs locations. Seismic-refraction data and electrical resistivity data for the Coyote Spring Valley area, Nevada, operating location described in Volumne I of this report.

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FN-TR-43

MX SITING INVESTIGATION
GEOTECHNICAL EVALUATION

PRELIMINARY GEOTECHNICAL INVESTIGATION
PROPOSED OPERATIONAL BASE SITE
COYOTE SPRING VALLEY NEVADA

VOLUME II - GEOTECHNICAL DATA

Prepared for:

U.S. Department of the Air Force
Ballistic Missile Office (BMO)
Norton Air Force Base, California 92409

Prepared by:

Fugro National, Inc.
3777 Long Beach Boulevard
Long Beach, California 90807

23 December 1980

SECTION 1.0

ACTIVITY LOCATION MAP

(IN POCKET)


DESERT
NATIONAL
WILDLIFE
RANGE
COYOTE


C-18
C 19
S-9
C-21
GS-68
C-20
P-35
P-33
C-23
C-24
P 34
C-25
B-16
C 27
P 32
S-6
R-6
T-14
C-28
R-8
S-8
C-22
R 7
S-7
P 30
C-29
B-15
C-30
P 29
C-31
P-28
C-32
P-27
GS-88
GS-24
GS-89
GS-22
GS-21
GS-25
GS-23
GS-20
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GS-14
GS-86
GS-87
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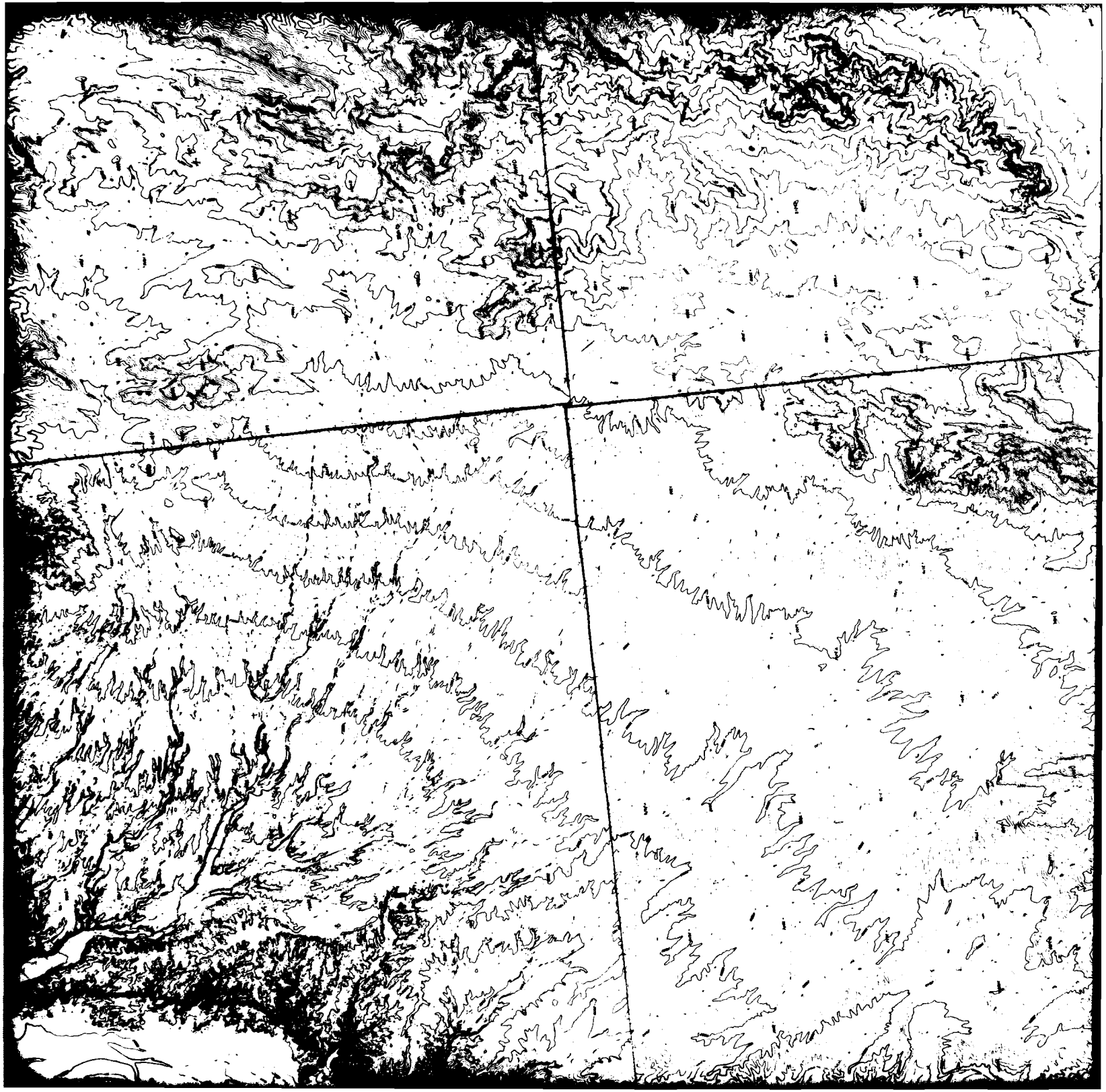
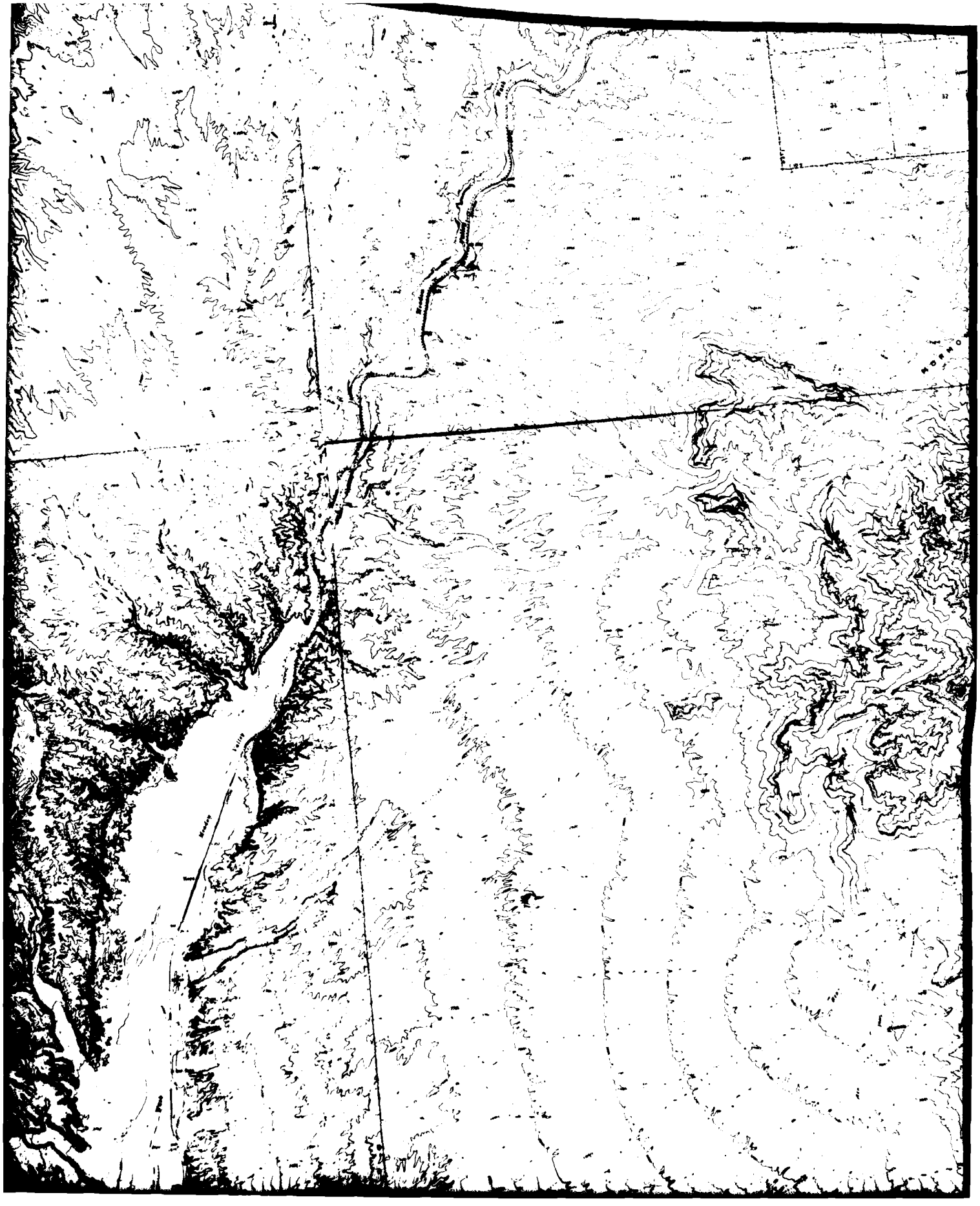
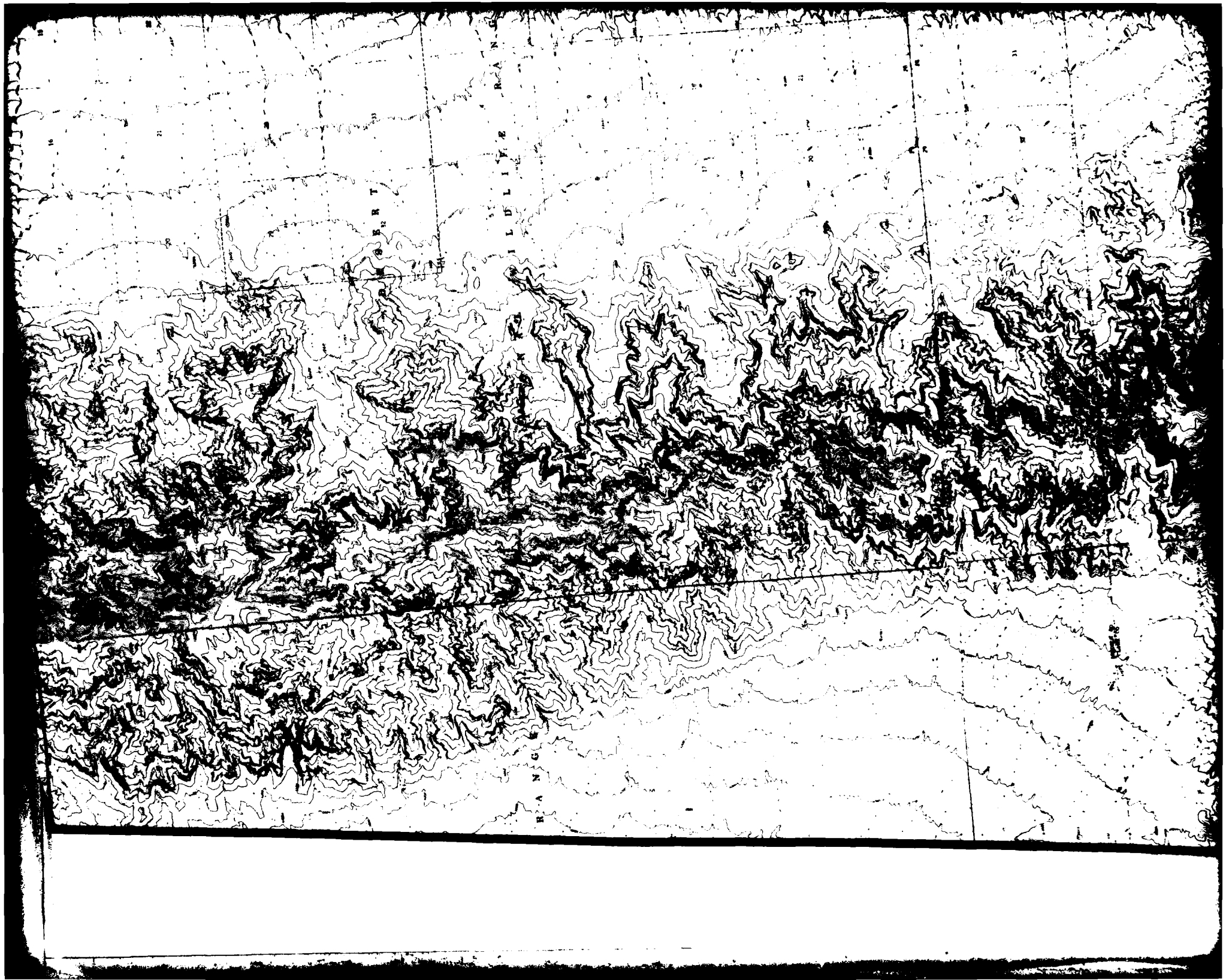
GS-18
GS-26
GS-16
GS-17
GS-27



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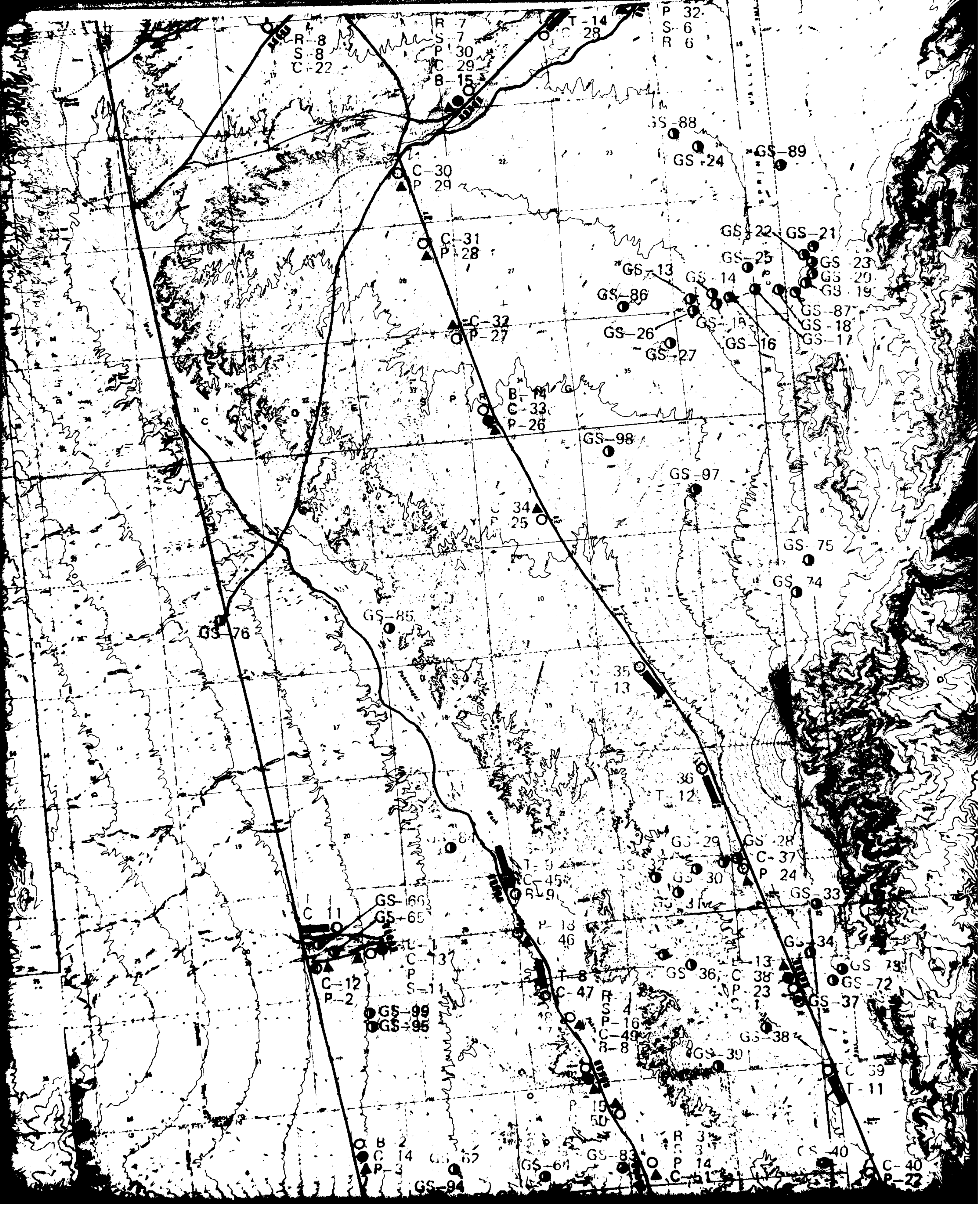
R A N G E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S-8
C-22
R-7
S-7
P-30
C-29
B-15
T-14
C-28
P 32
S-6
R 6
GS-88
GS-24
GS-89
C-30
P-29
C-31
P-28
GS-22
GS-21
GS-25
GS-23
GS-13
GS-14
GS-29
GS-19
GS-86
GS-87
GS-18
GS-26
GS-16
GS-17
GS-27
C-32
P-27
B-14
C-33
P-26
GS-98
GS-97
C 34
P 25
GS-75
GS 74
GS-85
GS-76
C-35
T-13
T-12
GS-29
GS-28
C-37
P 24
T-9
C-45
GS-30
GS-33
GS-66
GS-65
C 11
P-13
C 46
GS-34
C-13
S-11
GS 36
C 38
P-23
GS-72
C-12
P-2
T-8
C-47
GS-37
GS-99
GS-95
P-16
C-49
B-8
GS-38
GS-39
C 39
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GS-94
GS-64
GS-83
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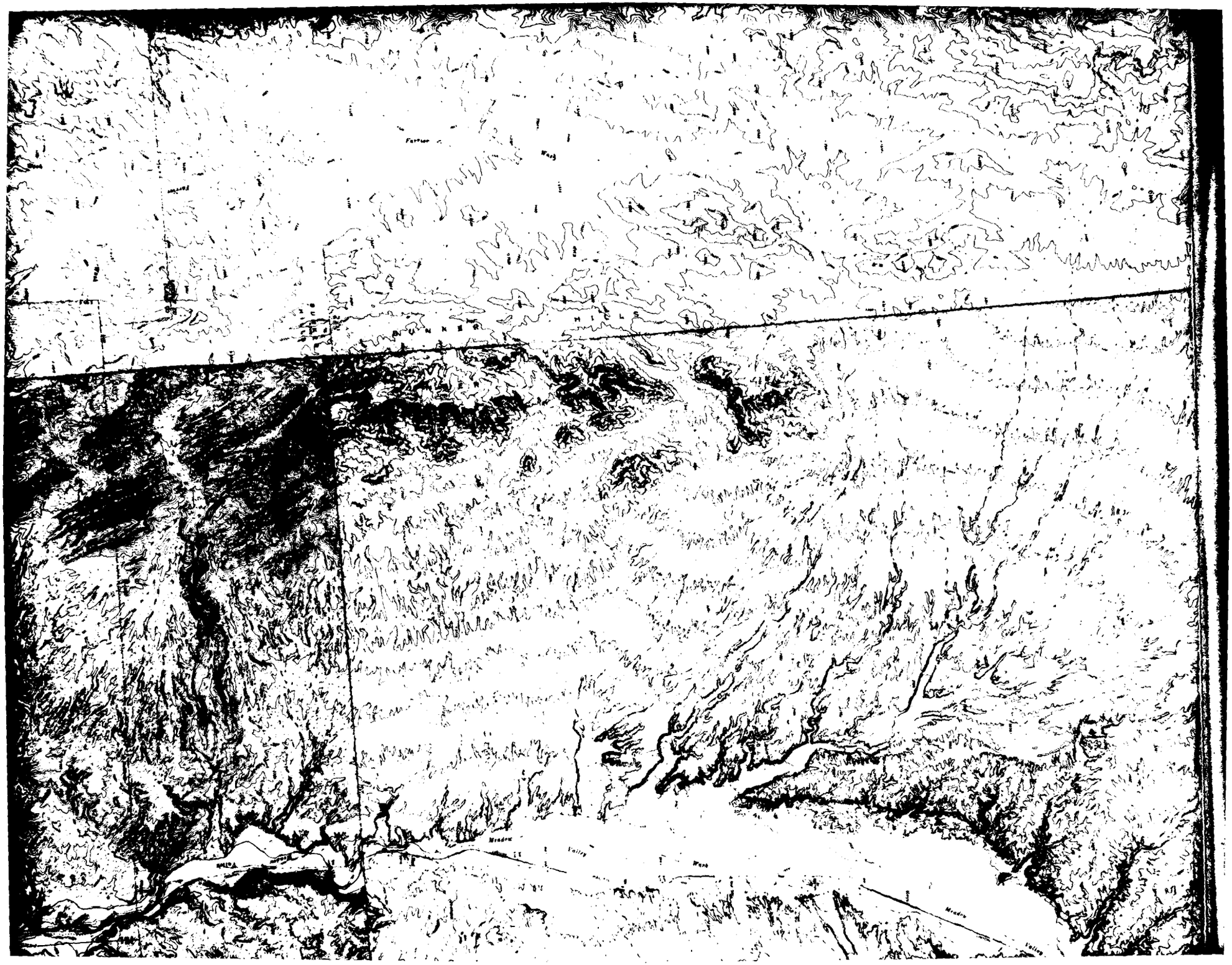
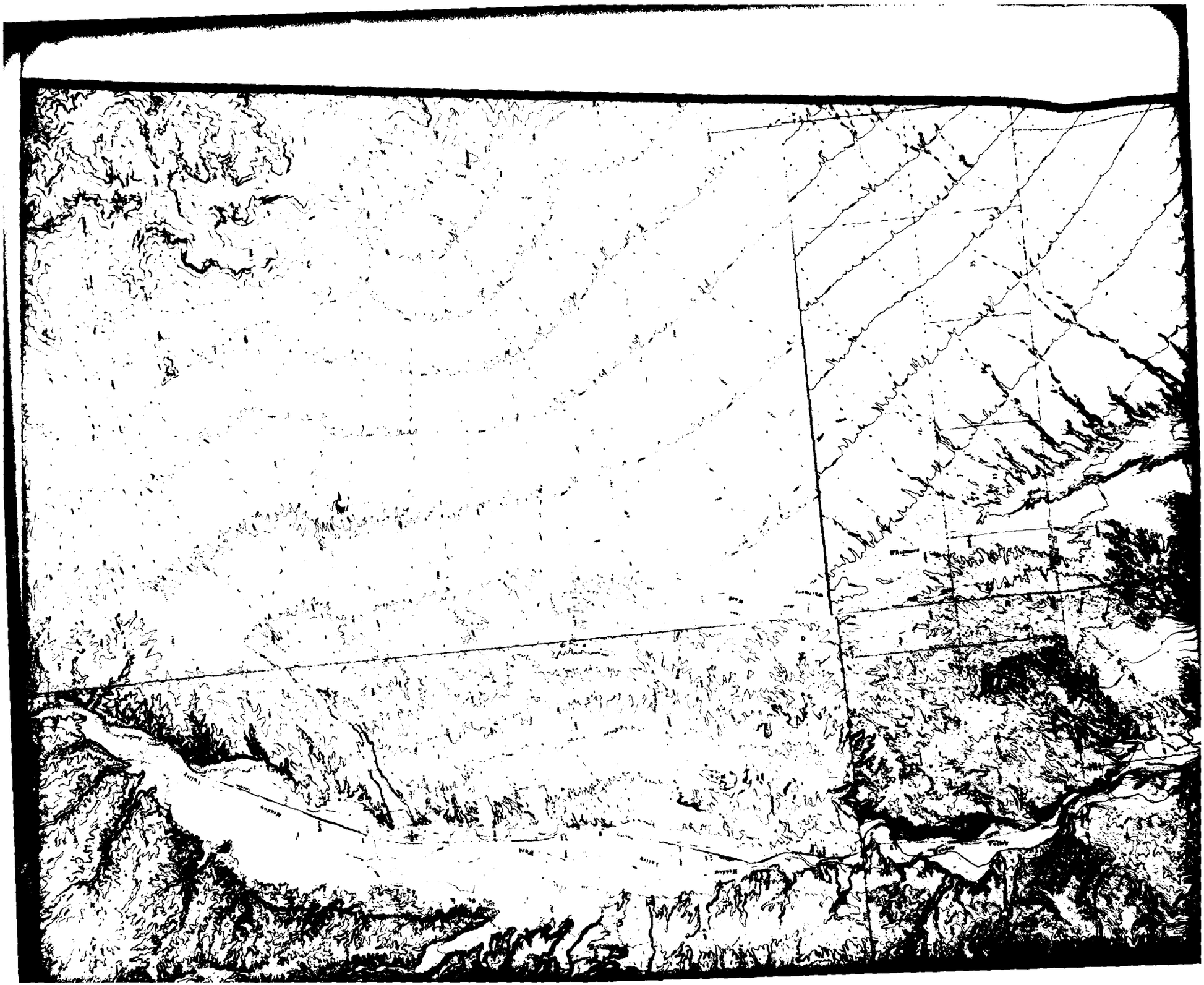
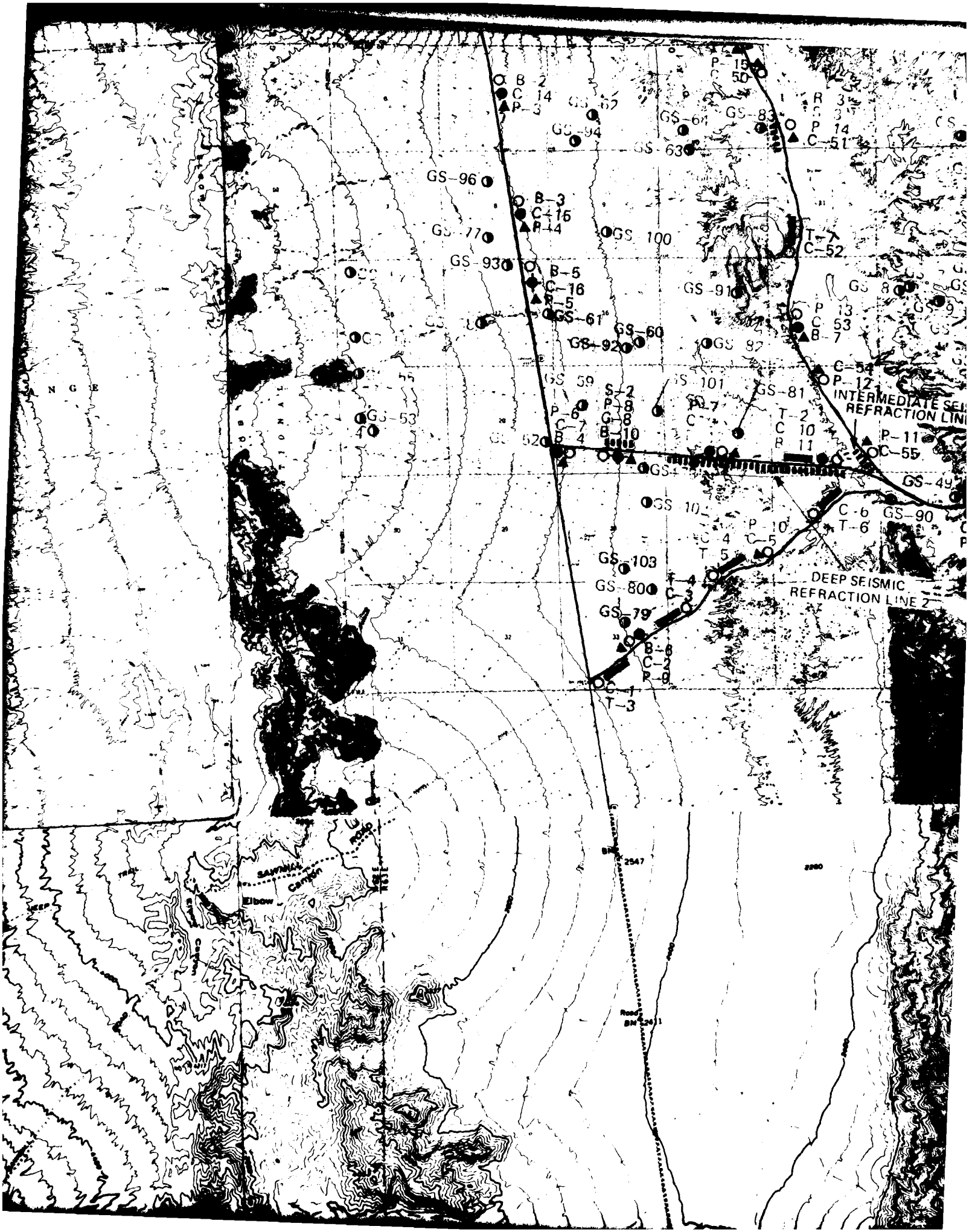
C-40
P-22



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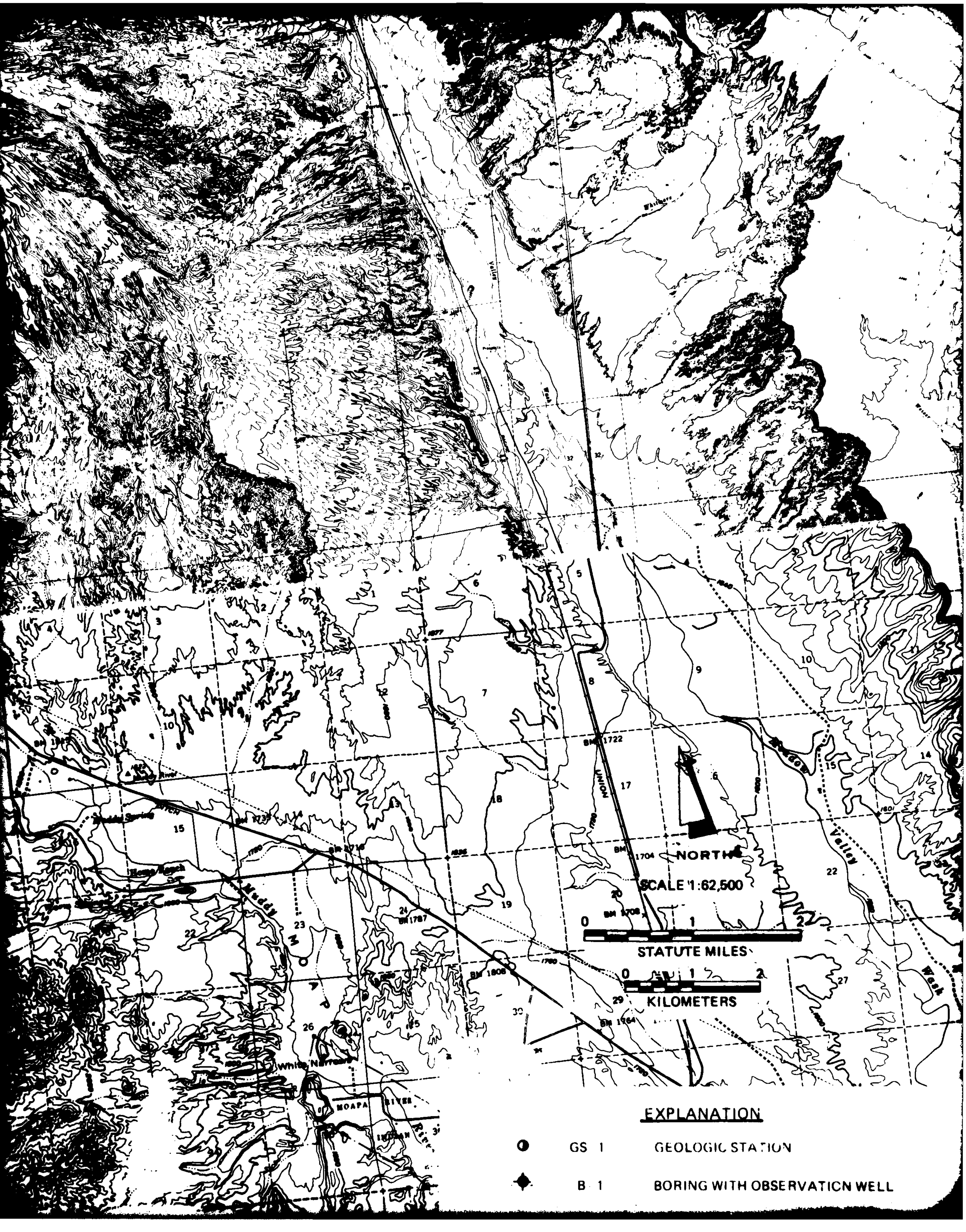
P-3
GS-94
GS-96
B-3
C-15
P-4
GS-77
GS-100
GS-93
B-5
C-16
P-5
GS-61
GS-60
GS-92
GS-87
GS-59
S-2
P-8
P-6
C-8
C-7
B-10
B-4
GS-52
GS-53
40
GS-101
GS-81
T-2
C-10
B-11
P-11
C-55
GS-49
GS-103
GS-80
T-4
C-3
GS-79
B-6
C-2
P-9
C-1
T-3
P-15
C-50
GS-64
GS-83
P-14
C-51
GS-63
T-1
C-52
GS-91
P-13
C-53
B-7
C-54
P-12
INTERMEDIATE SEI
REFRACTION LIN
C-6
T-6
GS-90
P-10
C-4
C-5
T-5
DEEP SEISMIC
REFRACTION LINE 2
N G E
SAWMILL
Canyon
Elbow
BM 2547
Road
BM 2261


C-40
P-22
C-41
P-21
S 10
GS 3
C-42
P-20
GS-42
GS 44
GS 45
S-51
C-43
T-10
S-50
Wash
19
30


NORTH
SCALE 1:62,500
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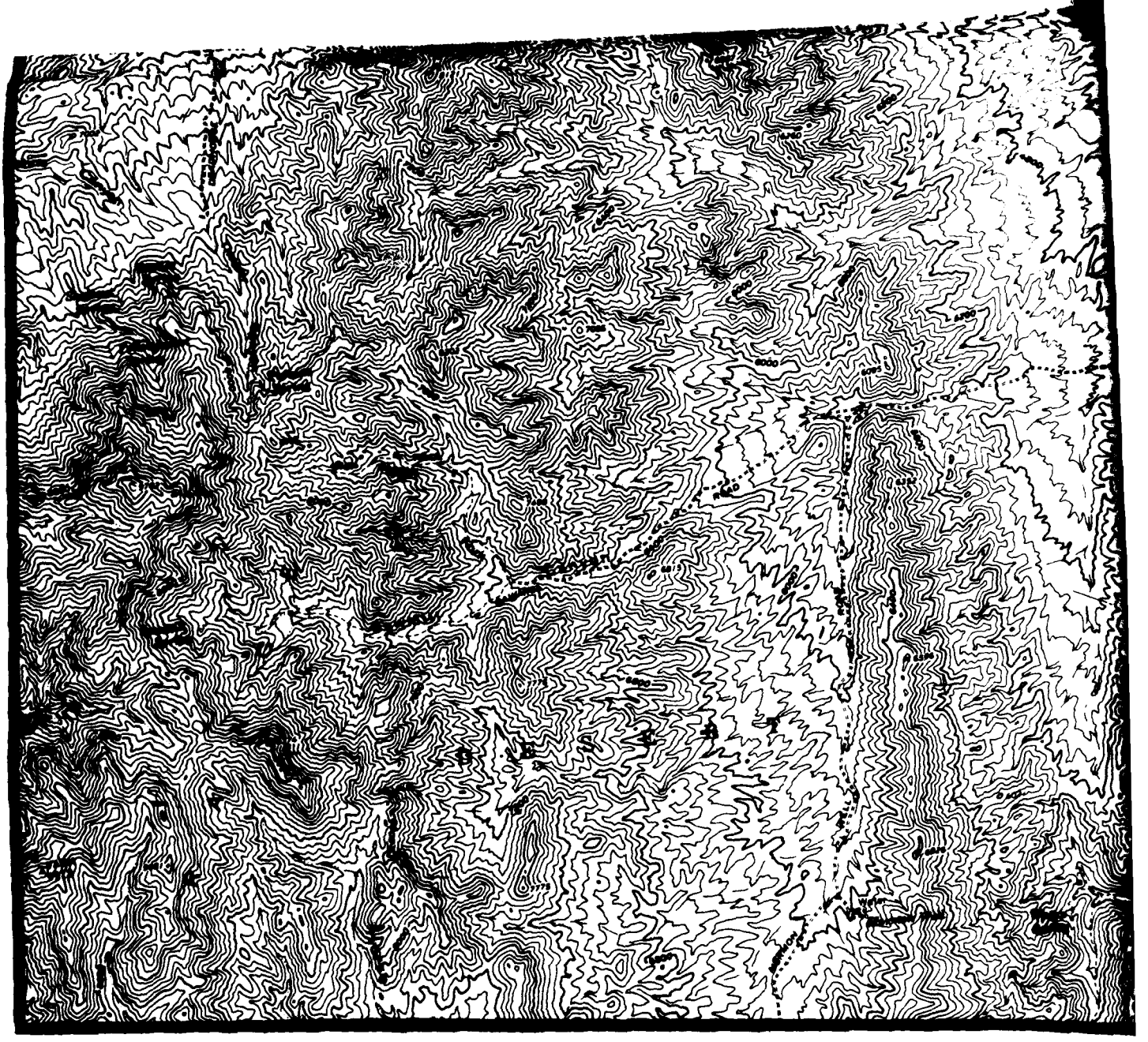
STATUTE MILES
0 1 2
KILOMETERS
Muddy River
Muddy Spring
Home Ranch
White Narrows
MOAPA RIVER
INDIAN RESERVATION
UNION
Valley
Wash
EXPLANATION
GS 1 GEOLOGIC STATION
B 1 BORING WITH OBSERVATION WELL



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Road
BM 2411
BM 2414
BM 2574
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2728
RANGE
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Wash
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Battleship
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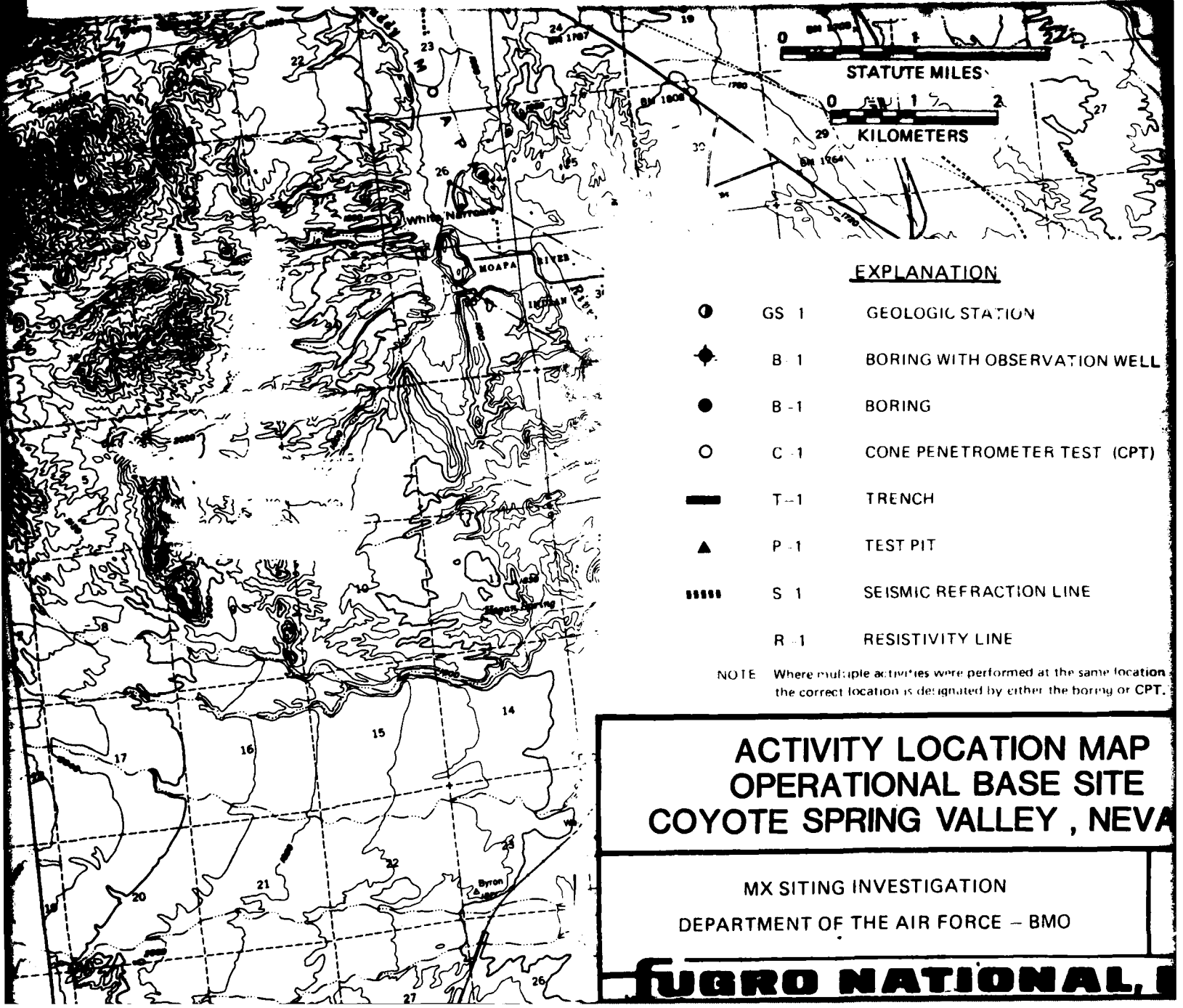
18
19



EXPLANATION

◑	GS-1	GEOLOGIC STATION
✦	B-1	BORING WITH OBSERVATION WELL
●	B-1	BORING
○	C-1	CONE PENETROMETER TEST (CPT)
▬	T-1	TRENCH
▲	P-1	TEST PIT
▮▮▮▮▮	S-1	SEISMIC REFRACTION LINE
	R-1	RESISTIVITY LINE

NOTE Where multiple activities were performed at the same location the correct location is designated by either the boring or CPT.

ACTIVITY LOCATION MAP OPERATIONAL BASE SITE COYOTE SPRING VALLEY , NEVA

MX SITING INVESTIGATION

DEPARTMENT OF THE AIR FORCE – BMO

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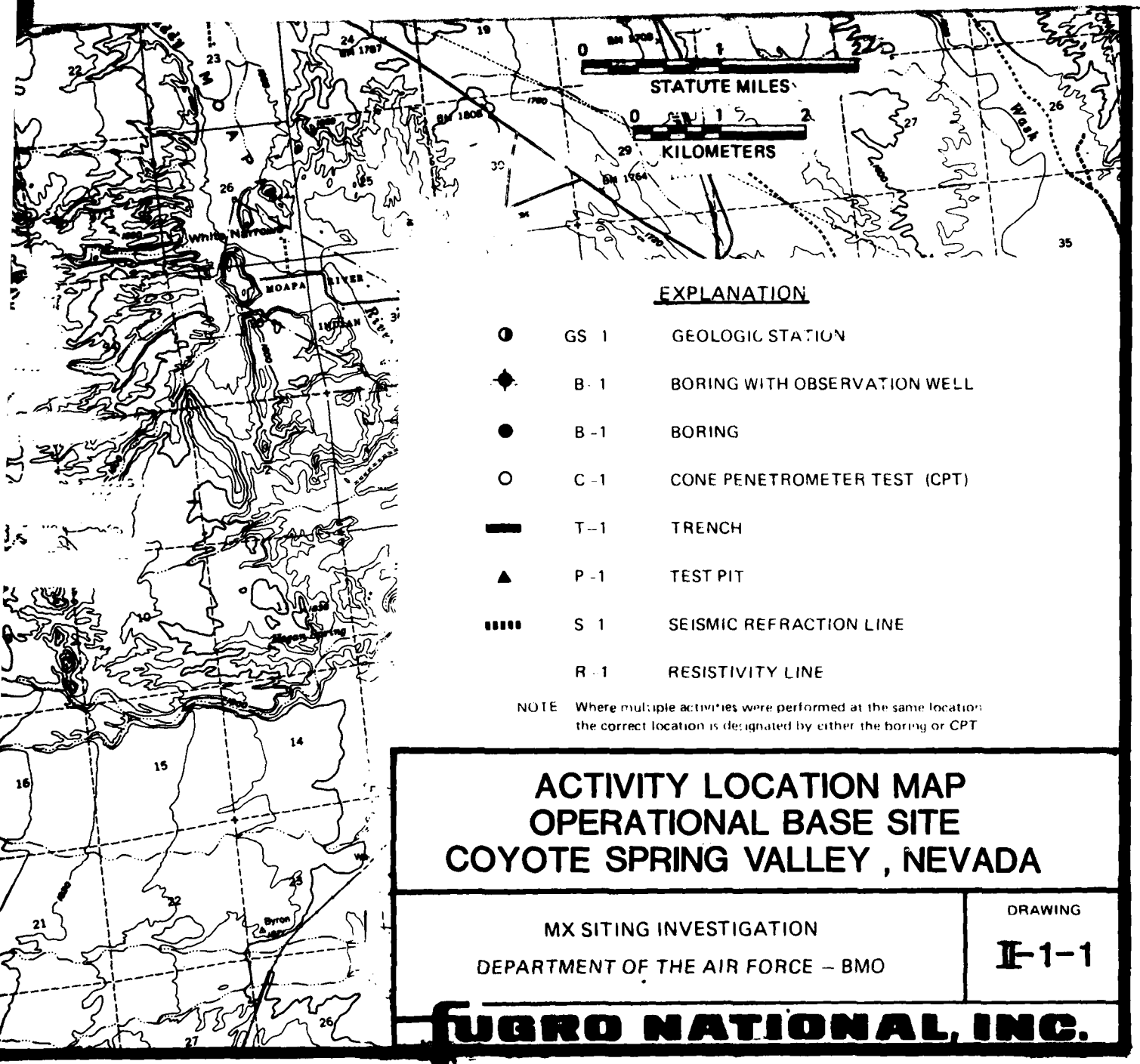

EXPLANATION

◑	GS 1	GEOLOGIC STATION
◆	B-1	BORING WITH OBSERVATION WELL
●	B-1	BORING
○	C-1	CONE PENETROMETER TEST (CPT)
▬	T-1	TRENCH
▲	P-1	TEST PIT
▮▮▮▮▮	S 1	SEISMIC REFRACTION LINE
	R-1	RESISTIVITY LINE

NOTE Where multiple activities were performed at the same location the correct location is designated by either the boring or CPT

ACTIVITY LOCATION MAP
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION

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DRAWING

II-1-1

FUGRO NATIONAL, INC.

2.0 EXPLANATIONS OF BORING, TRENCH, AND TEST PIT LOGS

All data from borings, trenches, and test pits are presented on standard Fugro National logs in Sections 2.0, 3.0, and 4.0. Explanations of the column headings on the logs are as follows:

A. Designations - Borings, trenches, and test pits are identified as follows:

CE-B-1
CE - abbreviation for the site (e.g., CE-Coyote Spring Valley)
B - abbreviation for activity (e.g., B-boring, T-trench, P-test pit)
1 - number of activity

B. Sample Type - Different sampling techniques were used and the symbols are explained at the bottom of the boring logs. For details of sampling techniques, see Section A5.0 of Appendix in Volume I. Horizontal lines, to scale, indicate the depth where sampling was attempted.

C. Percent Recovery - The numbers shown represent the ratio (in percent) of the soil sample recovered in the sampler to the full penetration of the sampler.

D. N Value - Corresponds to standard penetration resistance, which is number of blows required to drive a standard split-spoon sampler for the second and third of three 6-inch (15-cm) increments with a 140-pound (63.5-kg) hammer falling 30 inches (76 cm) (ASTM D 1586-67).

E. Depth - Corresponds to depth below ground surface in meters and feet.

F. Lithology - Graphic representation of the soil and rock types.

G. USCS - Unified Soil Classification System symbols (see Table II-2-1 for complete details).

H. Soil Description - Except in cases where samples were classified based on laboratory test data, the descriptions are based on visual classification. The procedures outlined in ASTM D 2487-69, Classification of Soils for Engineering Purposes, and D 2488-69, Description of Soils (Visual-Manual Procedure) were followed. Solid lines across the column indicate known change in strata at the depth shown.

Definitions of some of the terms and criteria to describe soils and conditions encountered during the exploration follow.

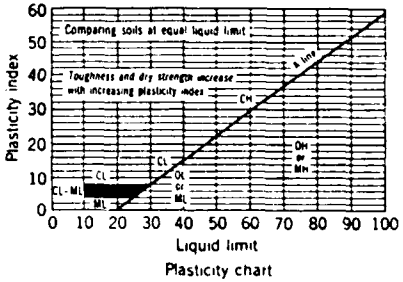
Gradation : A coarse-grained soil is well graded if it has a wide range in grain size and substantial amounts of most intermediate particle sizes.

Poorly graded indicates that the soil consists predominantly of one size (uniformly graded) or has a wide range of sizes with some intermediate sizes obviously missing (gap-graded).

Moisture :

Dry	- no feel of moisture
Slightly Moist	- much less than normal moisture
Moist	- normal moisture for soil
Very Moist	- much greater than normal moisture
Wet	- for soils below the water table

Field Identification Procedures (Excluding particles larger than 3 in. and basing fractions on estimated weights)						Group Symbols [a]	Typical Names	Information Required for Describing Soils	Laboratory Classification Criteria
Coarse-grained soils More than half of material is larger than No. 200 sieve size [b] (For visual classification, the ¼ in. size may be used as equivalent to the No. 4 sieve size)	Gravels More than half of coarse fraction is larger than No. 4 sieve size	Clean gravels (little or no fines)	Wide range in grain size and substantial amounts of all intermediate particle sizes			GW	Well graded gravels, gravel-sand mixtures, little or no fines	Give typical name; indicate approximate percentages of sand and gravel; maximum size; angularity, surface condition, and hardness of the coarse grains; local or geologic name and other pertinent descriptive information; and symbols in parentheses For undisturbed soils add information on stratification, degree of compactness, cementation, moisture conditions and drainage characteristics Example: *Silty sand*, gravelly; about 20%, hard, angular gravel particles ½-in. maximum size; rounded and subangular sand grains coarse to fine, about 15% nonplastic fines with low dry strength; well compacted and moist in place; alluvial sand; (*SM*)	Determine percentages of gravel and sand from grain size curve Depending on percentage of fines (fraction smaller than No. 200 sieve size) coarse grained soils are classified as follows: Less than 5%: *GW, GP, SW, SP* More than 12%: *GM, GC, SM, SC* 5% to 12%: *Borderline* cases requiring use of dual symbols Use grain size curve in identifying the fractions as given under field identification	$C_U = \frac{D_{60}}{D_{10}}$ Greater than 4 $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3
			Predominantly one size or a range of sizes with some intermediate sizes missing			GP	Poorly graded gravels, gravel-sand mixtures, little or no fines		Not meeting all gradation requirements for *GW*
		Gravels with fines (appreciable amount of fines)	Nonplastic fines (for identification procedures see *ML* below)			GM	Silty gravels, poorly graded gravel-sand-silt mixtures		Atterberg limits below "A" line, or *PI* less than 4 / Above "A" line with *PI* between 4 and 7 are *borderline* cases requiring use of dual symbols
			Plastic fines (for identification procedures, see *CL* below)			GC	Clayey gravels, poorly graded gravel-sand-clay mixtures		Atterberg limits above "A" line, with *PI* greater than 7
	Sands More than half of coarse fraction is smaller than No. 4 sieve size	Clean sands (little or no fines)	Wide range in grain sizes and substantial amounts of all intermediate particle sizes			SW	Well graded sands, gravelly sands, little or no fines		$C_U = \frac{D_{60}}{D_{10}}$ Greater than 6 $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3
			Predominantly one size or a range of sizes with some intermediate sizes missing			SP	Poorly graded sands, gravelly sands, little or no fines		Not meeting all gradation requirements for *SW*
		Sands with fines (appreciable amount of fines)	Nonplastic fines (for identification procedures, see *ML* below)			SM	Silty sands, poorly graded sand-silt mixtures		Atterberg limits below "A" line or *PI* less than 5 / Above "A" line with *PI* between 4 and 7 are *borderline* cases requiring use of dual symbols
			Plastic fines (for identification procedures, see *CL* below)			SC	Clayey sands, poorly graded sand-clay mixtures		Atterberg limits below "A" line with *PI* greater than 7
Fine-grained soils More than half of material is smaller than No. 200 sieve size (The No. 200 sieve size is about the smallest particle visible to naked eye)	Identification Procedures on Fraction Smaller than No. 40 Sieve Size								
			Dry Strength (crushing characteristics)	*Dilatancy* (reaction to shaking)	*Toughness* (consistency near plastic limit)				
	Silts and clays liquid limit less than 50		None to slight	Quick to slow	None	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands with slight plasticity	Give typical name; indicate degree and character of plasticity, amount and maximum size of coarse grains; colour in wet condition, odour if any, local or geologic name, and other pertinent descriptive information, and symbol in parentheses For undisturbed soils add information on structure, stratification, consistency in undisturbed and remoulded states, moisture and drainage conditions Example: *Clayey silt*, brown; slightly plastic; small percentage of fine sand, numerous vertical root holes; firm and dry in place; loess, (*ML*)	
			Medium to high	None to very slow	Medium	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays		
			Slight to medium	Slow	Slight	OL	Organic silts and organic silt-clays of low plasticity		
	Silts and clays liquid limit greater than 50		Slight to medium	Slow to none	Slight to medium	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts		
			High to very high	None	High	CH	Inorganic clays of high plasticity, fat clays		
			Medium to high	None to very slow	Slight to medium	OH	Organic clays of medium to high plasticity		
Highly Organic Soils			Readily identified by colour, odour, spongy feel and frequently by fibrous texture			Pt	Peat and other highly organic soils		



Plasticity chart
for laboratory classification of fine grained soils

From Wagner, 1957.

[a] *Boundary classifications*. Soils possessing characteristics of two groups are designated by combinations of group symbols. For example *GW-GC*, well graded gravel-sand mixture with clay binder.

[b] All sieve sizes on this chart are U.S. standard.

Field Identification Procedure for Fine Grained Soils or Fractions

These procedures are to be performed on the minus No. 40 sieve size particles, approximately ½₆ in. For field classification purposes, screening is not intended, simply remove by hand the coarse particles that interfere with the tests

Dilatancy (Reaction to shaking)

After removing particles larger than No. 40 sieve size, prepare a pat of moist soil with a volume of about one-half cubic inch. Add enough water if necessary to make the soil soft but not sticky.

Place the pat in the open palm of one hand and shake horizontally, striking vigorously against the other hand several times. A positive reaction consists of the appearance of water on the surface of the pat which changes to a livery consistency and becomes glossy. When the sample is squeezed between the fingers, the water and gloss disappear from the surface, the pat stiffens and finally it cracks or crumbles. The rapidity of appearance of water during shaking and of its disappearance during squeezing assist in identifying the character of the fines in a soil.

Very fine clean sands give the quickest and most distinct reaction whereas a plastic clay has no reaction. Inorganic silts, such as a typical rock flour, show a moderately quick reaction.

Dry Strength (Crushing characteristics):

After removing particles larger than No. 40 sieve size, mould a pat of soil to the consistency of putty, adding water if necessary. Allow the pat to dry completely by oven, sun or air drying, and then test its strength by breaking and crumbling between the fingers. This strength is a measure of the character and quantity of the colloidal fraction contained in the soil. The dry strength increases with increasing plasticity.

High dry strength is characteristic for clays of the CH group. A typical inorganic silt possesses only very slight dry strength. Silty fine sands and silts have about the same slight dry strength, but can be distinguished by the feel when powdering the dried specimen. Fine sand feels gritty whereas a typical silt has the smooth feel of flour.

Toughness (Consistency near plastic limit)

After removing particles larger than the No. 40 sieve size, a specimen of soil about one-half inch cube in size, is moulded to the consistency of putty. If too dry, water must be added and if sticky, the specimen should be spread out in a thin layer and allowed to lose some moisture by evaporation. Then the specimen is rolled out by hand on a smooth surface or between the palms into a thread about one-eight inch in diameter. The thread is then folded and re-rolled repeatedly. During this manipulation the moisture content is gradually reduced and the specimen stiffens, finally loses its plasticity, and crumbles when the plastic limit is reached.

After the thread crumbles, the pieces should be lumped together and a slight kneading action continued until the lump crumbles.

The tougher the thread near the plastic limit and the stiffer the lump when it finally crumbles, the more potent is the colloidal clay fraction in the soil. Weakness of the thread at the plastic limit and quick loss of coherence of the lump below the plastic limit indicate either *inorganic clay of low plasticity, or materials such as kaolin-type clays and organic* clays which occur below the A-line.

Highly organic clays have a very weak and spongy feel at the plastic limit.

UNIFIED SOIL CLASSIFICATION SYSTEM

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

TABLE II-2-1

WOODWARD-CLYDE CONSULTANTS

Plasticity : Plasticity index is the range of water content, expressed as a percentage of the weight of the oven-dried soil, through which the soil is plastic. It is defined as the liquid limit minus the plastic limit. Descriptive ranges used on the logs include:

Nonplastic	(PI, 0 - 4)
Slightly Plastic	(PI, 4 - 15)
Medium Plastic	(PI, 15 - 30)
Highly Plastic	(PI, >30)

Cobbles and Boulders : A cobble is a rock fragment, usually rounded by weathering or abrasion, with an average diameter ranging between 3 and 12 inches (8 and 30 cm).

A boulder is a rock fragment, usually rounded by weathering or abrasion, with an average diameter of 12 inches (30 cm) or more.

I. Remarks - This column was provided on boring and trench logs for comments regarding drilling difficulty, number and size of cobbles or boulders encountered, loss of drilling fluid in the boring, trench wall stability, and other conditions encountered during drilling and excavations.

J. Dry Density and Moisture Content - The boring logs include a graphical display of laboratory test results for dry density (ASTM D 2937-71) in pounds per cubic foot and kilograms per cubic meter and moisture content (ASTM D 2216-71) in percent from representative samples taken during drilling. The symbols are explained at the bottom of the boring logs.

K. Sieve Analysis - The numbers represent the percentage by dry weight (ASTM D 422-63) of each of the following soil components:

GR - Gravel, rock particles that will pass a 3-inch (76 mm) sieve and are retained on No. 4 (4.75 mm) sieve.

SA - Sand, soil particles passing No. 4 sieve and retained on No. 200 (0.075 mm) sieve.

FI - Fines, silt or clay, soil particles passing No. 200 sieve.

L. Atterberg Limits (LL and PI) -

LL - Liquid Limit, the water content corresponding to the arbitrary limit between the liquid and plastic states of consistency of a soil (ASTM D 423-66).

PL - Plastic Limit, the water content corresponding to an arbitrary limit between the plastic and the semisolid state of consistency of a soil (ASTM D 424-59).

PI - Plasticity Index, numerical difference between the liquid limit (LL) and the plastic limit (PL) indicating the range of moisture content within which a soil-water mixture is plastic.

NP - Nonplastic.

M. Miscellaneous Information -

Elevations - indicated elevations on the logs are estimated from topographic maps of the study area, within an accuracy of half the contour interval.

Surficial Geologic Unit - indicates the surficial geologic unit in which the activity is located.

Date Drilled - indicates the period from beginning to completion of the activity.

Drilling Method - signifies the type of drilling procedure used such as rotary wash.

Hole Diameter - nominal size of boring drilled.

Water Level - indicates depth from ground surface to water table where encountered.

Trench Length - length at ground surface of final trench excavation.

Trench Orientation - bearing of longitudinal trench centerline.

SECTION 3.0

TRENCH LOGS

3.0 EXPLANATIONS OF TRENCH LOGS

See Section 2.0, "Boring Logs", for explanations.

BULK SAMPLE	DEPTH METERS	DEPTH FEET	LITHOLOGY	USCS	CONSISTENCY	SOIL DESCRIPTION	REMARKS	SIEVE ANALYSIS GR	SA	FI	LL	PI
	0	0		GW-GM	dense	SANDY GRAVEL, light brown, fine to coarse, well graded, dry, subangular to subrounded, calcareous; some fine to coarse sand; trace nonplastic silt; trace cobbles to 6" size; stage I caliche (0.0' - 3.5'); stage III caliche (3.5' - 6.0'); stage IV caliche (6.0' - 7.0').	vertical walls stable	60	34	6		
		2										
	1	4										
		6			very dense							
	2					TOTAL DEPTH 7.0' (2.1m)	cementation at 7.0' exceeded capacity of Case 580C backhoe					
		8										
	3	10										
		12										
	4											
		14										
		16										
	5											
		18										
	6											
		20										

TRENCH DETAILS

SURFACE ELEVATION : 2520' (768m)
DATE EXCAVATED : 15 OCTOBER 1980
SURFICIAL GEOLOGIC UNIT : A5i
TRENCH LENGTH : 11.0' (3.4m)
TRENCH ORIENTATION : N-S

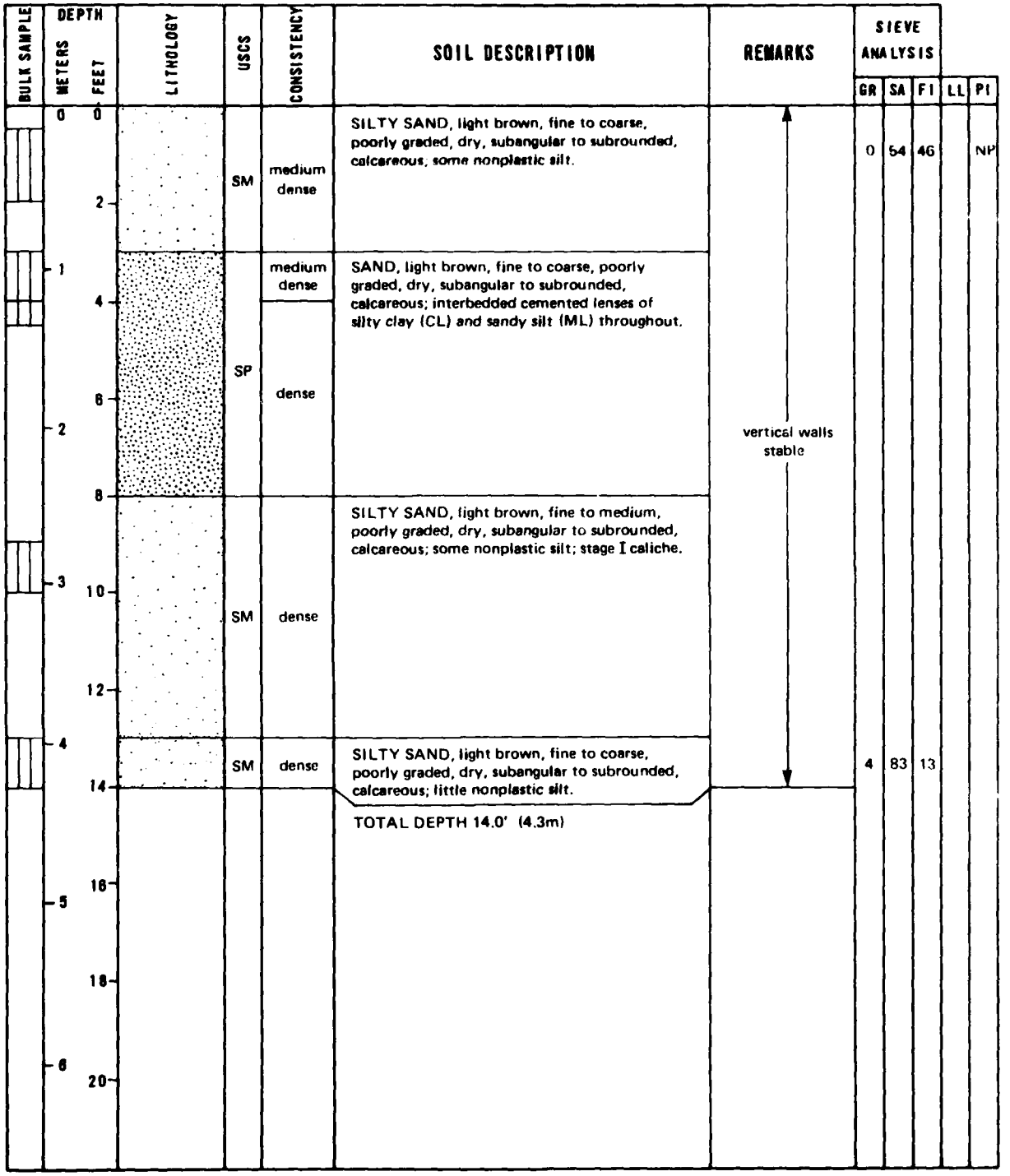
LOG OF TRENCH CE-T-1
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - 0000

FIGURE II 3 1

UNRO NATIONAL, INC.

FN-TR-43



TRENCH DETAILS

SURFACE ELEVATION : 2260' (689m)
DATE EXCAVATED : 16 OCTOBER 1980
SURFICIAL GEOLOGIC UNIT : Tys
TRENCH LENGTH : 14.0' (4.3m)
TRENCH ORIENTATION : N-S

LOG OF TRENCH CE-T-2
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

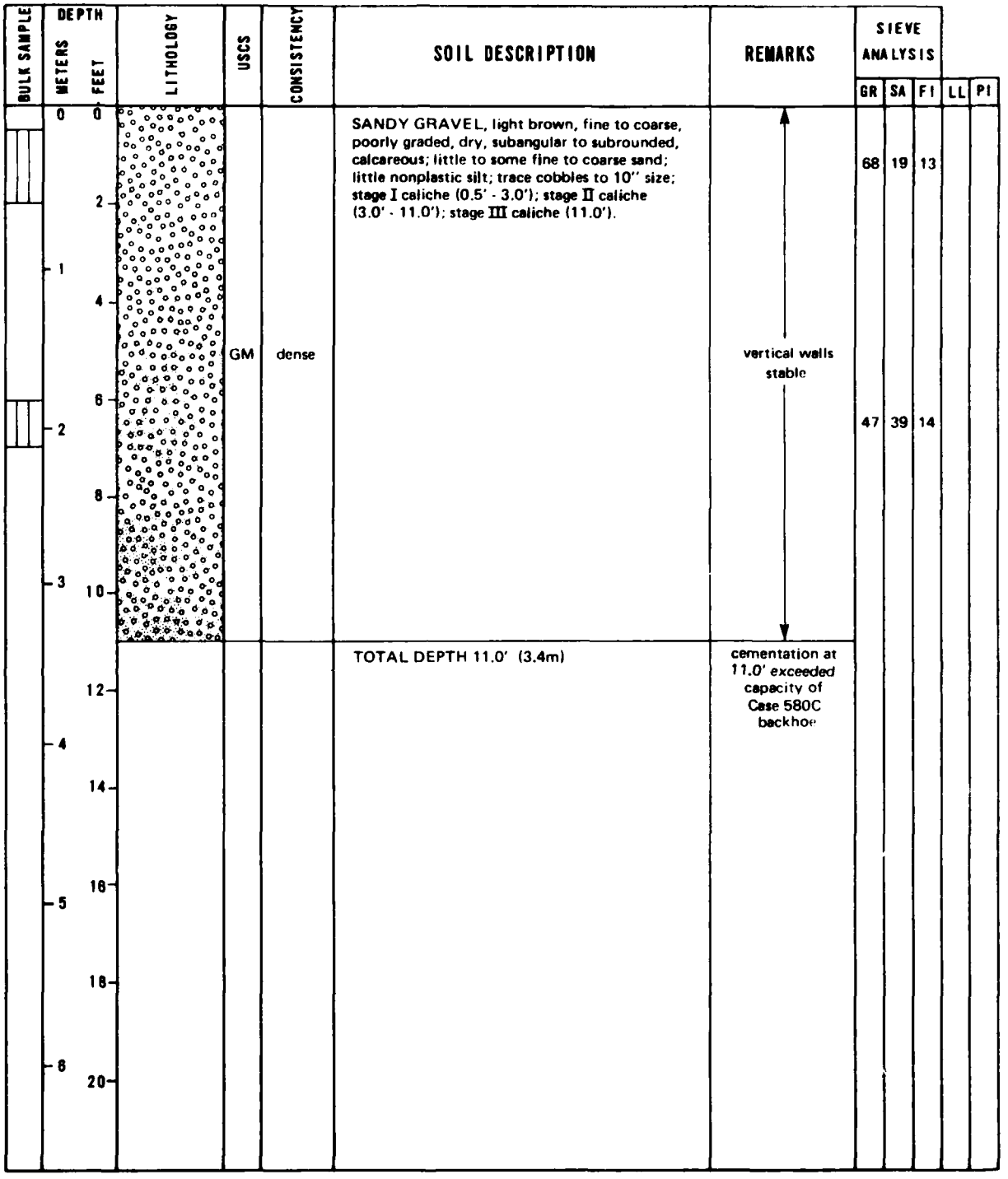
MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II 3 2

WARD NATIONAL, INC.

23 DEC 80

USAF-37



TRENCH DETAILS

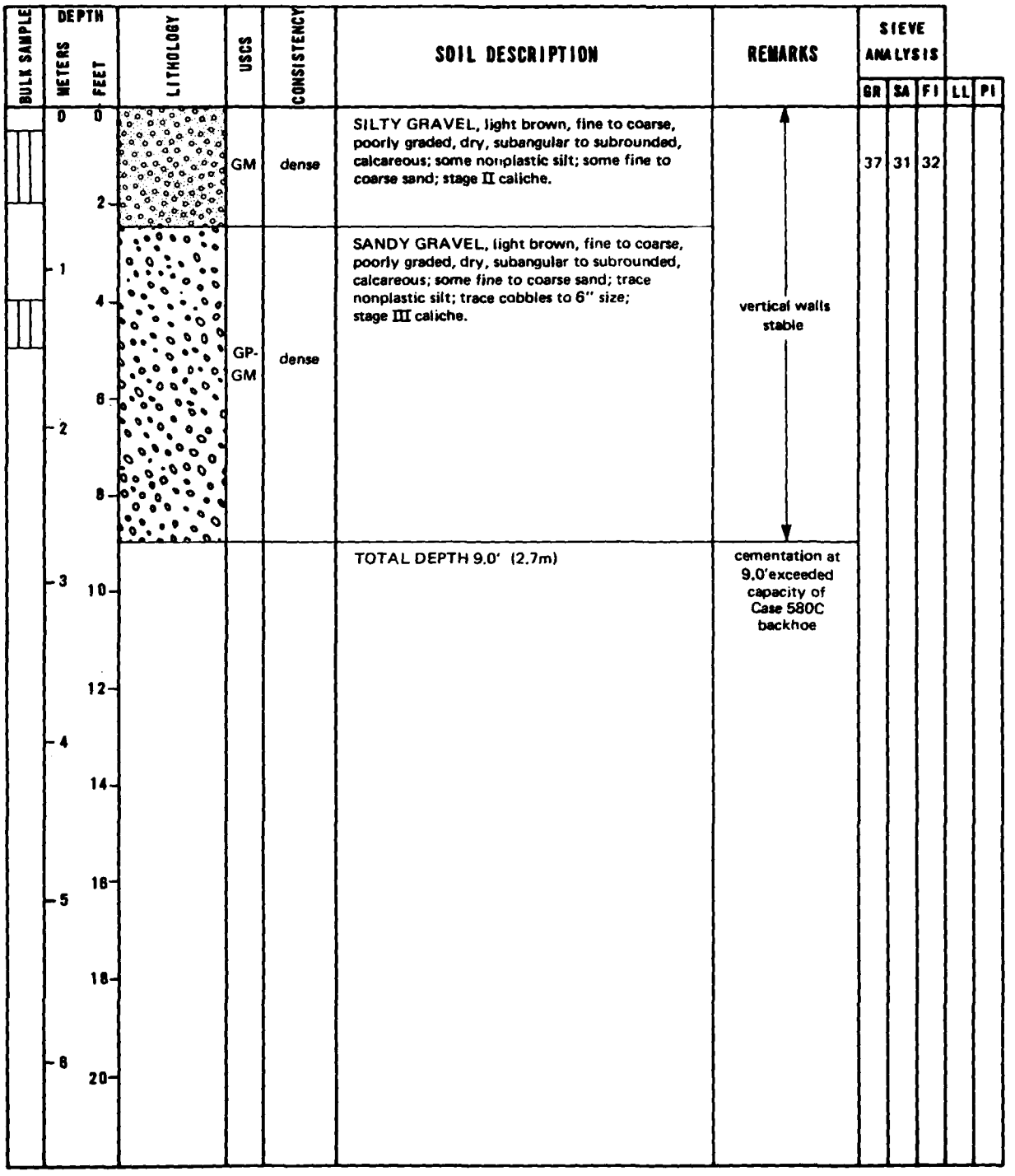
SURFACE ELEVATION	: 2480' (756m)
DATE EXCAVATED	: 16 OCTOBER 1980
SURFICIAL GEOLOGIC UNIT	: A5y/A5i
TRENCH LENGTH	: 13.0' (4.0m)
TRENCH ORIENTATION	: N-S

LOG OF TRENCH CE-T-3
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II 3 3

FUGRO NATIONAL, INC.



TRENCH DETAILS

SURFACE ELEVATION	: 2320' (707m)
DATE EXCAVATED	: 16 OCTOBER 1980
SURFICIAL GEOLOGIC UNIT	: Tys
TRENCH LENGTH	: 11.0' (3.4m)
TRENCH ORIENTATION	: N-S

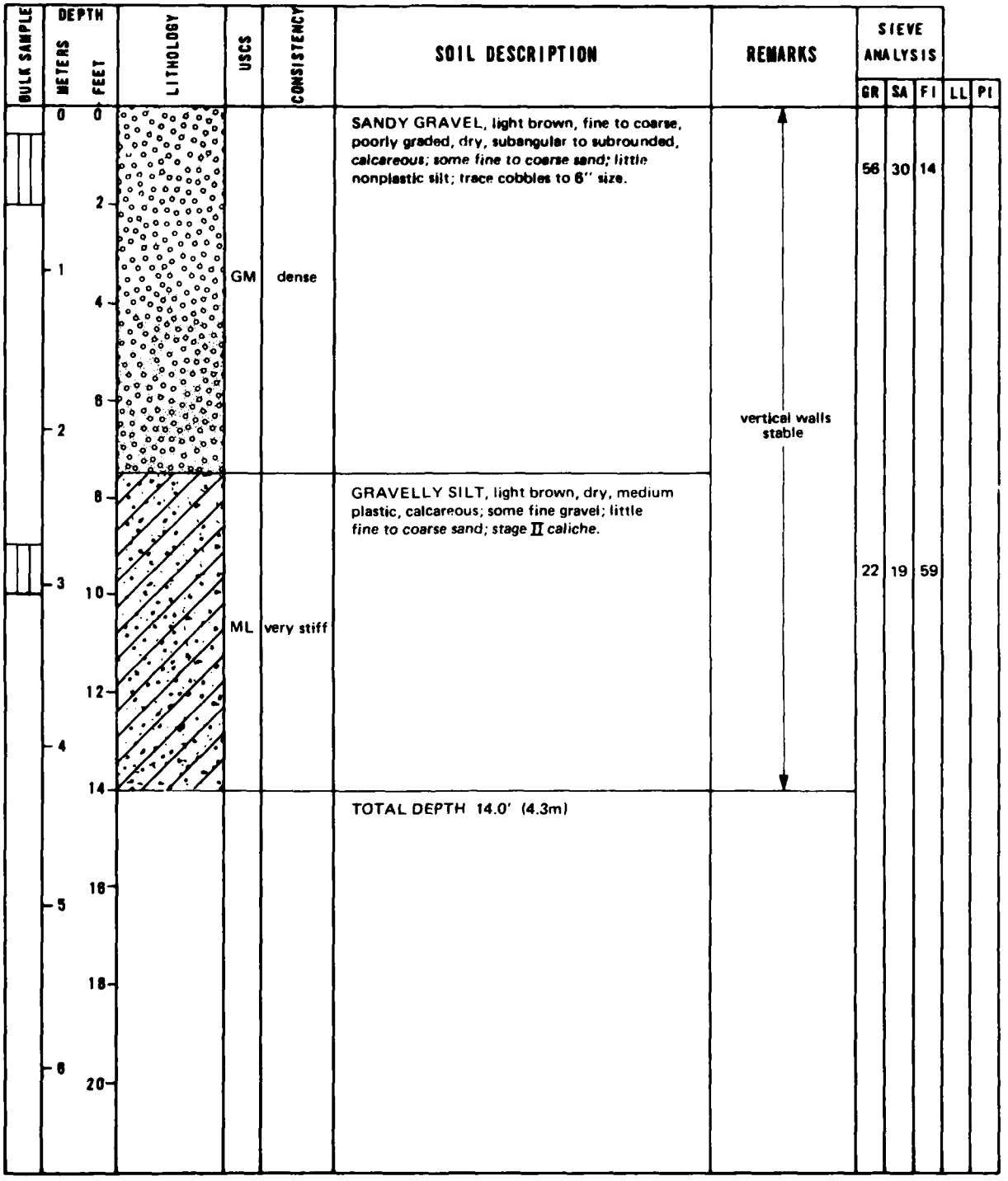
LOG OF TRENCH CE-T-4
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-3-4

UBRO NATIONAL, INC.

FN-TR-43



TRENCH DETAILS

SURFACE ELEVATION	: 2300' (701m)
DATE EXCAVATED	: 17 OCTOBER 1980
SURFICIAL GEOLOGIC UNIT	: A1
TRENCH LENGTH	: 14.0' (4.3m)
TRENCH ORIENTATION	: N-S

LOG OF TRENCH CE-T-5
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

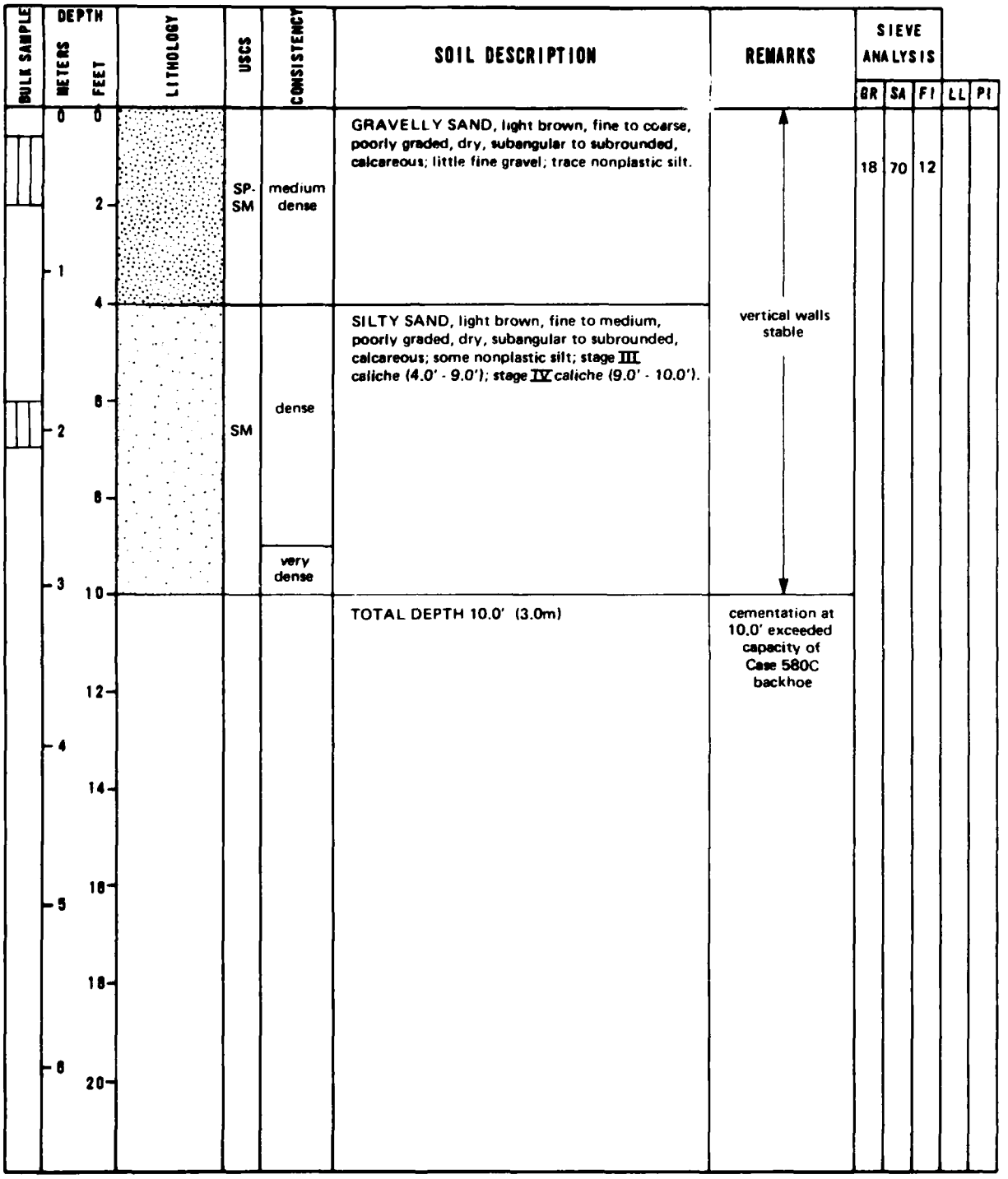
MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE II 35

FUGRO NATIONAL, INC.

23 DEC 80

USAF-37



TRENCH DETAILS

SURFACE ELEVATION	: 2200' (671m)
DATE EXCAVATED	: 17 OCTOBER 1980
SURFICIAL GEOLOGIC UNIT	: A1
TRENCH LENGTH	: 13.0' (4.0m)
TRENCH ORIENTATION	: N-S

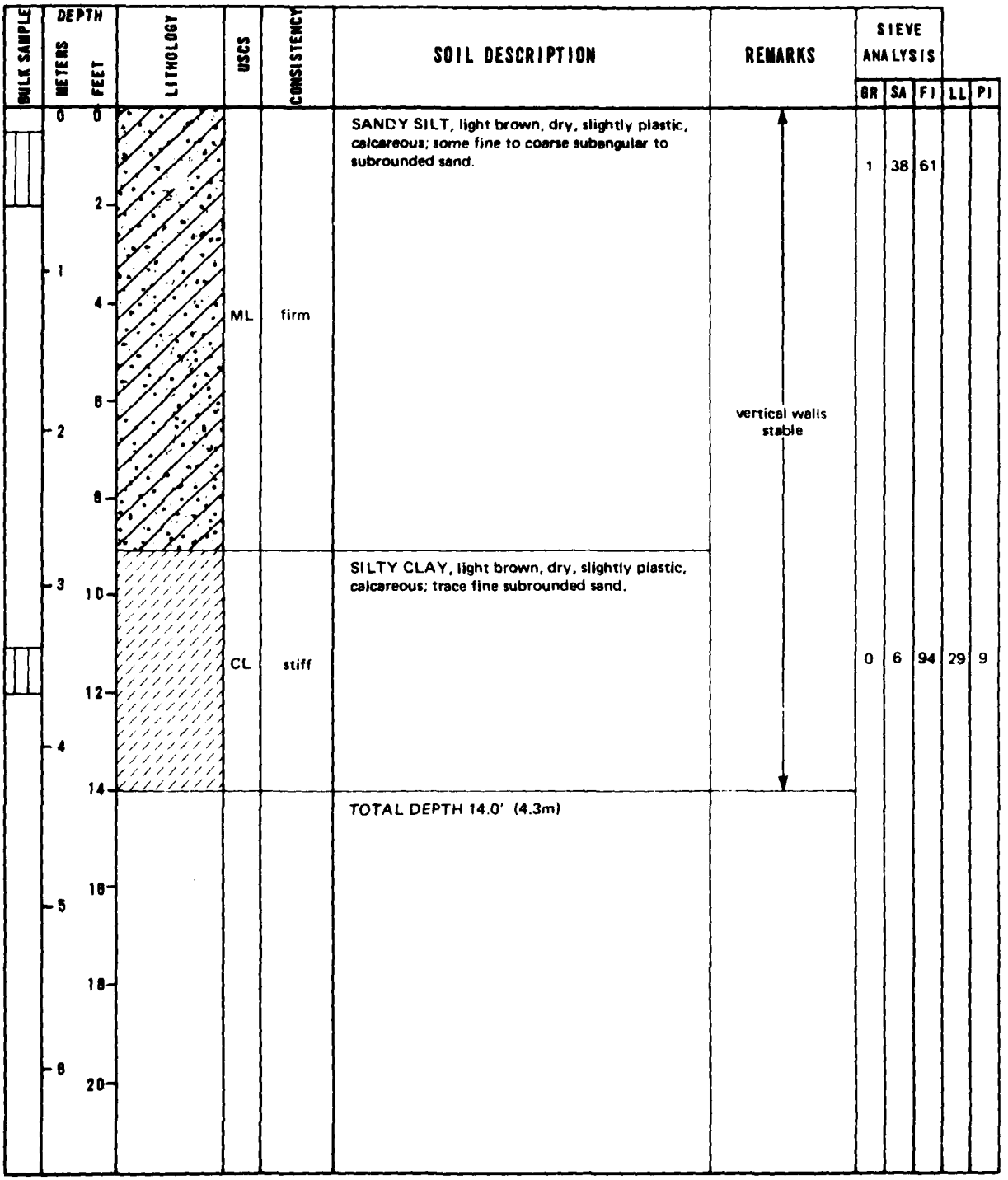
LOG OF TRENCH CE-T 6
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II 3 6

WOODWARD-NATIONAL, INC.

FN-TR-43



TRENCH DETAILS

SURFACE ELEVATION	: 2225' (678m)
DATE EXCAVATED	: 17 OCTOBER 1980
SURFICIAL GEOLOGIC UNIT	: Tys
TRENCH LENGTH	: 14.0' (4.3m)
TRENCH ORIENTATION	: E-W

LOG OF TRENCH CE-T-7
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

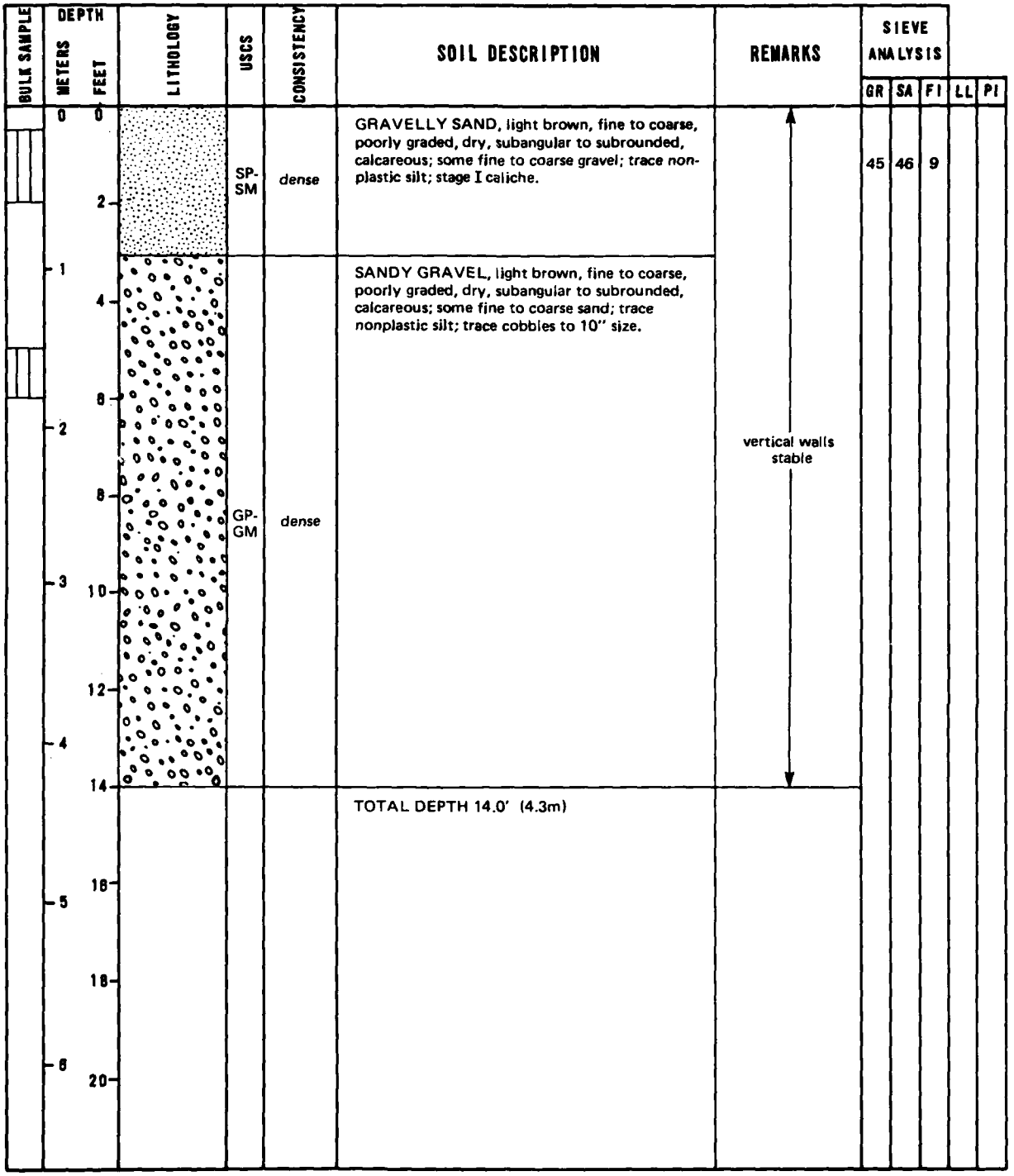
FIGURE
II-3 7

FUGRO NATIONAL, INC.

23 DEC 80

USAF-37

FN-TR-43



TRENCH DETAILS

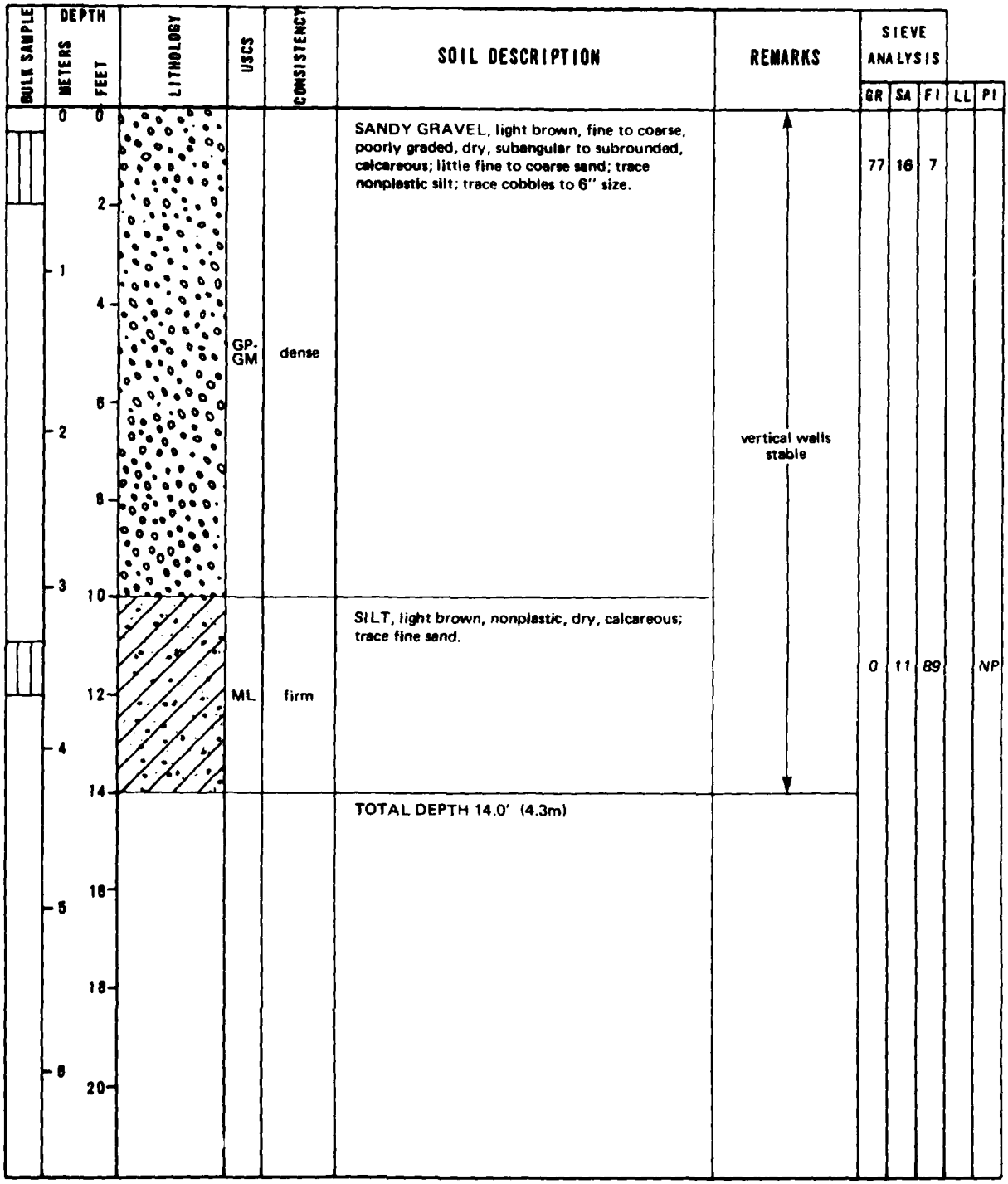
SURFACE ELEVATION	: 2800' (701m)
DATE EXCAVATED	: 18 OCTOBER 1980
SURFICIAL GEOLOGIC UNIT	: A5y
TRENCH LENGTH	: 14.0' (4.3m)
TRENCH ORIENTATION	: E-W

LOG OF TRENCH CE-T-8
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-3-8

FUGRO NATIONAL, INC.



TRENCH DETAILS

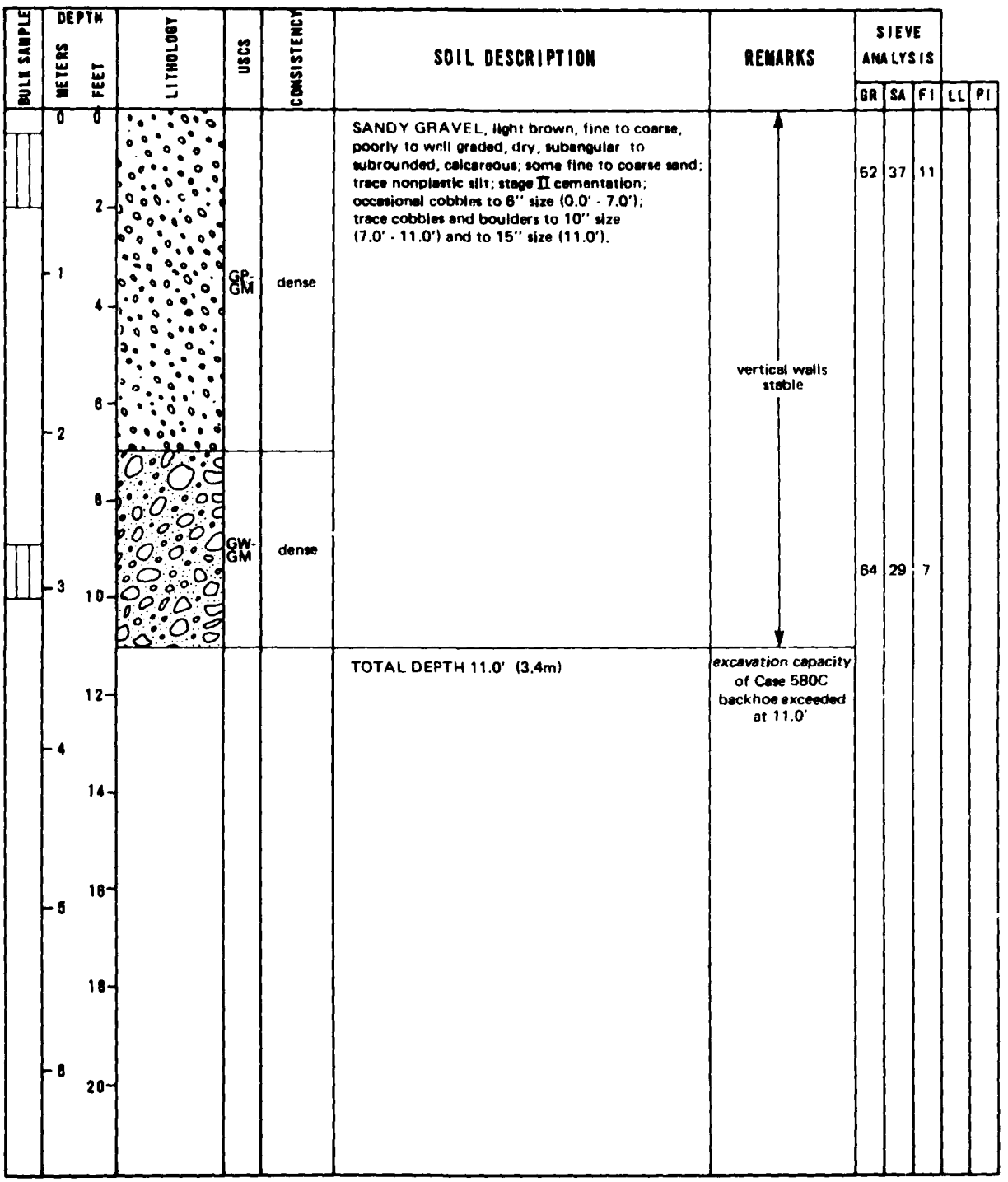
SURFACE ELEVATION	: 2300' (701m)
DATE EXCAVATED	: 18 OCTOBER 1980
SURFICIAL GEOLOGIC UNIT	: A5v
TRENCH LENGTH	: 14.0' (4.3m)
TRENCH ORIENTATION	: E-W

LOG OF TRENCH CE-T-9
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-39

WOODWARD-CLYDE CONSULTANTS



TRENCH DETAILS

SURFACE ELEVATION : 2400' (732m)
DATE EXCAVATED : 19 OCTOBER 1980
SURFICIAL GEOLOGIC UNIT : A50
TRENCH LENGTH : 14.0' (4.3m)
TRENCH ORIENTATION : E-W

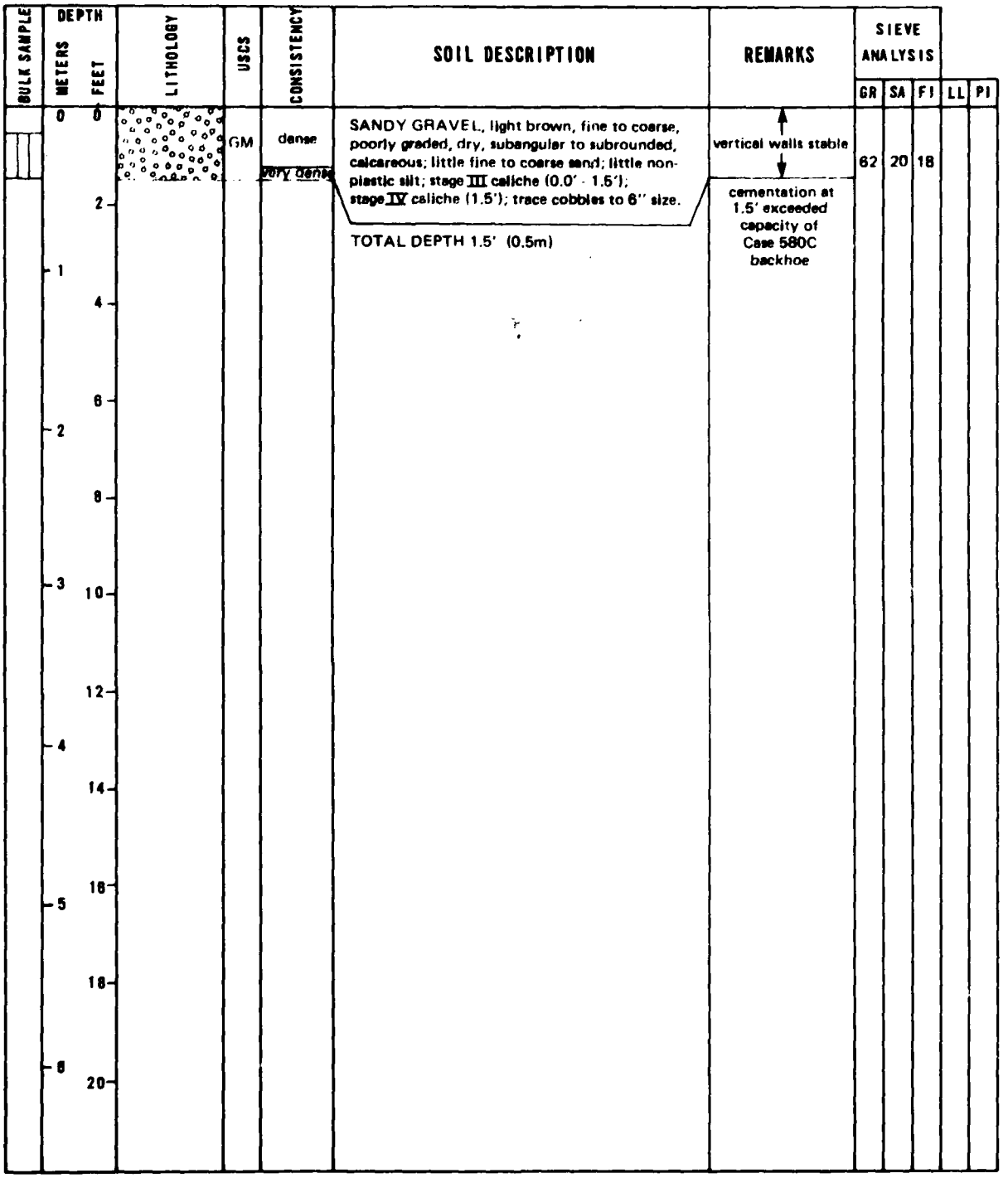
LOG OF TRENCH CE-T-10
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II 3 10

WOODWARD-CLYDE CONSULTANTS

FN-TR-43



TRENCH DETAILS

SURFACE ELEVATION	: 2380' (728m)
DATE EXCAVATED	: 19 OCTOBER 1980
SURFICIAL GEOLOGIC UNIT	: A50
TRENCH LENGTH	: 8.0' (2.4m)
TRENCH ORIENTATION	: E-W

LOG OF TRENCH CE-T-11
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-3-11

FUGRO NATIONAL, INC.

BULK SAMPLE	DEPTH METERS	DEPTH FEET	LITHOLOGY	USCS	CONSISTENCY	SOIL DESCRIPTION	REMARKS	SIEVE ANALYSIS GR	SA	FI	LL	PI
	0	0		GP-GM	dense / very dense	GRAVEL, *light brown, fine to coarse, poorly graded, dry, subangular to subrounded,* calcareous; trace fine to coarse sand; trace nonplastic silt; stage III caliche (0.0' - 3.0'); stage IV caliche (3.0'); occasional cobbles to 6" size.	vertical walls stable	82	11	7		
						TOTAL DEPTH 3.0' (0.9m)	cementation at 3.0' exceeded capacity of Case 580C backhoe					

TRENCH DETAILS

SURFACE ELEVATION : 2460' (750m)
DATE EXCAVATED : 20 OCTOBER 1980
SURFICIAL GEOLOGIC UNIT : A5y/A5i
TRENCH LENGTH : 10.0' (3.0m)
TRENCH ORIENTATION : E-W

LOG OF TRENCH CE-T-12
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE II-3 12

FUGRO NATIONAL, INC.

FN-TR-43

BULK SAMPLE	DEPTH METERS	DEPTH FEET	LITHOLOGY	USCS	CONSISTENCY	SOIL DESCRIPTION	REMARKS	SIEVE ANALYSIS GR	SA	FI	LL	PI
	0	0		GM	dense	SILTY GRAVEL, light brown, fine to coarse, poorly graded, dry, subangular to subrounded, calcareous; some nonplastic silt; some fine to coarse sand; stage III caliche (0.0' - 2.5'); stage IV caliche (2.5' - 3.0'); occasional cobbles to 6" size.	vertical walls stable	48	24	28		
		2			very dense							
	1	4				TOTAL DEPTH 3.0' (0.9m)	cementation at 3.0' exceeded capacity of Case 580C backhoe					
		6										
	2	8										
	3	10										
		12										
	4	14										
		16										
	5	18										
	6	20										

TRENCH DETAILS

SURFACE ELEVATION : 2490' (759m)
DATE EXCAVATED : 20 OCTOBER 1980
SURFICIAL GEOLOGIC UNIT : A5i
TRENCH LENGTH : 10.0' (3.0m)
TRENCH ORIENTATION : E-W

LOG OF TRENCH CE-T-13
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - 5500

FIGURE II-3-13

FUGRO NATIONAL, INC.

FN TR 43

BULK SAMPLE	DEPTH METERS	DEPTH FEET	LITHOLOGY	USCS	CONSISTENCY	SOIL DESCRIPTION	REMARKS	SIEVE ANALYSIS GR	SA	FI	LL	PI
	0	0				GRAVELLY SAND, light brown, fine to coarse, well to poorly graded, dry, subangular to subrounded, calcareous; little fine to coarse gravel; trace nonplastic silt; stage III caliche.	vertical walls stable	18	71	11		
		2		SW-SM	dense							
	1	4										
		6										
	2	8		SP	dense							
	3	10										
		12				TOTAL DEPTH 12.0' (3.7m)	cementation at 12.0' exceeded capacity of Case 580C backhoe					
	4	14										
	5	16										
		18										
	6	20										

TRENCH DETAILS

SURFACE ELEVATION : 2760' (841m)
DATE EXCAVATED : 21 OCTOBER 1980
SURFICIAL GEOLOGIC UNIT : A5y
TRENCH LENGTH : 14.0' (4.3m)
TRENCH ORIENTATION : E-W

LOG OF TRENCH CE-T-14
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - [illegible]

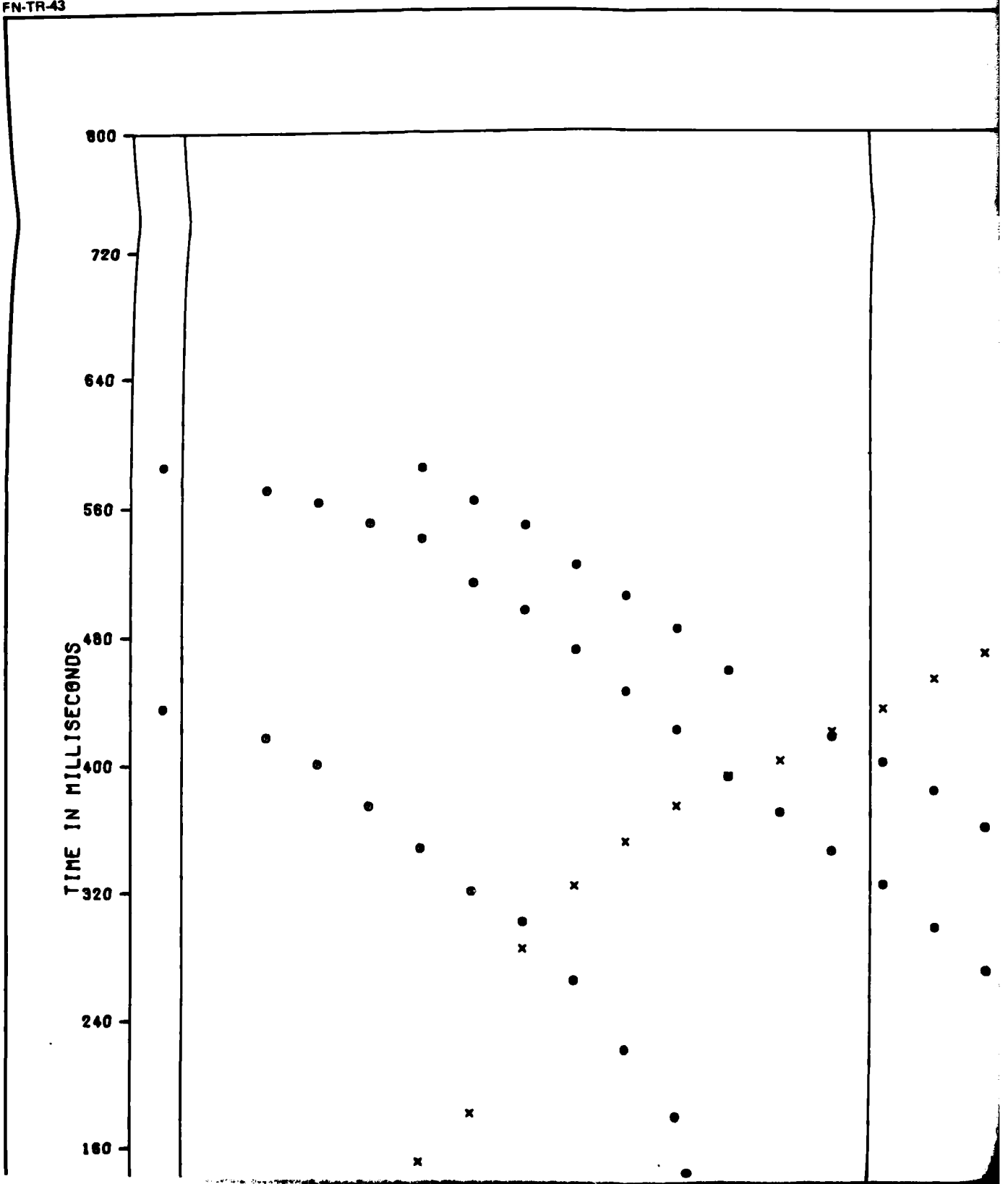
FIGURE II-3 14

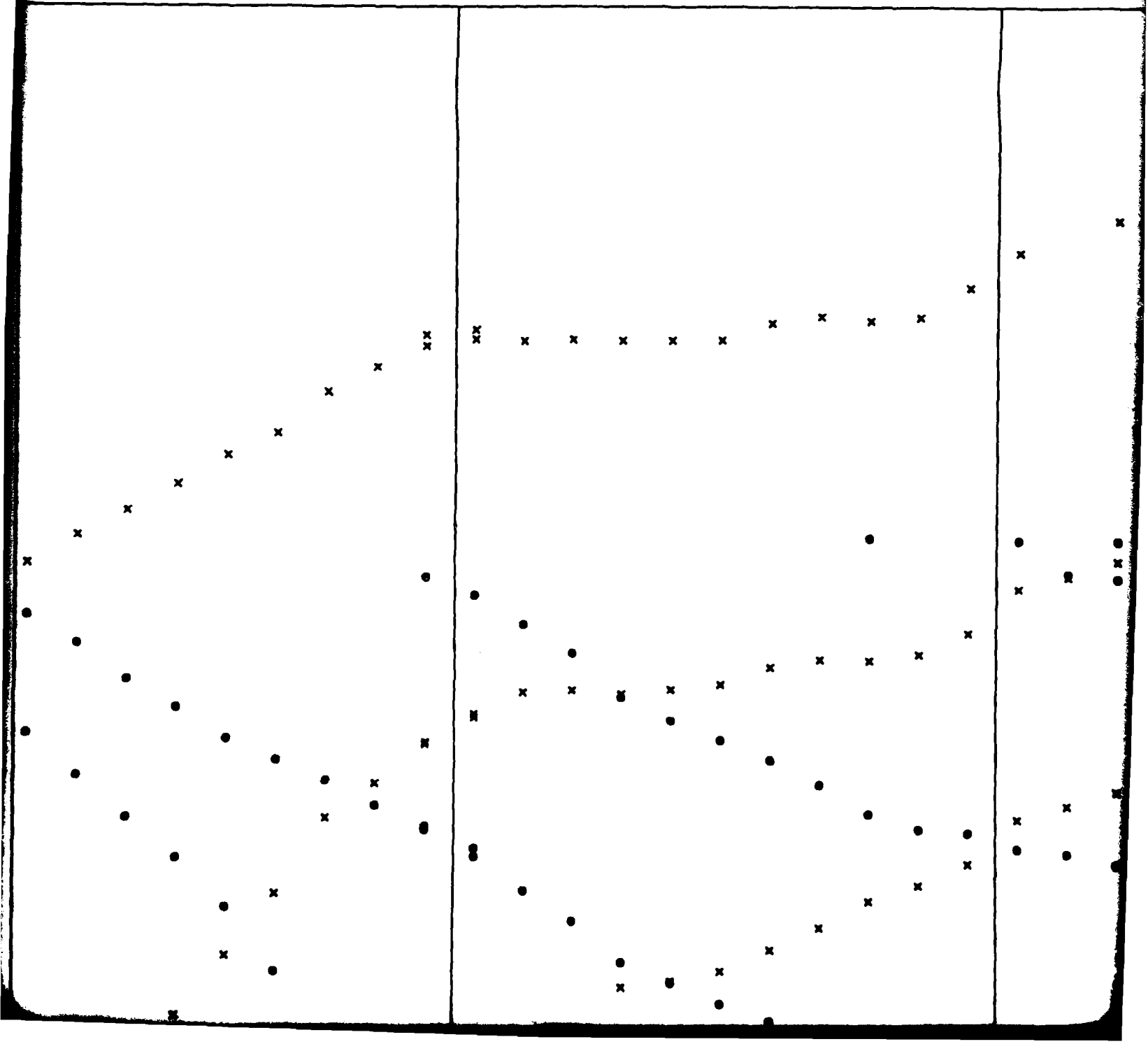
WOODWARD-CLYDE CONSULTANTS

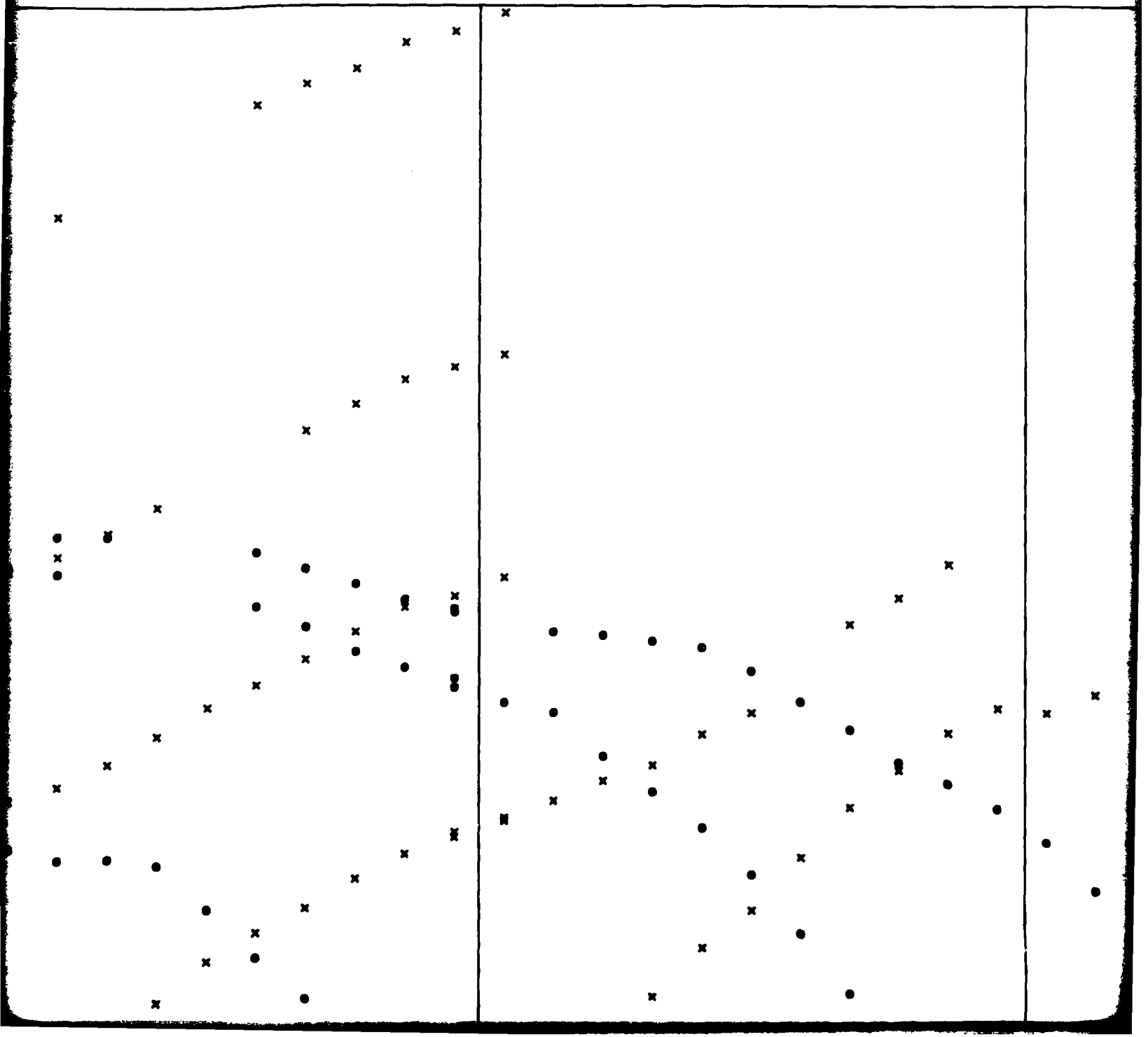
23 DEC 80

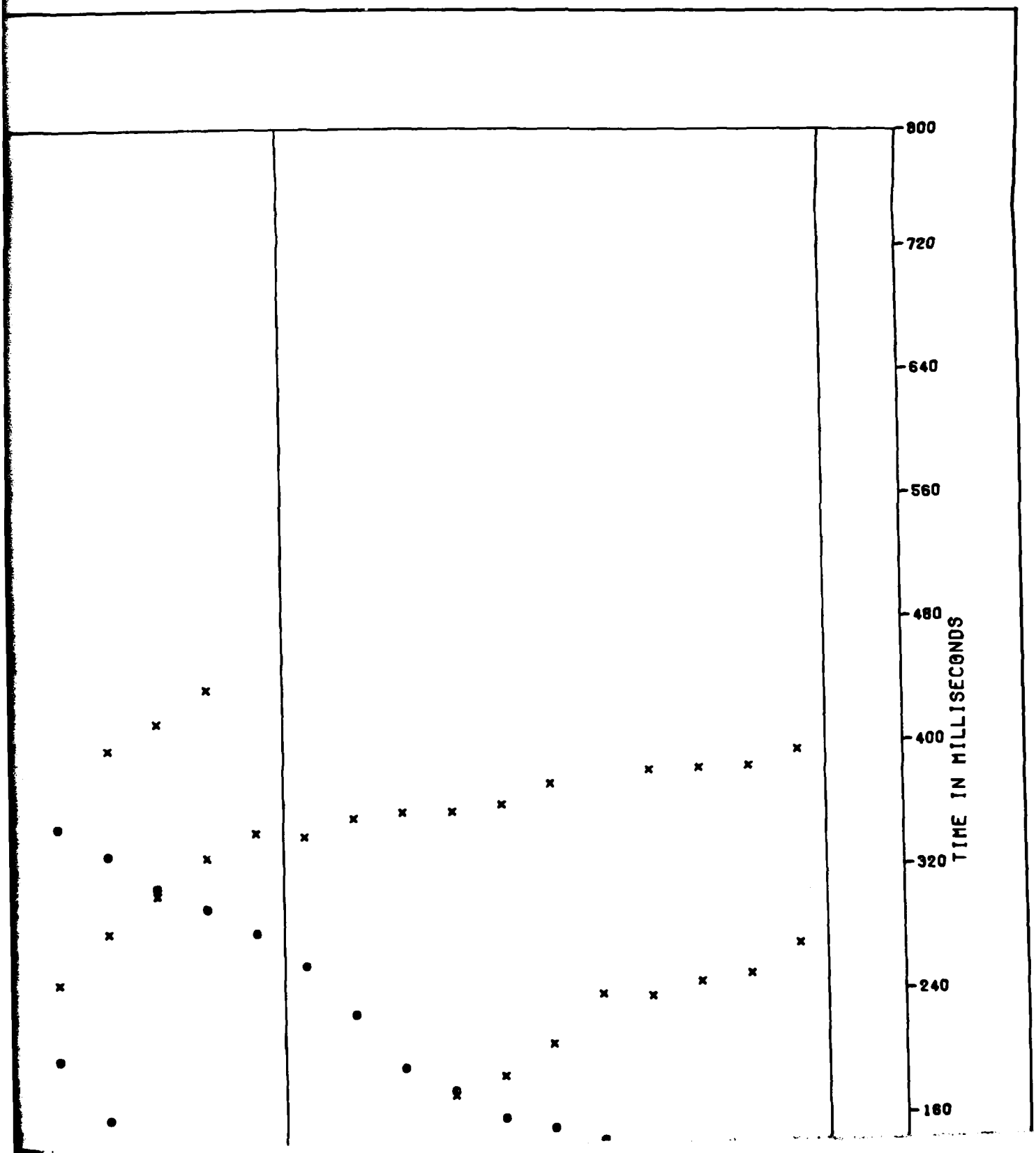
USAF-37

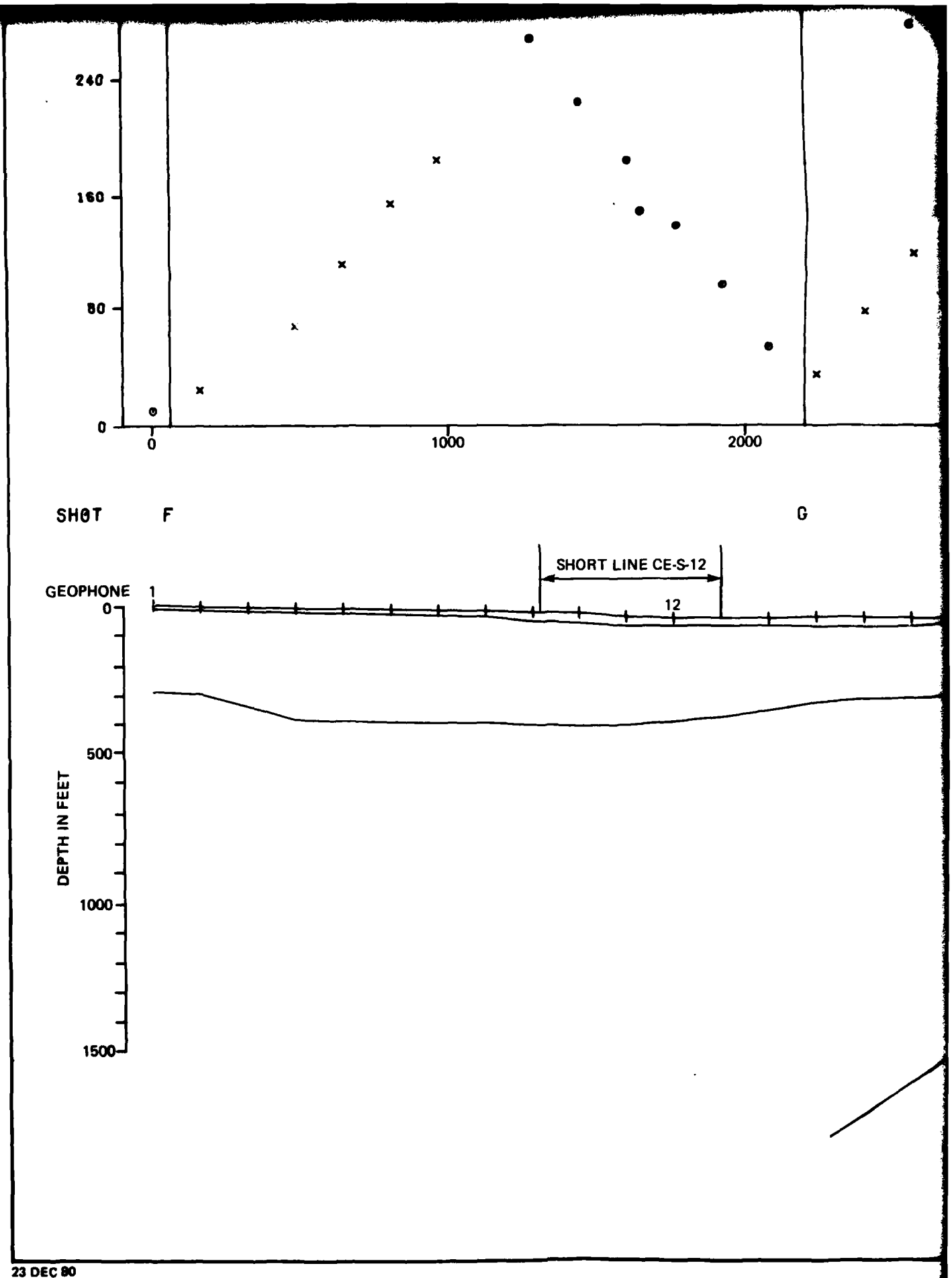
FN-TR-43



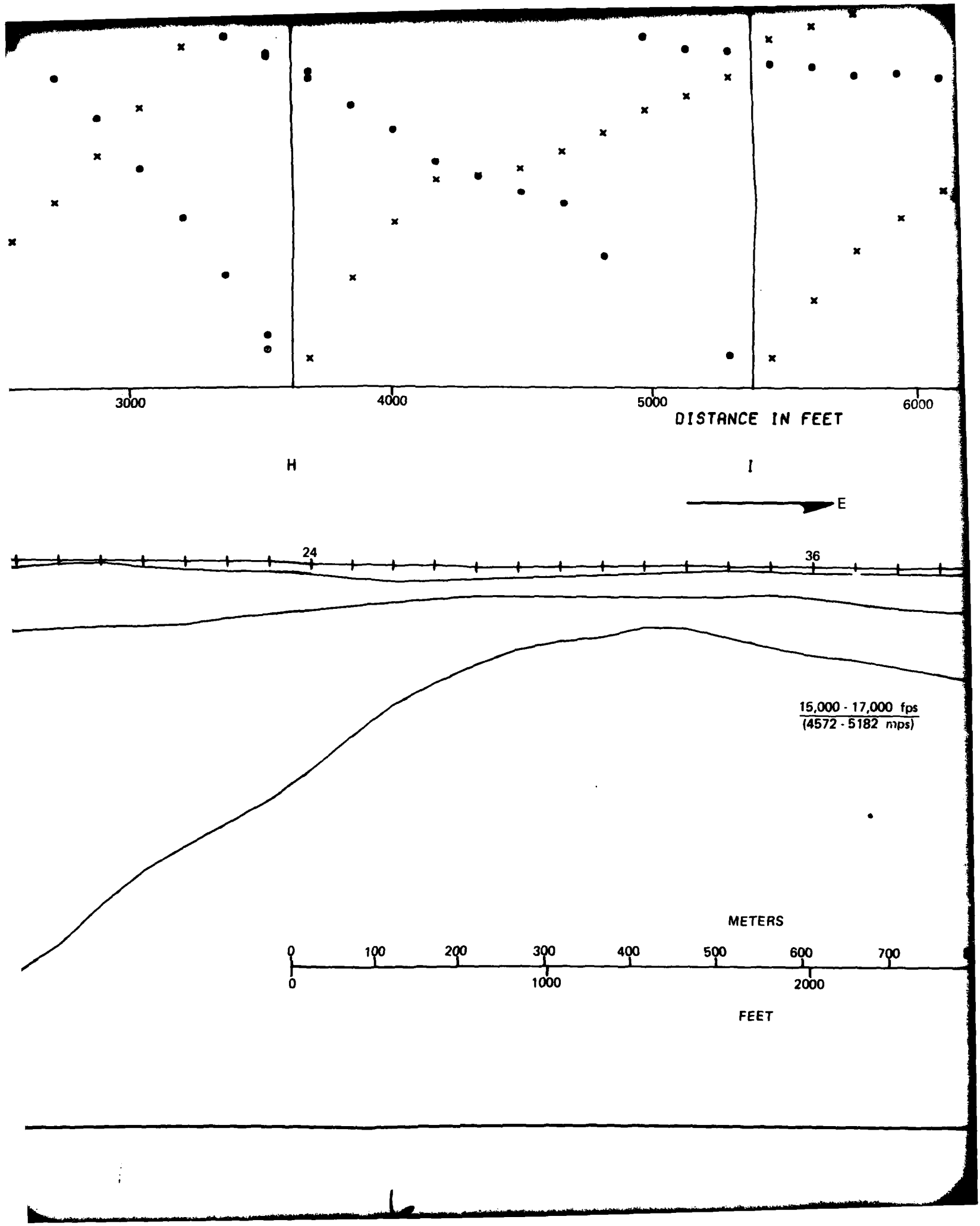


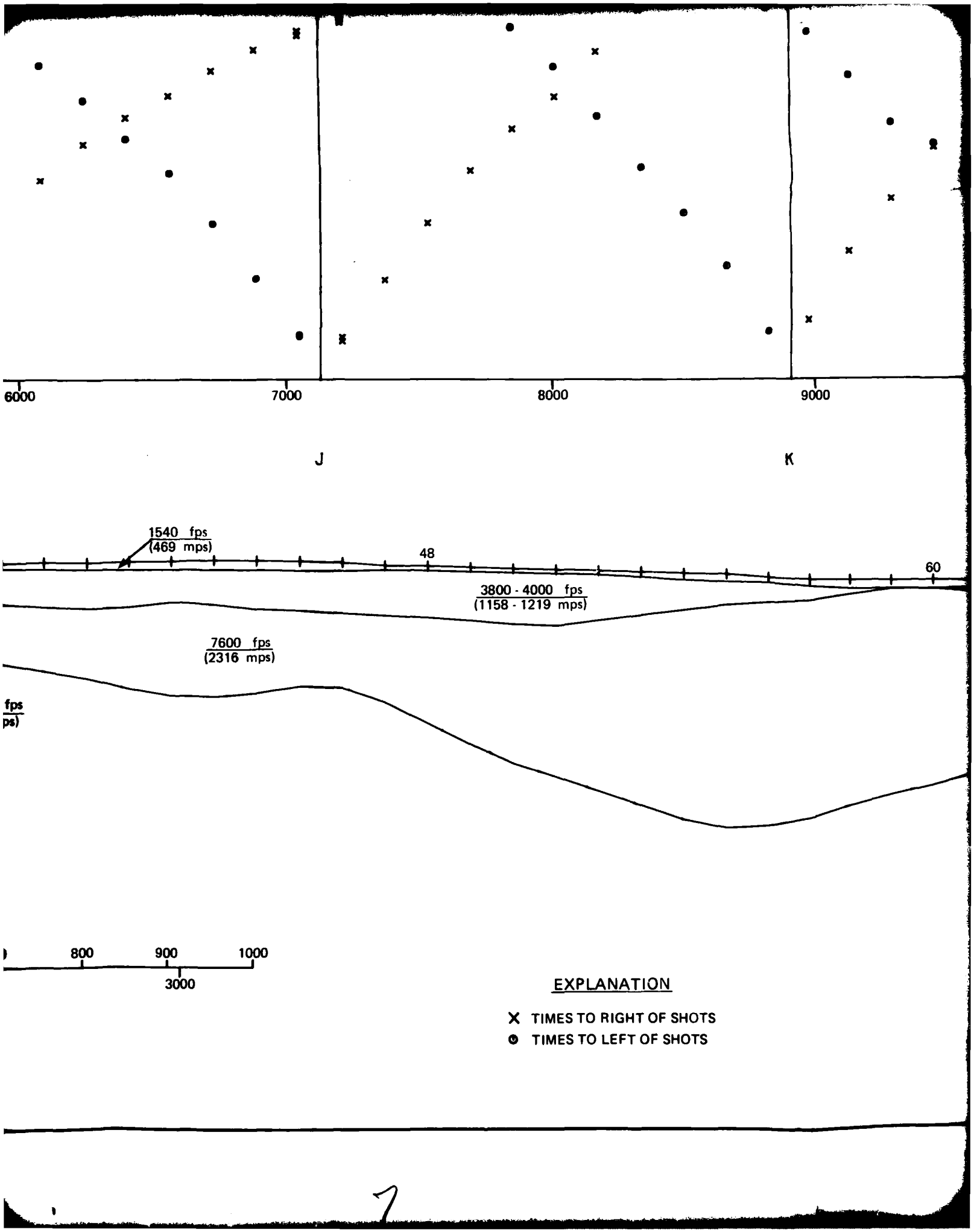


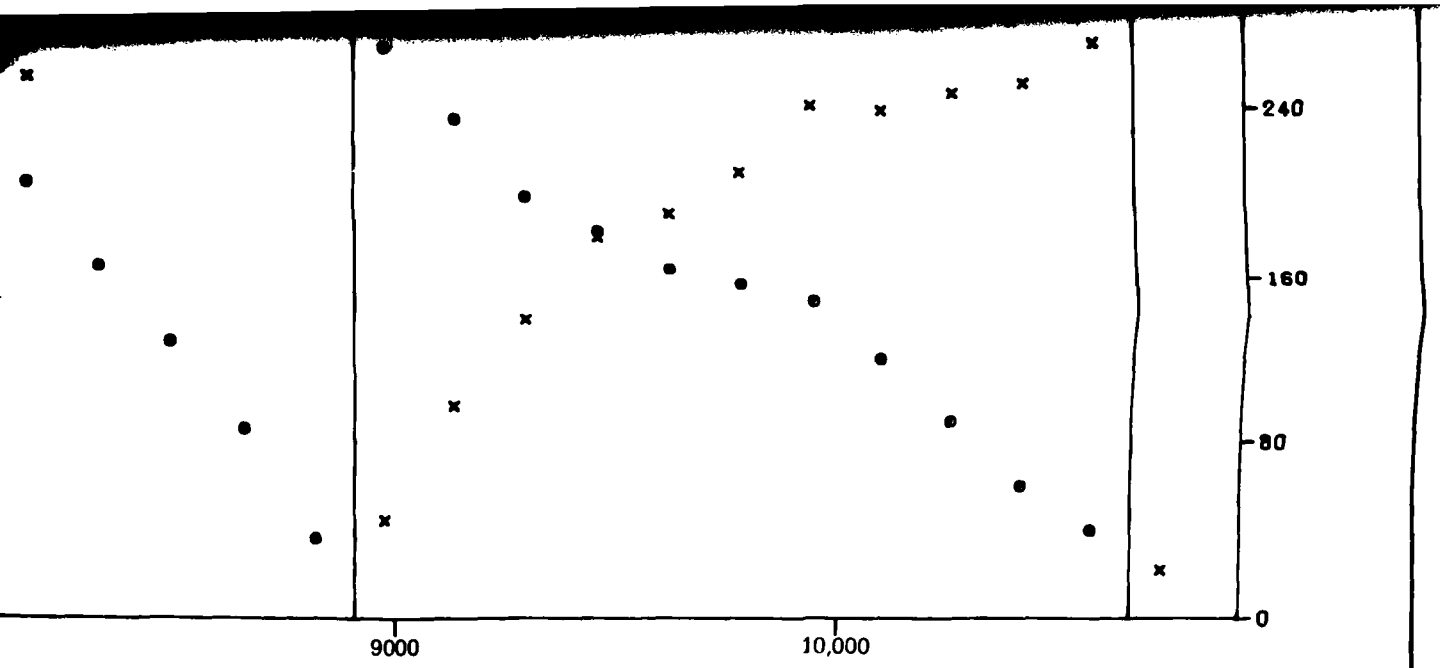

800
720
640
560
480
400
320
240
160
TIME IN MILLISECONDS


240
160
80
0
0
1000
2000
SHOT
F
G
SHORT LINE CE-S-12
GEOPHONE
1
12
0
500
1000
1500
DEPTH IN FEET
23 DEC 80

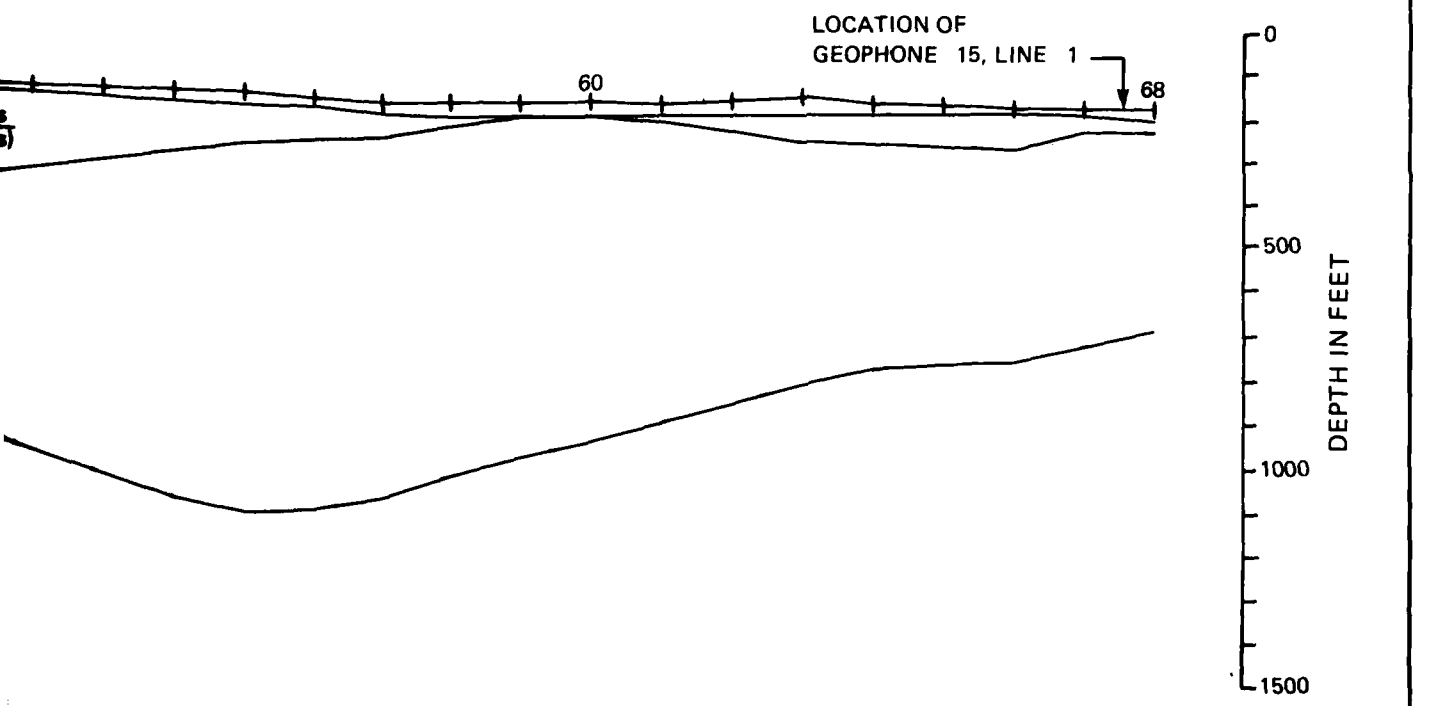
5


3000
4000
5000
6000
DISTANCE IN FEET
H
I
E
24
36
15,000 - 17,000 fps
(4572 - 5182 mps)
METERS
0
100
200
300
400
500
600
700
0
1000
2000
FEET


6000
7000
8000
9000
J
K
1540 fps
(469 mps)
48
60
3800 - 4000 fps
(1158 - 1219 mps)
7600 fps
(2316 mps)
fps
ps)
800
900
1000
3000
EXPLANATION
X TIMES TO RIGHT OF SHOTS
TIMES TO LEFT OF SHOTS



K L



LANATION

O RIGHT OF SHOTS

O LEFT OF SHOTS

DEEP SEISMIC REFRACTION RESULTS
LINE 2, OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE BMO

FIGURE
II-7-2

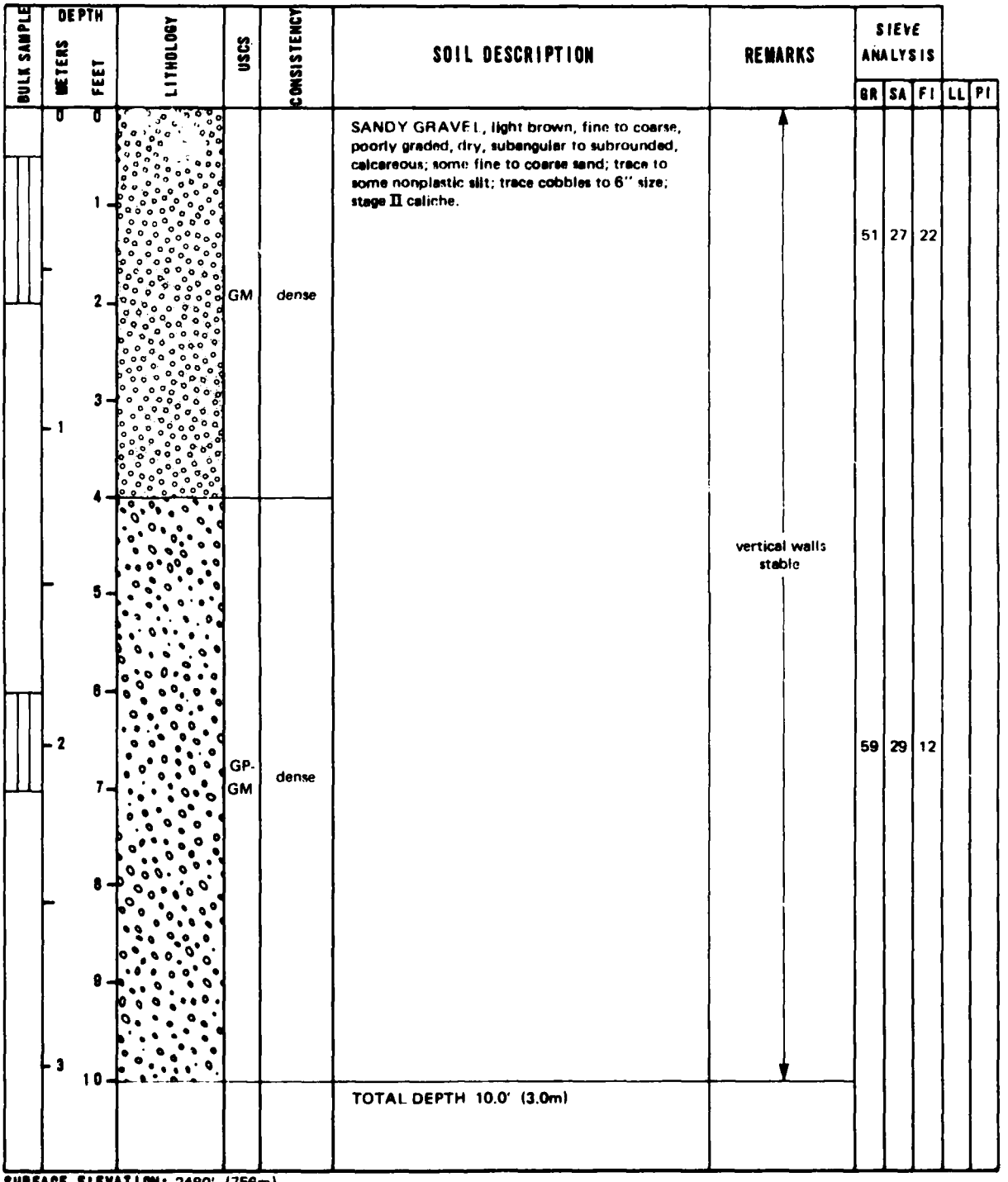
FUGRO NATIONAL, INC.

SECTION 2.0

BORING LOGS

4.0 EXPLANATIONS OF TEST PIT LOGS

See Section 2.0, "Boring Logs", for explanations.



SURFACE ELEVATION: 2480' (756m)
SURFICIAL GEOLOGIC UNIT: Asi

LOG OF TEST PIT CE-P-1

LOG OF TEST PIT CE-P-1
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-4-1

USBR NATIONAL, INC.

23 DEC 80

BULK SAMPLE	DEPTH METERS	DEPTH FEET	LITHOLOGY	USCS	CONSISTENCY	SOIL DESCRIPTION	REMARKS	SIEVE ANALYSIS GR	SA	FI	LL	PI
	0	0		GP-GM	dense	SANDY GRAVEL, light brown, fine to coarse, poorly graded, dry, subangular to subrounded, calcareous; some fine to coarse sand; trace nonplastic silt; occasional cobbles and boulders to 14" size; stage III caliche (0.5' - 5.0'); stage IV caliche (5.0').	vertical walls stable; cementation at 5.0' exceeded capacity of Case 580C backhoe					
	1	1										
		2										
		3										
		4										
		5				TOTAL DEPTH 5.0' (1.5m)						

SURFACE ELEVATION: 2570' (783m)
SURFICIAL GEOLOGIC UNIT: A5i

LOG OF TEST PIT CE-P-2

BULK SAMPLE	DEPTH METERS	DEPTH FEET	LITHOLOGY	USCS	CONSISTENCY	SOIL DESCRIPTION	REMARKS	SIEVE ANALYSIS GR	SA	FI	LL	PI
	0	0		GM	dense	SANDY GRAVEL, light brown, fine to coarse, poorly graded, dry, subangular to subrounded, calcareous; some fine to coarse sand; little nonplastic silt; trace cobbles to 6" size; stage I caliche (0.5' - 5.0'); stage IV caliche (5.0').	vertical walls stable; cementation at 5.0' exceeded capacity of Case 580C backhoe	61	24	15		
	1	1										
		2										
		3										
		4										
		5				TOTAL DEPTH 5.0' (1.5m)						

SURFACE ELEVATION: 2500' (762m)
SURFICIAL GEOLOGIC UNIT: A5y/A5i

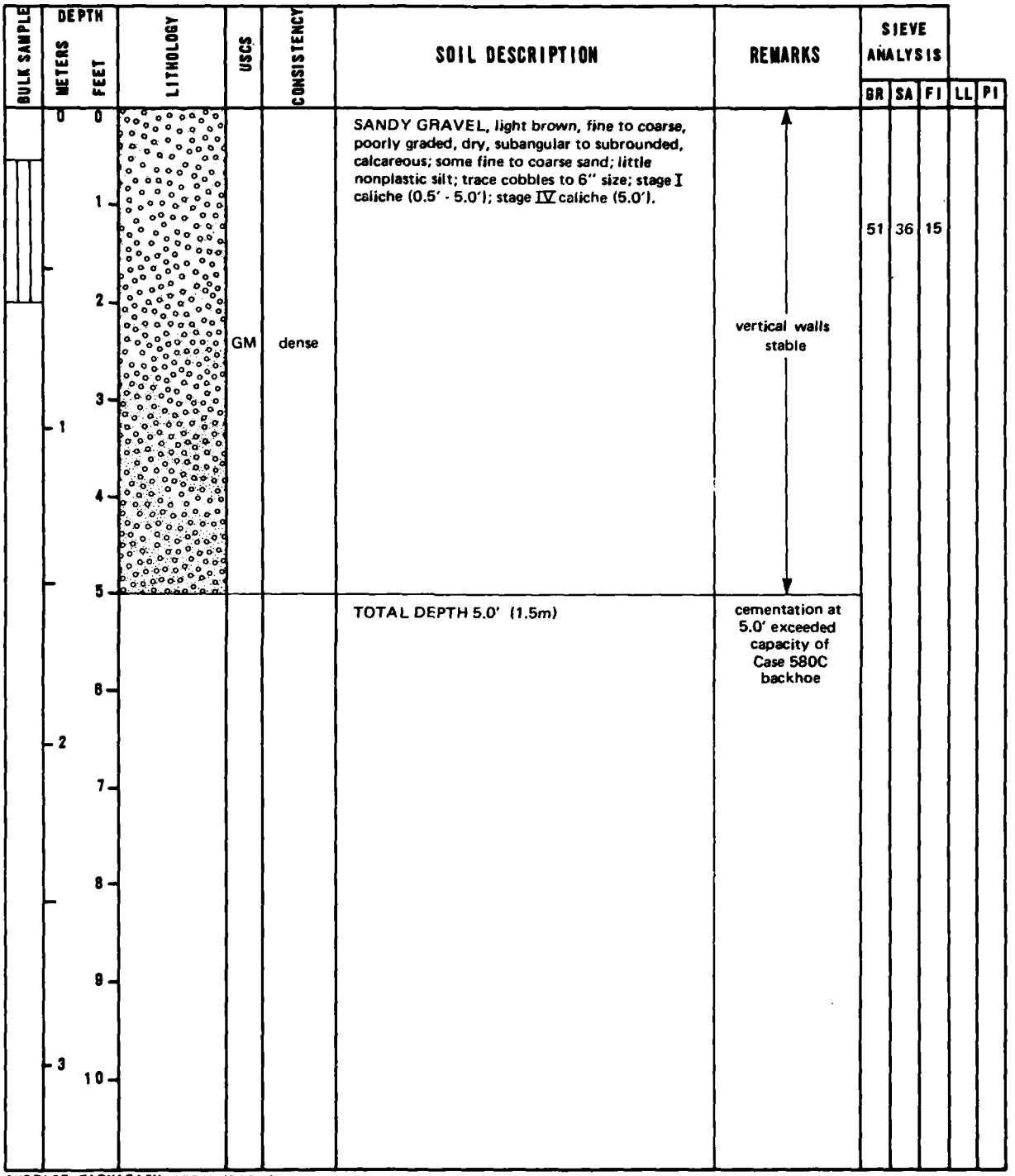
LOG OF TEST PIT CE-P-3

LOGS OF TEST PITS CE-P-2 AND CE-P-3
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-4-2

UGRO NATIONAL, INC.



SURFACE ELEVATION: 2500' (762m)
SURFICIAL GEOLOGIC UNIT: A5y/A5i

LOG OF TEST PIT CE-P-4

LOG OF TEST PIT CE-P-4
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

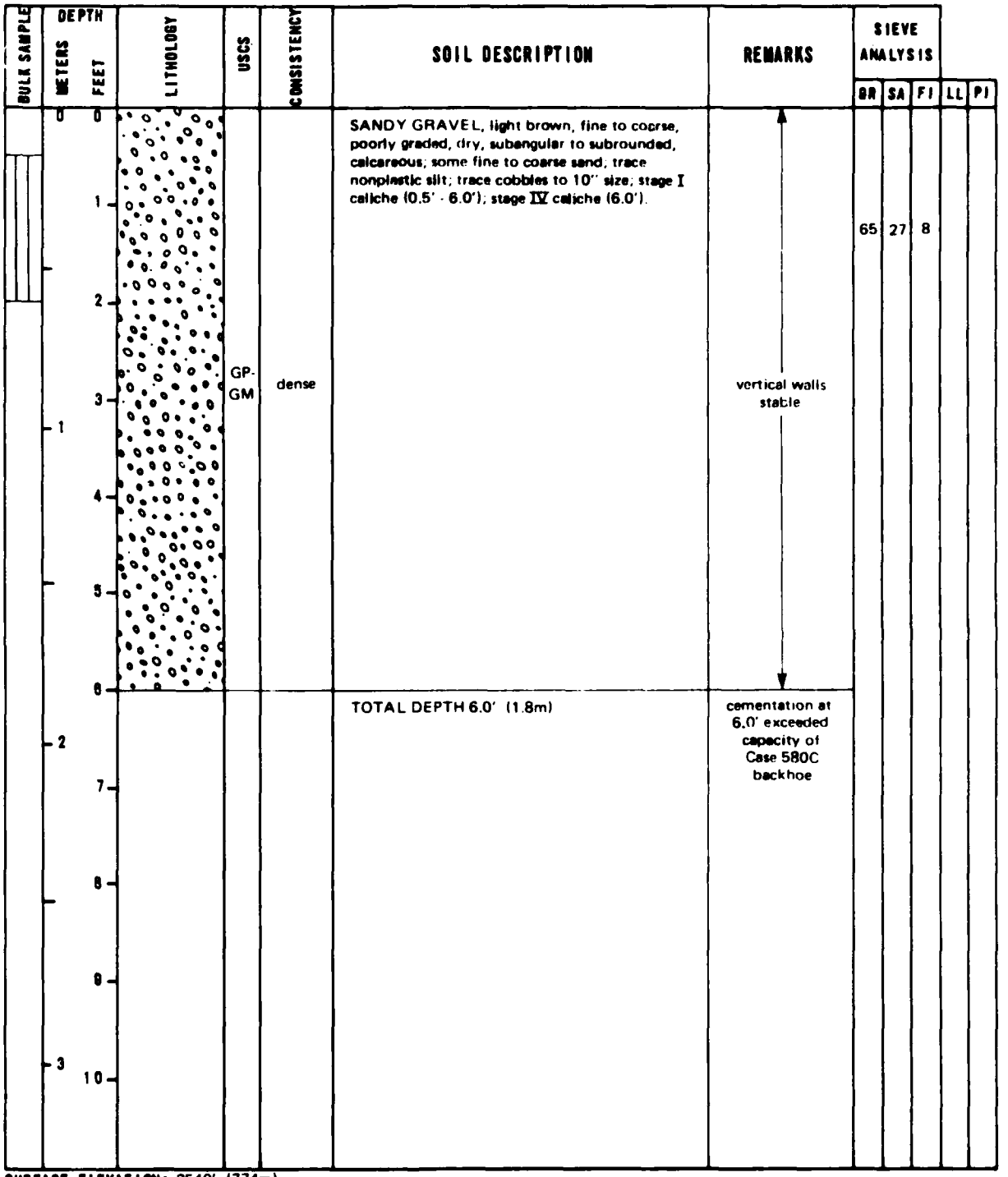
MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-4-3

UGRO NATIONAL, INC.

23 DEC 80

USAF-21



SURFACE ELEVATION: 2540' (774m)
SURFICIAL GEOLOGIC UNIT: A5y/A5i

LOG OF TEST PIT CE-P-5

LOG OF TEST PIT CE-P-5
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

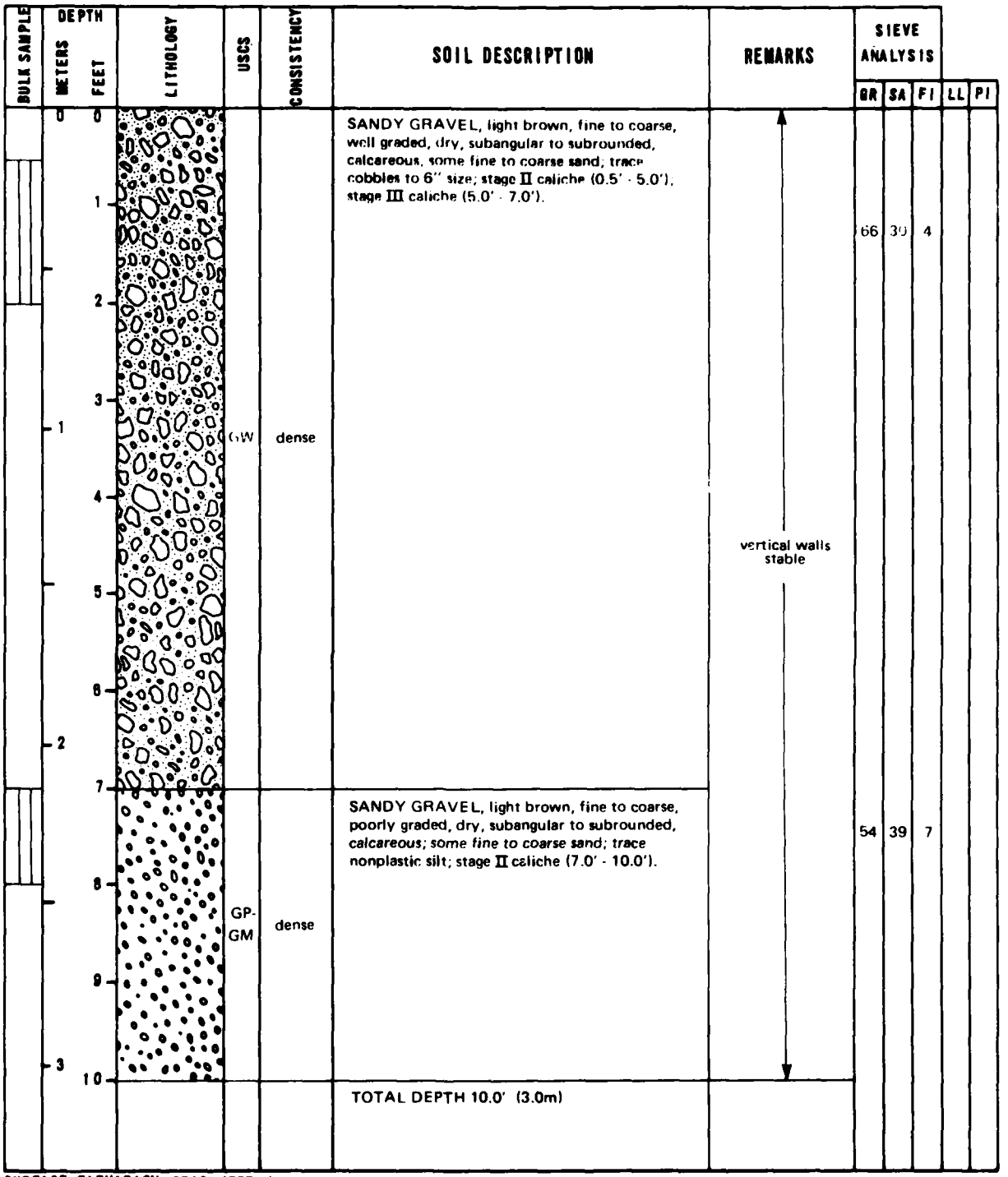
MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II 4 4

WOODWARD-NATIONAL, INC.

23 DEC 80

USAF-21



SURFACE ELEVATION: 2510' (765m)
SURFICIAL GEOLOGIC UNIT: A5y/A5i

LOG OF TEST PIT CE-P-6

LOG OF TEST PIT CE-P-6
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II 4 5

FUGRO NATIONAL, INC.

23 DEC 80

USAF-21

BULK SAMPLE	DEPTH METERS	DEPTH FEET	LITHOLOGY	USCS	CONSISTENCY	SOIL DESCRIPTION	REMARKS	SIEVE ANALYSIS GR	SA	FI	LL	PI
	0	0				SILTY SAND, light brown, fine to medium, poorly graded, dry, subangular to subrounded, calcareous; some nonplastic silt; stage II caliche.						
		1						4	56	40		
		2										
		3										
	1											
		4										
		5		SM	dense		vertical walls stable					
		6										
	2											
		7										
		8										
		9										
	3											
		10				TOTAL DEPTH 10.0 (3.0m)						

SURFACE ELEVATION: 2260' (689m)
SURFICIAL GEOLOGIC UNIT: Tys

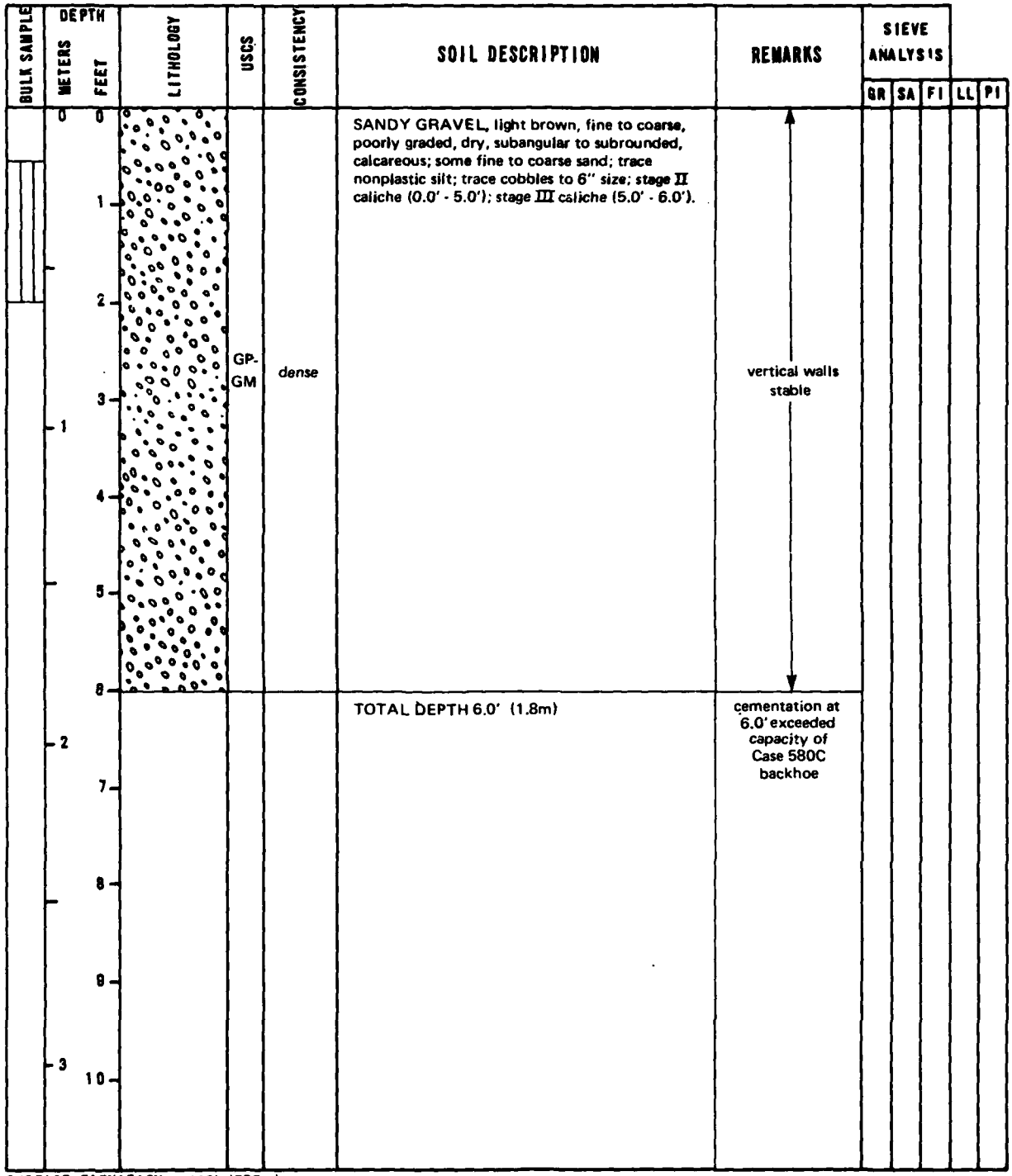
LOG OF TEST PIT CE-P-7

LOG OF TEST PIT CE-P-7
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE II-46

WOOD NATIONAL INC.



SURFACE ELEVATION: 2400' (732m)
SURFICIAL GEOLOGIC UNIT: A5y/A5i

LOG OF TEST PIT CE-P-8

LOG OF TEST PIT CE-P-8
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

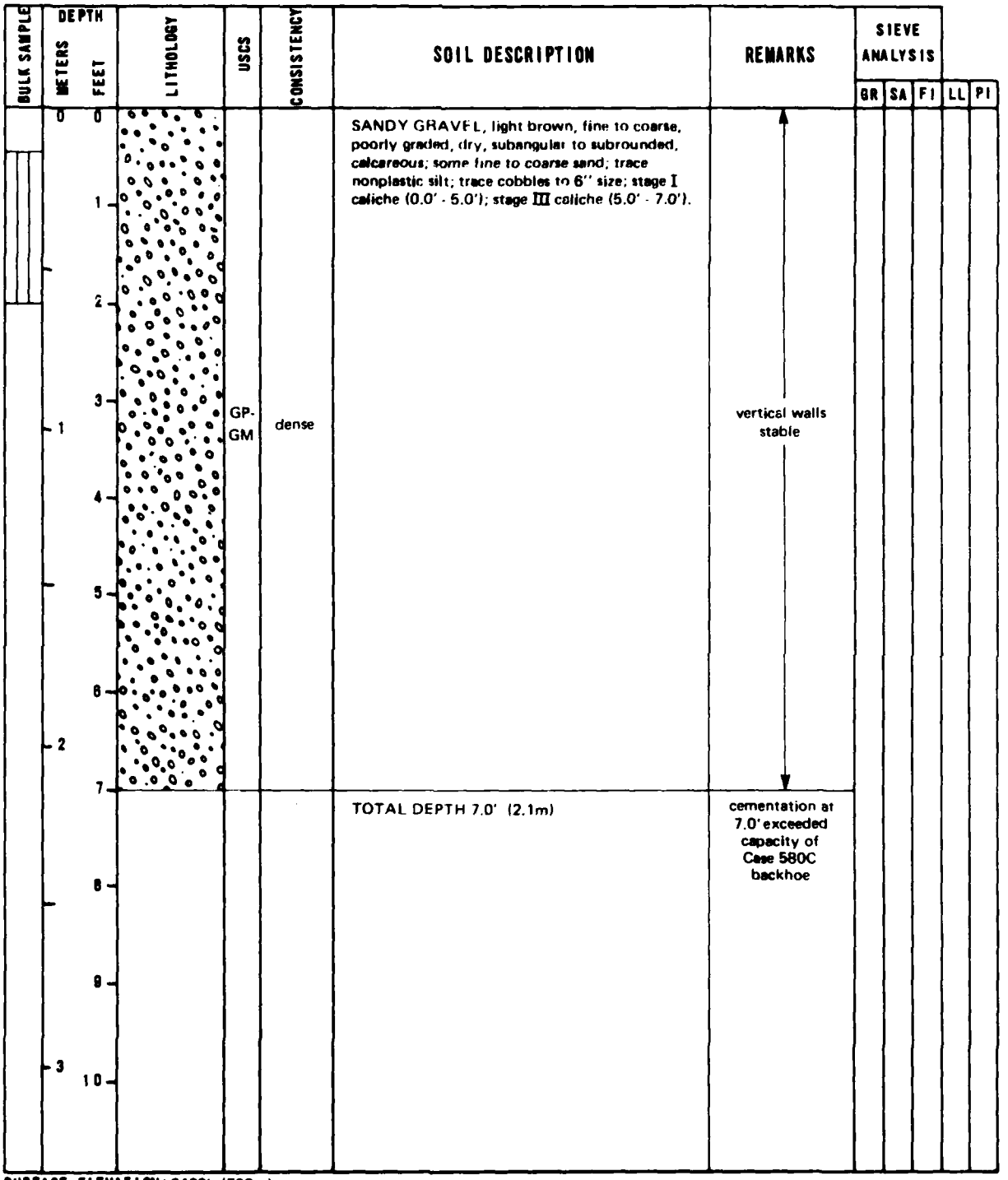
MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-4-7

UGRO NATIONAL, INC.

23 DEC 80

USAF-21



SURFACE ELEVATION: 2400' (732m)
SURFICIAL GEOLOGIC UNIT: A5y/A5r

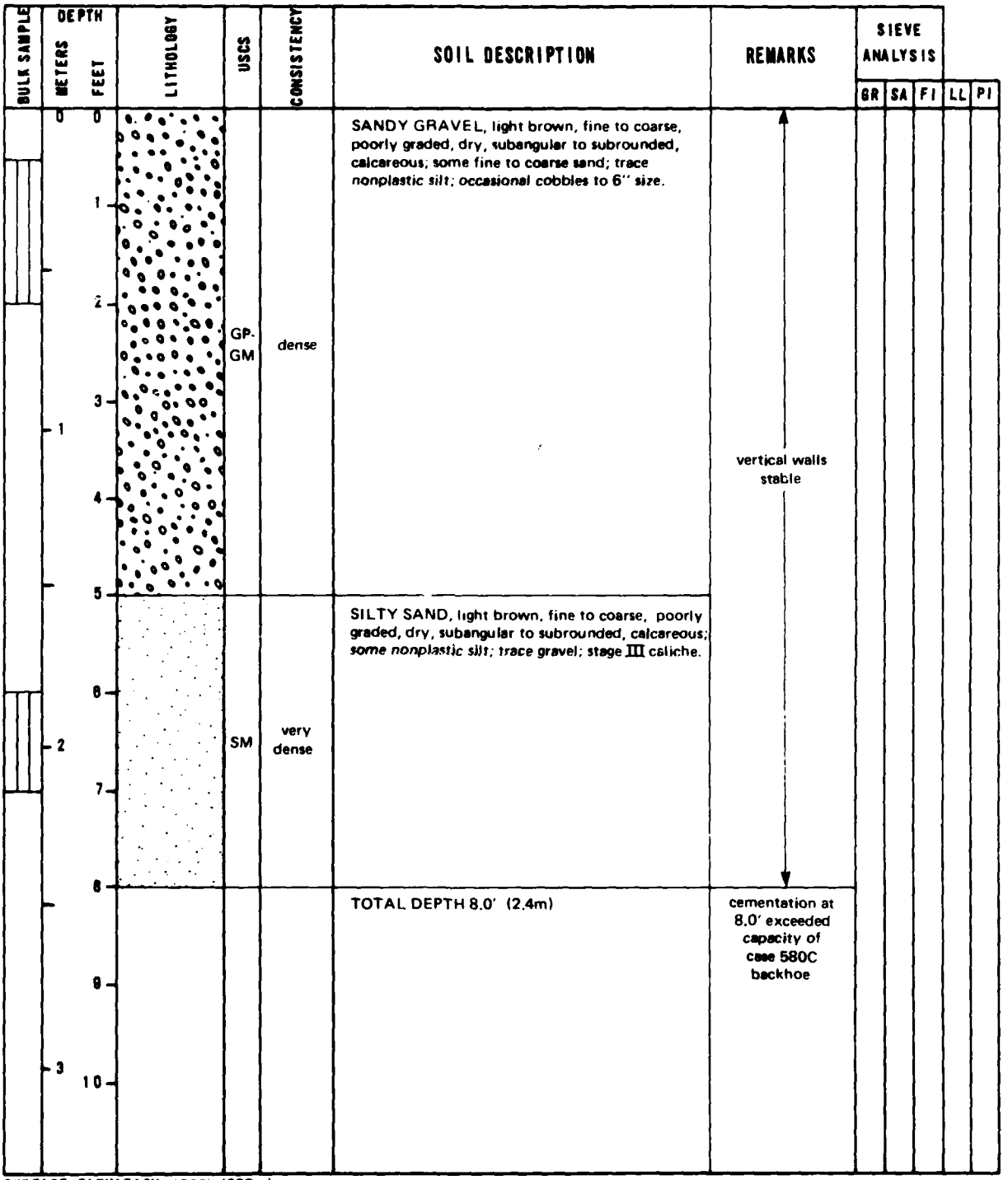
LOG OF TEST PIT CE-P 9

LOG OF TEST PIT CE-P 9
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II 48

FN-TR-43



SURFACE ELEVATION: 2260' (689m)
SURFICIAL GEOLOGIC UNIT: A1

LOG OF TEST PIT CE-P-10

LOG OF TEST PIT CE-P 10
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

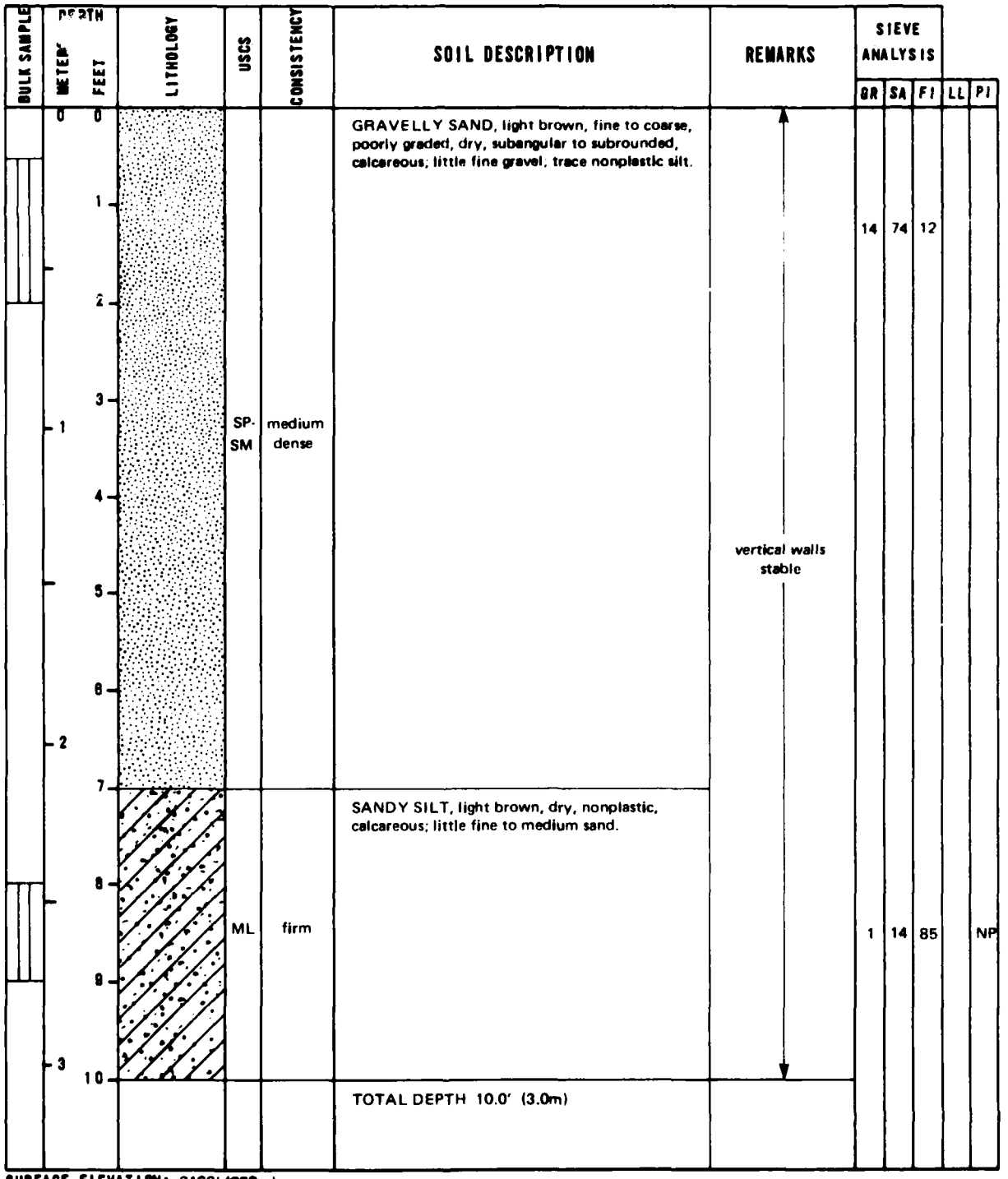
MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II 4 9

WOODWARD-CLYDE CONSULTANTS

23 DEC 80

USAF-21



SURFACE ELEVATION: 2160' (658m)
SURFICIAL GEOLOGIC UNIT: A5y

LOG OF TEST PIT CE-P 11

LOG OF TEST PIT CE-P-11
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE BMO

FIGURE
D 4 1()

FUGRO NATIONAL, INC.

23 DEC 80

USAF-21

BULK SAMPLE	DEPTH METERS	DEPTH FEET	LITHOLOGY	USCS	CONSISTENCY	SOIL DESCRIPTION	REMARKS	SIEVE ANALYSIS GR	SA	FI	LL	PI
	0	0				SILTY SAND, light brown, fine to medium, poorly graded, dry, subangular to subrounded, calcareous; little nonplastic silt; trace fine gravel.						
		1						9	72	19		NP
		2										
	1	3										
		4										
		5		SM	medium dense		vertical walls stable					
		6										
	2	7										
		8										
		9										
	3	10				TOTAL DEPTH 10.0' (3.0m)						

SURFACE ELEVATION: 2210' (674m)
SURFICIAL GEOLOGIC UNIT: Tys

LOG OF TEST PIT CE-P-12

LOG OF TEST PIT CE-P-12
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
4 11

USBR NATIONAL, INC.

BULK SAMPLE	DEPTH METERS	DEPTH FEET	LITHOLOGY	USCS	CONSISTENCY	SOIL DESCRIPTION	REMARKS	SIEVE ANALYSIS GR	SA	FI	LL	PI
	0	0				SILTY SAND, light brown, fine to coarse, poorly graded, dry, subangular to subrounded, calcareous; little nonplastic silt; trace gravel; occasional cobbles to 8" size (8.0' - 10.0').						
		1										
		2										
	1	3										
		4										
		5		SM	medium dense		vertical walls stable					
	2	6										
		7										
		8										
		9										
	3	10				TOTAL DEPTH 10.0' (3.0m)						

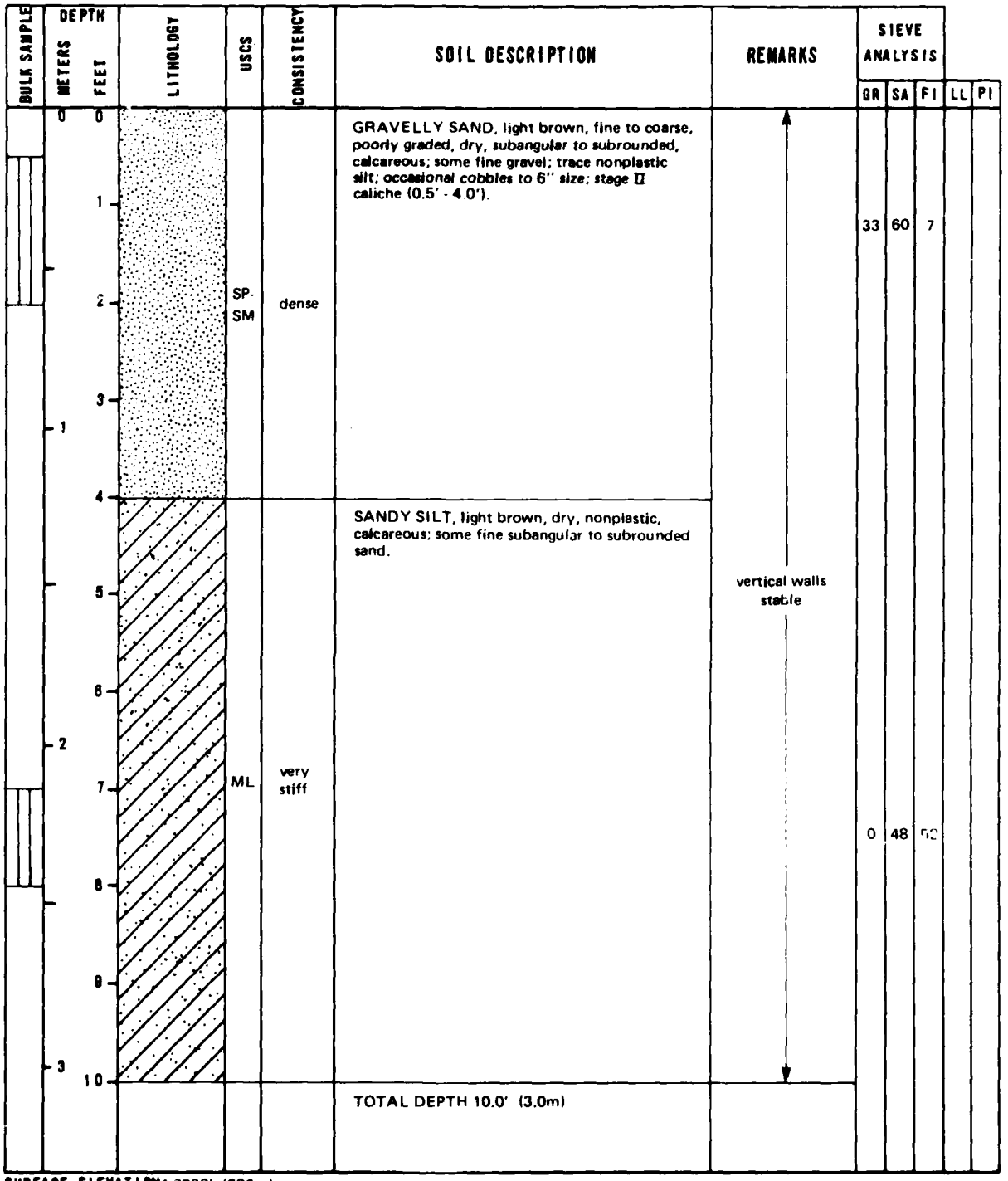
SURFACE ELEVATION: 2215' (675m)
SURFICIAL GEOLOGIC UNIT: Tys

LOG OF TEST PIT CE-P-13

LOG OF TEST PIT CE-P 13
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II 4 12



SURFACE ELEVATION: 2230' (680m)
SURFICIAL GEOLOGIC UNIT: A5y

LOG OF TEST PIT CE-P-14

LOG OF TEST PIT CE-P-14
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

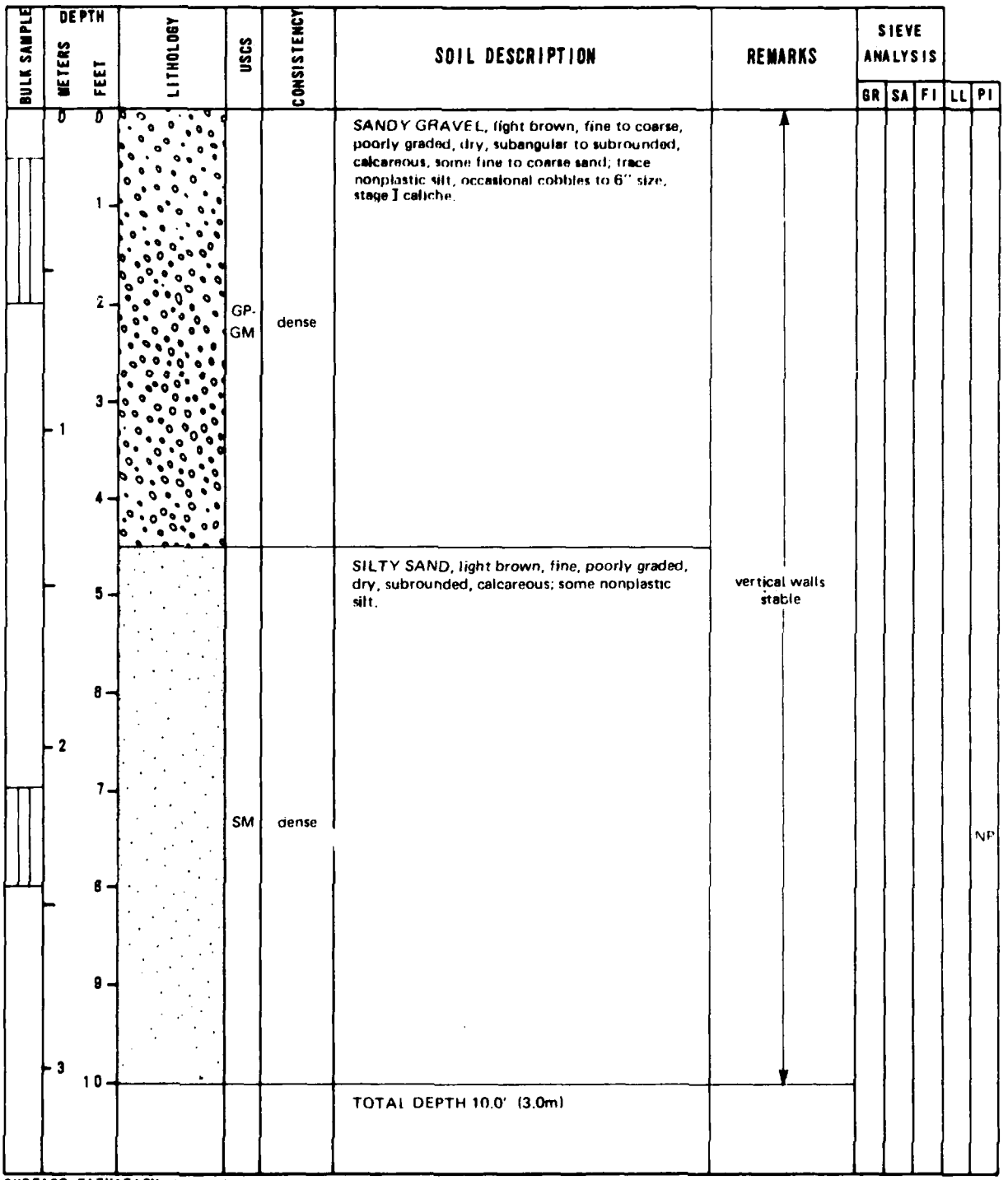
MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE BMO

FIGURE
II 4 13

WOODWARD-NATIONAL, INC.

23 DEC 80

USAF-21



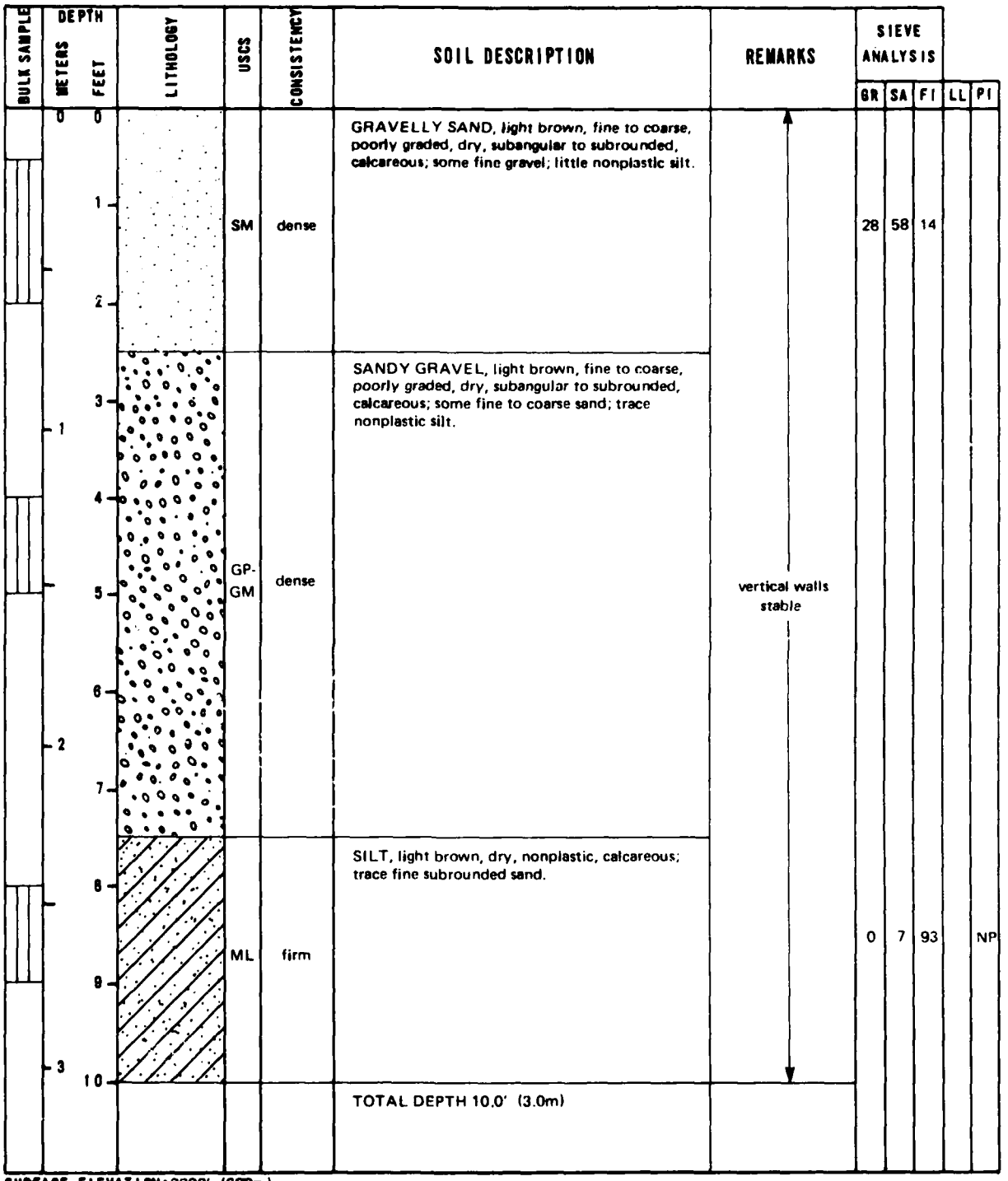
SURFACE ELEVATION: 2290' (698m)
SURFICIAL GEOLOGIC UNIT: A5y

LOG OF TEST PIT CE-P-15

LOG OF TEST PIT CE P-15
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II 4 14



SURFACE ELEVATION: 2290' (698m)
SURFICIAL GEOLOGIC UNIT: A5y

LOG OF TEST PIT CE-P-16

LOG OF TEST PIT CE-P-16
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

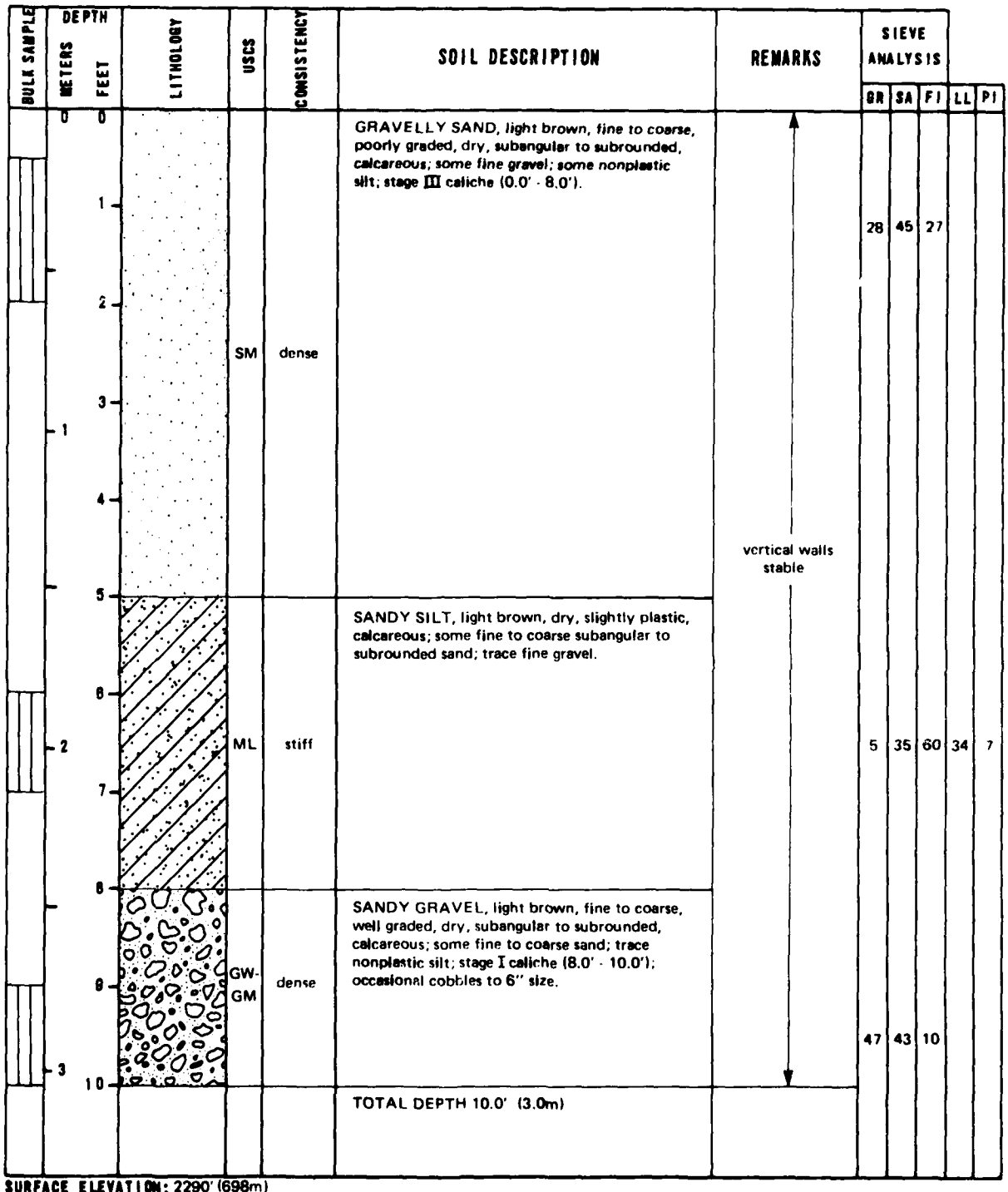
MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II 4 15

FUGRO NATIONAL, INC.

23 DEC 80

USAF-21



SURFACE ELEVATION: 2290' (698m)
SURFICIAL GEOLOGIC UNIT: A5y

LOG OF TEST PIT CE-P-17

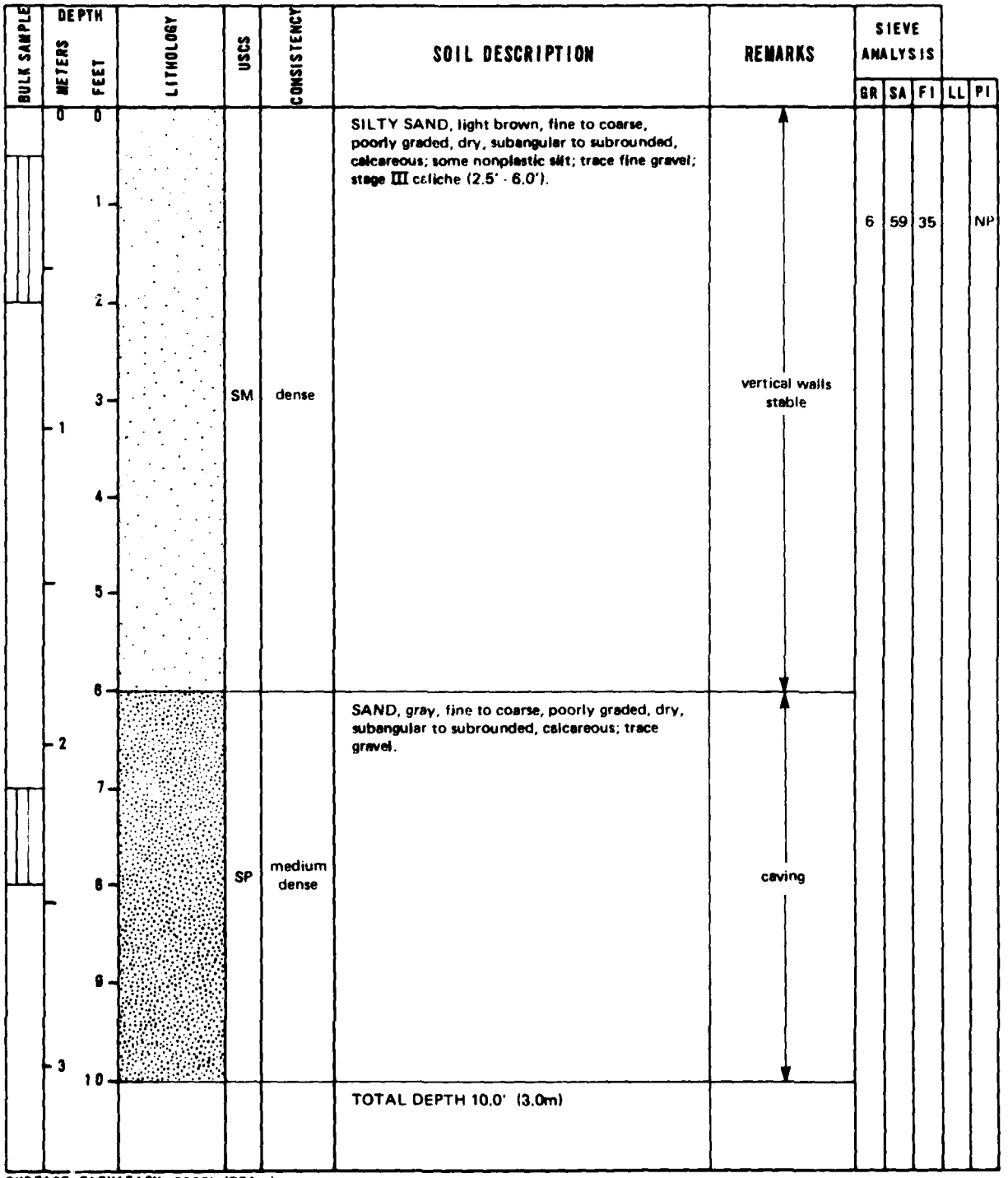
LOG OF TEST PIT CE-P-17
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II 4 16

FUGRO NATIONAL, INC.

FN-TR-43



SURFACE ELEVATION: 2300' (701m)
SURFICIAL GEOLOGIC UNIT: Tys

LOG OF TEST PIT CE-P-18

LOG OF TEST PIT CE-P-18
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

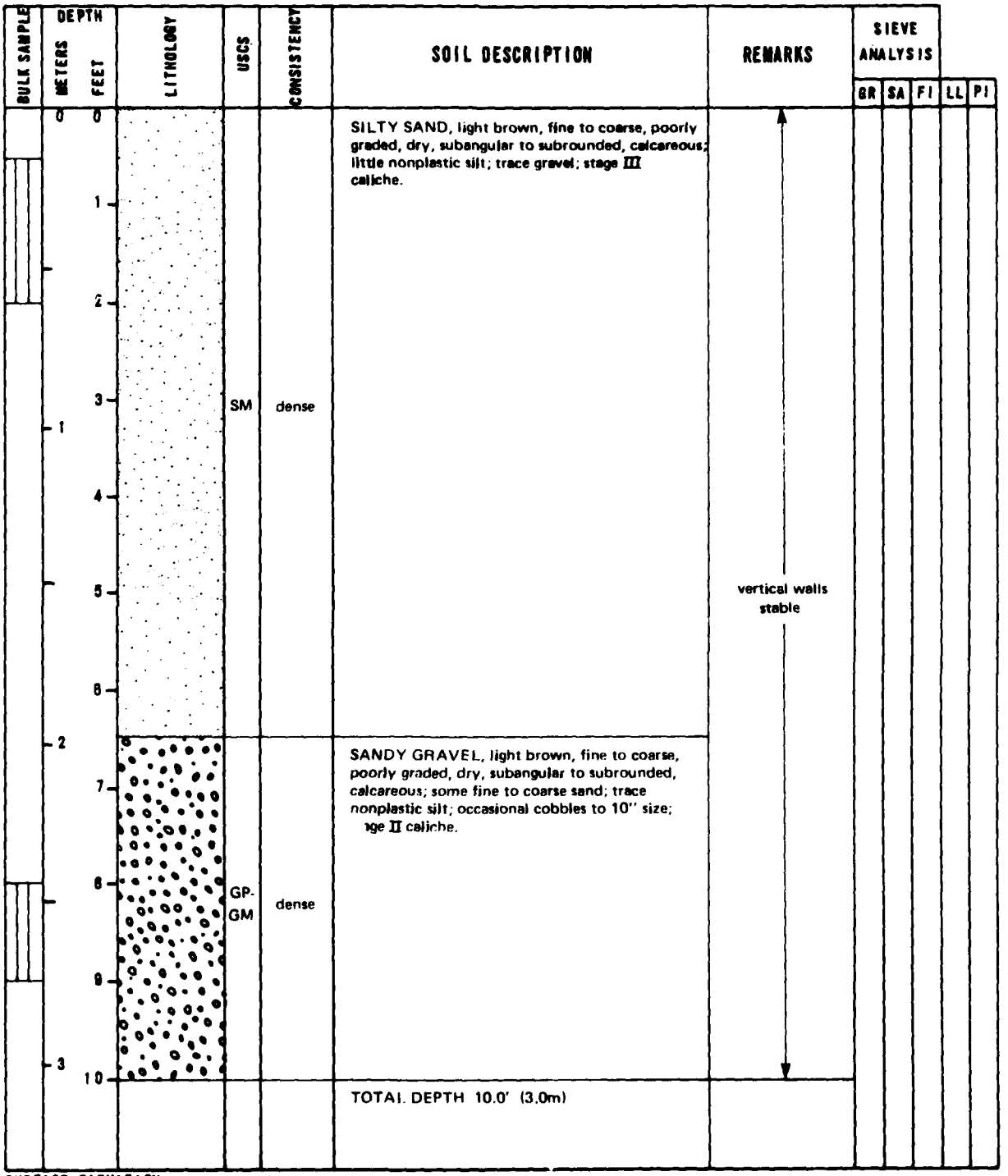
MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II 4 17

FUGRO NATIONAL, INC.

22 DEC 80

USAF-21



SURFACE ELEVATION: 2360' (719m)
SURFICIAL GEOLOGIC UNIT: Tvs

LOG OF TEST PIT CE-P-19

LOG OF TEST PIT CE-P-19
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-4 18

USRO NATIONAL, INC.

BULK SAMPLE	DEPTH METERS	DEPTH FEET	LITHOLOGY	USCS	CONSISTENCY	SOIL DESCRIPTION	REMARKS	SIEVE ANALYSIS GR	SA	FI	LL	PI
	0	0		SM	dense	SILTY SAND, light brown, fine to coarse, poorly graded, dry, subangular to subrounded, calcareous; some nonplastic silt; some fine gravel; stage III caliche (0.5' - 1.5'); stage IV (1.5').	vertical walls stable	26	43	31		
		1			very dense							
		2				TOTAL DEPTH 1.5' (0.5m)	cementation at 1.5' exceeded capacity of Case 580C backhoe					
	1	3										
		4										
		5										
		6										
	2	7										
		8										
		9										
	3	10										

SURFACE ELEVATION: 2560' (780m)
SURFICIAL GEOLOGIC UNIT: A50

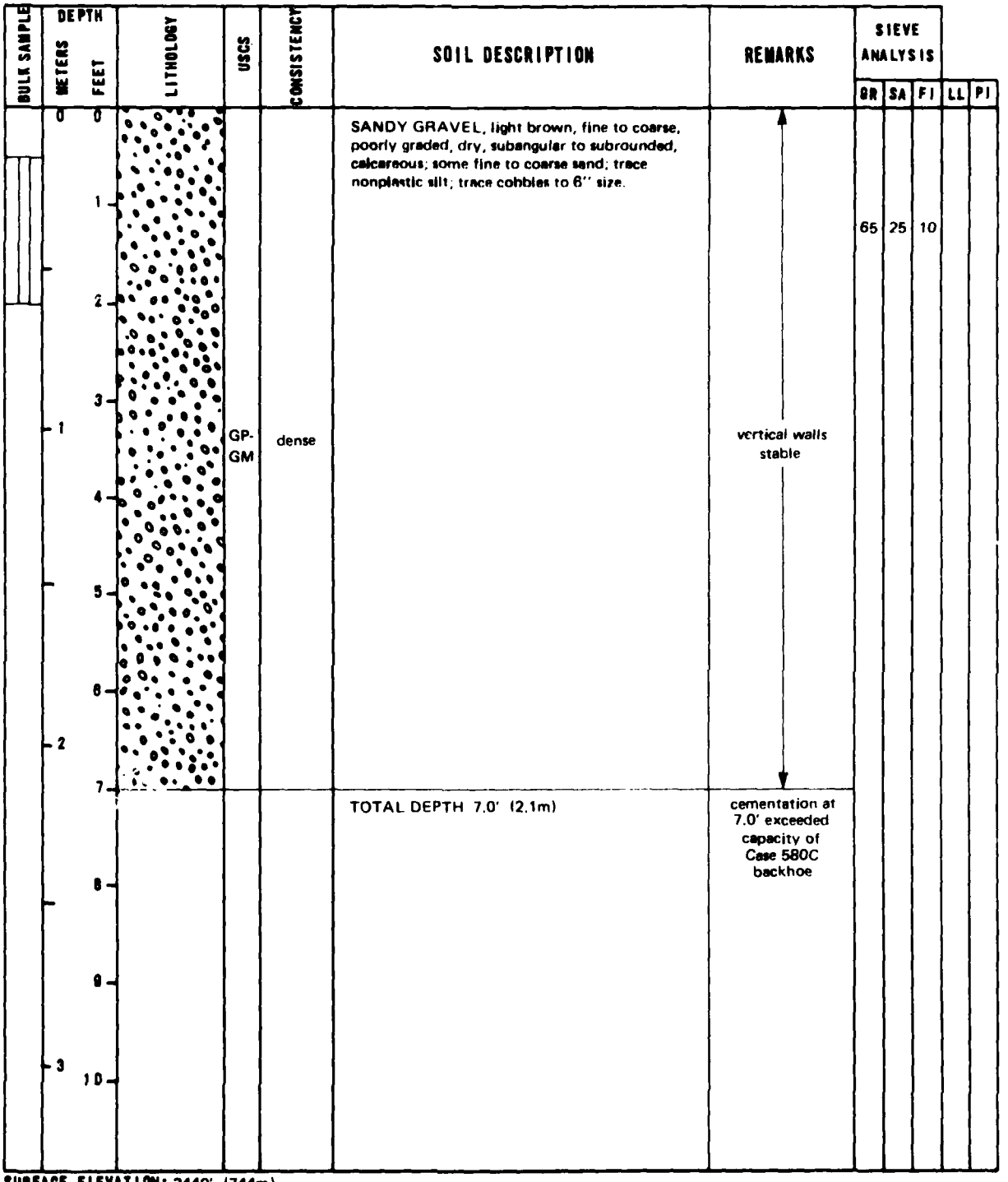
LOG OF TEST PIT CE-P-20

LOG OF TEST PIT CE-P-20
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-4-19

FUGRO NATIONAL, INC.



SURFACE ELEVATION: 2440' (744m)
SURFICIAL GEOLOGIC UNIT: A50

LOG OF TEST PIT CE-P-21

LOG OF TEST PIT CE-P-21
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II 4 20

FUGRO NATIONAL, INC.

23 DEC 80

USAF-21

FN-TR-43

BULK SAMPLE	DEPTH METERS	DEPTH FEET	LITHOLOGY	USCS	CONSISTENCY	SOIL DESCRIPTION	REMARKS	SIEVE ANALYSIS GR	SA	FI	LL	PI
	0	0 – 3		GP-GM	dense very dense	SANDY GRAVEL, light brown, fine to coarse, poorly graded, dry, subangular to subrounded, calcareous; some fine to coarse sand; trace nonplastic silt; occasional cobbles to 6" size; stage III caliche (0.0' - 3.0'); stage IV (3.0').	vertical walls stable					
	1	3				TOTAL DEPTH 3.0' (0.9m)	cementation at 3.0' exceeded capacity of Case 580C backhoe					
	2	4 5 6 7 8 9										
	3	10										

SURFACE ELEVATION: 2420' (738m)
SURFICIAL GEOLOGIC UNIT: A50

LOG OF TEST PIT CE-P-22

LOG OF TEST PIT CE-P-22
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE II 4 21

FUGRO NATIONAL, INC.

23 DEC 80

USAF-21

BULK SAMPLE	DEPTH METERS	DEPTH FEET	LITHOLOGY	USCS	CONSISTENCY	SOIL DESCRIPTION	REMARKS	SIEVE ANALYSIS GR	SA	FI	LL	PI
	0	0		GP-GM	dense	SANDY GRAVEL, light brown, fine to coarse, poorly graded, dry, subangular to subrounded, calcareous; some fine to coarse sand; trace nonplastic silt; trace cobbles to 6.0" size; stage III caliche (0.0' - 1.0'); stage IV caliche (1.0').	vertical walls stable					
		1				TOTAL DEPTH 1.0' (0.3m)	cementation at 1.0' exceeded capacity of Case 580C backhoe					
	1	2										
		3										
		4										
		5										

SURFACE ELEVATION: 2460' (750m)
SURFICIAL GEOLOGIC UNIT: A5y/A5i

LOG OF TEST PIT CE-P-23

BULK SAMPLE	DEPTH METERS	DEPTH FEET	LITHOLOGY	USCS	CONSISTENCY	SOIL DESCRIPTION	REMARKS	SIEVE ANALYSIS GR	SA	FI	LL	PI
	0	0		GP-GM	dense	SANDY GRAVEL, light brown, fine to coarse, poorly graded, dry, subangular to subrounded, calcareous; some fine to coarse sand; trace nonplastic silt; trace cobbles to 6" size; stage II caliche (0.0' - 5.0'); stage IV caliche (5.0').	vertical walls stable	68	22	10		
		1										
	1	2										
		3										
		4					cementation at 5.0' exceeded capacity of Case 580C backhoe					
		5				TOTAL DEPTH 5.0' (1.5m)						

SURFACE ELEVATION: 2460' (750m)
SURFICIAL GEOLOGIC UNIT: A50

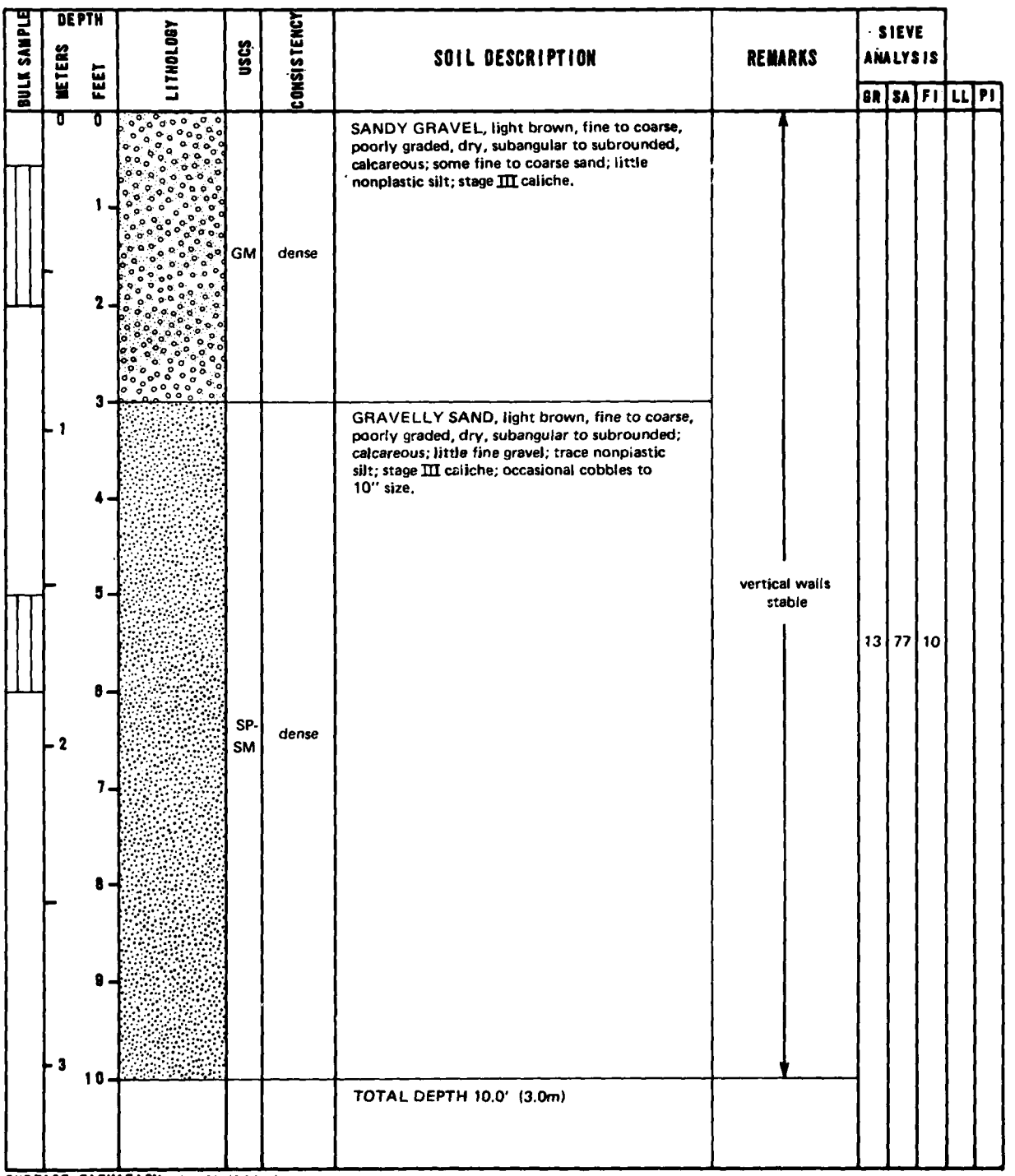
LOG OF TEST PIT CE-P-24

LOGS OF TEST PITS CE-P-23 AND CE-P-24
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE II 4-22

WOODWARD-CLYDE CONSULTANTS



SURFACE ELEVATION: 2530' (771m)
SURFICIAL GEOLOGIC UNIT: A50

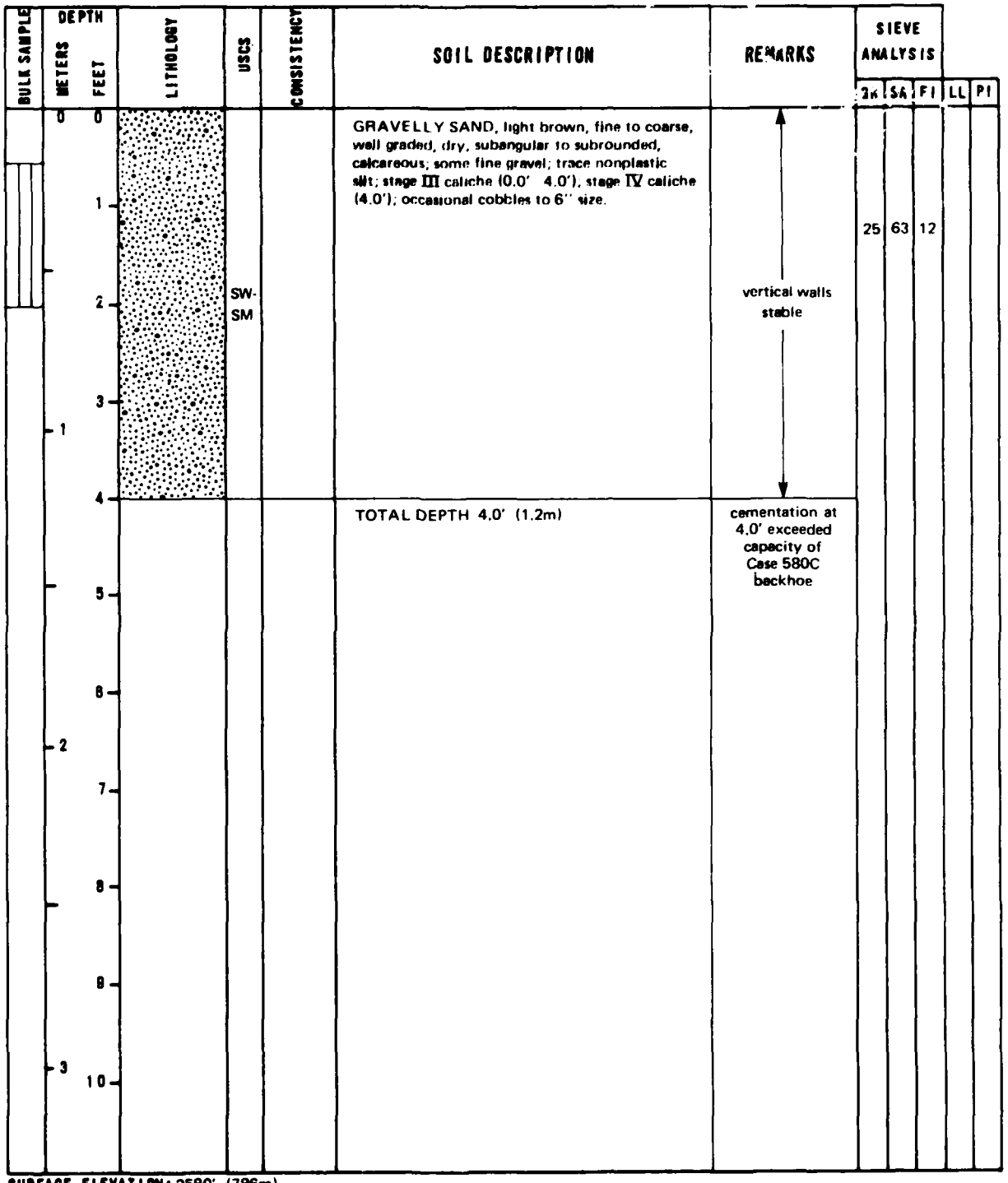
LOG OF TEST PIT CE-P-25

LOG OF TEST PIT CE-P-25
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-4-23

FUGRO NATIONAL, INC.



SURFACE ELEVATION: 2580' (786m)
SURFICIAL GEOLOGIC UNIT: A50

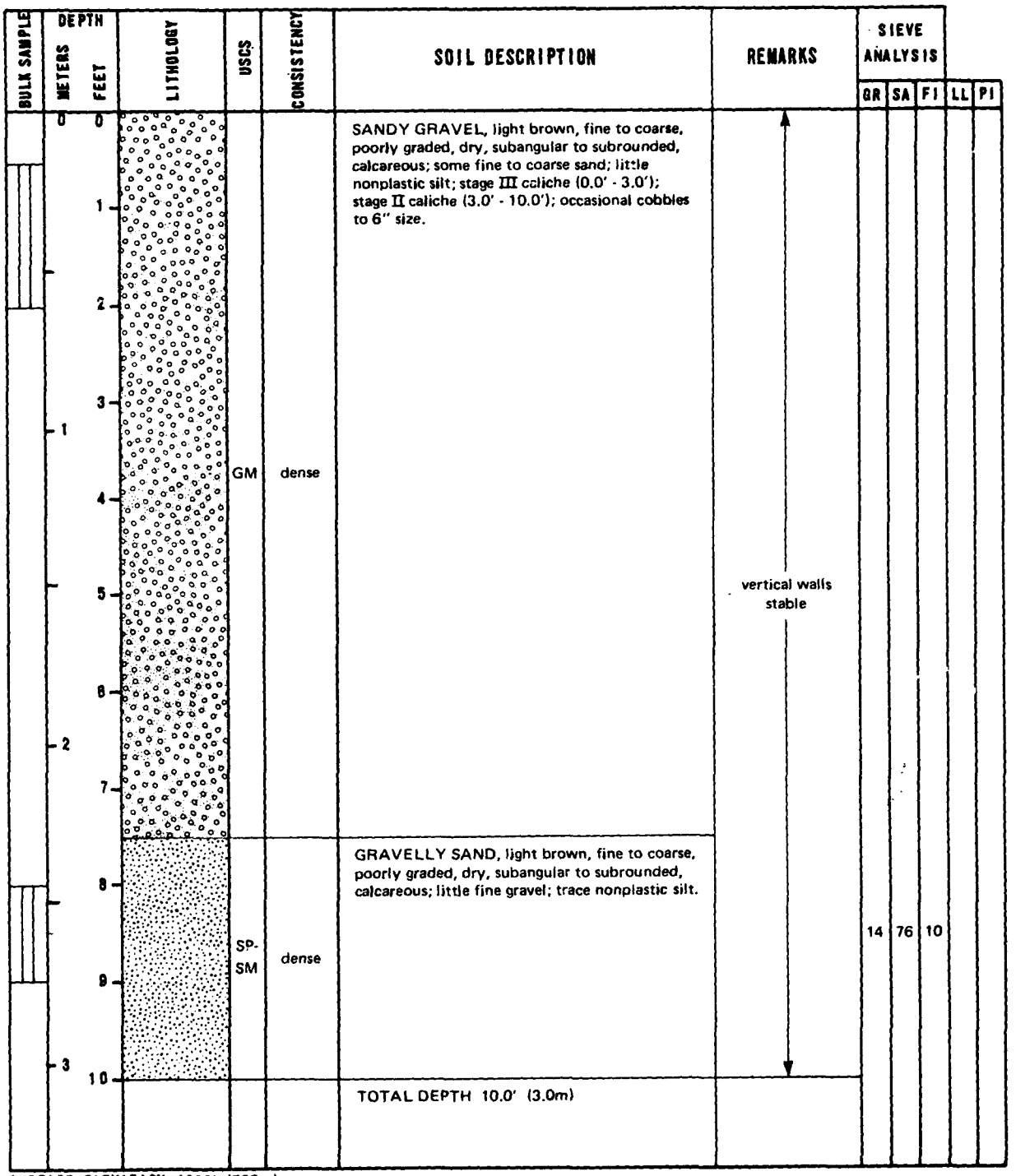
LOG OF TEST PIT CE-P-26

LOG OF TEST PIT CE-P 26
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II 4 24

WOODWARD-CLYDE CONSULTANTS



SURFACE ELEVATION: 2620' (799m)
SURFICIAL GEOLOGIC UNIT: A50

LOG OF TEST PIT CE-P-27

LOG OF TEST PIT CE-P-27
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - 0010

FIGURE
II-4-25

FUGRO NATIONAL, INC.

BULK SAMPLE	DEPTH METERS	DEPTH FEET	LITHOLOGY	USCS	CONSISTENCY	SOIL DESCRIPTION	REMARKS	SIEVE ANALYSIS GR	SA	FI	LL	PI
	0	0				GRAVELLY SAND, light brown, fine to coarse, poorly graded, dry, subangular to subrounded, calcareous; some fine to coarse gravel; little nonplastic silt; stage III caliche.	vertical walls stable	41	43	16		
		1										
		2		SM	dense							
	1	3				SILTY SAND, light brown, fine to coarse, poorly graded, dry, subangular to subrounded, calcareous; little nonplastic silt; trace gravel; stage III caliche.						
		4										
		5										
	2	6		SM	dense							
		7										
		8										
		9										
	3	10				TOTAL DEPTH 10.0' (3.0m)						

SURFACE ELEVATION: 2660' (811m)
SURFICIAL GEOLOGIC UNIT: A50

LOG OF TEST PIT CE-P-28

LOG OF TEST PIT CE-P-28
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II 4 26

BULK SAMPLE	DEPTH METERS	DEPTH FEET	LITHOLOGY	USCS	CONSISTENCY	SOIL DESCRIPTION	REMARKS	SIEVE ANALYSIS GR	SA	FI	LL	PI
	0	0				SILTY SAND, light brown, fine to coarse, poorly graded, dry, subangular to subrounded, calcareous, little nonplastic silt; trace gravel; stage III caliche (0.0' - 10.0').						
		1										
		2										
	1	3										
		4										
		5		SM	dense		vertical walls stable					
	2	6										
		7										
		8										
	3	9										
		10				TOTAL DEPTH 10.0' (3.0m)						

SURFACE ELEVATION: 2680' (817m)
SURFICIAL GEOLOGIC UNIT: A1

LOG OF TEST PIT CE-P-29

LOG OF TEST PIT CE-P-29
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE II 4 27

WOODWARD-NATIONAL, INC.

BULK SAMPLE	DEPTH METERS	DEPTH FEET	LITHOLOGY	USCS	CONSISTENCY	SOIL DESCRIPTION	REMARKS	SIEVE ANALYSIS GR	SA	FI	LL	PI
	0	0				SILTY SAND, light brown, fine to coarse, poorly graded, dry, subangular to subrounded, calcareous; some nonplastic silt; little fine gravel; stage I caliche (0.0' - 5.0'); stage III caliche (5.0' - 7.0').	vertical walls stable	13	64	23		
		1										
		2										
	1	3		SM	dense							
		4										
		5										
		6										
	2	7				GRAVELLY SAND, light brown, fine to coarse, poorly graded, dry, subangular to subrounded, calcareous; some fine to coarse gravel; trace nonplastic silt; stage II caliche.						
		8		SP-SM	dense			43	48	9		
		9										
	3	10				TOTAL DEPTH 10.0' (3.0m)						

SURFACE ELEVATION: 2710' (826m)
SURFICIAL GEOLOGIC UNIT: A1

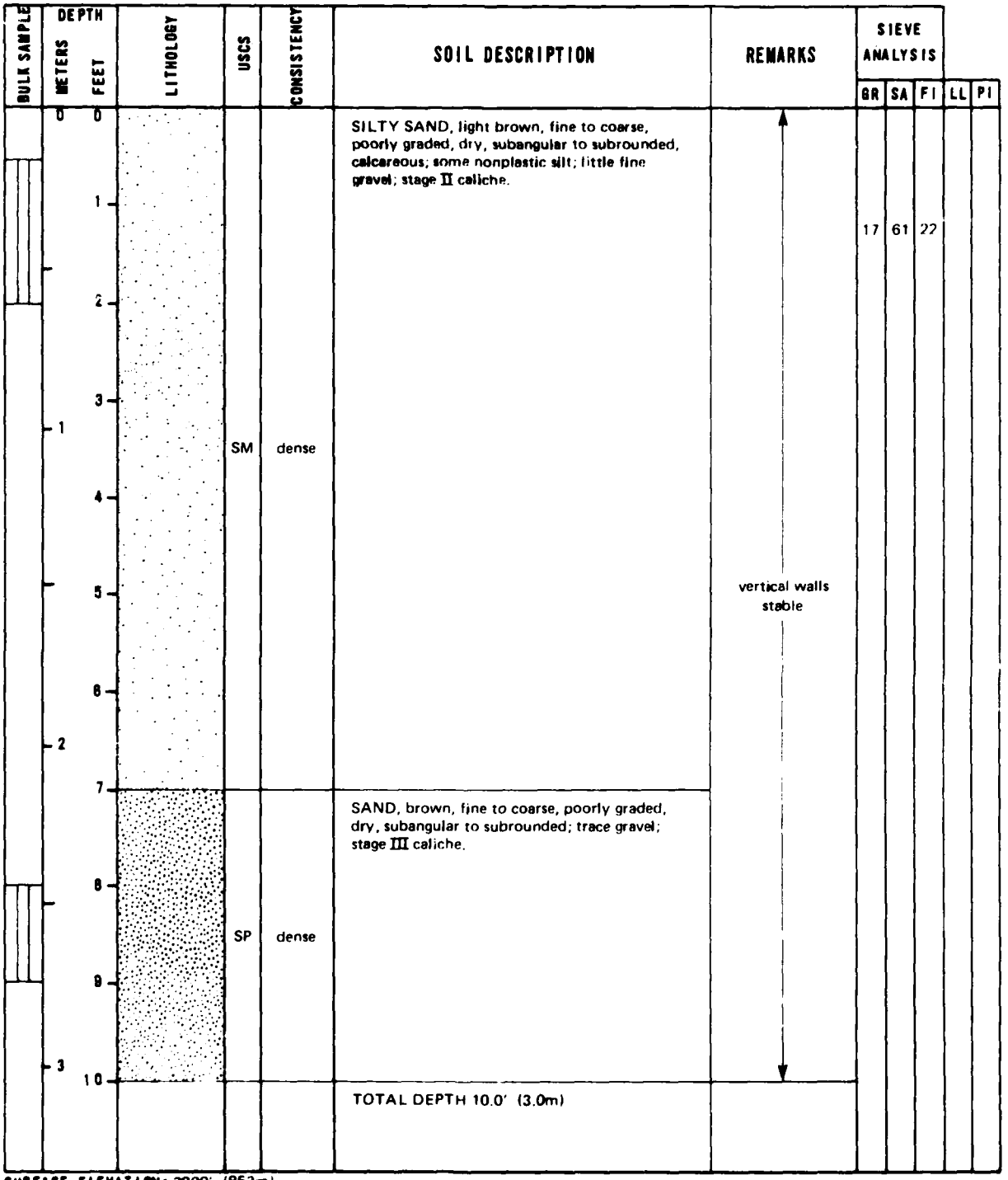
LOG OF TEST PIT CE-P-30

LOG OF TEST PIT CE P-30
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE II 4 28

WOODWARD-CLYDE CONSULTANTS



SURFACE ELEVATION: 2800' (853m)
SURFICIAL GEOLOGIC UNIT: A2

LOG OF TEST PIT CE-P-31

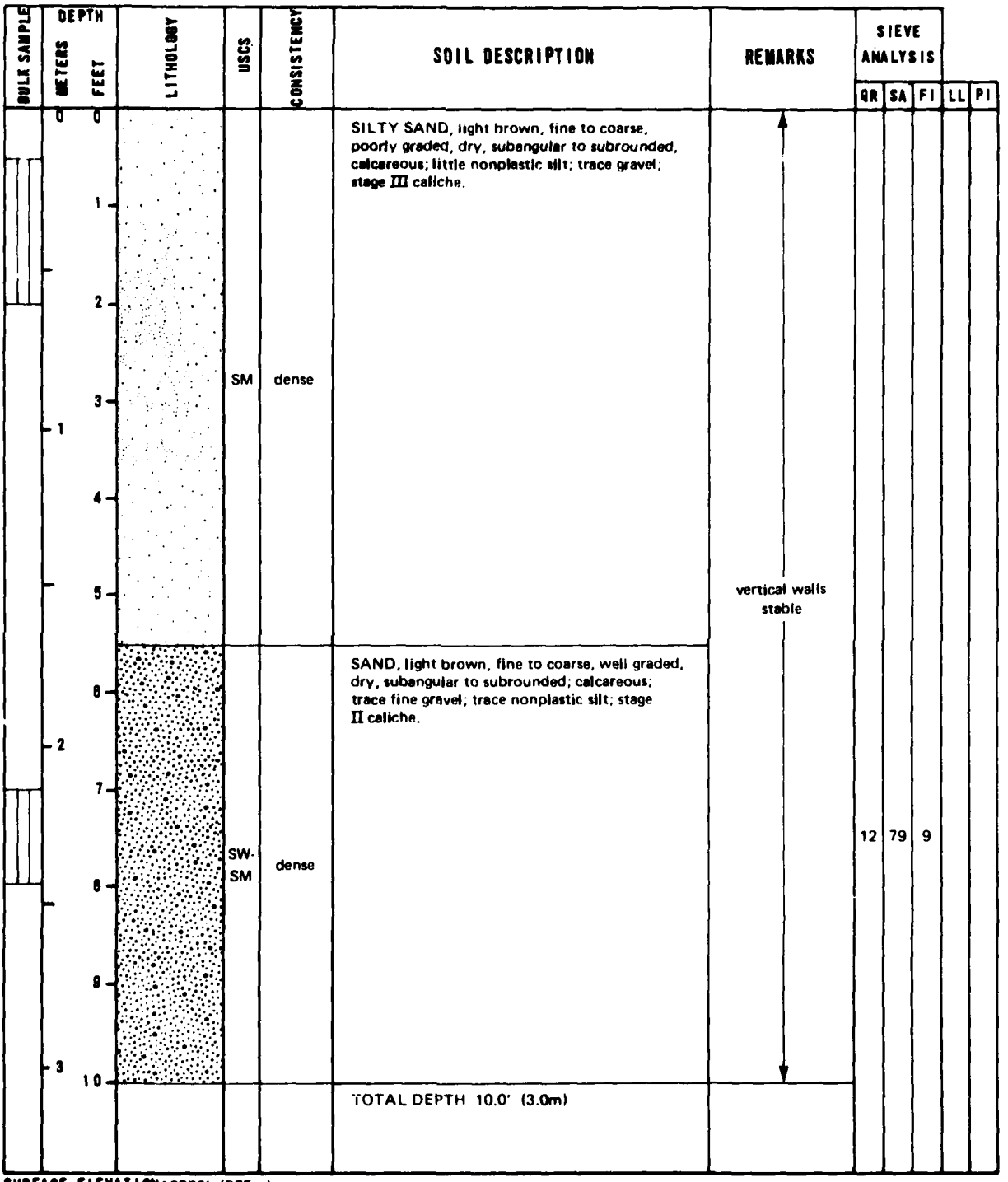
LOG OF TEST PIT CE-P-31
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II 4 29

FUGRO NATIONAL, INC.

USAF-21



SURFACE ELEVATION: 2870' (875m)
SURFICIAL GEOLOGIC UNIT: A50

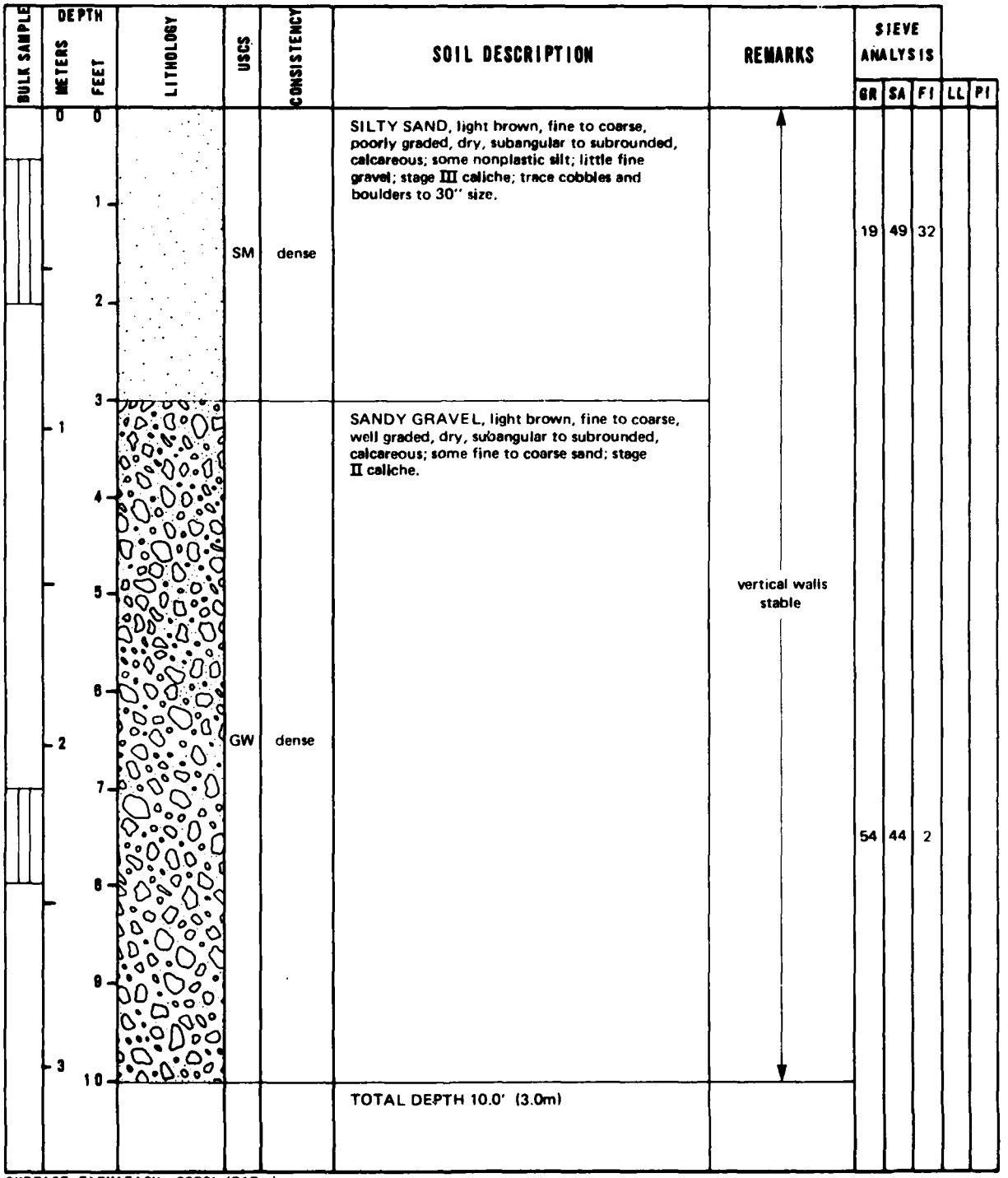
LOG OF TEST PIT CE-P-32

LOG OF TEST PIT CE-P-32
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-4-30

FUGRO NATIONAL, INC.



SURFACE ELEVATION: 2680' (817m)
SURFICIAL GEOLOGIC UNIT: A50

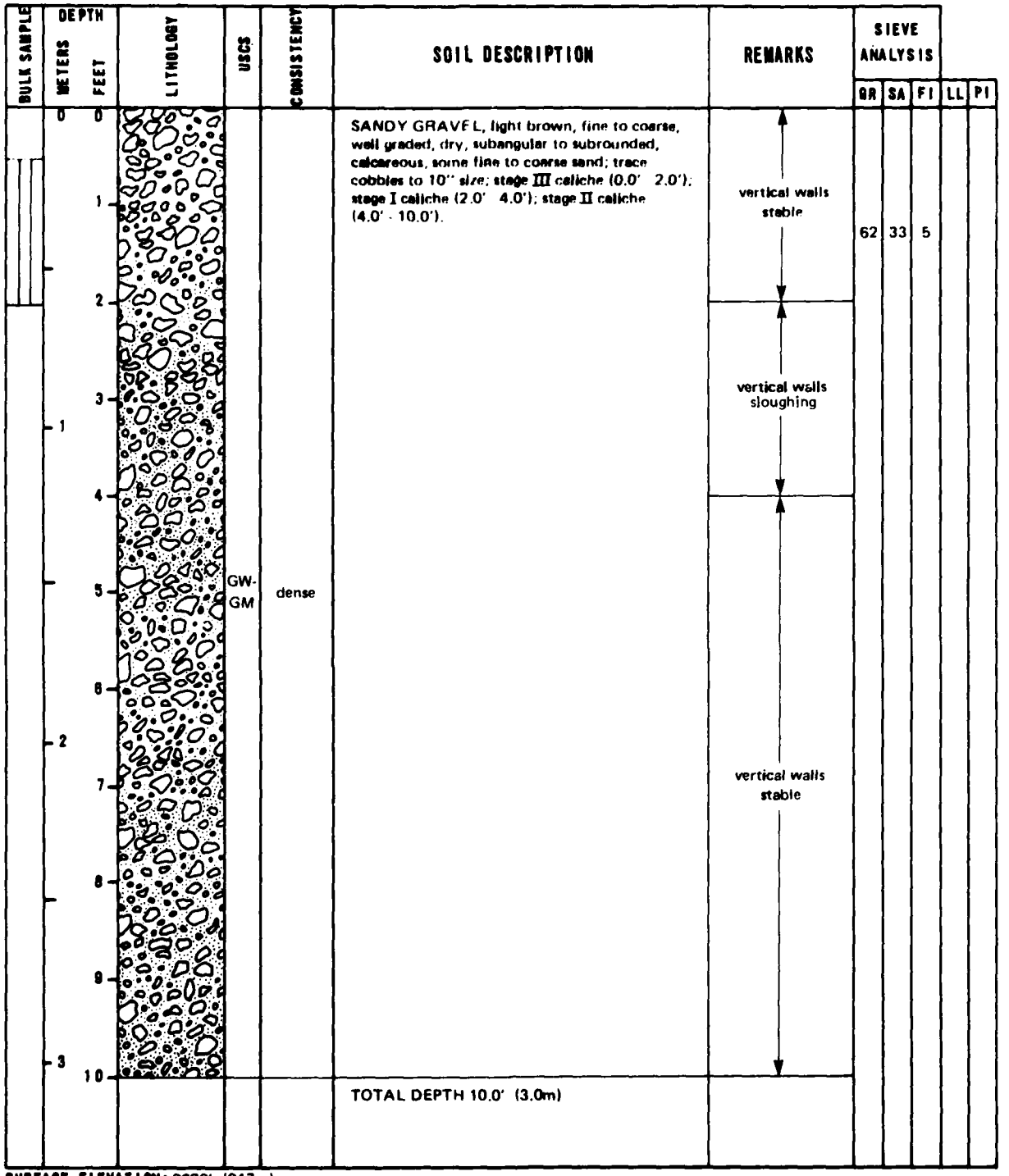
LOG OF TEST PIT CE-P-35

LOG OF TEST PIT CE-P-35
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-4-33

FUGRO NATIONAL, INC.



SURFACE ELEVATION: 2680' (817m)
SURFICIAL GEOLOGIC UNIT: A50

LOG OF TEST PIT CE-P-36

LOG OF TEST PIT CE-P-36
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-4-34

SECTION 5.0

LABORATORY TEST RESULTS

5.0 EXPLANATIONS OF LABORATORY TEST RESULTS

Laboratory test results are presented in this section. Table II-5-1 contains a summary of laboratory test results. This table contains results of sieve analysis; plasticity data; in-situ dry unit weight, moisture content, degree of saturation, and void ratio for drive and Pitcher samples; results of compaction tests; and specific gravity of solids. Other tests such as triaxial compression, unconfined compression, direct shear, consolidation, chemical, and California Bearing Ratio (CBR) are indicated on the table. Tables II-5-2 through II-5-4 and Figures II-5-1 through II-5-5 present results of triaxial compression, unconfined compression, direct shear, consolidation, chemical, and CBR tests.

All tests were performed in general accordance with the American Society for Testing and Materials (ASTM) procedures. The following list presents the ASTM designations for the tests performed during the investigation.

Type of Test	ASTM Designations
Particle Size Analysis	D 422-63
Liquid Limit	D 423-66
Plastic Limit	D 424-59
Unit Weight	D 2937-71
Moisture Content	D 2216-71
Compaction	D 1557-70
Specific Gravity of Solids	D 854-58
Triaxial	D 2850-70
Unconfined Compression	D 2166-66
Direct Shear	D 3080-72
Consolidation	D 2435-70
Test for Alkalinity (pH)	D 1067-70
Water Soluble Sodium	D 1428-64
Water Soluble Chloride	D 512-67
Water Soluble Sulphate	D 516-68
Water Soluble Calcium	D 511-72
Calcium Carbonate	D 1126-67
California Bearing Ratio (CBR)	D 1883-73

Explanation for the tables and figures presented in this section are as follows:

A. Activity Number - Boring or trench sample designation.

B. Sample Number - Prefix indicates the type of sample; explanation is at the bottom of the table.

C. Sample Interval - This is the depth range measured from ground surface over which the sample was obtained.

D. Percent Finer by Weight - Presents the results of laboratory particle-size analysis (ASTM D 422-63) performed on representative soil samples at the depth indicated. The numbers represent the percent (by dry weight) of the total sample weight passing through each sieve size indicated.

E. Atterberg Limits (ASTM D 423-66 and D 424-59) -

LL - Liquid Limit, the water content (as percent of soil dry weight) corresponding to the arbitrary limit between the liquid and plastic states of consistency of a soil (ASTM D 423-66).

PL - Plastic Limit, the water content corresponding to an arbitrary limit between the plastic and the semisolid state of consistency of a soil (ASTM D 424-59).

PI - Plasticity Index, numerical difference between the liquid limit (LL) and the plastic limit (PL) indicating the range of moisture content within which a soil-water mixture is plastic.

NP - Nonplastic.

F. USCS - Unified Soil Classification Symbols are given here; see Table II-2-1 in Section 2.0, "Boring Logs", for complete details of USCS system.

G. In Situ - Presents results of tests on drive and Pitcher samples.

Dry Unit Weight - indicates dry unit weight of soil determined as per ASTM D 2937-71.

Moisture Content - weight of water reported in percent of dry weight of soil sample (ASTM D 2216-71).

Saturation - the degree of saturation in a soil sample is defined as the ratio (in percent) of the volume of water to the volume of all voids in the soil.

Void Ratio - the numerical ratio of the volume of voids to the volume of solids in a soil specimen.

H. Compacted - Indicates results of laboratory maximum dry density and optimum moisture content test as per ASTM D 1557-70.

I. Specific Gravity of Solids (ASTM D 854-58) - Indicates the ratio of 1) the weight in air of a given volume of soil solids at a stated temperature, to 2) the weight in air of an equal volume of distilled water at a stated temperature.

J. Triaxial - The triaxial compression tests were performed in accordance with the procedures of ASTM D 2850-70. The following explanations and definitions apply.

Triaxial Compression Test - a cylindrical specimen of soil is surrounded by a fluid in a pressure chamber and subjected to an isotropic pressure. An additional compressive load is then applied, directed along the axis of the specimen called the axial load.

Consolidated-Drained (CD) Test - a triaxial compression test in which the soil was first consolidated under an all-around confining stress (test chamber pressure) and was then compressed (and hence sheared) by increasing the vertical stress. "Drained" indicates that excess pore water pressure generated by strains are permitted to dissipate by the free movement of pore water during consolidation and compression.

Consolidated-Undrained (CU) Test - a triaxial compression test in which essentially complete consolidation under the confining (chamber) pressure is followed by a shear test at constant water content.

Confining Pressure (o_3) - the isotropic chamber pressure applied to the soil specimen during consolidation and compression.

Maximum Deviator Stress (o_1-o_3) - the difference between the major and minor principal stresses in the specimen at failure. The major principal stress on the specimen is equal to the unit axial load plus the chamber pressure and the minor principal stress on the specimen is equal to the chamber pressure.

Strain Rate - axial strain, , at a given stress level is defined as the ratio of the change in length (L) of the specimen to the original length of the specimen (L_o). The rate of strain was controlled during the test so that this ratio increased at equal increments for each minute of testing.

Back Pressure - pressure in excess of atmospheric applied to the pore water of a soil sample. Back pressure is usually applied to 1) increase saturation of the sample, or 2) simulate the actual in-situ pressure regime.

K. Unconfined Compression - Test procedures were as described in ASTM D 2166-66. Unconfined compressive strength is defined as the load per unit area at which an unconfined prismatic or cylindrical specimen of soil will fail in a simple compression test. In these methods, unconfined compressive strength is taken as the maximum load attained per unit area or the load per unit area at 20 percent axial strain, whichever occurred first during the performance of a test.

L. Direct Shear - The procedures of ASTM D 3080-72 were followed for direct shear testing. In this test, soil under an applied normal load is stressed to failure by moving one section of the soil container (shear box) relative to the other section. Normal stress is the value of load per unit area acting perpendicular to the plane of shearing. Maximum shear strength is defined as the maximum resistance (ksf) of a soil to shearing (tangential) stresses.

M. Consolidation (ASTM D 2435-70) - A consolidation test is a test in which a cylindrical soil specimen is laterally confined in a ring and compressed between porous plates. The term "consolidation", as used here, indicates the gradual reduction in volume of the soil mass resulting from an increase in compressive stress (axial load per unit area).

N. Chemical - The chemical tests performed on soil samples included: pH; water soluble sodium, chloride, sulphate, calcium; and calcium carbonate content. pH is an index of the acidity or alkalinity of a soil in terms of the logarithm of the reciprocal of the hydrogen ion concentration. ASTM test procedure designations for these chemical tests are included in the list on the first page of these Explanations.

O. CBR - California Bearing Ratio (CBR) is the ratio (in percent) of the resistance to penetration developed by a subgrade soil to that developed by a standard crushed-rock base material. The procedures for conducting a CBR test were as outlined in ASTM D 1883-73. The materials tested for CBR were also analyzed for particle-size distribution (ASTM D 422-63) and compaction characteristics (ASTM D 1557-70). The term "percentage of maximum density" indicates the ratio (as a percentage) of the compacted sample dry unit weight to maximum dry density obtained in the laboratory from ASTM D 1557-70, "Moisture-Density Relations of Soils Using 10-Pound (4.5-kg) Hammer and 18-inch (457-mm) Drop."

ACTIVITY NUMBER	SAMPLE NUMBER (a)	SAMPLE INTERVAL		PERCENT FINER BY WEIGHT									
				STANDARD SIEVE OPENING							U S STANDARD SI		
				BLDRS.	COBBLES		GRAVEL				SAND		
		FEET	METERS	24"	12"	6"	3"	1½"	3/4"	3/8"	4	10	40
CE-B-1	SS-2	1.5 - 2.5	0.46 - 0.76					100	93	61	42	29	16
	SS-5	7.0 - 7.5	2.13 - 2.29					100	92	61	46	36	28
	D-10	30.5 - 36.3	9.30 - 11.06										
	D-11	35.2 - 36.0	10.73 - 10.97						100	97	94	90	76
	D-11	35.2 - 36.0	10.73 - 10.97										
	P-12	40.6 - 41.1	12.37 - 12.53										
	P-13	45.6 - 46.2	13.90 - 14.08								100	98	87
	P-14	50.6 - 51.3	15.42 - 15.64										
	P-15	59.0 - 59.7	17.98 - 18.20										100
	P-15	59.7 - 60.4	18.20 - 18.41										
	P-15	60.4 - 61.1	18.41 - 18.62										
	P-16	68.0 - 68.8	20.73 - 20.97							100	98	98	97
	P-16	68.8 - 69.6	20.97 - 21.21										
	D-19	99.0 - 100.0	30.18 - 30.48										
CE-B-2	SS-1	0.0 - 1.5	0.00 - 0.46					100	88	62	44	34	28
	D-9	19.2 - 20.0	5.85 - 6.10										
	b-12	35.0 - 36.0	10.67 - 10.97										
	D-16	49.1 - 49.9	14.97 - 15.21										
	D-17	60.1 - 60.9	18.32 - 18.56								100	98	91
	P-18	62.5 - 62.9	19.05 - 19.17										
	P-18	62.9 - 63.6	19.17 - 19.39										
	P-18	63.6 - 64.3	19.39 - 19.60						100	94	89	84	70
	P-19	66.7 - 68.0	20.33 - 20.73							100	97	94	88
	P-20	73.0 - 73.8	22.25 - 22.49									100	99
	P-20	73.8 - 74.5	22.49 - 22.71										
	P-21	83.0 - 84.0	25.30 - 25.60									100	98
	P-22	90.8 - 91.7	27.68 - 27.95										
	P-23	101.6 - 102.3	30.97 - 31.18										
	P-25	119.8 - 120.5	36.52 - 36.73										
	P-26	140.8 - 141.5	42.92 - 43.13										
	P-27	161.4 - 162.0	49.19 - 49.38										
CE-B-3	SS-3	4.4 - 5.5	1.34 - 1.68					100	85	44	33	25	15
	D-9	18.5 - 19.2	5.64 - 5.85										
CE-B-4	D-6	10.0 - 10.8	3.05 - 3.29										
	b-9	25.0 - 26.0	7.62 - 7.92										
	b-14	49.0 - 50.0	14.94 - 15.24						100	95	85	63	44
CE-B-5	D-8	15.2 - 16.0	4.63 - 4.88										
	D-9	20.0 - 20.5	6.10 - 6.25										

NOTES:

(a) Sample types
- SS - Standard split spoon
- P - Pitcher
- D - Fugro Drive
- B,b - Bulk

(b) NP - Not Plastic

(c) USCS - Unified Soil Classification System

(d) * Indicates that test has been performed and results are included in this report

T																						
ANDARD SIEVE NO.				PARTICLE SIZE (mm)		ATTERBERG LIMITS (b)			USCS (c)	IN-SITU					COMPACTED			SPECIFIC GRAVITY OF SOLIDS	TRIAXIAL (d)	UNCONFINED COMPRESSION
SAND			SILT OR CLAY							DRY UNIT WEIGHT		MOISTURE CONTENT (%)	SATURATION (%)	VOID RATIO	MAXIMUM DRY DENSITY		OPTIMUM MOISTURE (%)			
	40	100	200	.005	.001	LL	PL	PI		(pcf)	(kg/m³)				(pcf)	(kg/m³)				
	16	12	10						GP-GM											
	28	23	20						GM											
									GP-GM	132.0	2115	6.8	66.5	0.28						
	76	65	58					NP	ML											
									ML	88.2	1413	10.4	30.9	0.41						*
									SM	98.0	1570	10.1	38.1	0.72						
	87	68	48						SM	94.6	1515	9.9	34.2	0.78						
									SM	87.5	1402	15.5	45.3	0.93						
	100	99	97	30	12	32	26	6	ML	88.5	1418	10.8	32.3	0.90					*	
									ML	78.7	1261	24.5	58.3	1.14					*	
									ML	87.9	1408	13.6	40.1	0.92					*	
	97	96	95			44	27	17	ML	72.2	1157	30.8	62.5	1.33				2.70		
									ML	76.5	1226	26.0	58.5	1.20						
									GP-GM	122.1	1956	8.3	58.9	0.38						
	28	25	19						GM											
									GP-GM	139.1	2228	2.1	27.2	0.21						
									GM-GC											
									GP-GM	134.0	2147	3.0	31.6	0.26						
	91	86	71					NP	ML	97.1	1556	9.9	36.2	0.74						*
									SM	97.1	1556	26.0	94.9	0.74						
									SM	105.9	1697	21.1	96.3	0.59					*	
	70	52	37					NP	SM	103.4	1656	19.4	83.4	0.63					*	
	88	82	77						ML	103.0	1650	15.2	64.8	0.64						
	99	99	98					NP	ML	80.0	1281	22.7	55.2	1.11						
									ML	79.9	1280	31.8	77.3	1.11						
	98	94	87						ML	84.4	1352	24.9	100.0	0.48						
									ML	84.5	1354	33.9	92.2	0.99						
									ML	98.6	1580	17.4	66.3	0.71						
									ML	93.5	1498	18.7	63.0	0.80						
									ML	102.7	1645	17.4	73.5	0.64						
									ML	98.2	1573	22.4	84.6	0.72						
	15	11	9						GP-GM											
									GP-GM	136.8	2192	7.2	83.5	0.23						
									GP-GM	112.0	1794	5.6	30.0	0.51						
									SP-SM											
	44	35	30						SM			26.8								
									GP-GM	124.4	1993	4.1	31.4	0.35						
									GP-GM	134.1	2148	7.5	78.8	0.26						

SUMMARY O
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USCS (c)	IN-SITU					COMPACTED			SPECIFIC GRAVITY OF SOLIDS	TRIAXIAL (d)	UNCONFINED COMPRESSION	DIRECT SHEAR	CONSOLIDATION	CHEMICAL	CBR
	DRY UNIT WEIGHT		MOISTURE CONTENT (%)	SATURATION (%)	VOID RATIO	MAXIMUM DRY DENSITY		OPTIMUM MOISTURE (%)							
	(pcf)	(kg/m^3)				(pcf)	(kg/m^3)								
GP-GM															
GM															
GP-GM	132.0	2115	6.8	66.5	0.28										
ML															
ML	88.2	1413	10.4	30.9	0.41						*				
SM	98.0	1570	10.1	38.1	0.72										
SM	94.6	1515	9.9	34.2	0.78							*			
SM	87.5	1402	15.5	45.3	0.93										
ML	88.5	1418	10.8	32.3	0.90					*					
ML	78.7	1261	24.5	58.0	1.14					*					
ML	87.9	1408	13.6	40.1	0.92					*					
ML	72.2	1157	30.8	62.5	1.33				2.70				*	*	
ML	76.5	1226	26.0	58.5	1.20										
GP-GM	122.1	1956	8.3	58.9	0.38										
GM															
GP-GM	139.1	2228	2.1	27.2	0.21										
GM-GC														*	
GP-GM	134.0	2147	3.0	31.6	0.26										
ML	97.1	1556	9.9	36.2	0.74						*				
SM	97.1	1556	26.0	94.9	0.74								*		
SM	105.9	1697	21.1	96.3	0.59					*					
SM	103.4	1656	19.4	83.4	0.63					*					
ML	103.0	1650	15.2	64.8	0.64							*			
ML	80.0	1281	22.7	55.2	1.11								*	*	
ML	79.9	1280	31.8	77.3	1.11										
ML	84.4	1352	24.9	100.0	0.48							*			
ML	84.5	1354	33.9	92.2	0.99										
ML	98.6	1580	17.4	66.3	0.71										
ML	93.5	1498	18.7	63.0	0.80										
ML	102.7	1645	17.4	73.5	0.64										
ML	98.2	1573	22.4	84.6	0.72									*	
GP-GM															
GP-GM	136.8	2192	7.2	83.5	0.23										
GP-GM	112.0	1794	5.6	30.0	0.51										
SP-SM														*	
SM			26.8												
GP-GM	124.4	1993	4.1	31.4	0.35										
GP-GM	134.1	2148	7.5	78.8	0.26										

SUMMARY OF LABORATORY TEST RESULTS
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

TABLE II-5-1
1 OF 7

FUGRO NATIONAL, INC.

AFV-01

ACTIVITY NUMBER	SAMPLE NUMBER (a)	SAMPLE INTERVAL		PERCENT FINER BY WEIGHT										
				STANDARD SIEVE OPENING							U S STANDARD SIEVE			
				BLDRS.	COBBLES		GRAVEL				SAND			
		FEET	METERS	24"	12"	6"	3"	1½"	3/4"	3/8"	4	10	40	10
	b-10	25.0 - 26.0	7.62 - 7.92					100	73	44	23	12	8	6
	b-15	50.0 - 51.0	15.24 - 15.54											
	b-27	159.0 - 160.0	48.45 - 48.77							100	97	66	33	28
CE-B-6	b-3	5.0 - 7.0	1.52 - 2.13					100	47	41	34	26	19	15
	D-6	12.7 - 13.5	3.87 - 4.11											
	D-7	17.4 - 18.0	5.30 - 5.49											
	D-8	19.5 - 20.5	5.94 - 6.25					100	98	93	68	61	54	37
	D-9	26.0 - 27.0	7.92 - 8.23					100	93	87	68	49	45	36
	D-10	30.5 - 31.5	9.30 - 9.60					100	79	62	48	3.	27	21
CE-B-7	P-1	0.6 - 1.3	0.18 - 0.40											
	P-2	3.5 - 5.5	1.07 - 1.68											
	P-3	7.3 - 8.0	2.23 - 2.44						100	98	97	94	87	66
	SS 4	4.8 - 6.0	1.46 - 1.83						100	91	86	81	67	51
	D-8	10.5 - 11.5	3.20 - 3.51					100	83	67	55	43	22	9
	P-10	17.5 - 18.3	5.33 - 5.58									100	98	77
	P-10	18.3 - 19.0	5.58 - 5.79											
	P-11	21.3 - 22.0	6.49 - 6.71											
	P-12	22.0 - 23.0	6.71 - 7.01										100	93
	P-13	25.0 - 25.7	7.62 - 7.83											
	P-14	32.0 - 32.7	9.75 - 9.97						100	99	99	99	98	93
	P-15	33.3 - 34.1	10.15 - 10.39											
	P-16	37.5 - 38.1	11.43 - 11.61											
	P-19	46.8 - 47.7	14.26 - 14.54											
	P-20	48.9 - 49.4	14.90 - 15.06										101	95
	P-20	49.4 - 50.0	15.06 - 15.24											
CE-B-8	SS-6	8.0 - 9.5	2.44 - 2.90						100	91	71	53	37	25
	P-7	10.2 - 10.6	3.11 - 3.23											
	P-7	10.2 - 11.0	3.11 - 3.35									102	99	98
	P-7	11.0 - 11.5	3.35 - 3.51											
	P-8	15.5 - 16.0	4.72 - 4.88								102	99	96	77
	P-9	20.0 - 20.7	6.10 - 6.31									100	99	95
	P-10	25.8 - 26.6	7.86 - 8.11									100	98	96
	P-11	30.0 - 30.7	9.14 - 9.36									100	98	93
	P-11	30.7 - 31.5	9.37 - 9.6.											
	b-13	36.5 - 37.5	11.13 - 11.43						100	93	94	92	24	15
	P-18	60.9 - 61.9	18.56 - 18.87											
	P-19	68.7 - 69.4	20.94 - 21.03											
	P-20	80.6 - 81.3	24.57 - 24.78											
	P-21	86.0 - 86.7	26.21 - 26.43							100	99	98	78	28
	P-22	90.6 - 91.2	27.61 - 27.86											

NOTES:

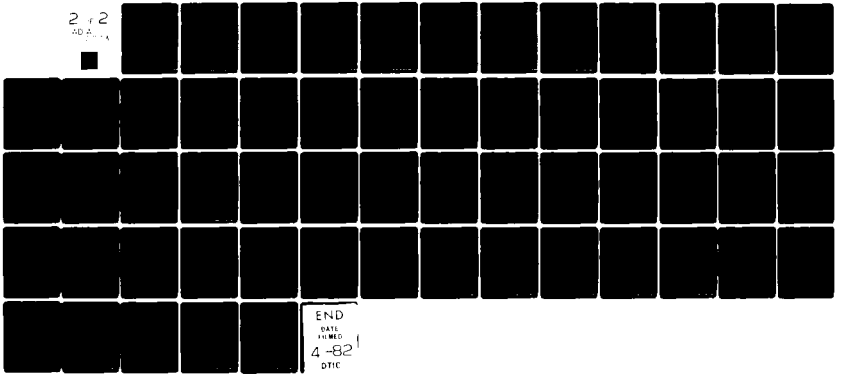
(a) Sample types
- SS - Standard split spoon
- P - Pitcher
- D - Fugro Drive
- B,b - Bulk

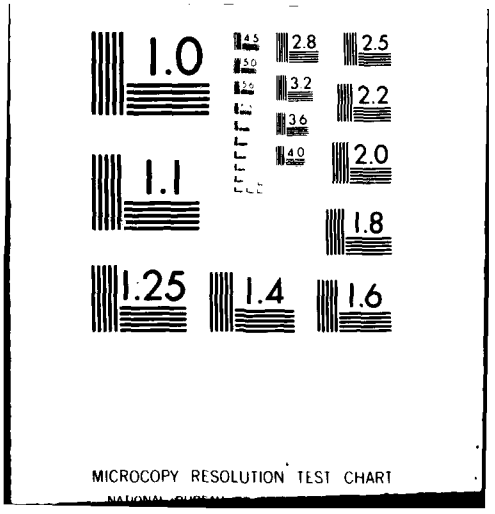
(b) NP - Not Plastic

(c) USCS - Unified Soil Classification System

(d) * Indicates that test has been performed and results are included in this report

AD-A112 773 FUGRO NATIONAL INC LONG BEACH CA F/G 8/13
MX SITING INVESTIGATION. PRELIMINARY GEOTECHNICAL INVESTIGATION--ETC(U)
DEC 80 F04704-80-C-0006
UNCLASSIFIED FN-TR-43-VOL-2 NL




1.0
1.1
1.25
1.4
1.6
1.8
2.0
2.2
2.5
2.8
3.2
3.6
4.0
4.5
5.0
MICROCOPY RESOLUTION TEST CHART

% SIEVE NO.			PARTICLE SIZE (mm)		ATTERBERG LIMITS (b)			USCS (c)	IN-SITU					COMPACTED			SPECIFIC GRAVITY OF SOLIDS	TRIAXIAL (d)	UNCONFINED COMPRESSION
		SILT OR CLAY							DRY UNIT WEIGHT		MOISTURE CONTENT (%)	SATURATION (%)	VOID RATIO	MAXIMUM DRY DENSITY		OPTIMUM MOISTURE (%)			
40	100	200	.005	.001	LL	PL	PI		(pcf)	(kg/m^3)				(pcf)	(kg/m^3)				
8	6	5						GW-GM											
								GP											
33	28	25						SM											
39	15	12						GP-GM											
								GP-GM	114.5	1834	1.3	7.7	0.47						
								GP-GM	101.7	1629	4.1	17.0	0.66						
54	37	23						SM	120.9	1937	1.3	9.2	0.39						
45	36	28					NP	SM	107.4	1721	4.1	19.4	0.57						
27	21	17					NP	GM	137.5	2203	5.5	66.3	0.23						
								SM	104.2	1669	2.7	11.7	0.62						
								SM	102.1	1636	5.7	23.8	0.65						
87	66	44			23	18	5	SC-SM											
67	51	32						SM											
22	9	6						SP-SM	121.4	1945	3.1	21.4	0.39						
98	77	48						SM	105.9	1697	11.6	52.8	0.59						
								SM	110.8	1775	11.6	59.9	0.52						
								SM	102.9	1648	16.2	68.6	0.64						
100	93	73	46	26	41	22	19	CL	115.9	1857	11.2	66.6	0.45						
								CL	94.7	1517	17.4	60.2	0.78						
98	93	75			39	20	19	CL	93.5	1498	20.1	67.7	0.80						*
								CL	80.1	1283	35.9	87.7	1.10						
								CL	107.6	1724	17.0	81.2	0.57						
								CL-ML	85.4	1368	39.3	100.0	0.97						
100	95	82	48	8	26	21	5	CL-ML	90.3	1447	27.6	86.0	0.87						
								CL-ML	91.3	1463	27.6	88.1	0.85						
32	25	22						SM											
								ML	85.6	1371	8.7	24.2	0.97						
99	98	89					NP	ML	83.5	1338	9.6	25.6	1.02						
								ML	89.0	1426	9.6	29.2	0.89						
96	77	49					NP	SM	91.4	1464	10.2	32.5	0.84						*
99	95	85					NP	ML	82.2	1317	14.2	36.5	1.05						*
98	96	75						ML	89.3	1431	17.3	52.8	0.89						
98	91	71	21	8			NP	ML	95.5	1530	15.8	54.8	0.79				2.74		
								ML	95.1	1524	18.6	63.7	0.80						
24	15	12						SP-SM											
								SM	108.6	1740	7.4	36.1	0.55						
								SM	89.5	1434	21.3	65.1	0.88						
								SM	101.1	1620	11.1	45.1	0.67						
78	28	20						SM	92.6	1483	24.4	80.4	0.82						
								SM	114.4	1833	9.6	54.9	0.47						

SUMMARY O
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MX SITI
DEPARTMENT OF

IN-SITU					COMPACTED										
DRY UNIT WEIGHT		MOISTURE CONTENT (%)	SATURATION (%)	VOID RATIO	MAXIMUM DRY DENSITY		OPTIMUM MOISTURE (%)	SPECIFIC GRAVITY OF SOLIDS	TRIAXIAL (d)	UNCONFINED COMPRESSION	DIRECT SHEAR	CONSOLIDATION	CHEMICAL	CBR
(pcf)	(kg/m^3)				(pcf)	(kg/m^3)								
													*	
114.5	1834	1.3	7.7	0.47										
101.7	1629	4.1	17.0	0.66										
120.8	1937	1.3	9.2	0.38							*			
107.4	1721	4.1	19.4	0.57								*		
137.5	2203	5.5	66.3	0.23										
104.2	1669	2.7	11.7	0.62										
102.1	1636	5.7	23.8	0.65										
121.4	1945	3.1	21.4	0.39										
105.9	1697	11.6	52.8	0.59							*			
110.8	1775	11.6	59.9	0.52										
102.9	1648	16.2	68.6	0.64										
115.9	1857	11.2	66.6	0.45										
94.7	1517	17.4	60.2	0.78										
93.5	1498	20.1	67.7	0.80						*				
80.1	1283	35.9	87.7	1.10										
107.6	1724	17.3	81.2	0.57										
85.4	1368	39.3	100.0	0.97										
90.3	1447	27.6	86.3	0.87										
91.3	1463	27.6	88.1	0.85										
85.6	1371	8.7	24.2	0.97								*		
83.5	1338	9.6	25.6	1.02										
89.0	1426	9.6	29.2	0.89										
91.4	1464	10.2	32.5	0.84						*				
82.2	1317	14.2	36.5	1.05						*				
89.3	1431	17.3	52.8	0.89							*			
95.5	1530	15.8	54.8	0.79				2.74				*		
95.1	1524	18.6	63.7	0.80										
108.6	1740	7.4	36.1	0.55										
89.5	1434	21.3	65.1	0.88										
101.1	1620	11.1	45.1	0.67										
92.6	1483	24.4	80.4	0.82							*			
114.4	1833	9.6	54.9	0.47										

SUMMARY OF LABORATORY TEST RESULTS
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

TABLE
II-5-1
2 OF 7

40.0 - 41.0	12.19 - 12.50			
49.0 - 50.0	14.94 - 15.24			
6.2 - 7.0	1.89 - 2.13			
10.5 - 11.4	3.20 - 3.47			
1.0 - 1.6	0.30 - 0.49			
4.0 - 5.0	1.22 - 1.52			
6.5 - 7.5	1.98 - 2.29			
8.6 - 9.2	2.62 - 2.80			
10.5 - 11.5	3.20 - 3.51			
15.2 - 16.0	4.63 - 4.88			
21.5 - 22.4	6.55 - 6.83			
21.5 - 22.4	6.55 - 6.83			
24.7 - 25.3	7.53 - 7.71			
30.1- 30.8	9.17 - 9.39			
30.1 - 30.8	9.17 - 9.39			
35.0 - 35.7	10.67 - 10.88			
40.8 - 41.4	12,4 - 12.62			
47.1 - 47.9	14.36 - 14.60			

ARD SIEVE NO.			PARTICLE SIZE (mm)		ATTERBERG LIMITS (b)			USCS (c)	IN-SITU					COMPACTED			SPECIFIC GRAVITY OF SOLIDS	TRIAXIAL (d)	UNCONFINED COMPRESSION	DIRECT
			SILT OR CLAY						DRY UNIT WEIGHT		MOISTURE CONTENT (%)	SATURATION (%)	VOID RATIO	MAXIMUM DRY DENSITY		OPTIMUM MOISTURE (%)				
40	100	200	.005	.001	LL	PL	PI		(pcf)	(kg/m³)				(pcf)	(kg/m³)					
								SM	88.3	1415	21.4	63.8	0.91							
								SM	103.8	1663	14.4	62.7	0.62							
22	15	10						GP-GM												
								SM	105.8	1695	10.1	46.1	0.59							
								SM	93.6	1499	15.6	52.7	0.80							
								SM	103.7	1661	12.5	54.2	0.62							
								SM	107.9	1729	10.7	51.6	0.56							
64	36	24						SM	112.1	1796	5.1	27.3	0.50							
66	33	20						SM	109.4	1753	7.6	38.1	0.54							
								GP-GM	131.4	2105	1.0	9.4	0.28							
								GP-GM	136.8	2192	3.2	37.3	0.23							
								SM	98.2	1573	4.1	15.7	0.72							
								SP-SM	100.9	1616	4.3	17.6	0.67							
								SP-SM	93.4	1496	17.2	57.7	0.80							
								SP-SM	99.6	1596	12.8	50.0	0.69							
44	14	8						SP-SM	110.6	1772	3.7	19.3	0.52							
								SP-SM	107.6	1724	5.2	24.8	0.57							
								SM	94.0	1506	7.1	24.3	0.79							
								SM	79.0	1266	22.4	53.3	1.13						*	
54	38	24					NP	SM	94.1	1507	12.5	42.8	0.79						*	
68	23	9					NP	SP-SM	108.7	1741	7.1	35.1	0.55							
								SP-SM	92.5	1482	10.9	35.9	0.82							
50	35	24			37	23	14	SC	102.1	1636	14.1	58.8	0.65						*	
								SM	89.9	1440	22.4	69.2	0.87							
93	68	54			31	18	13	CL	92.3	1479	19.0	62.2	0.83						*	
								CL	99.5	1594	15.8	61.5	0.69							
								SM												
87	69	52					NP	ML	90.9	1456	13.7	43.2	0.85						*	
71	44	32						SM	106.9	1713	9.3	43.7	0.58							

103.7	1661	12.5	54.2	0.62								
107.9	1729	10.7	51.6	0.56								
112.1	1796	5.1	27.3	0.50								*
109.4	1753	7.6	38.1	0.54								*
131.4	2105	1.0	9.4	0.28								
136.8	2192	3.2	37.3	0.23								
98.2	1573	4.1	15.7	0.72								
100.9	1616	4.3	17.6	0.67								
93.4	1496	17.2	57.7	0.80								
99.6	1596	12.8	50.0	0.69								
110.6	1772	3.7	19.3	0.52								*
107.6	1724	5.2	24.8	0.57								
94.0	1506	7.1	24.3	0.79								
79.0	1266	22.4	53.3	1.13							*	
94.1	1507	12.5	42.8	0.79							*	
108.7	1741	7.1	35.1	0.55								
92.5	1482	10.9	35.9	0.82								
102.1	1636	14.1	58.8	0.65							*	
89.9	1440	22.4	69.2	0.87								*
92.3	1479	19.0	62.2	0.83							*	
99.5	1594	15.8	61.5	0.69								
90.9	1456	13.7	43.2	0.85							*	
106.9	1713	9.3	43.7	0.58								*
115.1	1844	8.2	47.7	0.46								*
86.9	1392	20.8	59.7	0.94						*		
97.0	1554	12.4	45.5	0.74						*		
90.6	1451	17.8	55.9	0.86								
103.3	1607	10.2	40.5	0.68								
110.7	1773	7.3	37.8	0.52							*	
		1.5										
126.7	2030	3.6	29.6	0.33								
129.9	2081	5.5	49.8	0.30								

29.6 - 30.2	9.02 - 9.20					
36.2 - 37.0	11.03 - 11.28					
41.8 - 42.7	12.74 - 13.01					
48.0 - 48.7	14.63 - 14.84					
50.9 - 51.8	15.51 - 15.79					
59.6 - 60.2	18.17 - 18.35					
69.2 - 69.3	21.09 - 21.12					
69.3 - 70.0	21.12 - 21.34					
70.0 - 70.7	21.34 - 21.55					
80.1 - 81.6	24.4 - 24.87					
99.2 - 100.0	30.24 - 30.48					
0.7 - 1.4	0.21 - 0.43					
4.2 - 4.9	1.28 - 1.49					
6.6 - 7.4	2.01 - 2.26				100	83
9.7 - 10.5	2.96 - 3.20					
13.0 - 14.0	3.96 - 4.27					100
17.2 - 18.0	5.24 - 5.49					
21.2 - 22.0	6.46 - 6.71					

ARD SIEVE NO.			PARTICLE SIZE (mm)		ATTERBERG LIMITS (b)			USCS (c)	IN-SITU					COMPACTED			SPECIFIC GRAVITY OF SOLIDS	TRIAXIAL (d)	UNCONFINED COMPRESSION
		SILT OR CLAY							DRY UNIT WEIGHT		MOISTURE CONTENT (%)	SATURATION (%)	VOID RATIO	MAXIMUM DRY DENSITY		OPTIMUM MOISTURE (%)			
40	100	200	.005	.001	LL	PL	PI		(pcf)	(kg/m³)				(pcf)	(kg/m³)				
								GP-GM	129.4	2073	1.6	14.4	0.30						
								SM			1.5								
								SM	112.3	1799	7.2	39.1	0.50						
								SM	105.9	1697	5.7	26.0	0.59						
75	33	19						SM	111.2	1781	7.3	38.6	0.52						
								SM	108.9	1745	6.1	29.9	0.55						
								SM	103.3	1655	5.9	25.4	0.63						
								SM	99.0	1586	5.6	21.5	0.70						
								SM	112.8	1807	13.1	71.8	0.49						
								SP-SM	105.9	1697	8.2	37.4	0.59						
								SM	103.0	1650	11.5	48.9	0.64						
								SM	88.8	1423	18.6	55.9	0.90						
								SM	78.3	1254	18.2	42.6	1.15						
								SM	87.7	1405	15.0	43.9	0.92						
								CL-ML	80.6	1291	22.7	56.2	1.09						
100	98	87	26	8	28	21	7	CL-ML	80.5	1290	14.9	36.9	1.09					*	
								CL-ML	77.0	1234	36.9	83.8	1.19					*	
								SM	111.2	1781	12.2	64.4	0.52						
								SM	104.4	1672	16.0	70.4	0.61						
								SP-SM												
								SM	104.3	1671	1.5	6.6	0.62						
								SM	105.7	1693	9.7	44.0	0.59						
20	9	5						GW-GM	115.4	1849	8.3	48.8	0.46						
								GW-GM	115.7	1854	5.7	33.9	0.46						
24	8	5						SP-SM	120.0	1922	8.4	56.3	0.40						
								SP-SM	119.0	1906	3.3	21.4	0.42						
								SP-SM	105.7	1693	2.6	11.8	0.59						
								SW-SM	126.9	2033	2.8	22.7	0.33						
26	12	9						SW-SM	122.0	1954	2.4	16.9	0.38						
								SP-SM	108.9	1745	4.6	22.9	0.55						
								SP-SM	136.2	2182	6.1	69.2	0.24						
								SP-SM			7.7								
								SP-SM	111.7	1789	12.3	65.1	0.51						
								SM	111.1	1780	14.4	75.3	0.52						
26	17	13						SM	125.3	2007	3.4	26.4	0.34						
								GP-GM	112.0	1794	6.5	34.9	0.50						
30	12	9						SW-SM	115.7	1854	4.2	25.1	0.46						
								SW-SM	115.8	1855	4.8	28.7	0.46						
								GP-GM	112.6	1804	6.1	33.5	0.50						
36	16	10						SP-SM	113.0	1810	7.1	39.2	0.49						
								SM	117.8	1887	4.8	30.3	0.43						

SUMMARY OF
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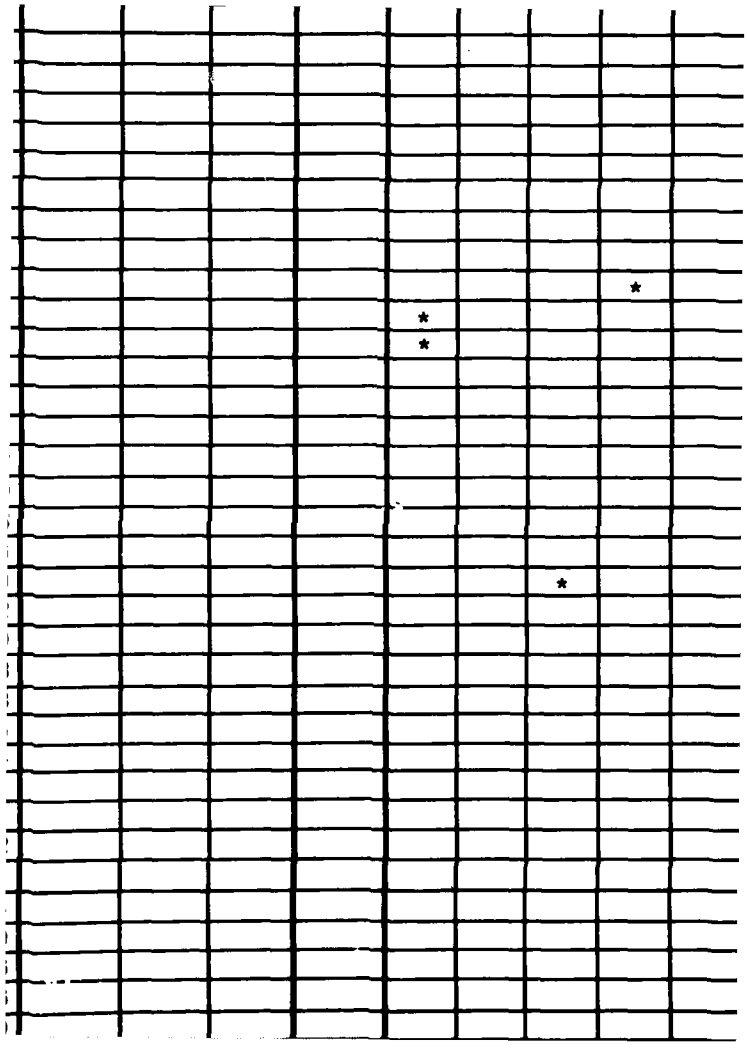
FUGRO



ACTIVITY NUMBER	SAMPLE NUMBER (a)	SAMPLE INTERVAL		PERCENT FINER BY WEIGHT									
				STANDARD SIEVE OPENING							U S STANDARD S		
				BLDRS.	COBBLES		GRAVEL				SAND		
		FEET	METERS	24"	12"	6"	3"	1½"	3/4"	3/8"	4	10	40
CE-P-31	b-1	0.5 - 2.0	0.15 - 0.61						100	89	83	77	51
CE-P-32	b-2	7.0 - 8.0	2.13 - 2.44						100	96	88	75	34
CE-P-33	b-1	0.5 - 2.0	0.15 - 0.61					100	94	88	76	65	43
	b-2	5.0 - 6.0	1.52 - 1.83				100	69	35	21	14	11	6
CE-P-34	b-1	0.5 - 2.0	0.15 - 0.61					100	83	64	52	41	16
CE-P-35	b-1	0.5 - 2.0	0.15 - 0.61					100	98	87	81	77	57
	b-2	7.0 - 8.0	2.13 - 2.44					100	96	71	46	24	5
CE-P-36	b-1	0.5 - 2.0	0.15 - 0.61					100	67	49	38	30	17

NOTES:

(a) Sample types
- SS - Standard split spoon
- P - Pitcher
- D - Fugro Drive
- B,b - Bulk

(b) NP - Not Plastic

(c) USCS - Unified Soil Classification System

(d) * Indicates that test has been performed and results are included in this report

ARD SIEVE NO.			PARTICLE SIZE (mm)		ATTERBERG LIMITS (b)			USCS (c)	IN-SITU					COMPACTED			SPECIFIC GRAVITY OF SOLIDS	TRIAXIAL (d)	UNCONFINED COMPRESSION
		SILT OR CLAY							DRY UNIT WEIGHT		MOISTURE CONTENT (%)	SATURATION (%)	VOID RATIO	MAXIMUM DRY DENSITY		OPTIMUM MOISTURE (%)			
40	100	200	.005	.001	LL	PL	PI		(pcf)	(kg/m^3)				(pcf)	(kg/m^3)				
51	30	22						SM											
34	14	9						SW-SM											
43	28	22						SM											
6	3	2						GP											
16	4	3						SW											
57	39	32						SM											
5	2	2						GW											
17	8	5						GW-GM											

SUMMARY O
OP
COYOT

MX SITE
DEPARTMENT OF

PI	USCS (c)	IN-SITU					COMPACTED			SPECIFIC GRAVITY OF SOLIDS	TRIAXIAL (d)	UNCONFINED COMPRESSION	DIRECT SHEAR	CONSOLIDATION	CHEMICAL	CBR
		DRY UNIT WEIGHT		MOISTURE CONTENT (%)	SATURATION (%)	VOID RATIO	MAXIMUM DRY DENSITY		OPTIMUM MOISTURE (%)							
		(pcf)	(kg/m^3)				(pcf)	(kg/m^3)								
	SM															
	SW-SM															
	SM															
	GP															
	SW															
	SM															
	GW															
	GW-GM															

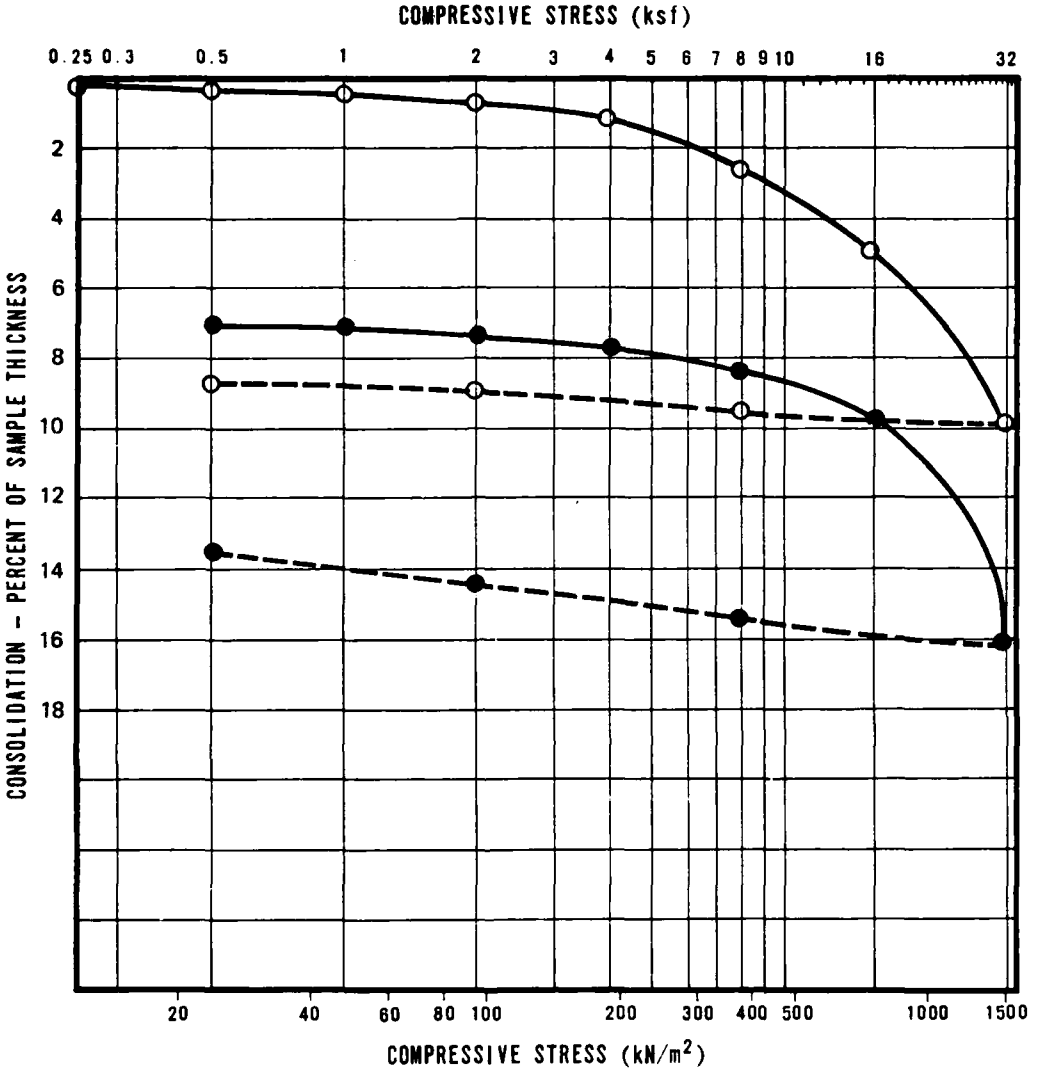
SUMMARY OF LABORATORY TEST RESULTS
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

TABLE
II 5 1
1 OF 1

FUGRO NATIONAL, INC.

AFV-01



SYMBOL	BORING NO.	SAMPLE NO.	SAMPLE INTERVAL		SOIL TYPE	INITIAL DRY DENSITY		INITIAL MOISTURE CONTENT (%)	INITIAL VOID RATIO	INITIAL DEGREE OF SATURATION (%)
			FEET	METERS		pcf	kg/m³			
O	CE-B-1	P-16	68.0 - 68.8	20.73 - 20.97	ML	72.2	1157	30.8	1.33	62.5

O AT FIELD MOISTURE

● AFTER ADDITION OF WATER

——— COMPRESSION

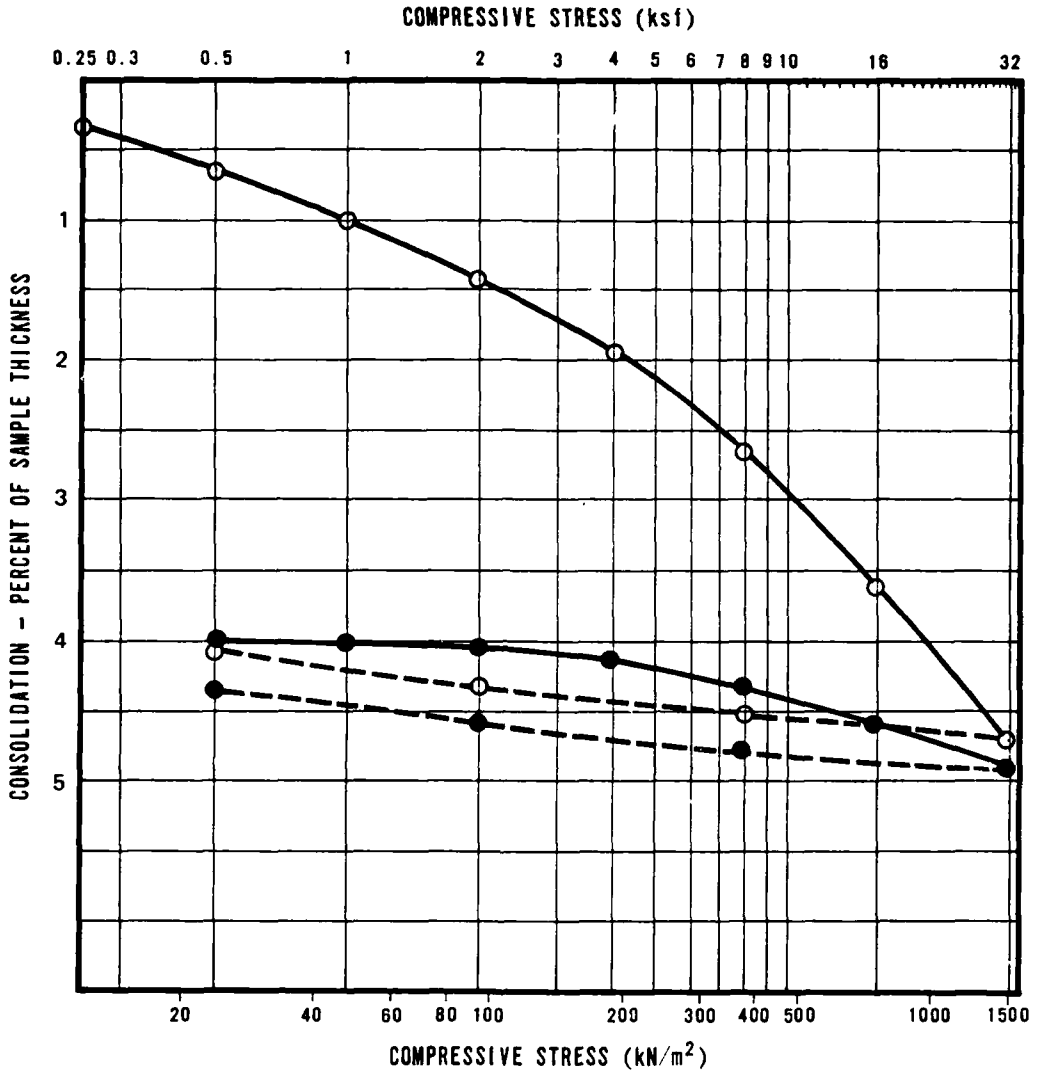
– – – REBOUND

CONSOLIDATION TEST RESULTS
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE BMO

FIGURE
II-5-3
1 OF 9

UGRO NATIONAL, INC.



SYMBOL	BORING NO.	SAMPLE NO.	SAMPLE INTERVAL		SOIL TYPE	INITIAL DRY DENSITY		INITIAL MOISTURE CONTENT (%)	INITIAL VOID RATIO	INITIAL DEGREE OF SATURATION (%)
			FEET	METERS		pcf	kg/m³			
O	CE-B-2	P-19	62.5 - 62.9	19.05 - 19.17	SM	97.1	1556	26.0	0.74	94.9

O AT FIELD MOISTURE

● AFTER ADDITION OF WATER

——— COMPRESSION

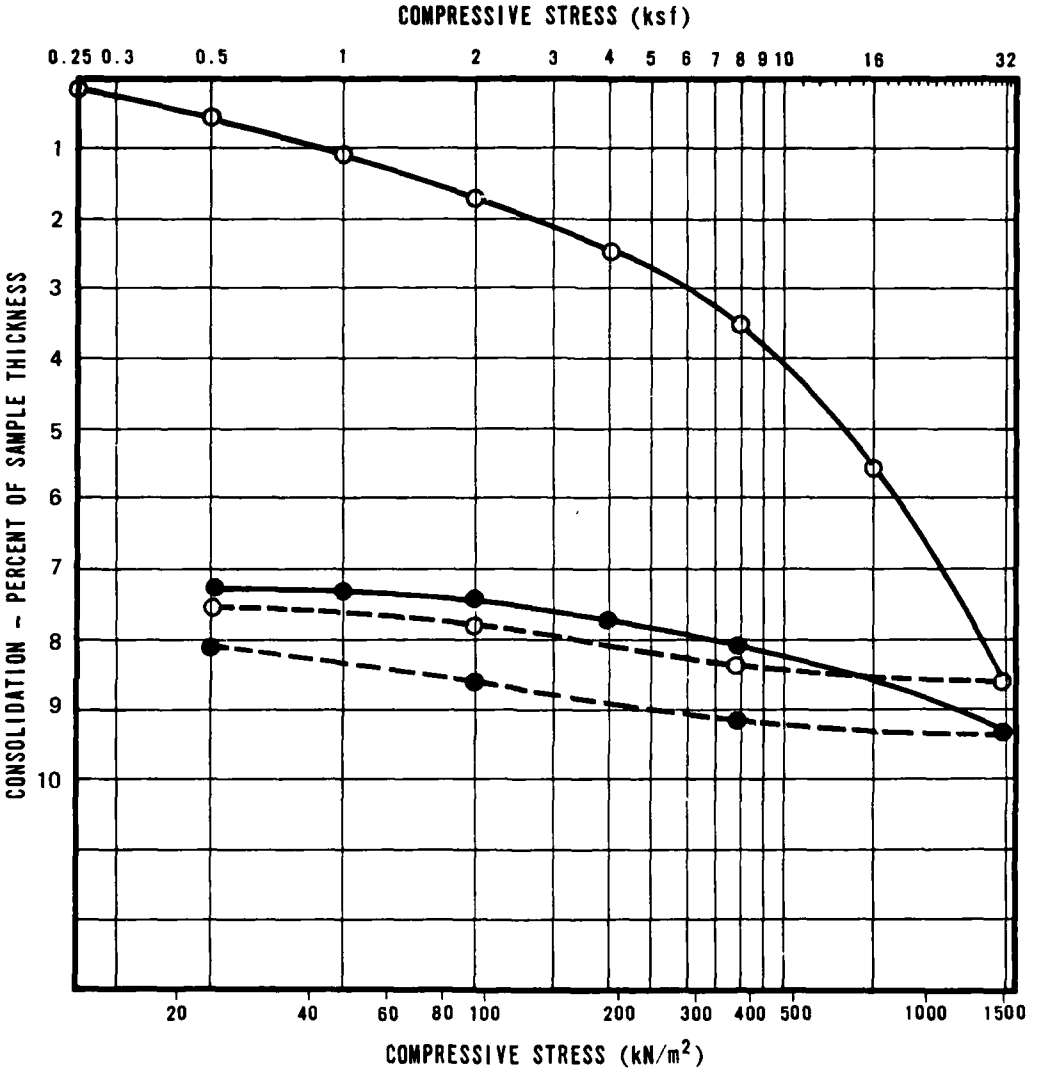
– – – REBOUND

CONSOLIDATION TEST RESULTS
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE II-5-3
2 OF 9

FUGRO NATIONAL, INC.



SYMBOL	BORING NO.	SAMPLE NO.	SAMPLE INTERVAL		SOIL TYPE	INITIAL DRY DENSITY		INITIAL MOISTURE CONTENT (%)	INITIAL VOID RATIO	INITIAL DEGREE OF SATURATION (%)
			FEET	METERS		pcf	kg/m³			
O	CE-B-2	P-20	73.0 - 73.8	22.25 - 22.49	ML	80.0	1281	22.7	1.11	55.2

O AT FIELD MOISTURE

● AFTER ADDITION OF WATER

——— COMPRESSION

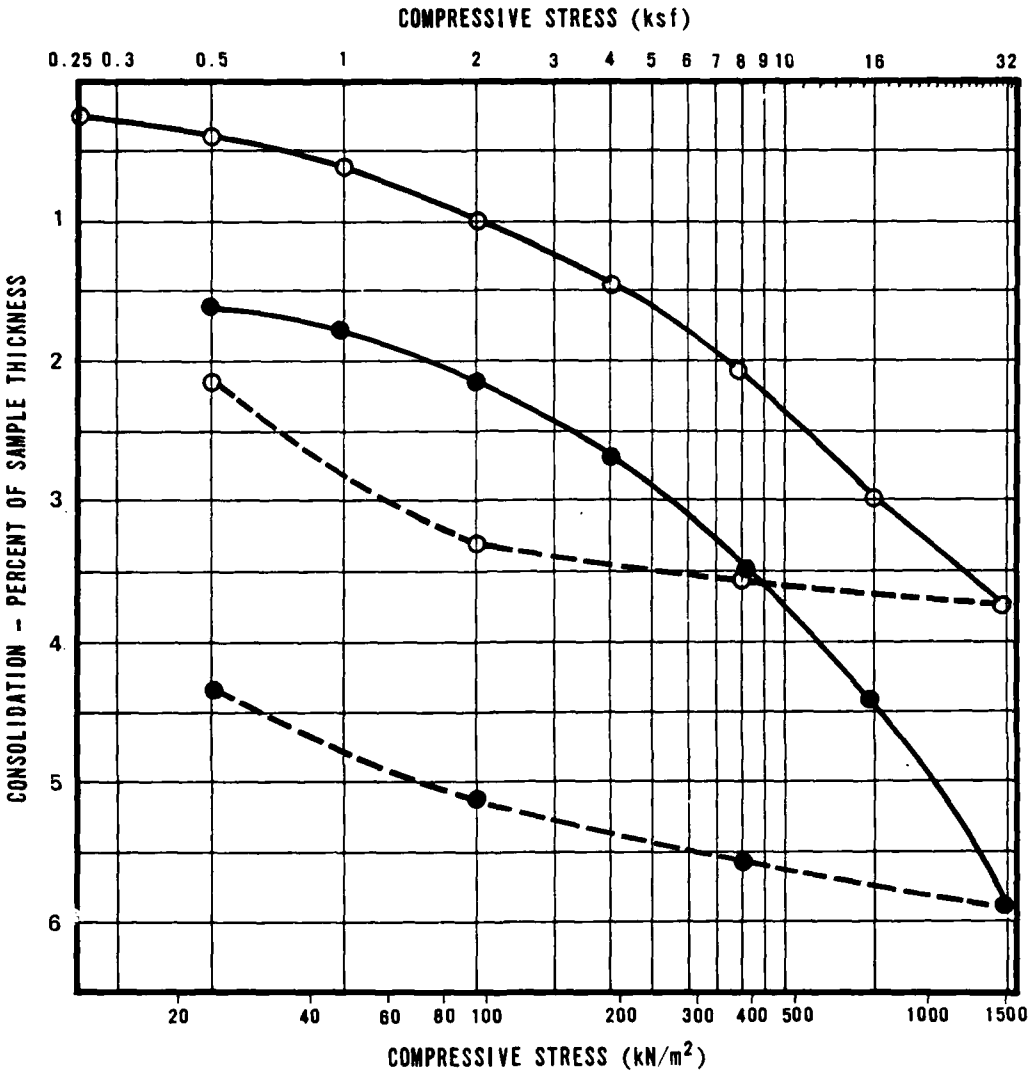
– – – REBOUND

CONSOLIDATION TEST RESULTS
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE II-5-3
3 OF 9

FUGRO NATIONAL, INC.



SYMBOL	BORING NO.	SAMPLE NO.	SAMPLE INTERVAL		SOIL TYPE	INITIAL DRY DENSITY		INITIAL MOISTURE CONTENT (%)	INITIAL VOID RATIO	INITIAL DEGREE OF SATURATION (%)
			FEET	METERS		pcf	kg/m³			
O	CE-B-6	D-9	26.0 - 27.0	7.92 - 8.23	SM	107.4	1721	4.1	0.57	19.4

O AT FIELD MOISTURE

● AFTER ADDITION OF WATER

——— COMPRESSION

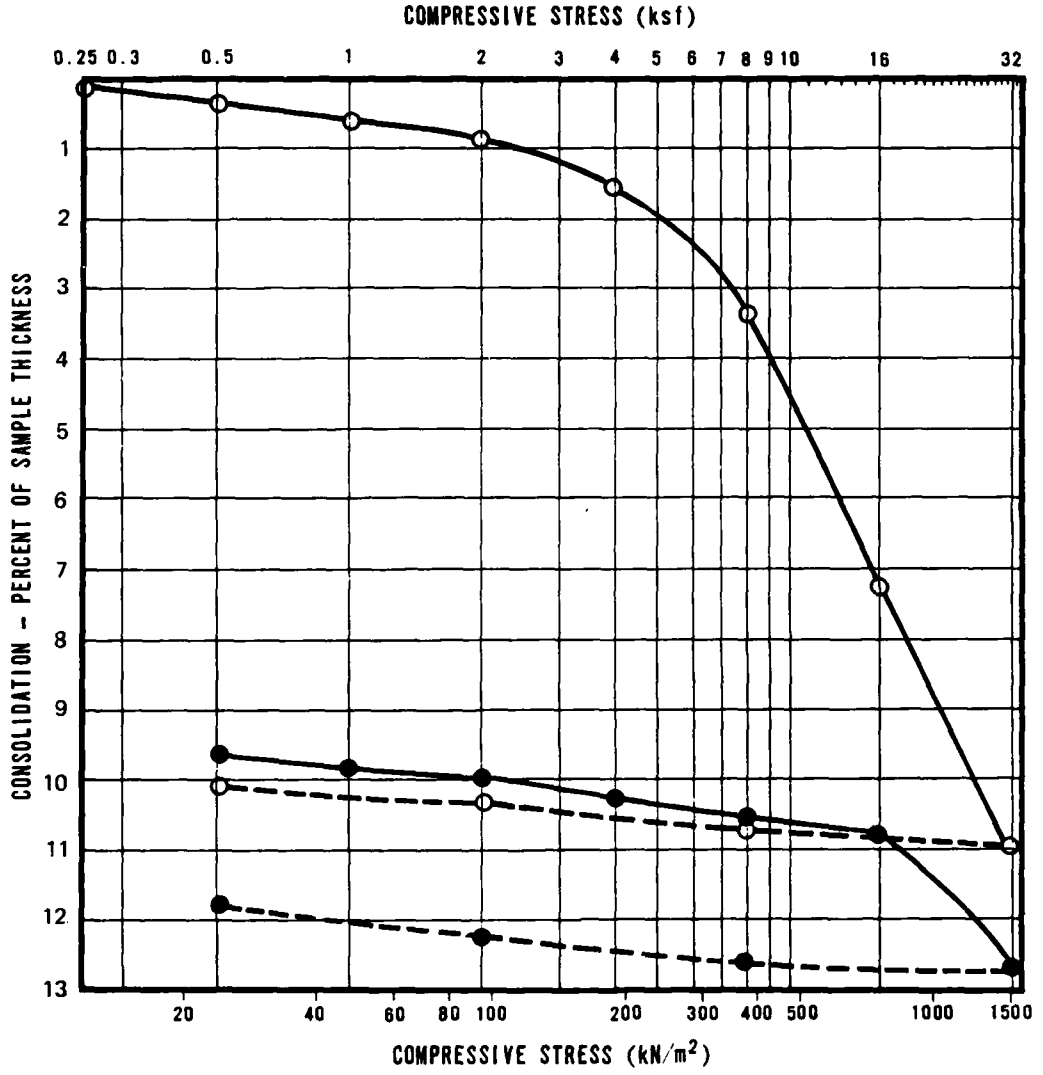
– – – REBOUND

CONSOLIDATION TEST RESULTS
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-5-3
4 OF 9

UGRO NATIONAL, INC.



SYMBOL	BORING NO.	SAMPLE NO.	SAMPLE INTERVAL		SOIL TYPE	INITIAL DRY DENSITY		INITIAL MOISTURE CONTENT (%)	INITIAL VOID RATIO	INITIAL DEGREE OF SATURATION (%)
			FEET	METERS		pcf	kg/m³			
O	CE-B-8	P-7	10.2 - 10.6	3.11 - 3.23	ML	85.6	1371	8.7	0.97	24.2

O AT FIELD MOISTURE

● AFTER ADDITION OF WATER

——— COMPRESSION

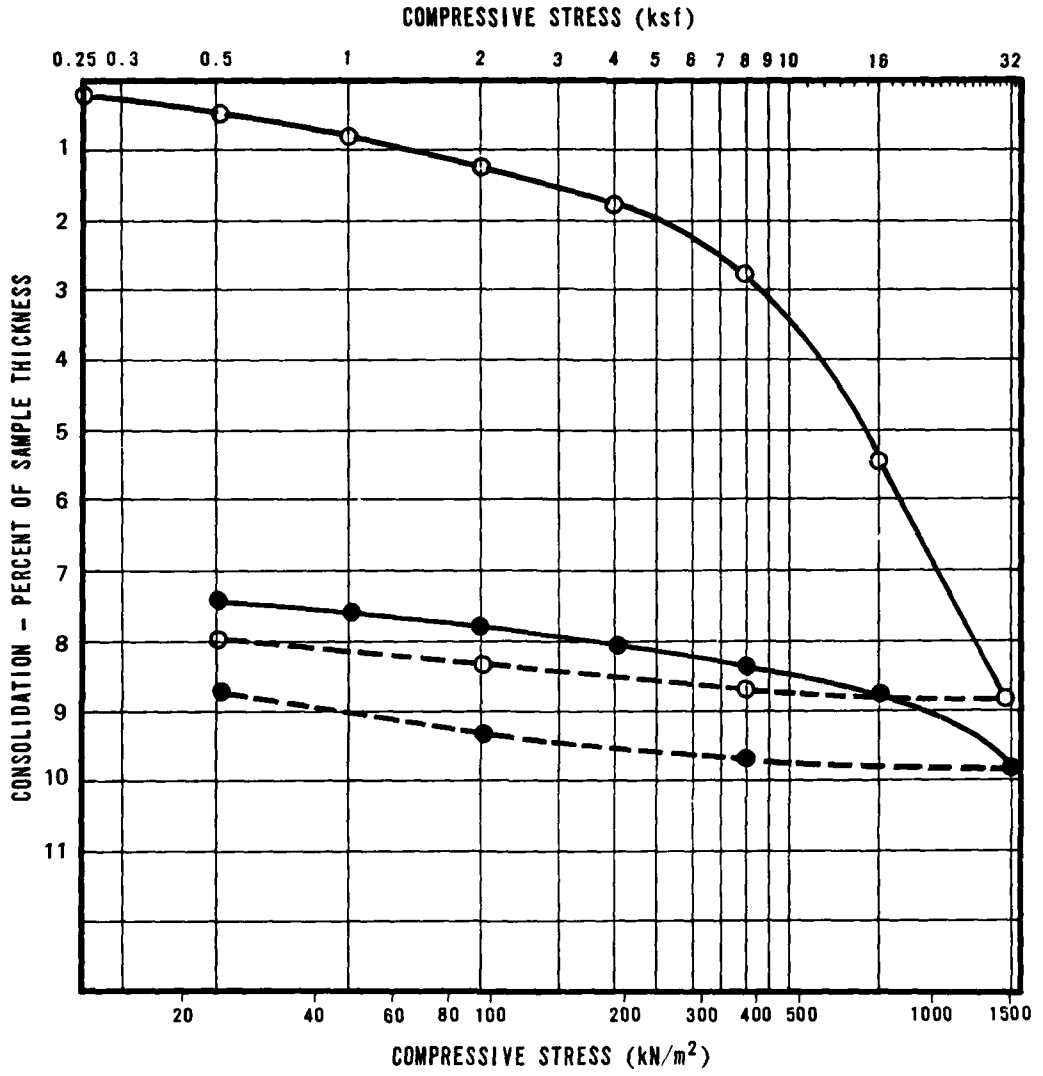
– – – REBOUND

CONSOLIDATION TEST RESULTS
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE II-5-3
5 OF 9

FUGRO NATIONAL, INC.



SYMBOL	BORING NO.	SAMPLE NO.	SAMPLE INTERVAL		SOIL TYPE	INITIAL DRY DENSITY		INITIAL MOISTURE CONTENT (%)	INITIAL VOID RATIO	INITIAL DEGREE OF SATURATION (%)
			FEET	METERS		pcf	kg/m³			
O	CE-B-8	P-11	30.0 - 30.7	9.14 - 9.36	ML	95.5	1530	15.8	0.79	54.8

O AT FIELD MOISTURE

● AFTER ADDITION OF WATER

——— COMPRESSION

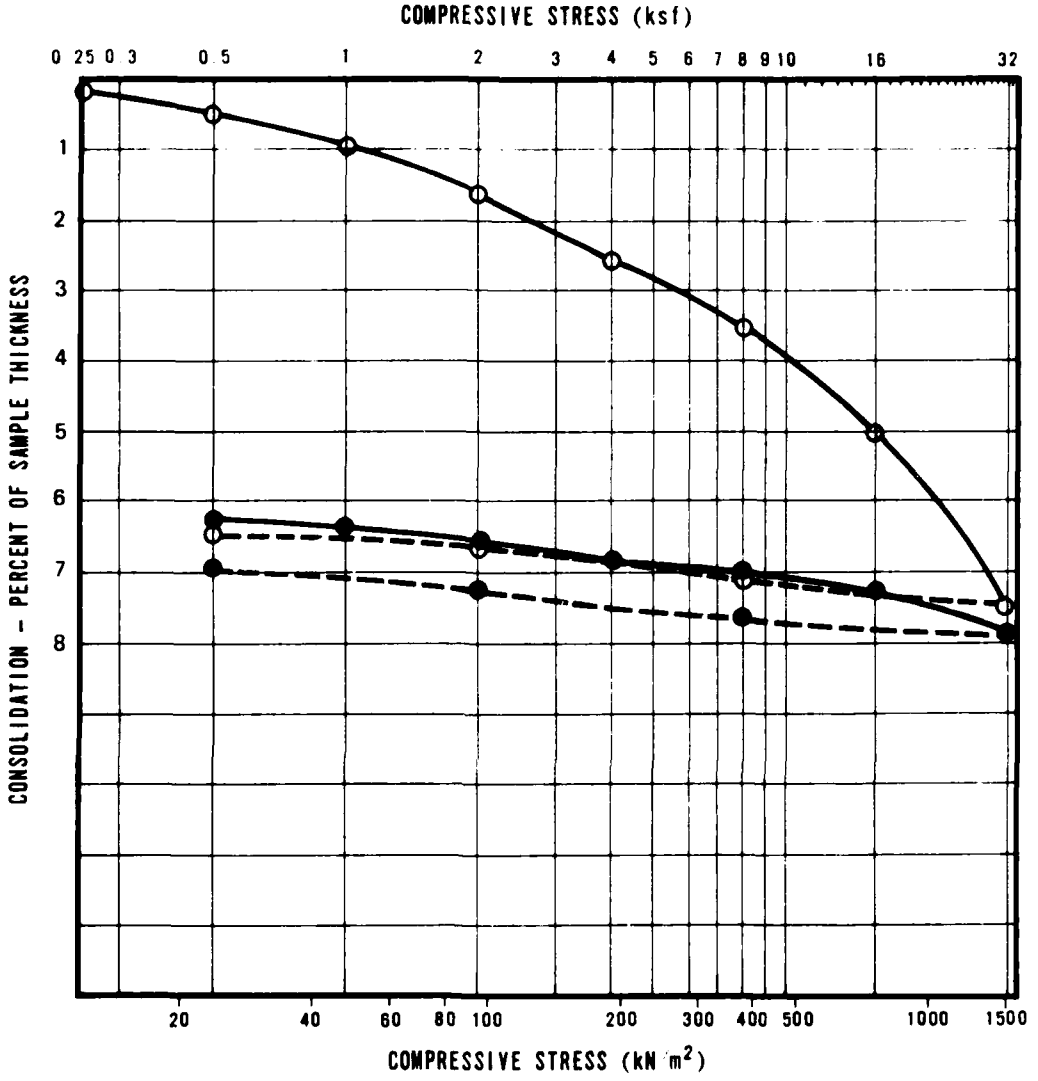
– – – REBOUND

CONSOLIDATION TEST RESULTS
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-5-3
6 OF 9

UGRO NATIONAL, INC.



SYMBOL	BORING NO.	SAMPLE NO.	SAMPLE INTERVAL		SOIL TYPE	INITIAL DRY DENSITY		INITIAL MOISTURE CONTENT (%)	INITIAL VOID RATIO	INITIAL DEGREE OF SATURATION (%)
			FEET	METERS		pcf	kg m³			
O	CE-B-11	P-9	30.1 - 30.8	9.17 - 9.39	SP-SM	92.5	1482	10.9	0.82	35.9

O AT FIELD MOISTURE

● AFTER ADDITION OF WATER

——— COMPRESSION

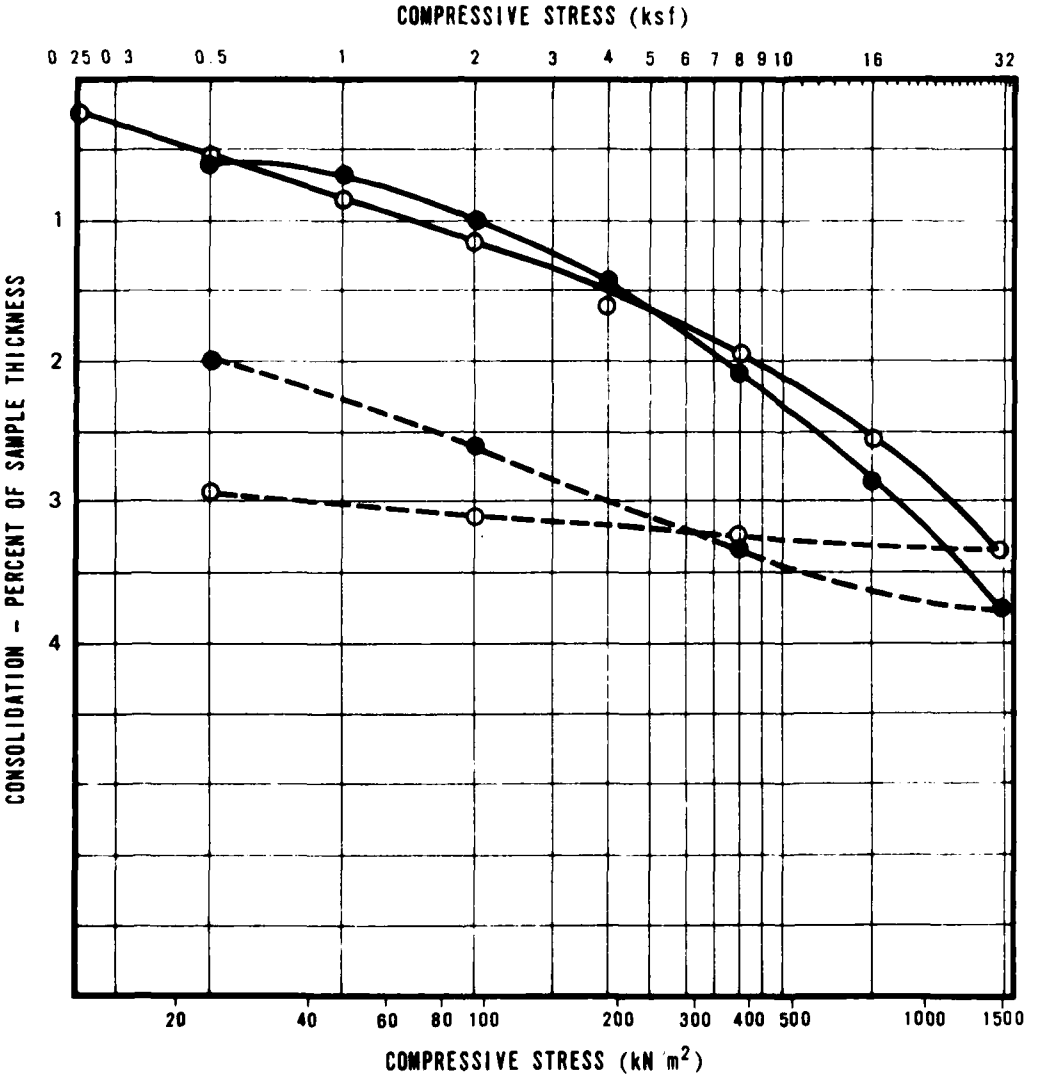
– – – REBOUND

CONSOLIDATION TEST RESULTS
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE BMO

FIGURE II 5 3

FUGRO NATIONAL, INC.



SYMBOL	BORING NO.	SAMPLE NO.	SAMPLE INTERVAL		SOIL TYPE	INITIAL DRY DENSITY		INITIAL MOISTURE CONTENT (%)	INITIAL VOID RATIO	INITIAL DEGREE OF SATURATION (%)
			FEET	METERS		pcf	kg m^3			
O	CE-B-12	D-14	45.0 - 46.0	13.72 - 14.02	ML	100.3	1607	10.2	0.68	40.5

O AT FIELD MOISTURE

● AFTER ADDITION OF WATER

——— COMPRESSION

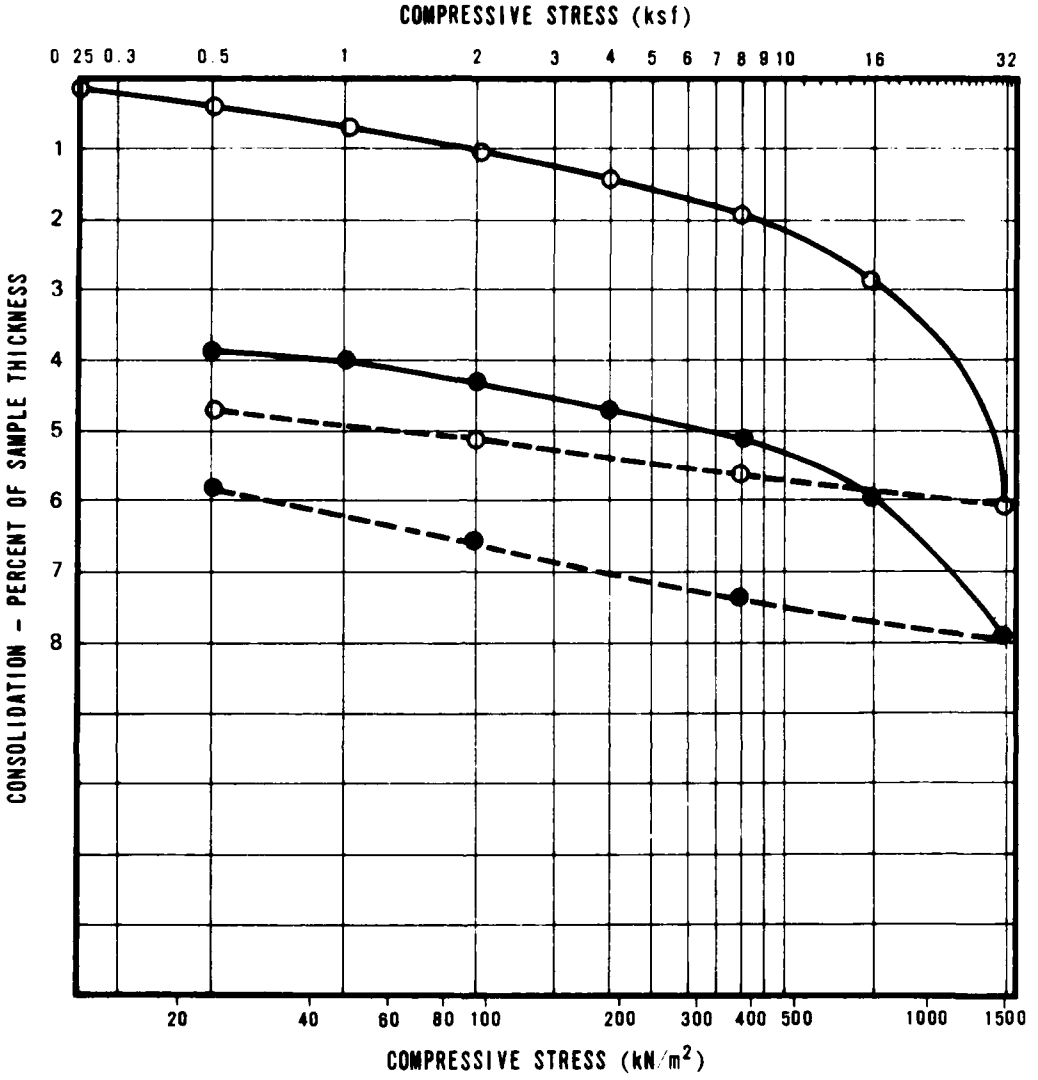
– – – REBOUND

CONSOLIDATION TEST RESULTS
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE BMO

FIGURE II 5 3 SHEET 9

FUGRO NATIONAL, INC.



SYMBOL	BORING NO.	SAMPLE NO.	SAMPLE INTERVAL		SOIL TYPE	INITIAL DRY DENSITY		INITIAL MOISTURE CONTENT (%)	INITIAL VOID RATIO	INITIAL DEGREE OF SATURATION (%)
			FEET	METERS		pcf	kg·m³			
O	CE-B-14	P-14	69.2 - 69.3	21.09 - 21.12	CL-ML	80.6	1291	22.7	1.09	56.2

O AT FIELD MOISTURE

● AFTER ADDITION OF WATER

——— COMPRESSION

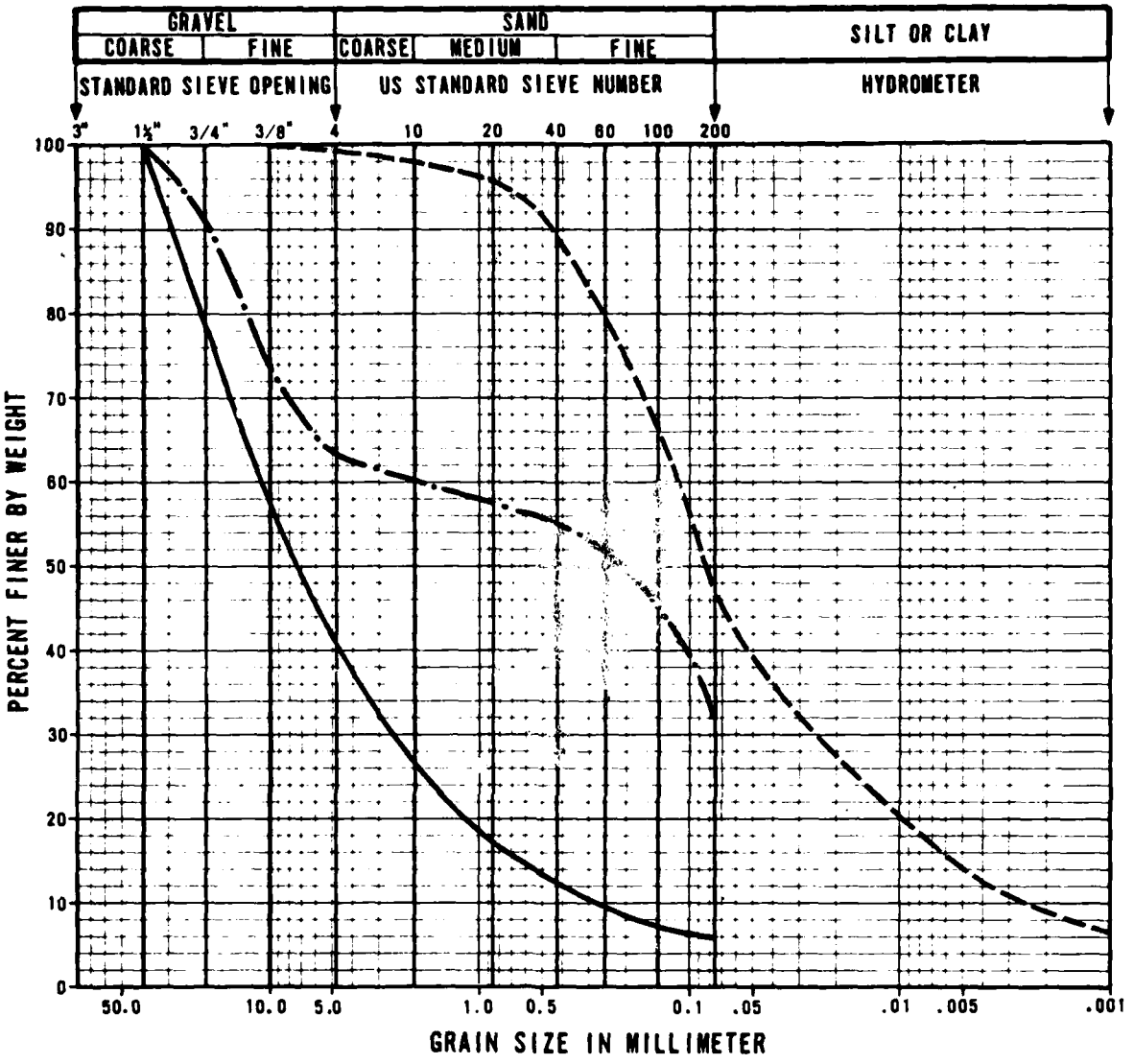
– – – REBOUND

CONSOLIDATION TEST RESULTS
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE BMO

FIGURE II 5 3 9 OF 9

FUGRO NATIONAL, INC.



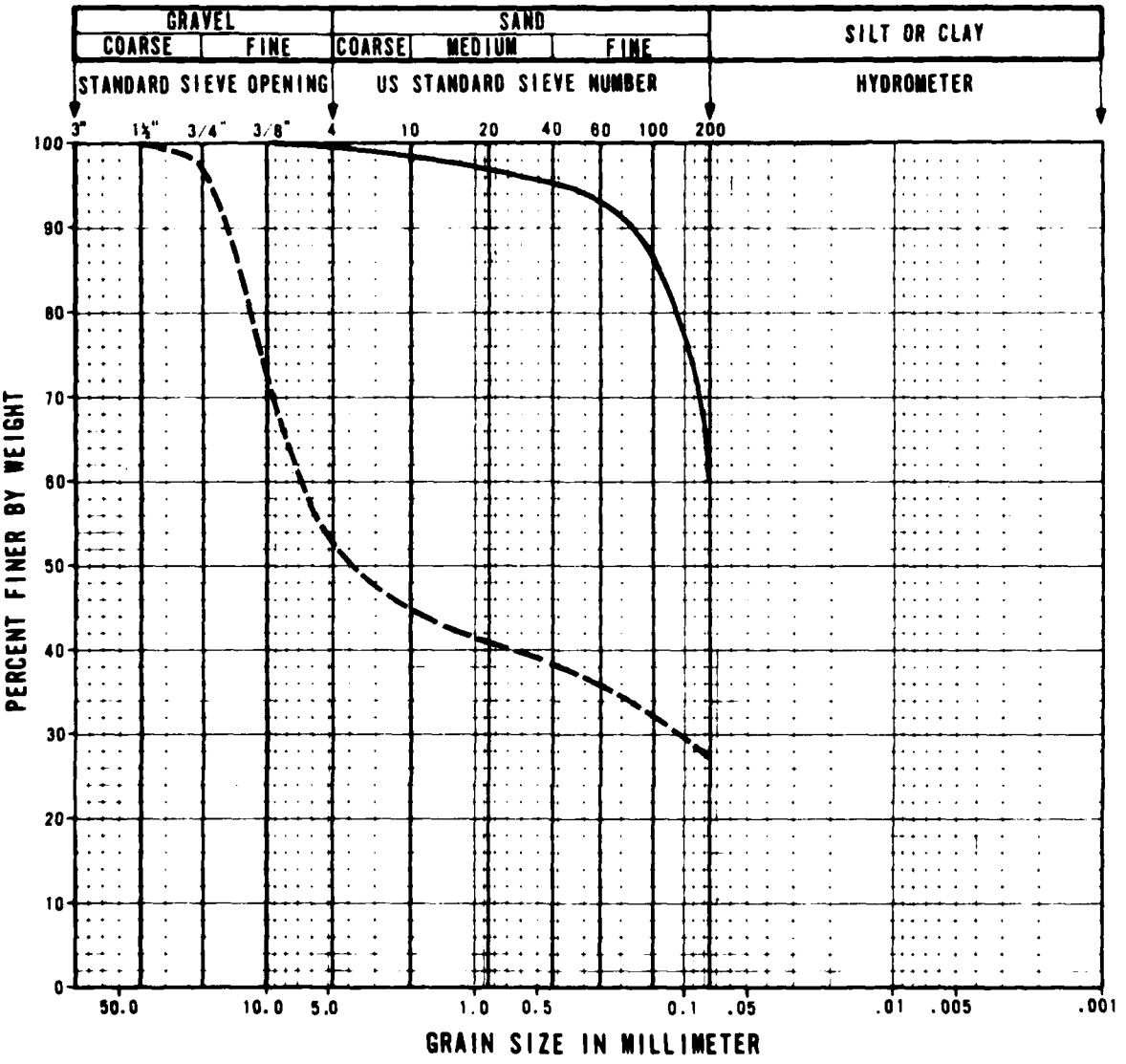
SYMBOL	COMPOSITE SAMPLE NUMBER	ACTIVITY NUMBER	SAMPLE INTERVAL		SOIL TYPE
			FEET	METERS	
——	A	CE-T-1	0.5 - 2.0	0.15 - 0.61	GW-GM
——	B	CE-T-2	0.5 - 2.0	0.15 - 0.61	SM
—·—	C	CE-T-4	0.5 - 2.0	0.15 - 0.61	GM

GRAIN SIZE CURVES, CBR TESTS
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-5-4
1 OF 3

UGRO NATIONAL, INC.



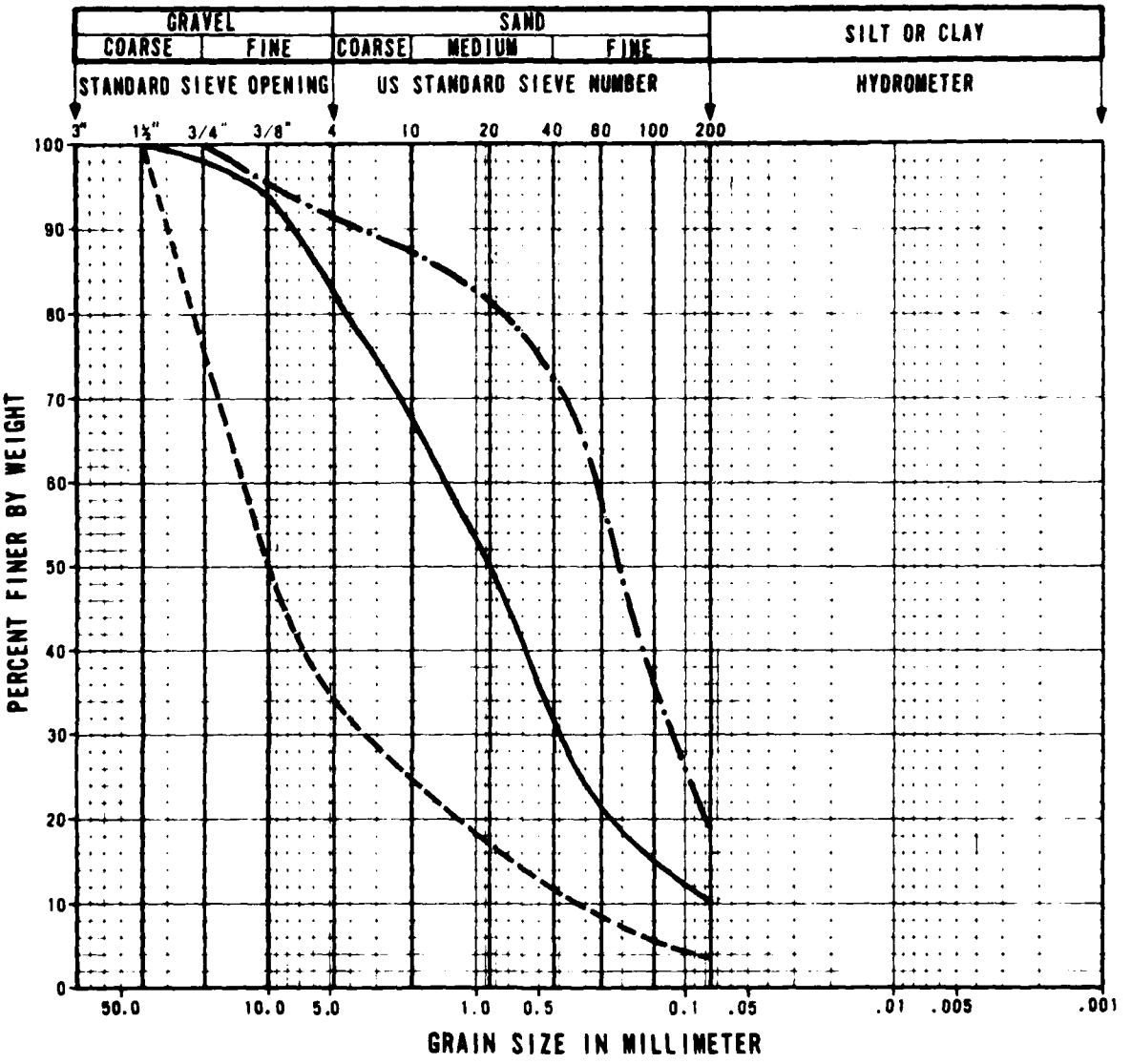
SYMBOL	COMPOSITE SAMPLE NUMBER	ACTIVITY NUMBER	SAMPLE INTERVAL		SOIL TYPE
			FEET	METERS	
——	D	CE-T-7	0.5 - 2.0	0.15 - 0.61	ML
– –	E	CE-T-13	0.5 - 2.0	0.15 - 0.61	GM

GRAIN SIZE CURVES, CBR TESTS
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE BMO

FIGURE
II 5.4

FUGRO NATIONAL, INC.



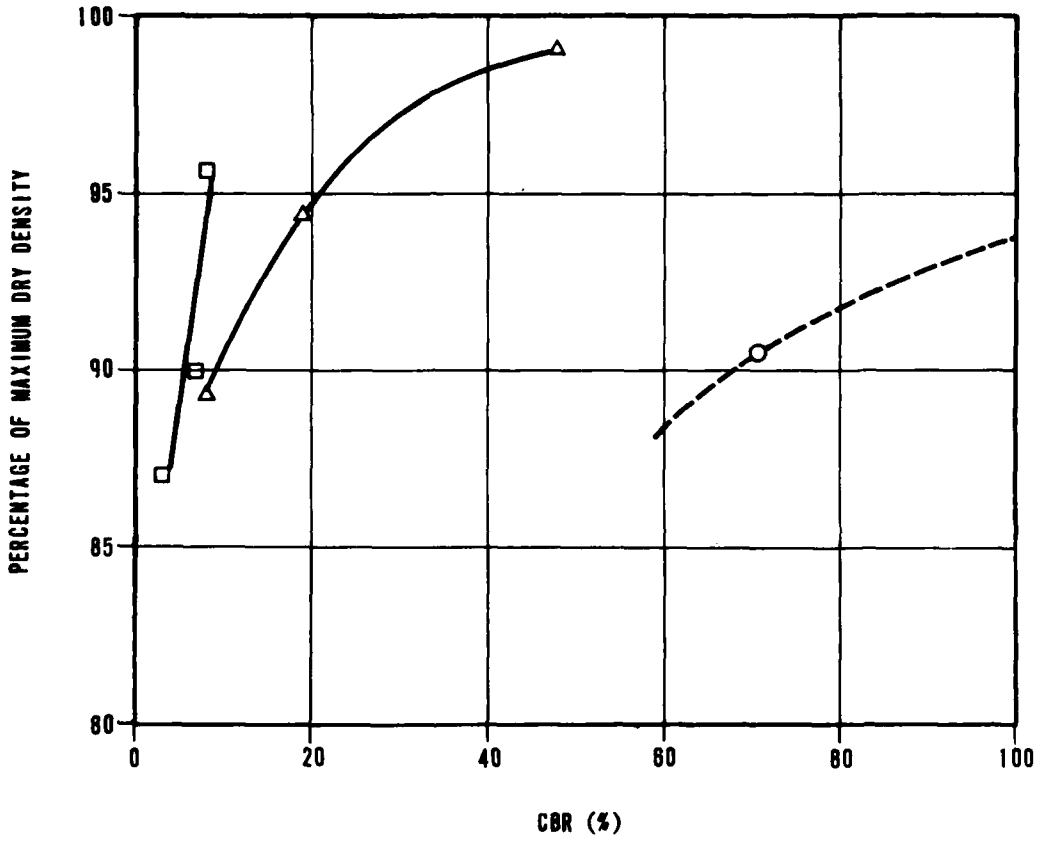
SYMBOL	COMPOSITE SAMPLE NUMBER	ACTIVITY NUMBER	SAMPLE INTERVAL		SOIL TYPE
			FEET	METERS	
——	F	CE-T-14	0.5 - 2.0	0.15 - 0.61	SW-SM
— —	G	CE-P-6	0.5 - 2.0	0.15 - 0.61	GW
—·—	H	CE-P-12	0.5 - 2.0	0.15 - 0.61	SM

GRAIN SIZE CURVES, CBR TESTS
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE BMO

FIGURE
II 5.4
3 OF 3

FUGRO NATIONAL, INC.



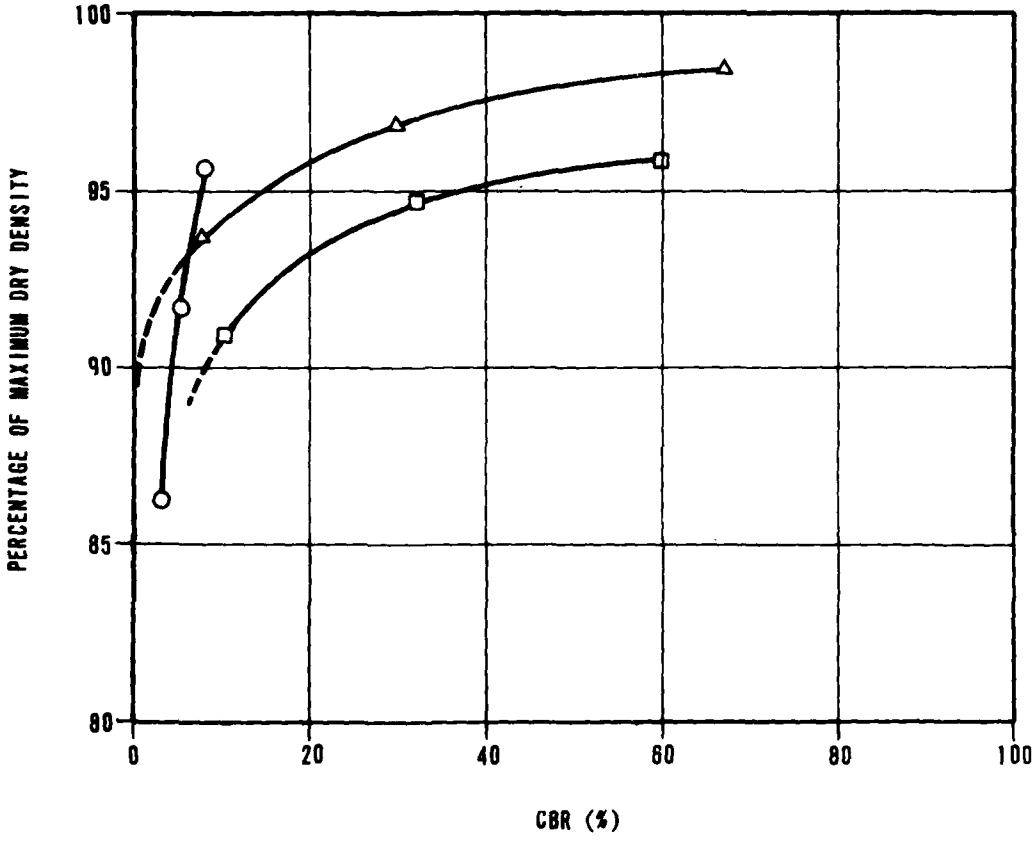
SYMBOL	COMPOSITE SAMPLE NUMBER	SOIL TYPE
○	A	GW-GM
□	B	SM
△	C	GM

CALIFORNIA BEARING RATIO (CBR) CURVES
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
D-5.5
1 OF 3

FUGRO NATIONAL, INC.

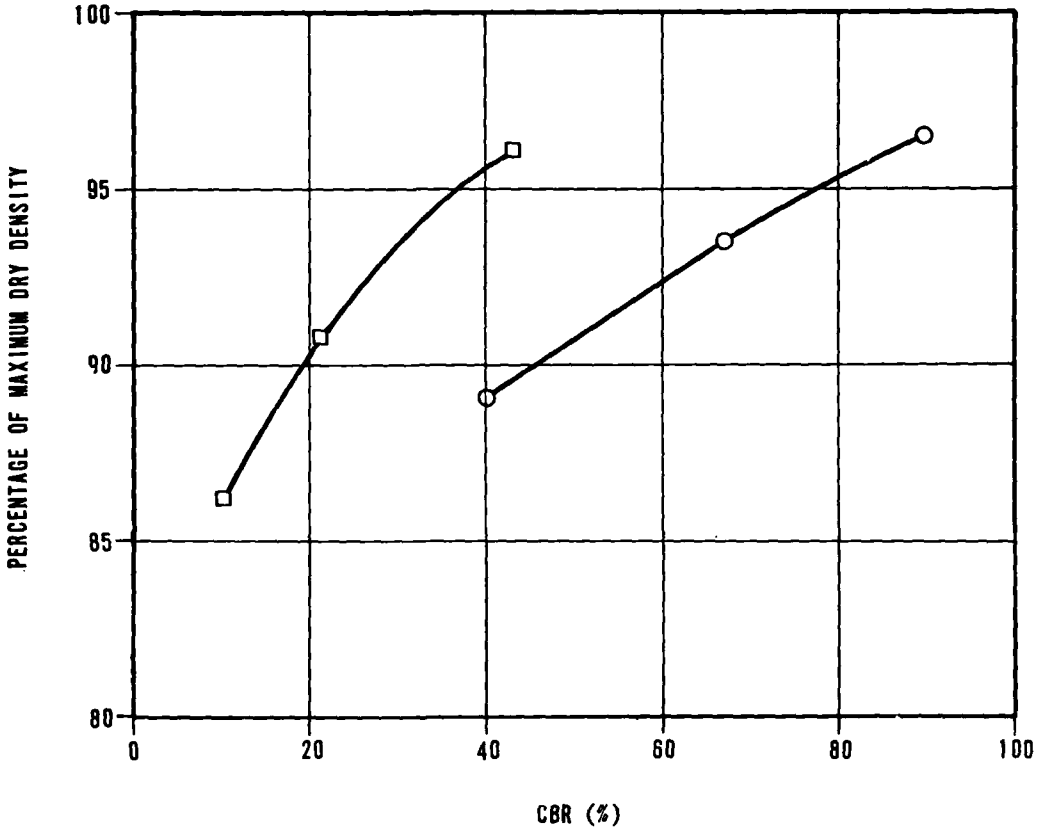


SYMBOL	COMPOSITE SAMPLE NUMBER	SOIL TYPE
○	D	ML
□	E	GM
△	F	SW-SM

CALIFORNIA BEARING RATIO (CBR) CURVES
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II 5 5
2 OF



SYMBOL	COMPOSITE SAMPLE NUMBER	SOIL TYPE
○	G	GW
□	H	SM

CALIFORNIA BEARING RATIO (CBR) CURVES
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-5-5
3 OF 3

FUGRO NATIONAL, INC.

BORING NO.	SAMPLE NO.	SAMPLE INTERVAL		SOIL TYPE	UNCONFINED COMP. STRENGTH		DRY DENSITY		MOISTURE CONTENT (%)	DEGREE OF SATURATION (%)	HEIGHT DIAMETER
		FEET	METERS		ksf	kN/m²	pcf	kg/m³			
CE-B-1	D-11	35.2 - 36.0	10.73 - 10.97	ML	6.9	330	88.2	1413	10.4	30.9	2.80
CE-B-2	D-17	60.1 - 60.9	18.32 - 18.56	ML	5.1	244	97.1	1556	9.9	36.2	1.60
CE-B-7	P-14	32.0 - 32.7	9.75 - 9.97	CL	4.9	235	93.5	1498	20.1	67.7	2.09
	P-8	15.5 - 16.0	4.72 - 4.88	SM	0.7	34	91.4	1464	10.2	32.5	2.09
CE-B-8	P-9	20.0 - 20.7	6.10 - 6.31	ML	1.5	72	82.2	1317	14.2	36.5	2.09
CE-B-11	P-7	21.5 - 22.4	6.55 - 6.83	SM	3.8	182	79.0	1266	22.4	53.3	1.13
	P-8	24.7 - 25.3	7.53 - 7.71	SM	1.8	86	94.1	1507	12.5	42.8	2.09
	P-10	35.0 - 35.7	10.67 - 10.88	SC	3.6	172	102.1	1636	14.1	58.8	2.09
	P-12	47.1 - 47.9	14.36 - 14.60	CL	8.5	407	92.3	1479	19.0	62.2	2.09
CE-B-12	P-8	14.2 - 14.8	4.33 - 4.51	ML	0.6	29	90.8	1456	13.7	43.2	2.09
	D-15	50.2 - 51.0	15.30 - 15.54	SM	3.6	172	110.7	1773	7.3	37.8	2.40

SUMMARY OF UNCONFINED COMPRESSION TEST RESULTS
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

TABLE D 5 2

WOODWARD-CLYDE CONSULTANTS

USAF-05

ACTIVITY NO.	SAMPLE NO.	SAMPLE INTERVAL		SOIL TYPE	pH	WATER SOLUBLE				CALCIUM CARBONATE
		FEET	METERS			SODIUM	CHLORIDE	SULPHATE	CALCIUM	
						mg/kg	mg/kg	mg/kg	mg kg	mg/kg
CE-B-1	P - 16	68.0 - 68.8	20.73 - 20.97	ML	8.0	388	86	43	205	789
CE-B-2	b - 12	35.0 - 36.0	10.67 - 10.97	GM-GC	8.0	36	73	24	782	1280
	P - 20	73.0 - 73.8	22.25 - 22.49	ML	8.2	35	58	35	180	836
	P - 27	161.4 - 162.0	49.19 - 49.38	ML	8.0	47	97	77	225	964
CE-B-4	b - 9	25.0 - 26.0	7.62 - 7.92	SP-SM	7.9	118	136	39	467	1460
CE-B-5	b - 15	50.0 - 51.0	15.24 - 15. 54	GP	8.0	17	64	39	298	1120
CE-B-12	SS - 4	5.0 - 6.0	1.52 - 1.83	SM	8.4	51	58	73	90	562
CE-B-13	D - 3	7.5 - 8.3	2.29 - 2.53	GM	8.0	141	107	121	573	1130
CE-T-11	B - 1	0.5 - 1.5	0.15 - 0.46	GM	7.7	485	770	444	1170	1906
CE-T-12	B- 1	0.5 - 2.0	0.15 - 0.61	GP-GM	8.3	357	65	102	219	1100
CE-P-22	b - 1	0.5 - 2.0	0.15 - 0.61	GP-GM	7.8	97	78	385	492	656
CE-P-24	b - 1	0.5 - 2.0	0.15 - 0.61	GP-GM	8.0	132	121	36	675	1500

SUMMARY OF CHEMICAL TEST RESULTS
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE OMO

TABLE II 5 3

FLUOR NATIONAL, INC.

USAF-06

COMPOSITE SAMPLE NUMBER	SOIL TYPE	PERCENT PASSING #200	ATTERBERG LIMITS		SPECIFIC GRAVITY	MAXIMUM DRY DENSITY		OPTIMUM MOISTURE (%)	COMPACTED DRY DENSITY		COMPACTED MOISTURE (%)	PERCENT OF MAXIMUM DRY DENSITY	CBR (%)
			LL	PI		pcf	kg/m³		pcf	kg/m³			
A	GW-GM	6				146.0	2339	5.9	140.5	2251	5.3	96.3	150
									138.1	2212	5.3	94.6	113
									132.0	2115	5.2	90.4	71
B	SM	46		NP		117.0	1874	13.5	111.8	1791	14.2	95.6	8
									105.2	1685	14.1	89.9	7
									101.9	1632	14.2	87.1	3
C	GM	32			2.70	127.0	2035	11.0	125.7	2014	10.2	99.0	48
									119.9	1921	10.6	94.4	19
									113.4	1817	11.4	89.3	8
D	ML	61			2.64	123.5	1978	11.5	118.1	1892	12.0	95.6	8
									113.2	1813	11.5	91.7	5
									106.5	1706	11.5	86.2	3

CALIFORNIA BEARING RATIO (CBR)
TEST RESULTS
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

TABLE II-5-4 1 OF 2

23 DEC 80

FN:TR43

COMPOSITE SAMPLE NUMBER	SOIL TYPE	PERCENT PASSING #200	ATTERBERG LIMITS		SPECIFIC GRAVITY	MAXIMUM DRY DENSITY		OPTIMUM MOISTURE (%)	COMPACTED DRY DENSITY		COMPACTED MOISTURE (%)	PERCENT OF MAXIMUM DRY DENSITY	CBR (%)
			LL	PI		pcf	kg/m³		pcf	kg/m³			
E	GM	28			2.67	126.6	2028	10.3	121.3	1943	11.1	95.8	60
									119.9	1921	10.3	94.7	32
									115.1	1844	9.3	90.9	10
F	SW-SM	11				122.0	1954	10.0	120.0	1922	9.6	98.4	67
									118.1	1892	9.8	96.8	30
									114.4	1833	9.8	93.7	7
G	GW	4				148.0	2371	5.2	142.7	2286	5.0	96.5	90
									138.4	2217	5.1	93.5	67
									131.9	2113	5.0	89.1	40
H	SM	19		NP		121.4	1945	10.5	116.7	1870	10.5	96.1	43
									110.2	1765	10.2	90.8	21
									104.7	1677	10.3	86.2	10

CALIFORNIA BEARING RATIO (CBR)
TEST RESULTS
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

TABLE
II-5.4
2 OF 2

FUGRO NATIONAL, INC.

USAF -80

SECTION 6.0

CONE PENETROMETER TEST RESULTS

6.0 EXPLANATION OF CONE PENETROMETER TEST RESULTS

The results of all cone penetrometer tests are presented in this section. Explanations of the test results are as follows:

A. Friction Resistance - The resistance to penetration developed by the friction sleeve, equal to the vertical force applied to the sleeve divided by its surface area. This resistance is the sum of friction and adhesion.

B. Cone Resistance - The resistance to penetration developed by the cone, equal to the vertical force applied to the cone divided by its horizontally projected area.

C. Friction Ratio - The ratio of friction resistance to cone resistance.

D. Designation - Each cone penetrometer test is identified by a number: for example C-1.

C - abbreviation for the CPT
1 - number of the test

E. Soil Column - A graphical presentation of the soil type versus depth at each cone penetrometer test location where either a boring, trench or test pit was performed. The Unified Soil Classification Symbol for each different soil type is listed immediately to the right of the soil column.

Immediately below the soil column, the activity number for the corresponding boring, trench, or test pit at each CPT location is given.

SECTION 7.0

SEISMIC REFRACTION DATA

7.0 EXPLANATIONS OF SEISMIC REFRACTION DATA

Each figure shows seismic wave travel times plotted versus surface distance between the energy source (shot) and the detector (geophone) for a single seismic line. Distances are measured along the line from geophone number 1 which is designated as zero distance. Distances to the right (on the paper) of geophone 1 are positive. The direction arrow gives the approximate direction along the geophone array from geophone 1 to geophone 24.

Travel Time Versus Distance Graph (Upper Half of Figure)

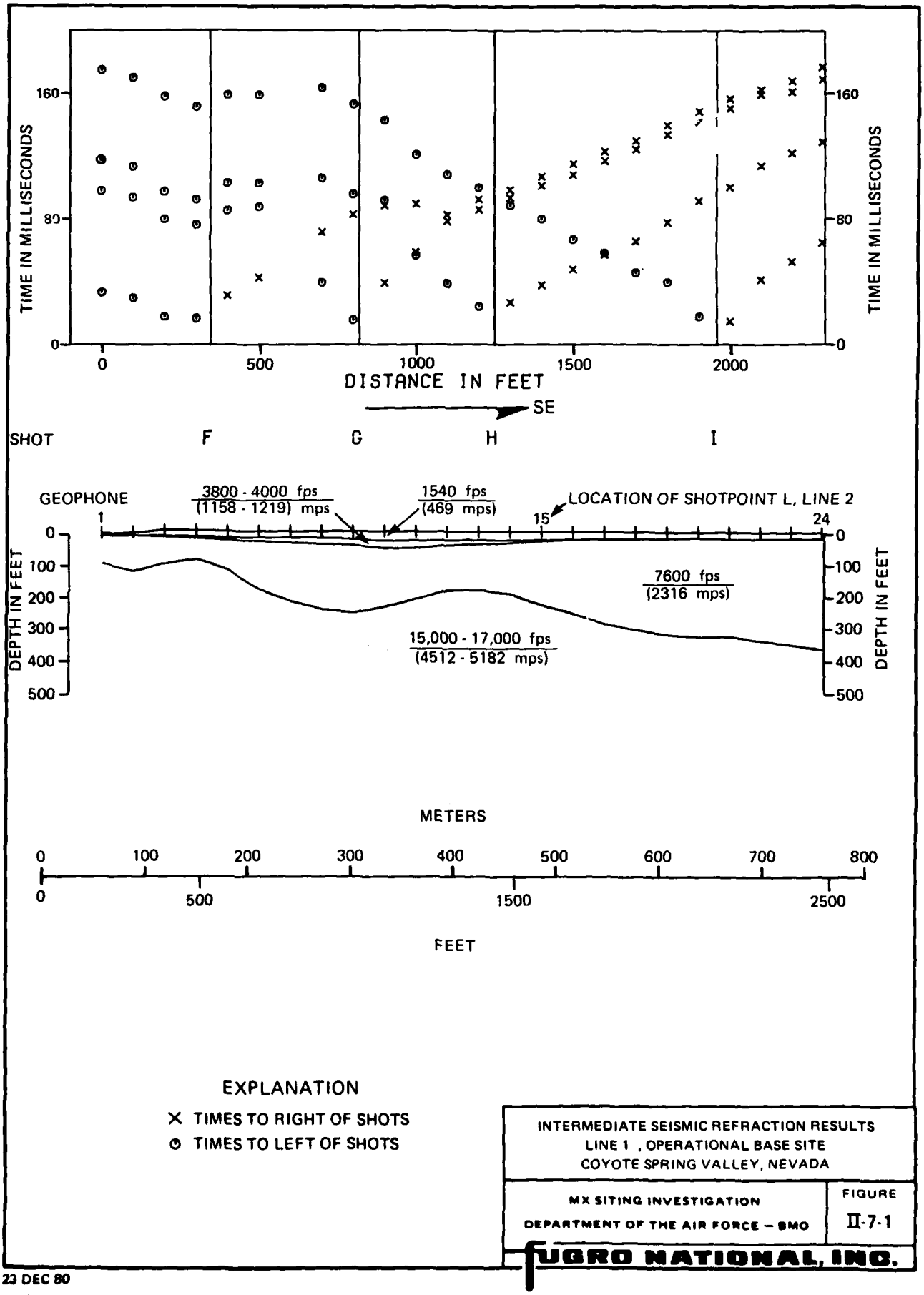
This is a travel time versus distance graph. The abscissa represents distance; the ordinate, time. The six vertical lines represent the locations of shots (designated as F, G, H, I, J, and K). The symbol, X, denotes travel times at geophones that were located to the right of a shot. The symbol, ⊙, denotes travel times that were located to the left of shots.

Velocity Cross Section (Lower Half of Figure)

This is an interpreted velocity cross section beneath the seismic line. The top line represents the ground-surface profile. The short vertical lines crossing the top line mark the geophone positions. The depth scale is plotted relative to a point on the line which was arbitrarily chosen as "zero elevation" at the time the line was surveyed. The additional lines across the cross section represent the interpreted boundaries between layers of material with different compressional wave

velocities. These boundaries are commonly called "refractors." The velocity interpreted to be representative of each layer is shown.

FN-TR-43



EXPLANATION

× TIMES TO RIGHT OF SHOTS

⊙ TIMES TO LEFT OF SHOTS

INTERMEDIATE SEISMIC REFRACTION RESULTS
LINE 1 , OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE – BMO

FIGURE
II-7-1

FUGRO NATIONAL, INC.

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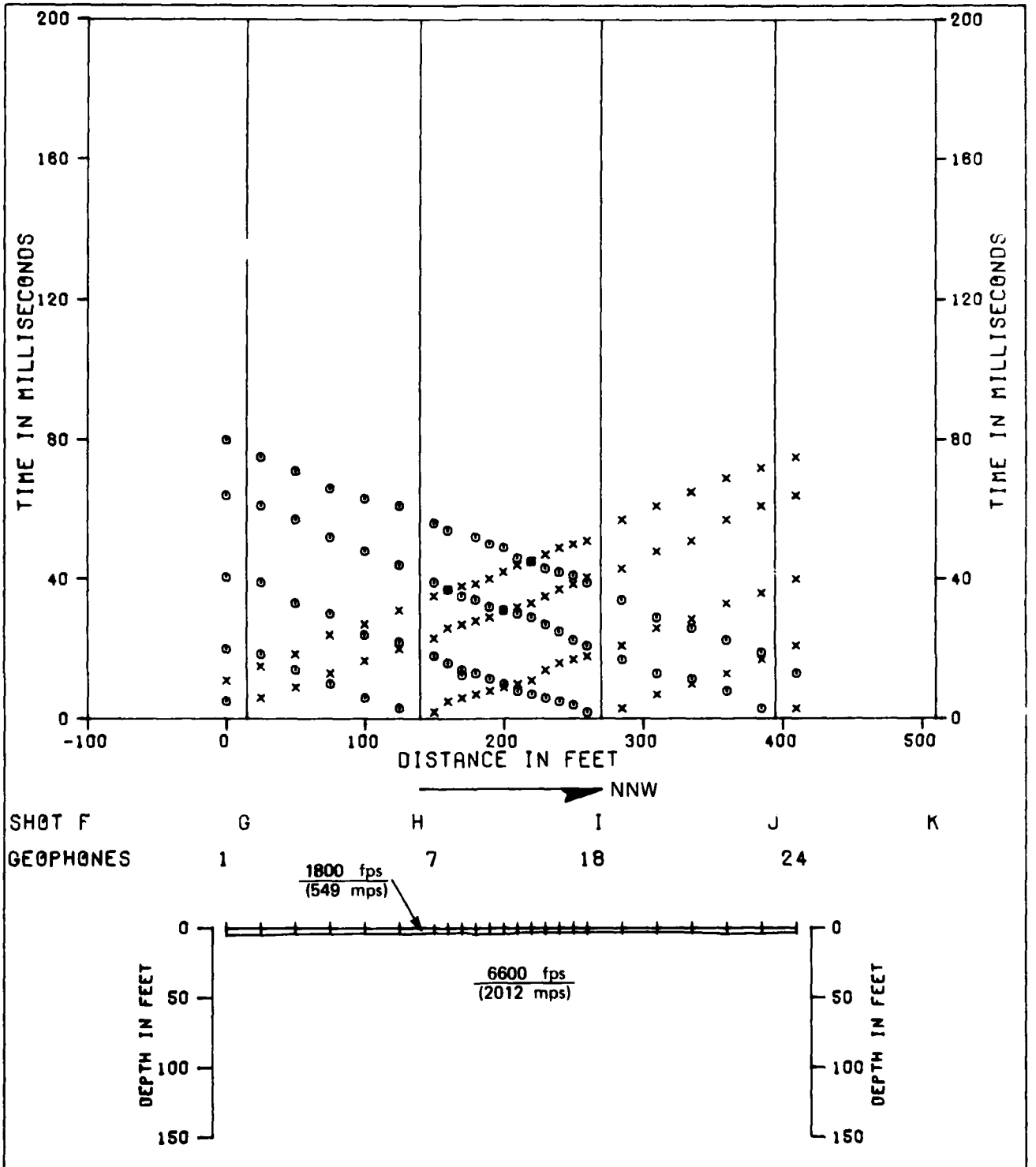
FN-TR-43



SEISMIC REFRACTION LINE CE-S-1
TIME DISTANCE DATA AND VELOCITY PROFILE
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

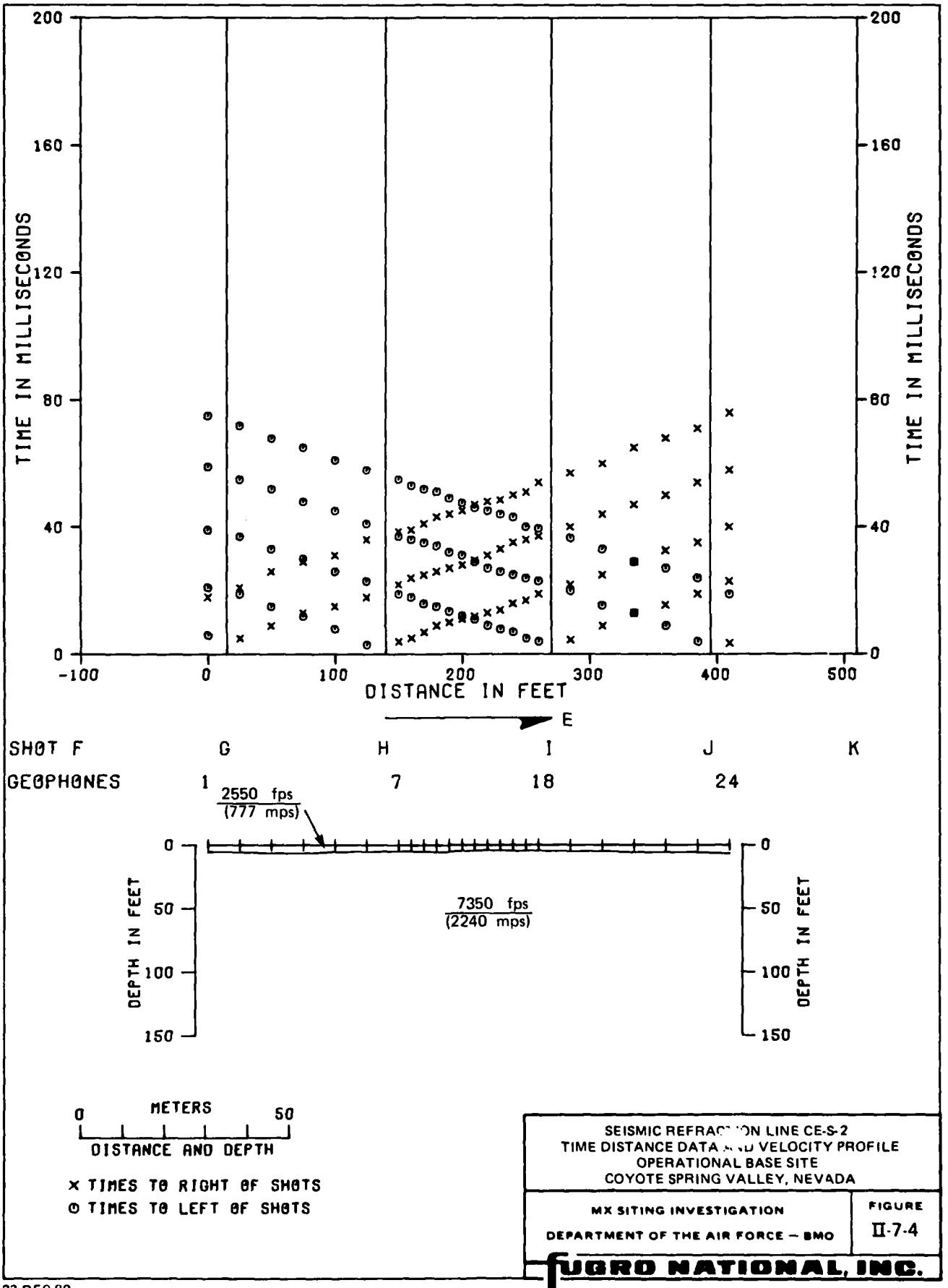
MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE – BMO

FIGURE
II-7 3

FUGRO NATIONAL, INC.

23 DEC 80

FN-TR-43



SEISMIC REFRACTION LINE CE-S-2
TIME DISTANCE DATA AND VELOCITY PROFILE
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

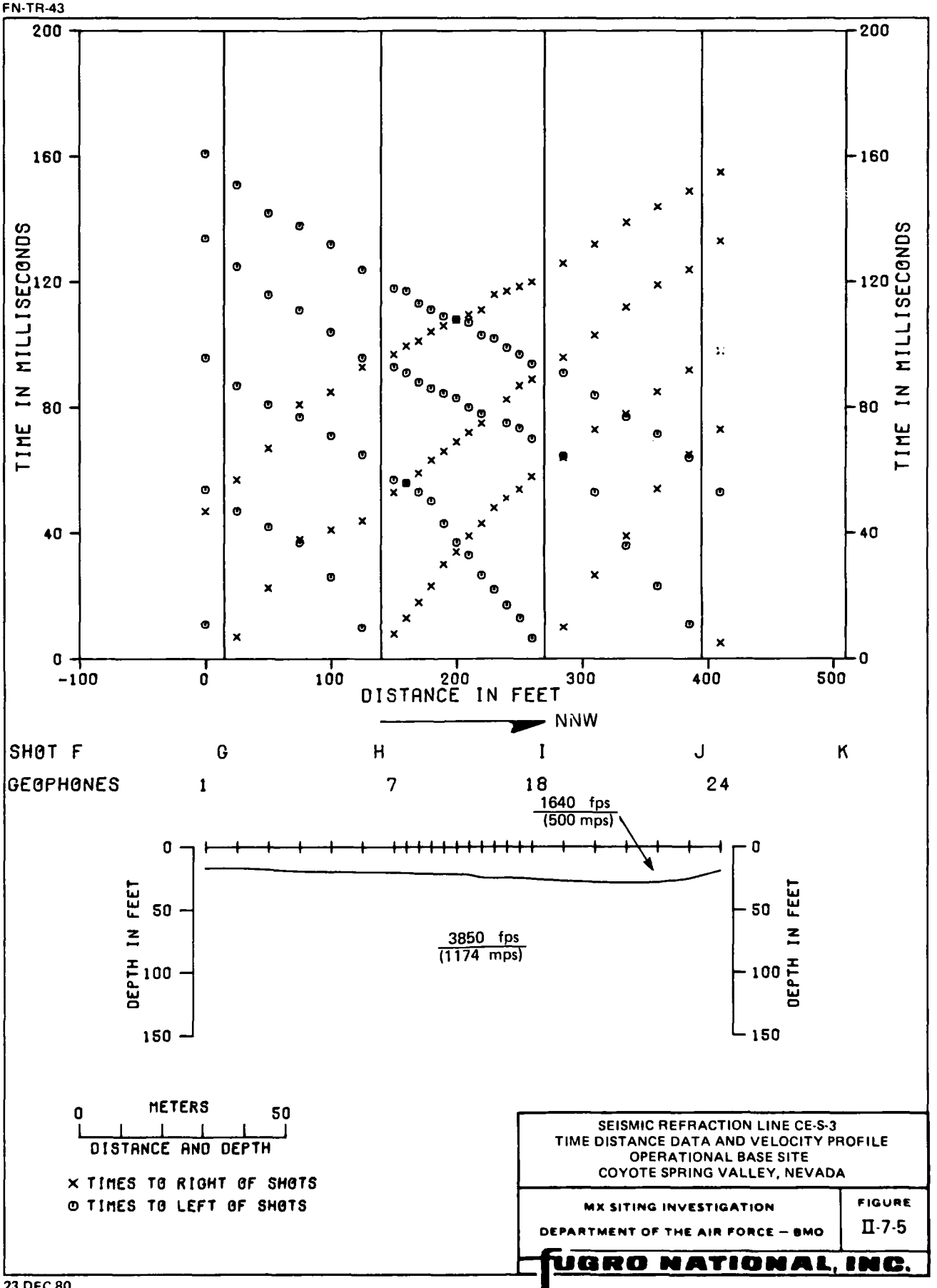
MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE – BMO

FIGURE
II-7-4

FUGRO NATIONAL, INC.

23 DEC 80

FN-TR-43



SEISMIC REFRACTION LINE CE-S-3
TIME DISTANCE DATA AND VELOCITY PROFILE
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

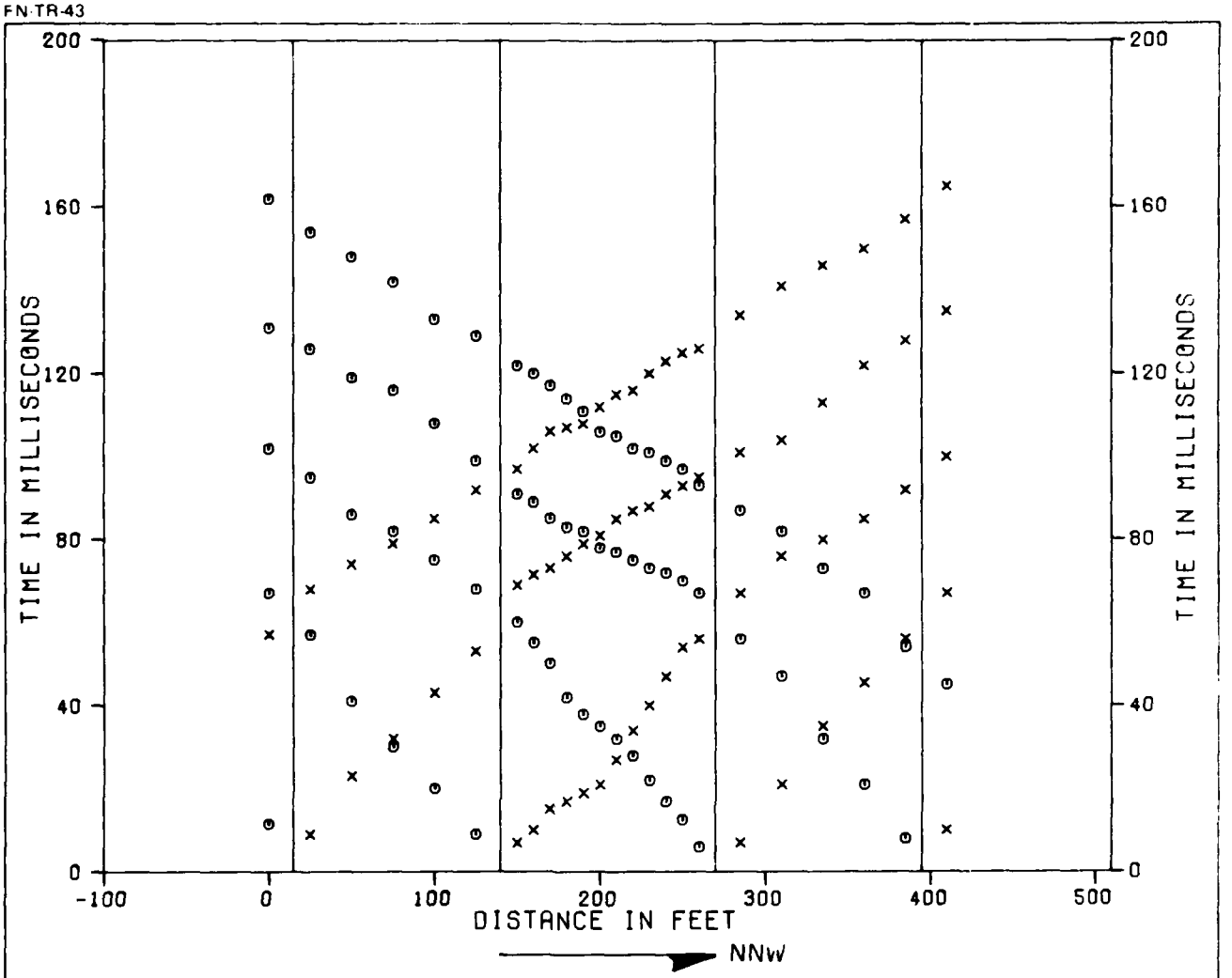
MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE – BMO

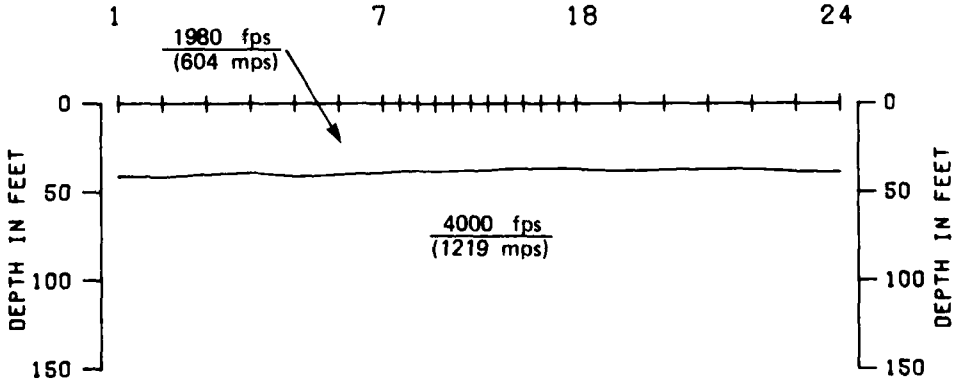
FIGURE
II-7-5

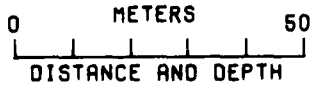
FUGRO NATIONAL, INC.

23 DEC 80

FN-TR-43







× TIMES TO RIGHT OF SHOTS

⊙ TIMES TO LEFT OF SHOTS

SEISMIC REFRACTION LINE CE-S-4
TIME DISTANCE DATA AND VELOCITY PROFILE
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

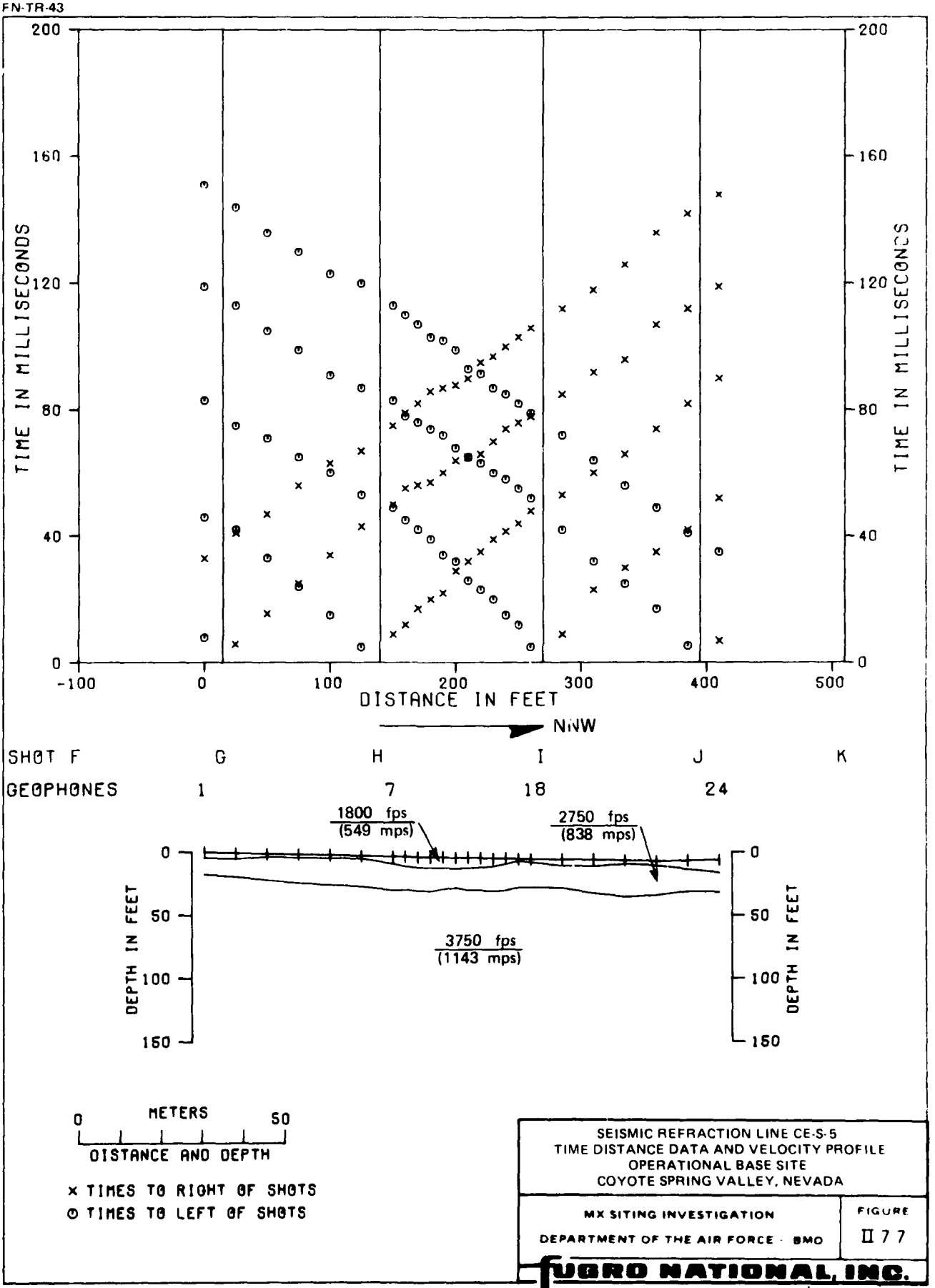
MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II 7-6

UGRO NATIONAL, INC.

23 DEC 80

FN-TR-43



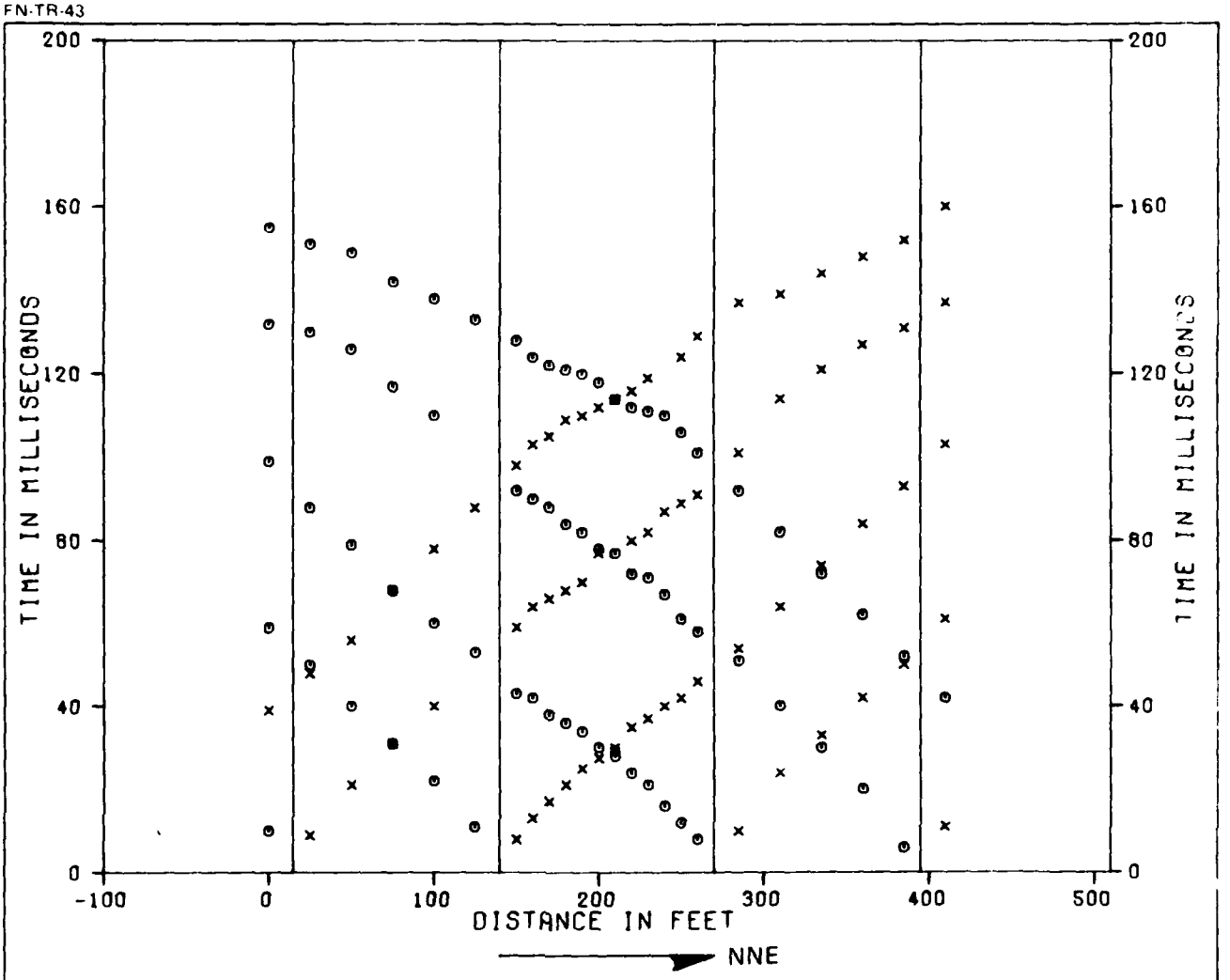
SEISMIC REFRACTION LINE CE-S-5
TIME DISTANCE DATA AND VELOCITY PROFILE
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

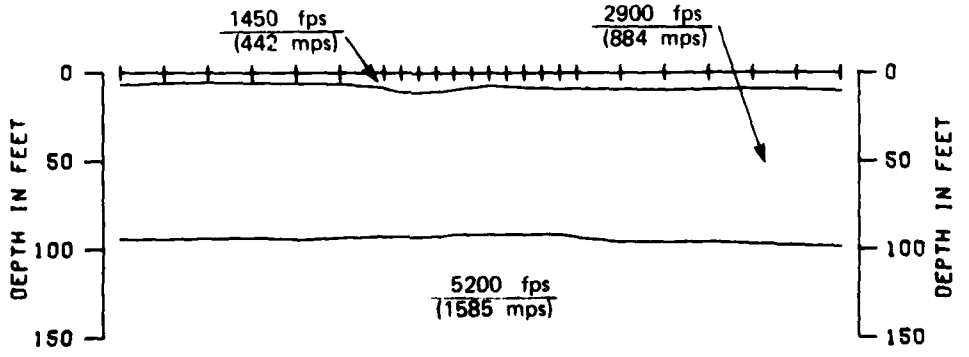
MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

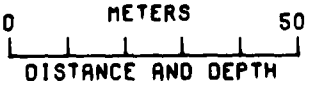
FIGURE
II 7 7

UGRO NATIONAL, INC.

23 DEC 80







× TIMES TO RIGHT OF SHOTS

⊙ TIMES TO LEFT OF SHOTS

SEISMIC REFRACTION LINE CE-S-6
TIME DISTANCE DATA AND VELOCITY PROFILE
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

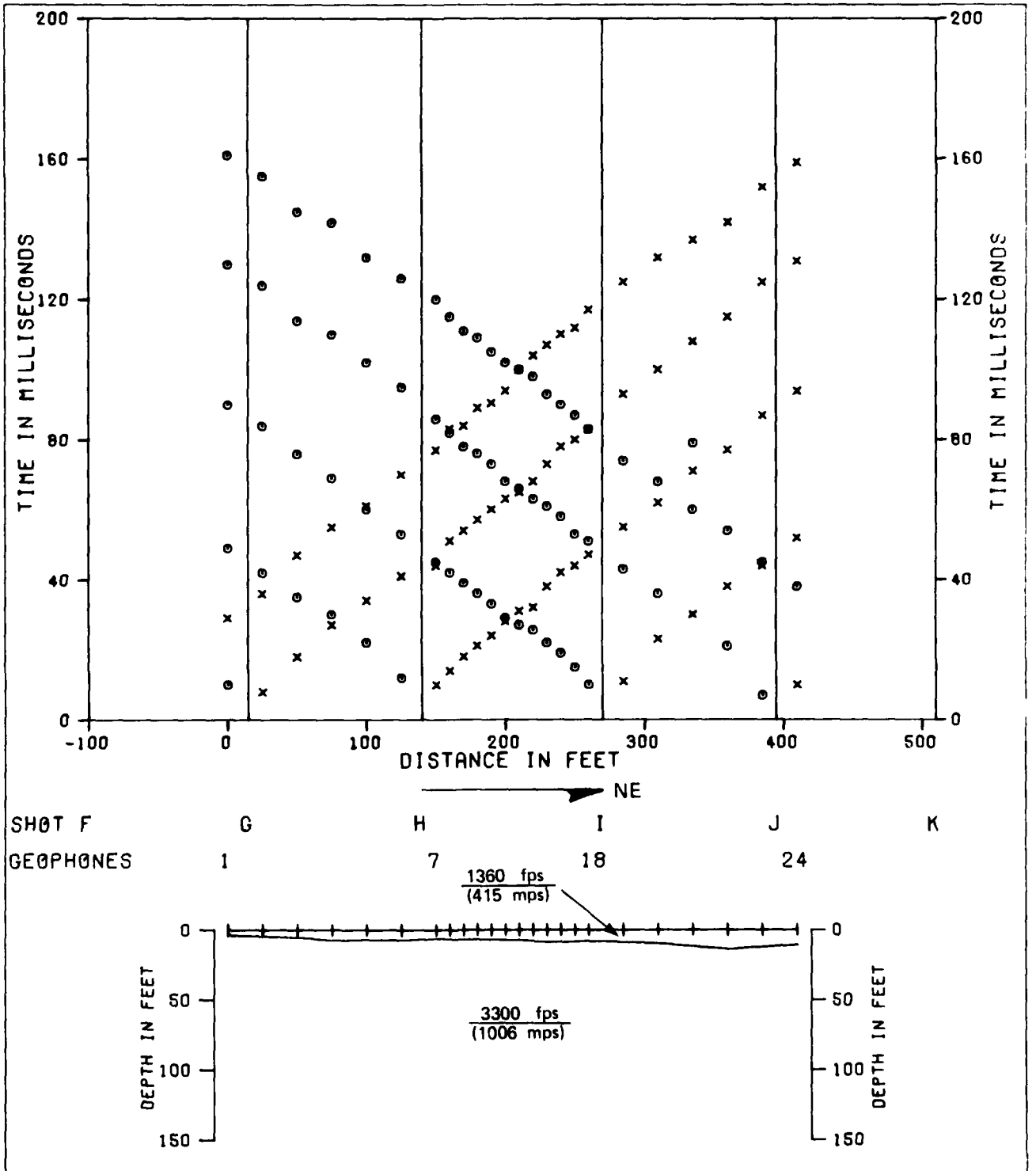
MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE BMO

FIGURE
II 7 8

FUGRO NATIONAL, INC.

23 DEC 80

FN-TR-43



SEISMIC REFRACTION LINE CE-S-7
TIME DISTANCE DATA AND VELOCITY PROFILE
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

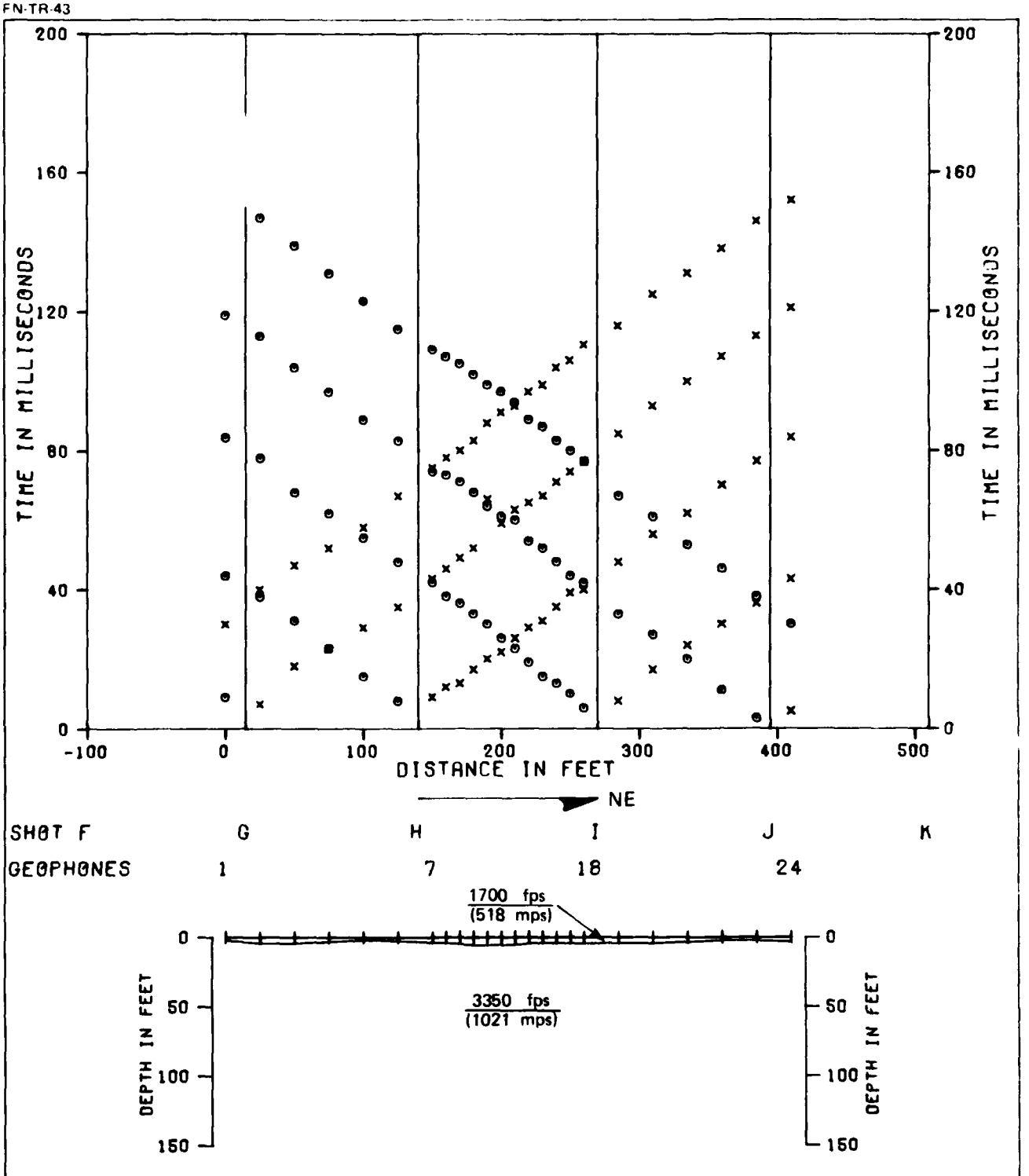
MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE – BMO

FIGURE
II-7-9

FUGRO NATIONAL, INC.

23 DEC 80

FN-TR-43



SEISMIC REFRACTION LINE CE-S-8
TIME DISTANCE DATA AND VELOCITY PROFILE
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

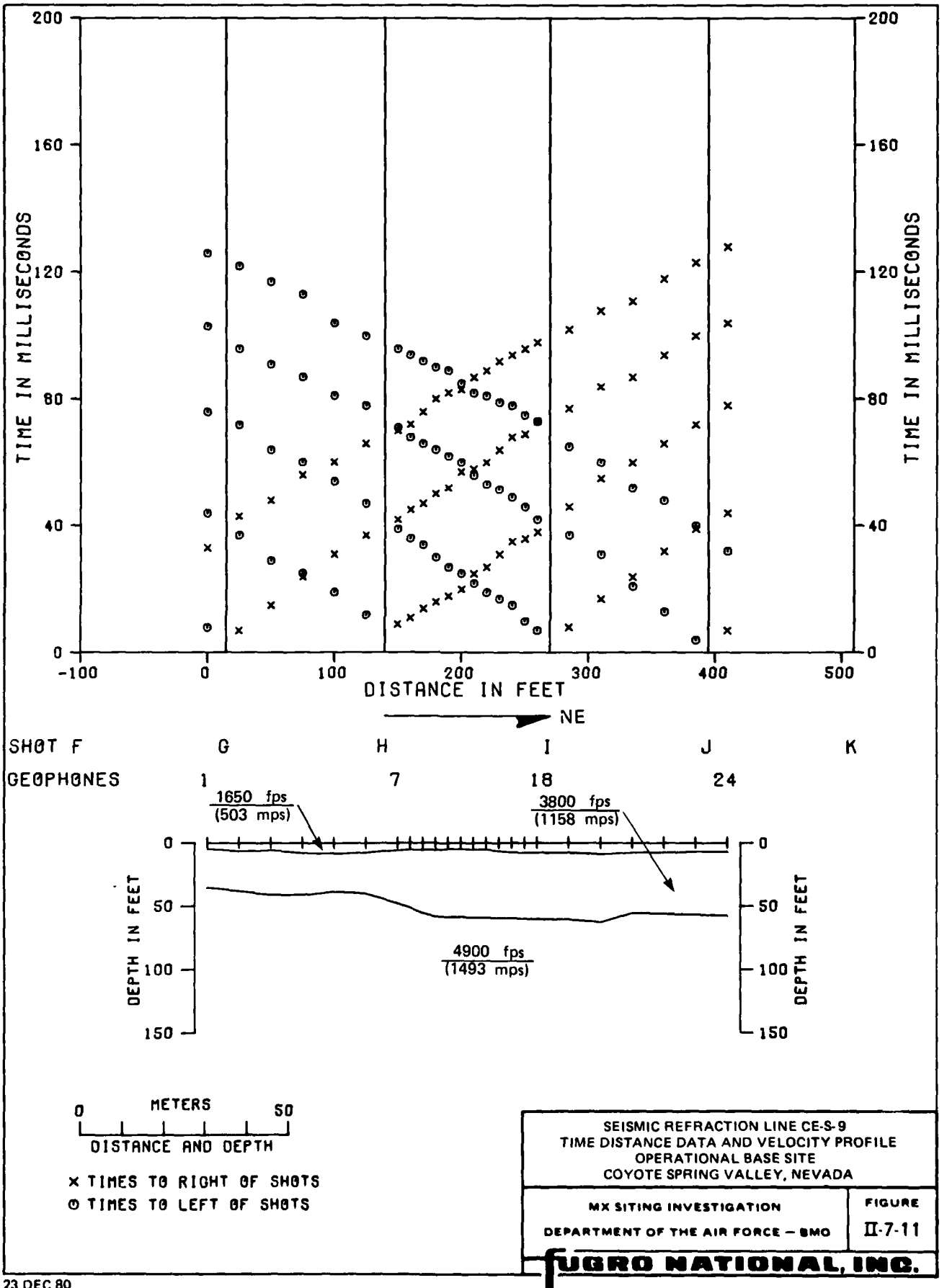
MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE – BMO

FIGURE
II 7 10

FUGRO NATIONAL, INC.

23 DEC 80

FN-TR-43



SEISMIC REFRACTION LINE CE-S-9
TIME DISTANCE DATA AND VELOCITY PROFILE
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

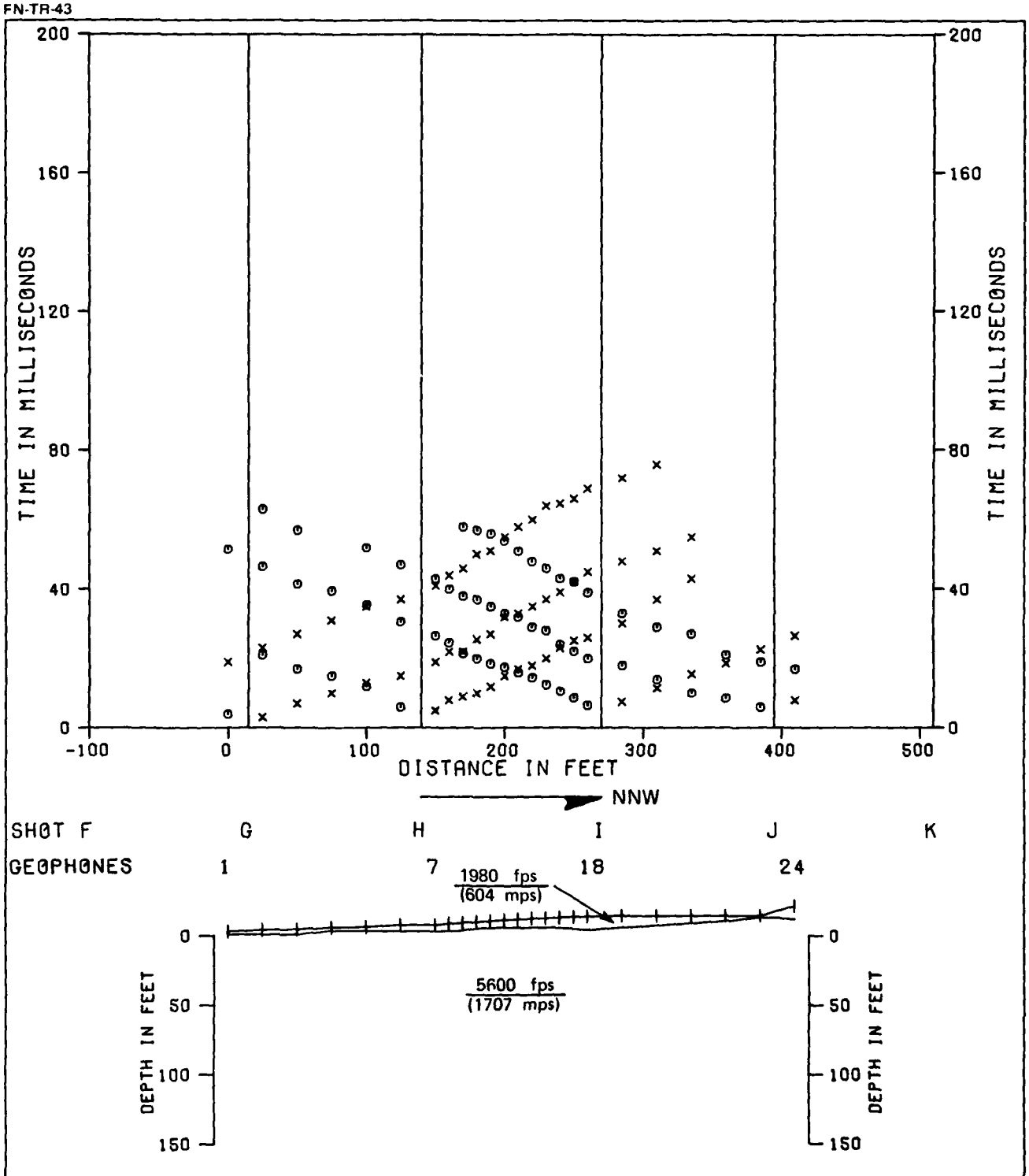
MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE – BMO

FIGURE
II-7-11

FUGRO NATIONAL, INC.

23 DEC 80

FN-TR-43



SEISMIC REFRACTION LINE CE-S-10
TIME DISTANCE DATA AND VELOCITY PROFILE
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

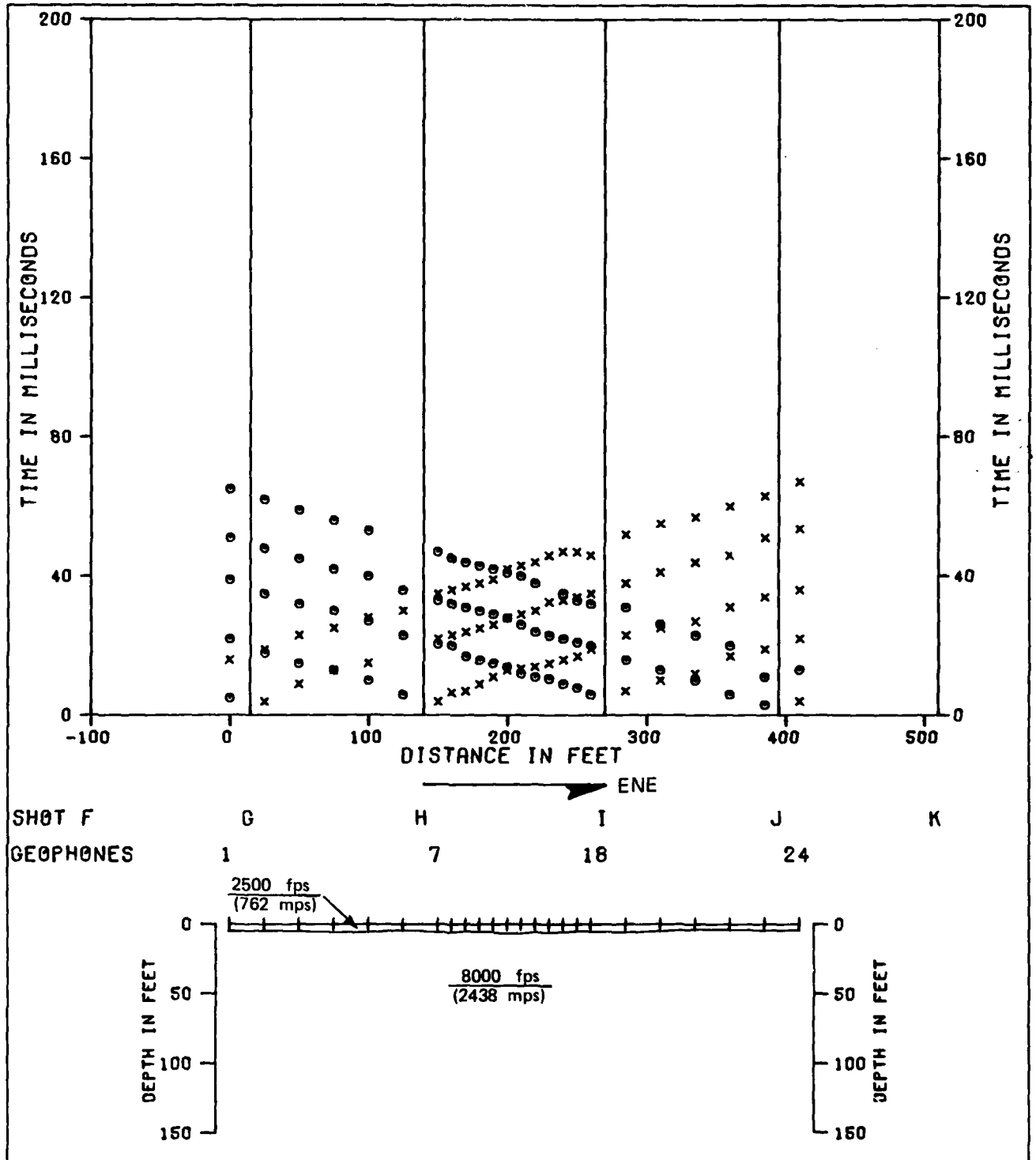
MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE – BMO

FIGURE
II-7-12

FUGRO NATIONAL, INC.

23 DEC 80

FN-TR-43



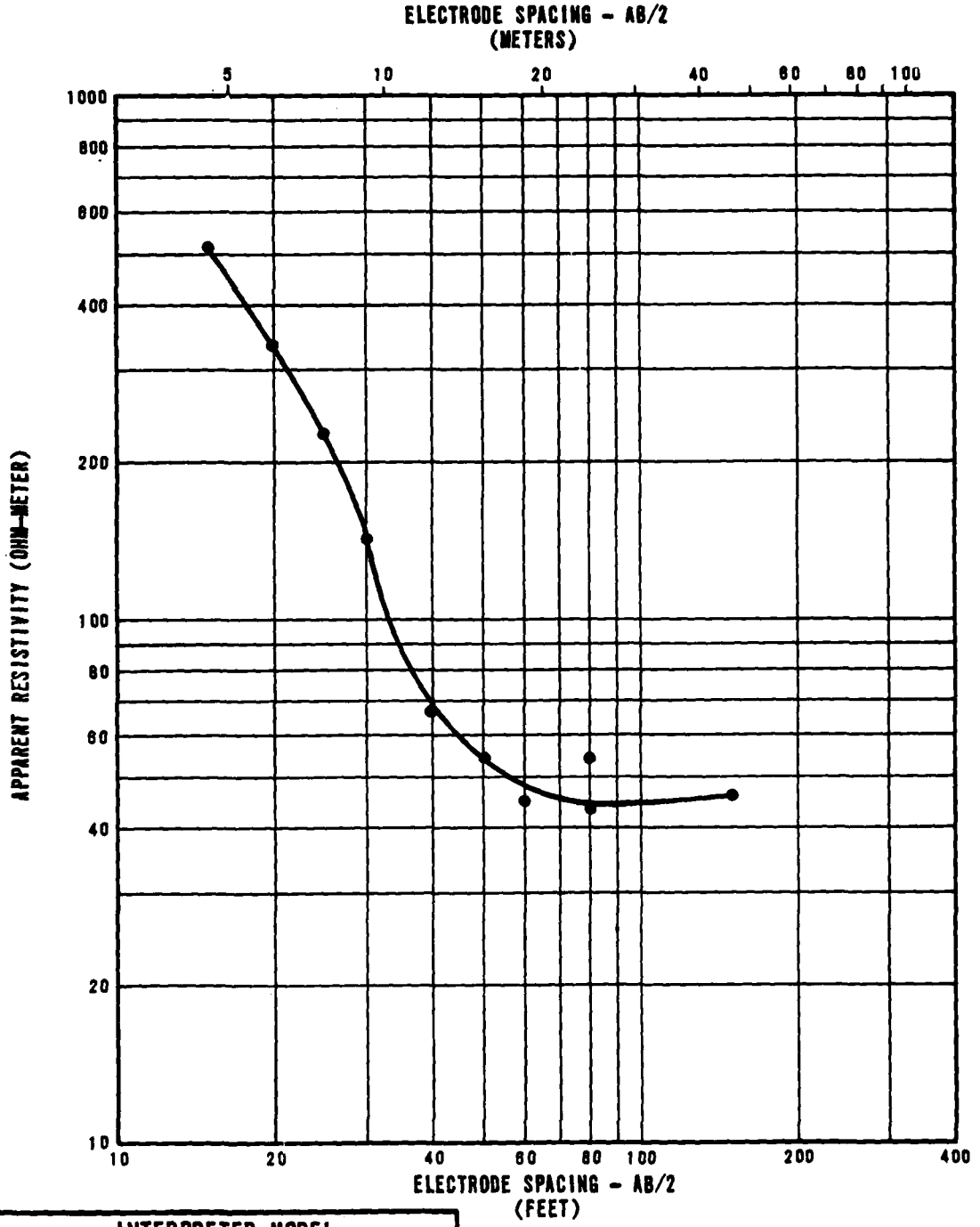
SEISMIC REFRACTION LINE CE-S-11
TIME DISTANCE DATA AND VELOCITY PROFILE
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE – BMO

FIGURE
II-7-13

FUGRO NATIONAL, INC.

23 DEC 80



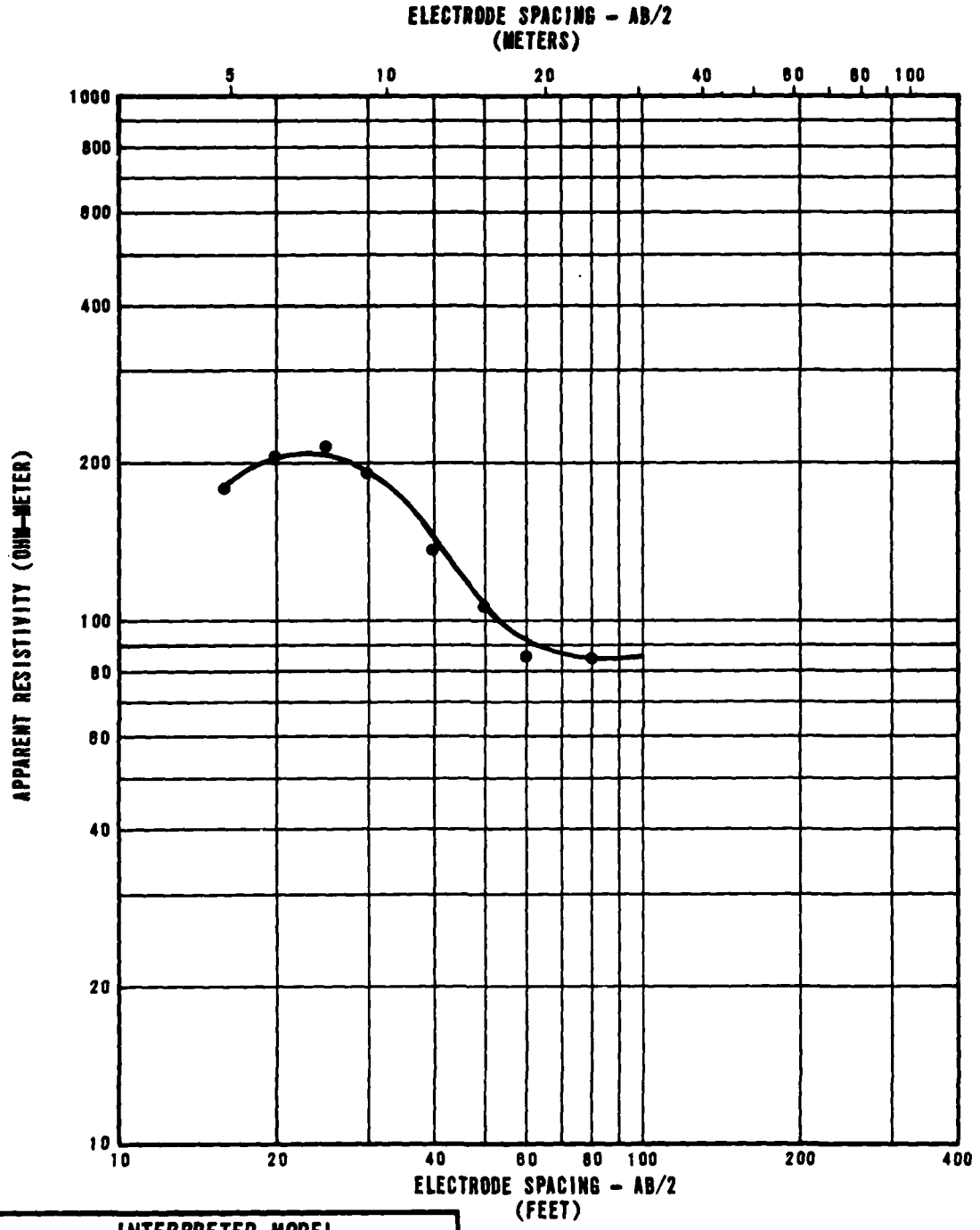
INTERPRETED MODEL		
LAYER DEPTH		RESISTIVITY VALUES
FEET	METERS	OHM-METER
0	0	500
11	3	150
18	5	3

RESISTIVITY SOUNDING CE-R-3
SOUNDING CURVE AND INTERPRETATION
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-7-14

FUGRO NATIONAL, INC.



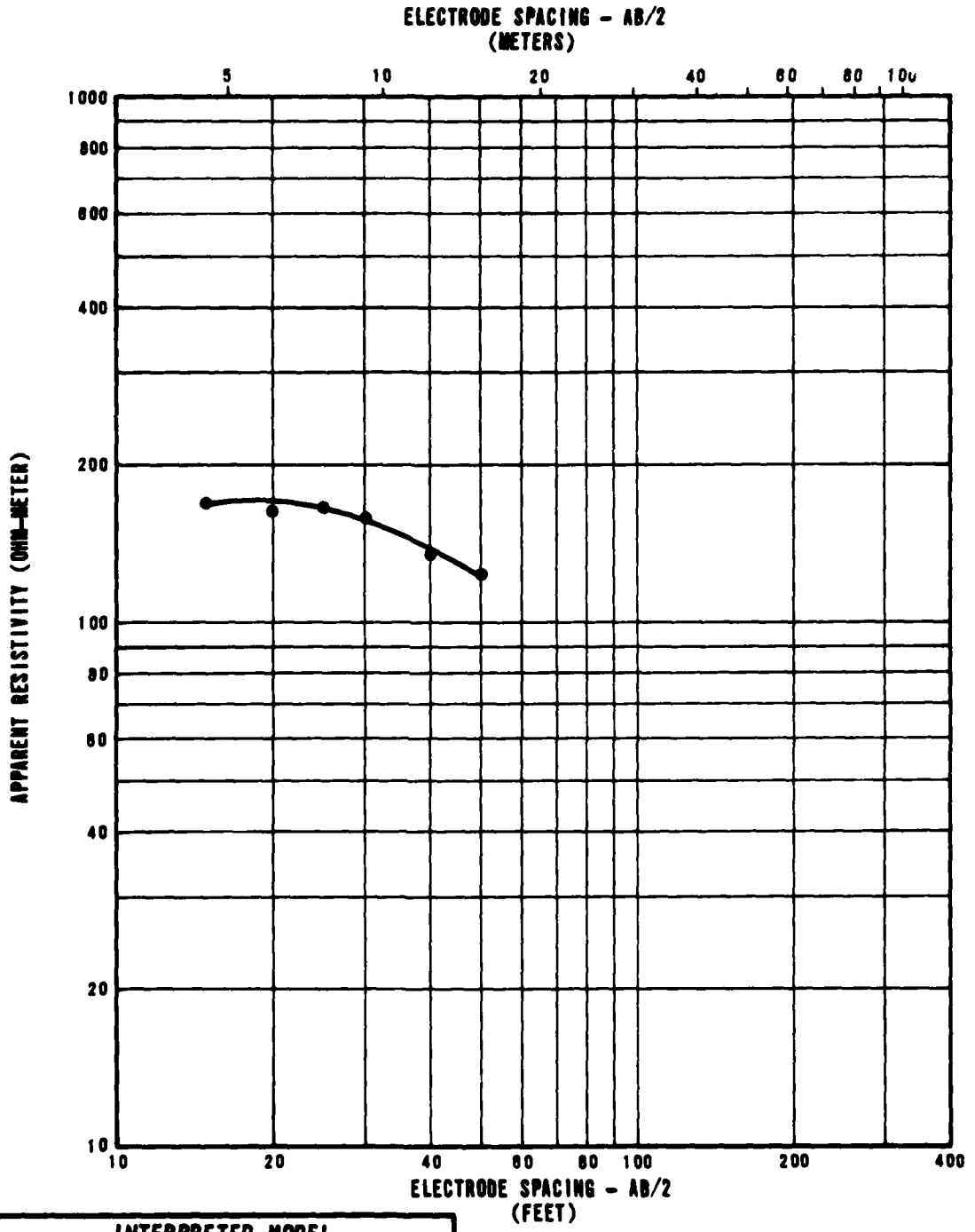
INTERPRETED MODEL		
LAYER DEPTH		RESISTIVITY VALUES
FEET	METERS	OHM-METER
0	0	180
24	7	50
75	23	180

RESISTIVITY SOUNDING CE-R-4
SOUNDING CURVE AND INTERPRETATION
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-7-15

FUGRO NATIONAL, INC.



INTERPRETED MODEL		
LAYER DEPTH		RESISTIVITY VALUES
FEET	METERS	OHM-METER
0	0	170
29	9	60

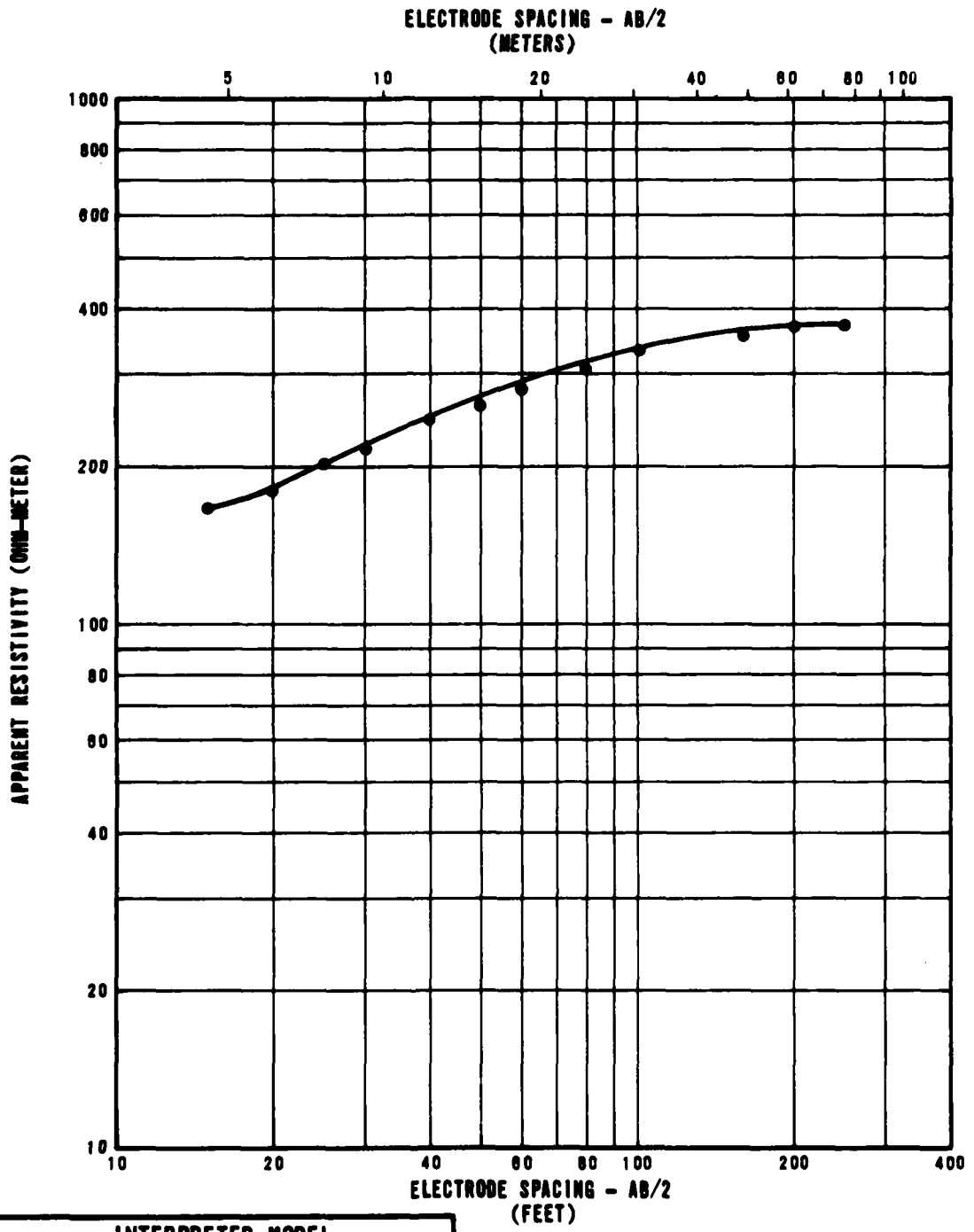
RESISTIVITY SOUNDING CE-R-6
SOUNDING CURVE AND INTERPRETATION
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE BMO

FIGURE
II 7 16

VERO NATIONAL, INC.

USAF-15



INTERPRETED MODEL		
LAYER DEPTH		RESISTIVITY VALUES
FEET	METERS	OHM-METER
0	0	140
11	3	390

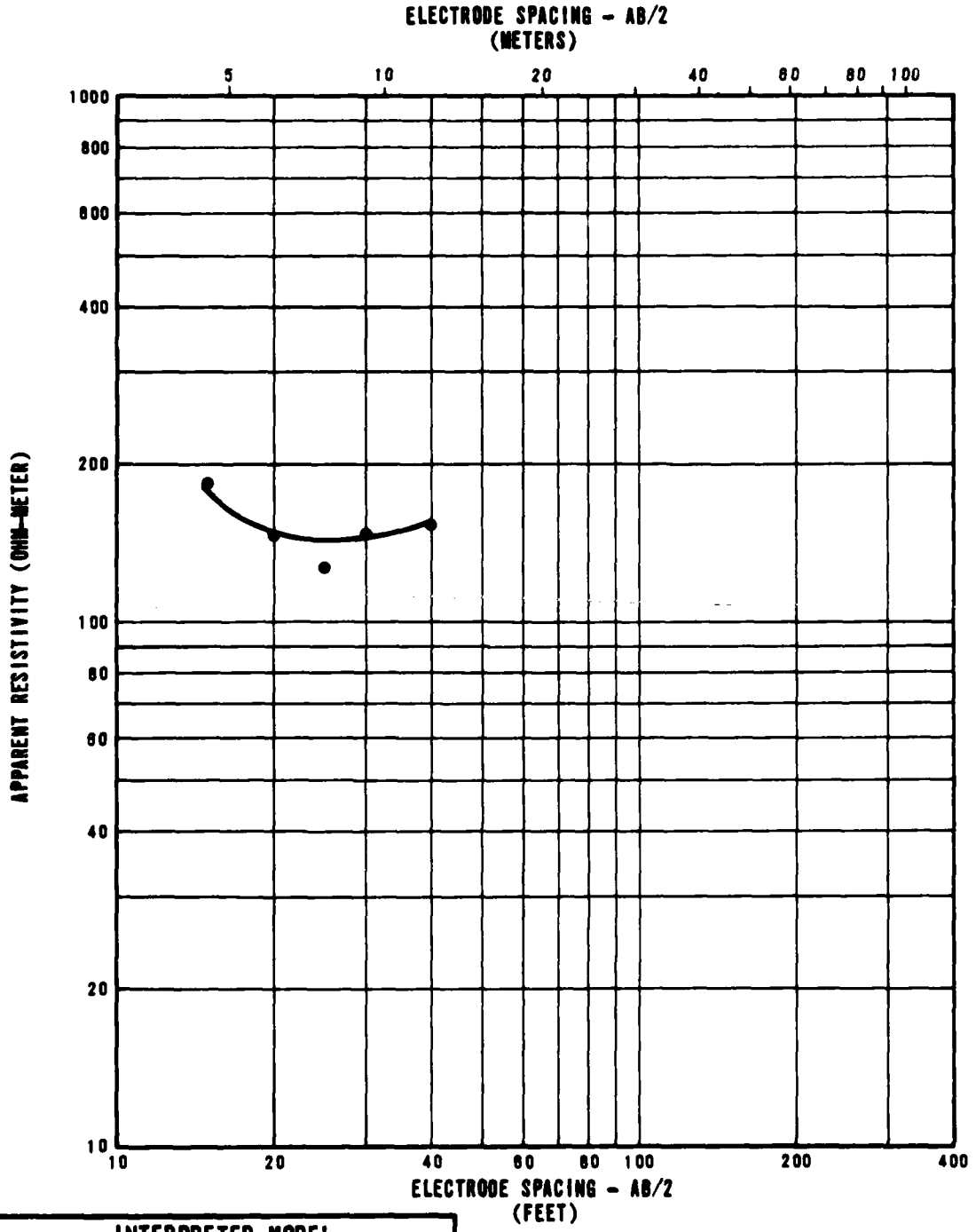
RESISTIVITY SOUNDING CE-R-7
SOUNDING CURVE AND INTERPRETATION
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE

FIGURE
II 7 1 1

23 DEC 80

USAF-16



INTERPRETED MODEL		
LAYER DEPTH		RESISTIVITY VALUES
FEET	METERS	OHM-METER
0	0	260
6	2	120
26	8	370

RESISTIVITY SOUNDING CE-R-8
SOUNDING CURVE AND INTERPRETATION
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-7 18

WOODWARD-CLYDE CONSULTANTS

23 DEC 80

USAF-15

SECTION 8.0

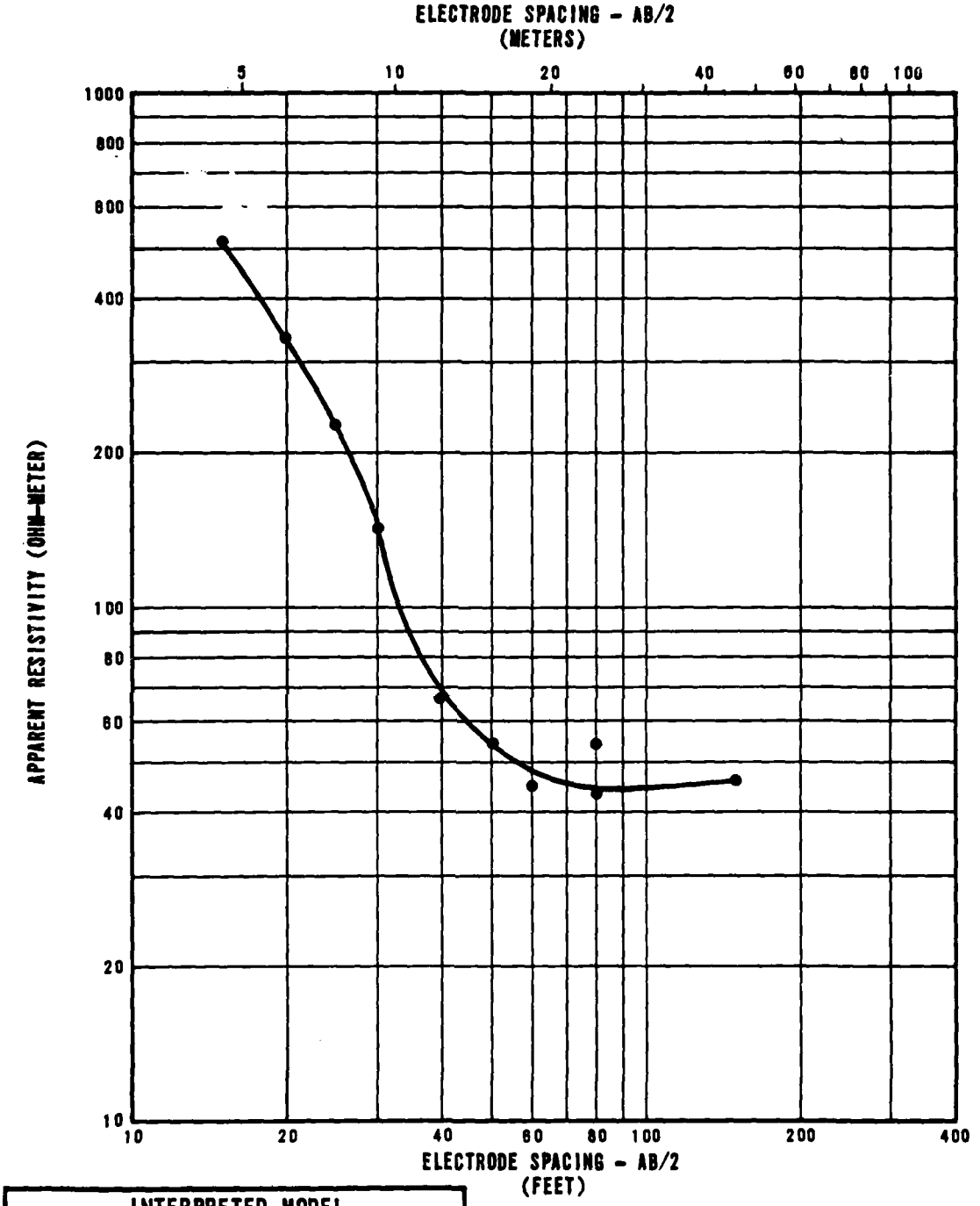
ELECTRICAL RESISTIVITY DATA

8.0 EXPLANATION OF ELECTRICAL RESISTIVITY DATA

Each figure in this section presents the data obtained from a resistivity sounding and a tabulated model of resistivity layers that would produce a curve similar to the observed curve. The upper portion of the figures is a graph in which measured apparent resistivity values in ohm-meters are plotted versus one-half the distance between the current electrodes.

The interpreted model tabulated at the bottom of the figures shows a combination of true resistivity layers and thicknesses obtained by matching theoretical curves to the field curve.

Note: There were no resistivity sounding at locations CE-SR-1, CE-SR-2, CE-SR-5, CE-SR-9, CE-SR-10, and CE-SR-11.



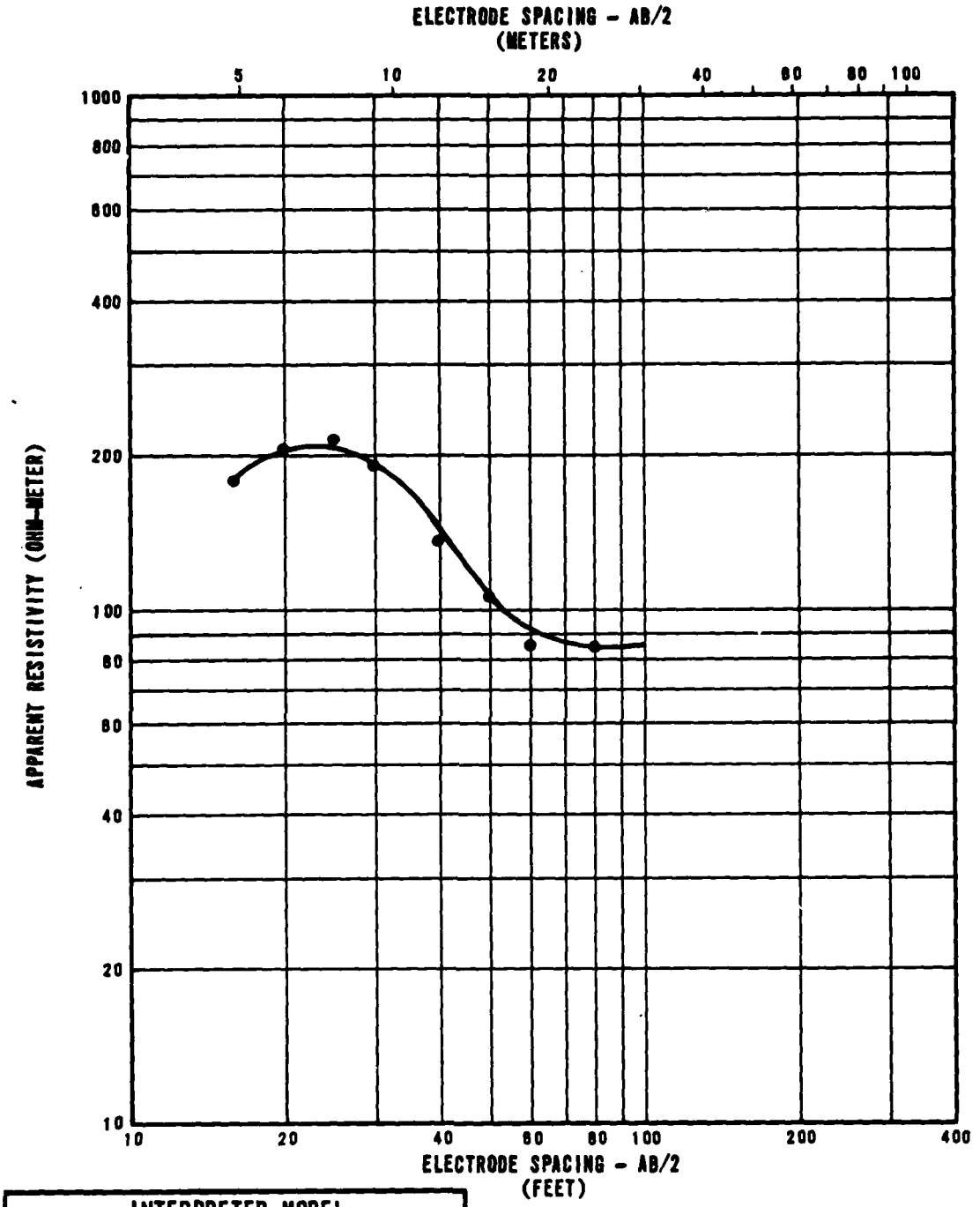
INTERPRETED MODEL		
LAYER DEPTH		RESISTIVITY VALUES
FEET	METERS	OHM-METER
0	0	500
11	3	150
18	5	3

RESISTIVITY SOUNDING CE-R-3
SOUNDING CURVE AND INTERPRETATION
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-8-1

UGRO NATIONAL, INC.



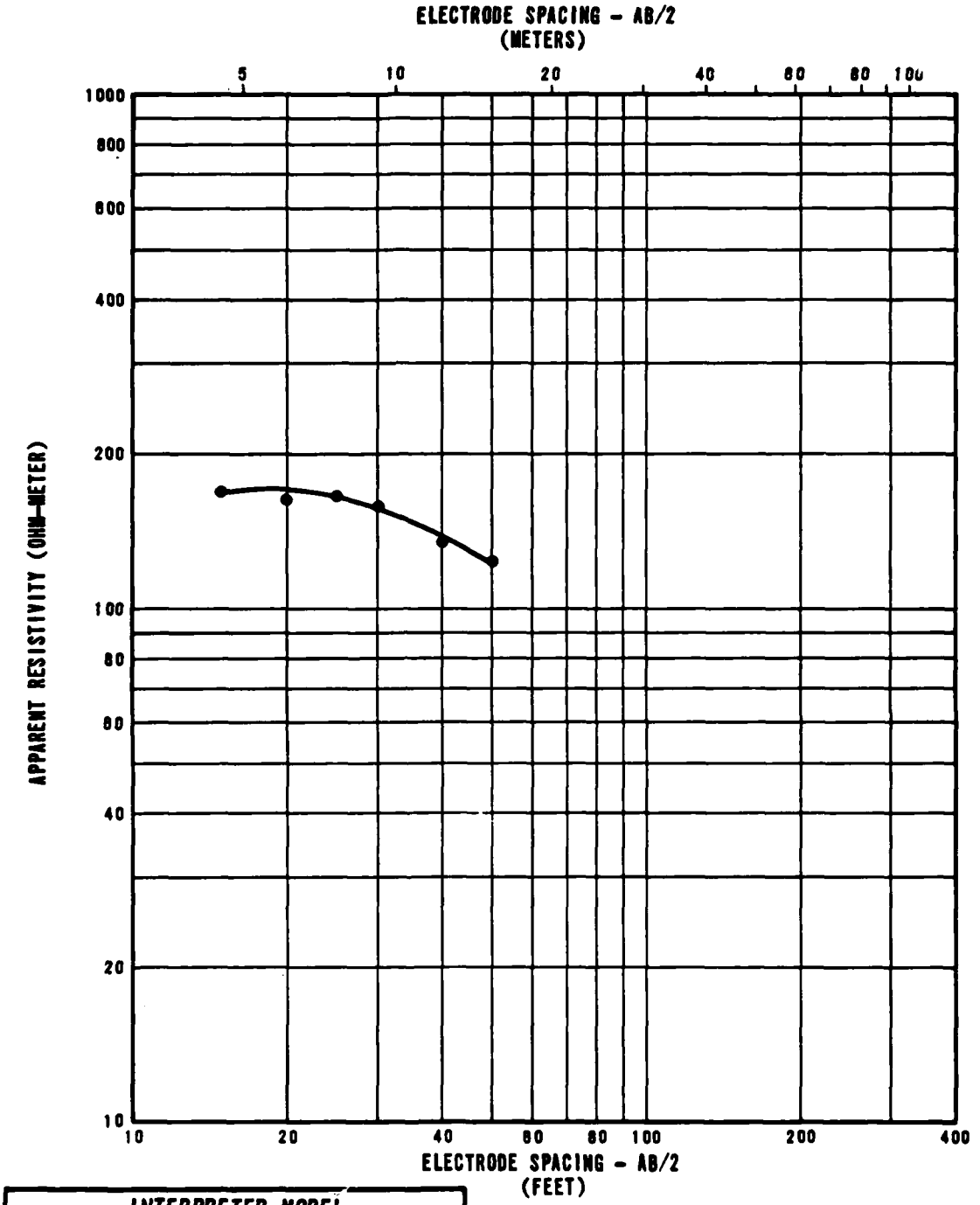
INTERPRETED MODEL		
LAYER DEPTH		RESISTIVITY VALUES
FEET	METERS	OHM-METER
0	0	180
24	7	50
75	23	180

RESISTIVITY SOUNDING CE-R-4
SOUNDING CURVE AND INTERPRETATION
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-8-2

FUGRO NATIONAL, INC.



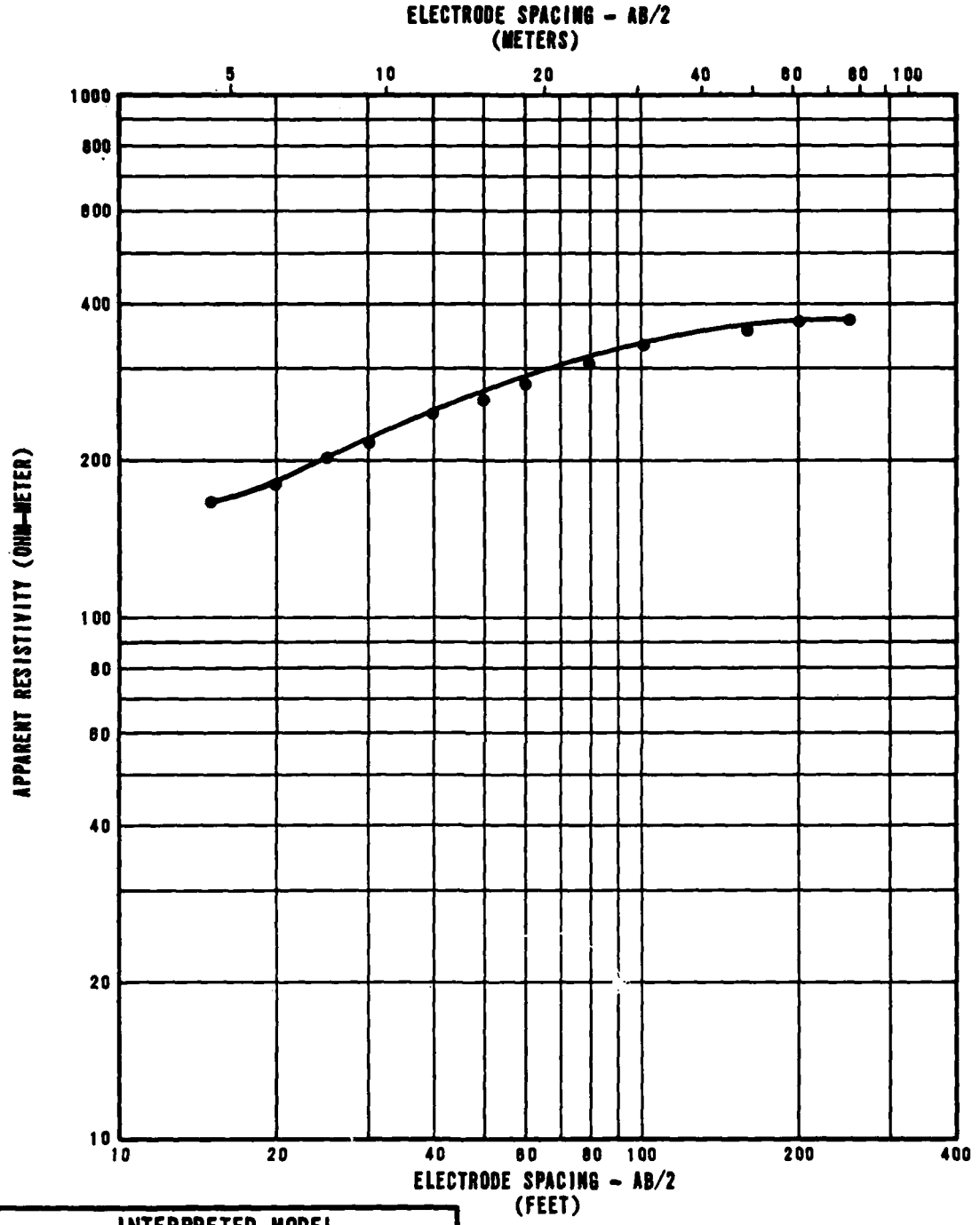
INTERPRETED MODEL		
LAYER DEPTH		RESISTIVITY VALUES
FEET	METERS	OHM-METER
0	0	170
29	9	60

RESISTIVITY SOUNDING CE-R-6
SOUNDING CURVE AND INTERPRETATION
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-8-3

FUGRO NATIONAL, INC.



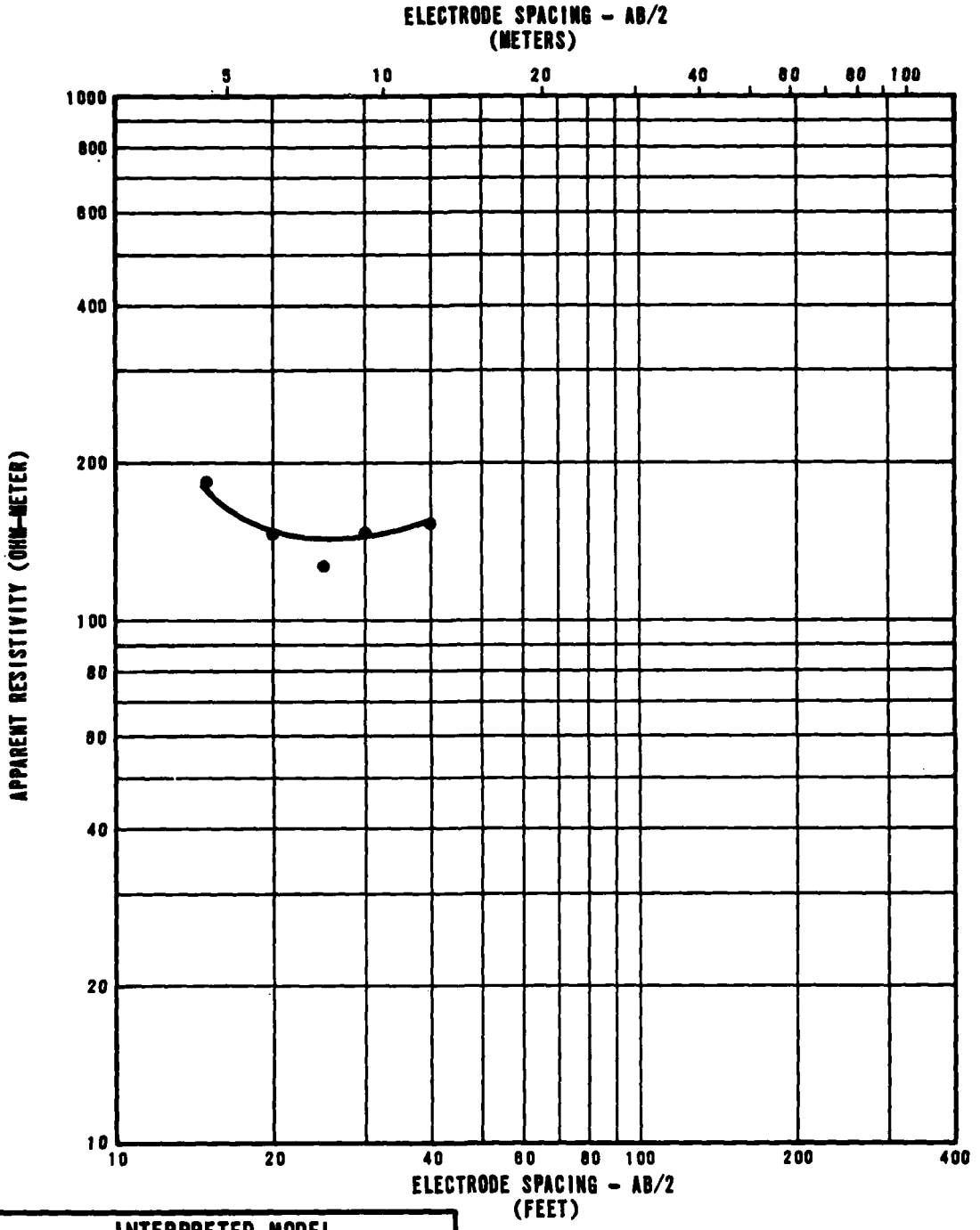
INTERPRETED MODEL		
LAYER DEPTH		RESISTIVITY VALUES
FEET	METERS	OHM-METER
0	0	140
11	3	390

RESISTIVITY SOUNDING CE-R-7
SOUNDING CURVE AND INTERPRETATION
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-8-4

FUGRO NATIONAL, INC.



INTERPRETED MODEL		
LAYER DEPTH		RESISTIVITY VALUES
FEET	METERS	OHM-METER
0	0	260
6	2	120
26	8	370

RESISTIVITY SOUNDING CE-R-8
SOUNDING CURVE AND INTERPRETATION
OPERATIONAL BASE SITE
COYOTE SPRING VALLEY, NEVADA

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-8-5

FUGRO NATIONAL, INC.


DATE
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