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REPORT
SOILS AND GEOLOGIC INVESTIGATION
PROPOSED RETAINING WALL

MURATA RESIDENCE
3240 PINAOU LA STREET
HONOLULU, HAWAII

for

MR. AND MRS. KENNETH MURATA

Project No. H-0311-F

July 1, 1980

MUNICIPAL REFERENCE & RECORDS CENTER

City & County of Honolulu
City Hall Annex, 558 S. King Street
Honolulu, Hawaii 96813

SOILS INTERNATIONAL



LOS ANGELES
SANTA ANA
VENTURA
HONOLULU
KAHULUI, MAUI

3180 UALENA STREET, HONOLULU, HAWAII 96819

(808) 839-9071

July 1, 1980
Project No. H-0311-F

Mr. and Mrs. Kenneth Murata
3240 Pinaoula Street
Honolulu, Hawaii 96822

Dear Mr. and Mrs. Murata:

The attached report presents the data, conclusions and recommendations of an investigation of the soil and geologic conditions at the site of the proposed retaining wall to be located on Pinaoula Street in Manoa, Honolulu, Oahu, Hawaii: Tax Map Key Number: 2-9-69: 38.

Based on the findings of this investigation, it is concluded that the site may be developed for the intended use provided the recommendations contained herein are included in the design and construction of the proposed project. Details are presented herein.

This investigation was performed in accordance with generally accepted engineering procedures and included such field and laboratory tests considered necessary for the proposed project. In the opinion of the undersigned, the accompanying report has been substantiated by mathematical data in conformity with generally accepted engineering principles and presents fairly the design information requested by your organization. No other warranty is either expressed or implied.

Respectfully submitted,

SOILS INTERNATIONAL

Lawrence S. Shinsato
Lawrence S. Shinsato
Vice-President



LSS:lsr

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INTRODUCTION

This report presents the results of our geologic and soils engineering investigation for the proposed retaining wall at the Murata Residence, TMK: 2-9-69: Parcel 38, Pinaoula Street, Manoa Valley, Honolulu, Hawaii. The location of the site is shown on the Vicinity Map, Plate 1.

The investigation consisted of reviewing pertinent geologic literature, drilling two (2) borings in the general area of the wall, digging a shallow test pit, soil sampling, laboratory testing and engineering analysis. This work was done in general accordance with our proposal dated June 17, 1980.

PROPOSED DEVELOPMENT

From the information provided (Plot Plan, "Stone Walls", dated June 3, 1980 by Peter Chiu, Engineer) the four (4) stone retaining walls partially surrounding the existing residence are to be : 1) northeast wall, 124.8 feet long, 2) north wall, 64.53 feet long, 3) northwest wall about sixteen (16) feet long and 4) north-northwest wall about thirty-two (32) feet long. The walls are to range from two (2) feet high up to eighteen (18) feet high in the northeast corner.

The existing slope at the rear of the property is to be cut to intersect the wall about one (1) foot below its top. A total of about 330 cubic yards of earth is to be excavated.

FIELD EXPLORATION

The site was investigated by geologic reconnaissance, drilling and sampling two (2) borings in the area of the proposed wall, digging and sampling a shallow test pit in the cut slope at the rear of the site and by looking at

nearby slopes and structures.

Two (2) borings, one (1) (Boring 1, see Plot Plan) 18.5 feet deep and another (Boring 2, see Plot Plan) 15.0 feet deep were drilled and sampled at frequent intervals (generally at 1', 3', 6' 9' 13' and 15' to 18') using a portable drilling rig. The samples were logged, field tested and packed in airtight containers for transport to our laboratory.

SITE CONDITIONS

Location and Topography

The site is located on the lower slope of Puu Pia, a spur on the southeastern flank of the Koolau Range. The lot is on the uphill side of Pinaoula Steet at about elevation +300 feet MSL. The mapped portion of the site is about 125 feet long and 64 feet wide. Site drainage is to the southwest. The house lot has been cut and filled with relief of 11 feet vertical in 125 feet horizontal along the length of the lot. The natural slope of about 2.85 horizontal to 1 vertical has been cut to a slope of about 1-1/2 horizontal to 1 vertical at the rear of the house. The cut is about ten (10) feet high.

The site basically consists of consolidated quaternary alluvium-colluvium overlying highly weathered basalt bedrock. Site topography is controlled by the weathering and erosion characteristics of the colluvium. The top of Puu Pia is about 800 feet above sea level and 400 feet above the site.

No major slide scarps were identified on site. However, there has been a landslide in a nearby area (Plate A).

Drainage

Rainfall in the area is roughly 120+ inches per year with about twenty (20)

inches falling in December and about ten (10) inches falling in other months. (Atlas of Hawaii 1972, page 56). Peak rainfall for the site is not known, but probably could exceed twice the December average in one (1) month. No free groundwater was found in the borings or test pit, although the shallow soil is moist. These findings do not preclude the existence of groundwater elsewhere on the site.

GEOLOGIC CONDITIONS

General

The site is located on the south side of the elongated Koolau Volcanic Range which forms the southeastern portion of Oahu, Hawaii, (Plate B, Geologic map). This range was formed during the Tertiary Period by pahoehoe and aa basalt lava flows from a rift zone roughly paralleling the existing mountain crest trends. During the late Tertiary and Pleistocene, deep valleys including Manoa Valley, were eroded by streams. During high stands of sea level, the valleys were infilled with sediment (alluviated) grading to the high sea level stands (Stearns, 1967).

Black volcanic ash, (Boring 1) ejected from nearby Kaau crater, blanketed the site during the Late Pleistocene (Stearns and Vaksvik, 1935, p. 19).

Subsequently, weathering and erosion washed soil down over the site.

There is some fill from recent grading on site.

The valley is currently adjusting its shape and geology to the existing climatic and sea level regime.

Bedrock

Puu Pia is composed of highly weathered Koolau Range aa and pahoehoe

basalt flows. Aa basalt consists of dense, blocky, core rock surrounded by a layer of clinker. Pahoe-hoe is a smooth, hummocky, highly vesiculated rock containing lava tubes. These rocks dip seaward about 3° to 5° in the area of the site.

The alternating flows and clinker zones have weathered and eroded to a subdued stairstep topography in exposures near, and probably beneath, the site.

A geologic cross section of the site, Plate C was made using a hand level and information from the borings and test pit. In general, the bedrock surface underlying the site slopes at an apparent angle of about 9 horizontal to 1 vertical through the borings (Plates 3 and 4.)

Soil

The proposed building site is located in a cut in brown clayey silt to silty clay with weathered gravel and some volcanic ash. The brown silty clay at the surface is classified as Lolekaa silty clay, 40 to 70 percent slopes (LoF) with the following general characteristics: well drained soils on alluvial fans and terraces adjacent to the Koolau Range developed in old gravelly alluvium and colluvium, rapid permeability, severe erosion potential, susceptible to sliding, slopes as much as seventy (70) percent (U.S. D. A. Soil Survey, 1972, pp. 84, 184, 185, Plate 62).

The soil examined from the borings and test pit consisted mainly of medium-brown, silty clay to clayey silt with weathered gravel. Shrinkage cracks observed in the cut slope and a plastic consistency where wet indicates that the soil is moderately plastic and has a shrinkage potential in the field.

The silty sand to sandy silt found in the borings and test pit is dark red-brown (weathered) to black (unweathered) volcanic ash ejected from Kaau Crater. This ash is so recent that it is only slightly weathered. It is highly permeable, medium dense and moist.

Above the volcanic ash about 1 foot to 2.5 feet of soft, brown silty clay to clayey silt fill was found in the borings.

Slopewash and soil form a thin cover over uncut portions of the site.

GEOLOGIC CONSTRAINTS

Site Grading

The proposed retaining wall is to be built on and retain, clayey silt to silty sands containing weathered gravel ("Older Alluvium") and volcanic ash. The clayey silt is plastic, shrinks moderately, and prone to erosion. It loses much of its strength when reworked and is difficult to dry out for use as fill. Therefore, the ground in the area of the footings and cut should be disturbed as little as possible.

The volcanic ash is present mainly in a two (2) foot thick layer across the site, although it is also mixed with some of the alluvium-colluvium. This ash is not well consolidated and is porous which would allow it to transmit water when opened to rainfall and runoff. Consideration should be given to these properties during grading and construction of the wall. Future upslope cutting of this layer could allow entry of water into the slope mass.

The "Older Alluvium" can usually be excavated by medium size construction equipment.

Cut Slope Stability

From the observations and data gathered, it appears that the wall will be founded in, and retain, mainly "older Alluvium". Moderately high cut slopes in this are often stable at slopes of 1-1/2 horizontal to 1 vertical. Existing cut slopes of up to about ten (10) feet high in this lot and adjacent properties appear to be stable at 1-1/2 horizontal to 1 vertical. However, there has been a slide in nearby properties and it is prudent to evaluate proposed cuts on a case by case basis.

From the aerial topographic map by R.M. Rowill Corporation, the general area slope is approximately 2.85 horizontal to 1 vertical. The proposed retaining wall will not create an unstable condition provided the walls are properly engineered.

Foundations

For the proposed walls, an allowable bearing value of 2,500 pounds per square foot may be used for footings embedded at least twelve (12) inches below the lowest adjacent grade.

Under the maximum allowable bearing pressure settlement of the footings should not exceed 1-1/4 inch.

Lateral Earth Pressures

Lateral bearing resistance for the on-site material may be assumed as 250 pounds per square foot per foot of depth.

Frictional resistance may be assumed as 500 pounds per square foot of combined provided either value is limited to fifty (50) percent of the allowable.

under the area of consideration.

Lateral resistance and friction may be combined provided either value is limited to fifty (50) percent of the allowable.

Active lateral earth pressures for the design of the retaining wall are as follows:

| <u>Backfill Slope</u> | <u>Active Earth Pressure ((psf per foot of depth)</u> |
|--------------------------------|---|
| 0 | 30 |
| 3 horizontal to 1 vertical | 40 |
| 2 horizontal to 1 vertical | 45 |
| 1-1/2 horizontal to 1 vertical | 50 |

Site Grading and Preparation

To properly prepare the on-site materials for the proposed concrete slab, it is recommended that the soft upper soils (approximately 1 to 2.5 feet in depth) be recompacted or removed prior to filling and/or placing of the slab. Fill material and all soft soils should be compacted to at least ninety (90) percent of the maximum dry density as determined by the ASTM D-1557 test procedure.

INSPECTION

During the progress of construction, so as to achieve the desired results, it is highly recommended that a representative from this office be present to perform the necessary tests and to observe the following operations:

1. Site preparation.
2. Placement of fill and backfill.
3. Footing excavations.

REMARKS

The conclusions and recommendations contained herein are based on the findings and observations made at the boring locations and from geologic reconnaissance. If conditions are encountered during construction which appear to differ from those disclosed by the borings, this office should be notified so as to consider the need for modifications.

No responsibility for construction compliance with the design concepts, specifications or recommendations is assumed unless on-site review by Soils International is performed during the course of construction which pertains to the specific areas covered by the recommendations contained herein.

This report has been compiled for the exclusive use of Mr. and Mrs. Kenneth Murata. It shall not be used by or transferred to any other party or to another project without the consent and/or thorough review by this facility.

Should the project be delayed beyond the period of one (1) year from the the date of this report, the report shall be reviewed relative to possible changed conditions.

Samples obtained in this investigation will deteriorate with time and will be unsuitable for further laboratory testing within one (1) month from the date of this report. Unless otherwise advised, the samples will be discarded at that time.

- o o o -

The following are included and complete this report:

Plate A: Location of Slide Area

Plate B: Geologic Map

Plate C: Soil Map

Plate D: Aerial Topographic Map

Plate 1: Vicinity Map

Plate 2: Plot Plan

Plate 3, 4 and 5: Log of Borings and Test Pit

Plates 6 through 9: Laboratory Tests

PLAT 32

PLAT 15

PREVIOUS SLIDE AREA

PROJECT SITE

IMPROVEMENT DISTRICT #184
Date 9-22-69
Call City for Assessment Balance
Phone 523 4805

EVERYTHING
ON THIS PAGE
IS ZONED R-4

ADVANCE SHEET
SUBJECT TO CHANGE
PLATE NO. A
PROJECT NO.:

PANAMA

STREET

STREET

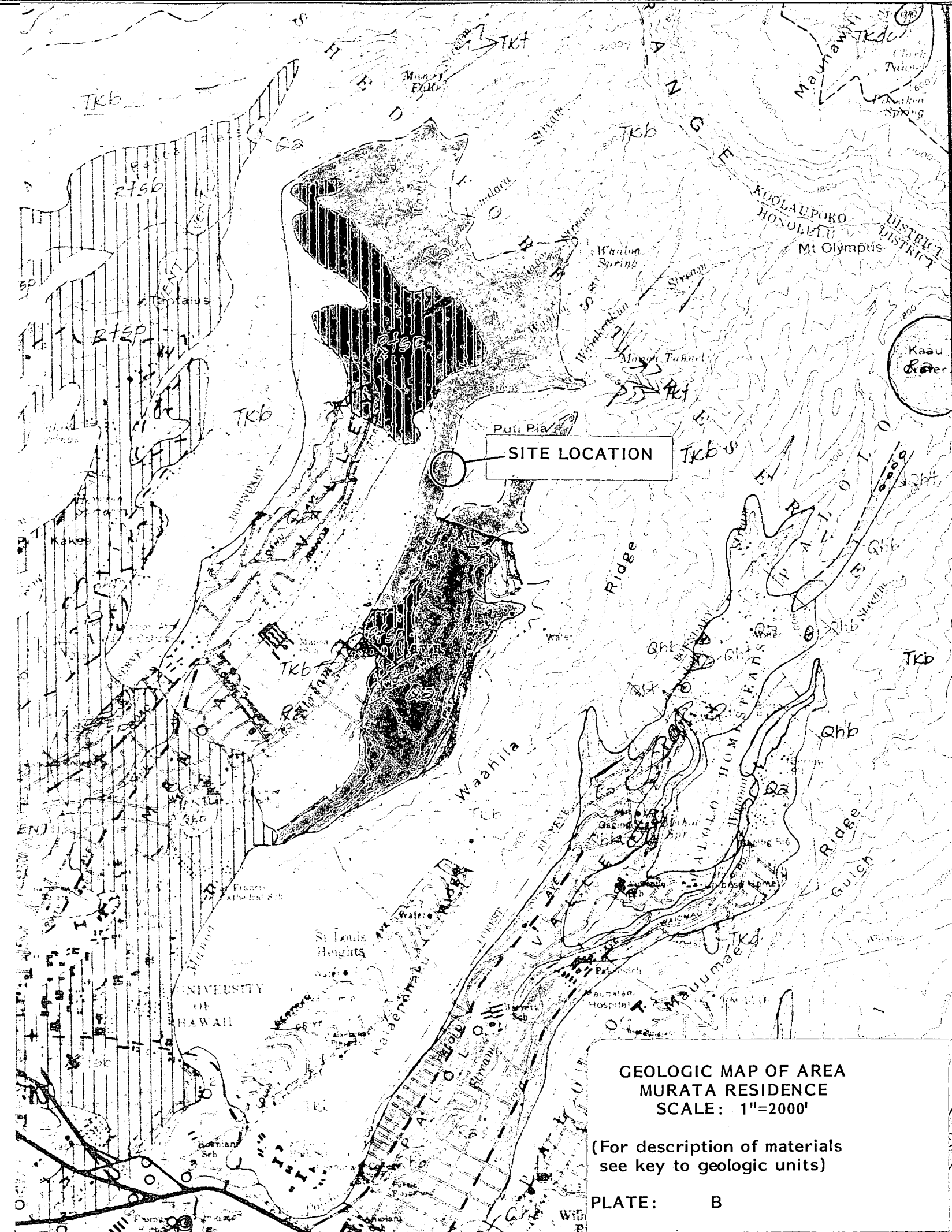
H-0113-F

KEY TO GEOLOGIC UNITS

1. Ra (yellow) = Recent Alluvium
2. Rfsp (pink) = Quaternary Basalt
3. Qa (brown) = Older Alluvium
4. Tkb (white) = Tertiary Koolau Basalt

KEY TO GEOLOGIC UNITS

1. Ra (yellow) = Recent Alluvium
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SITE LOCATION



SOILS MAP OF AREA

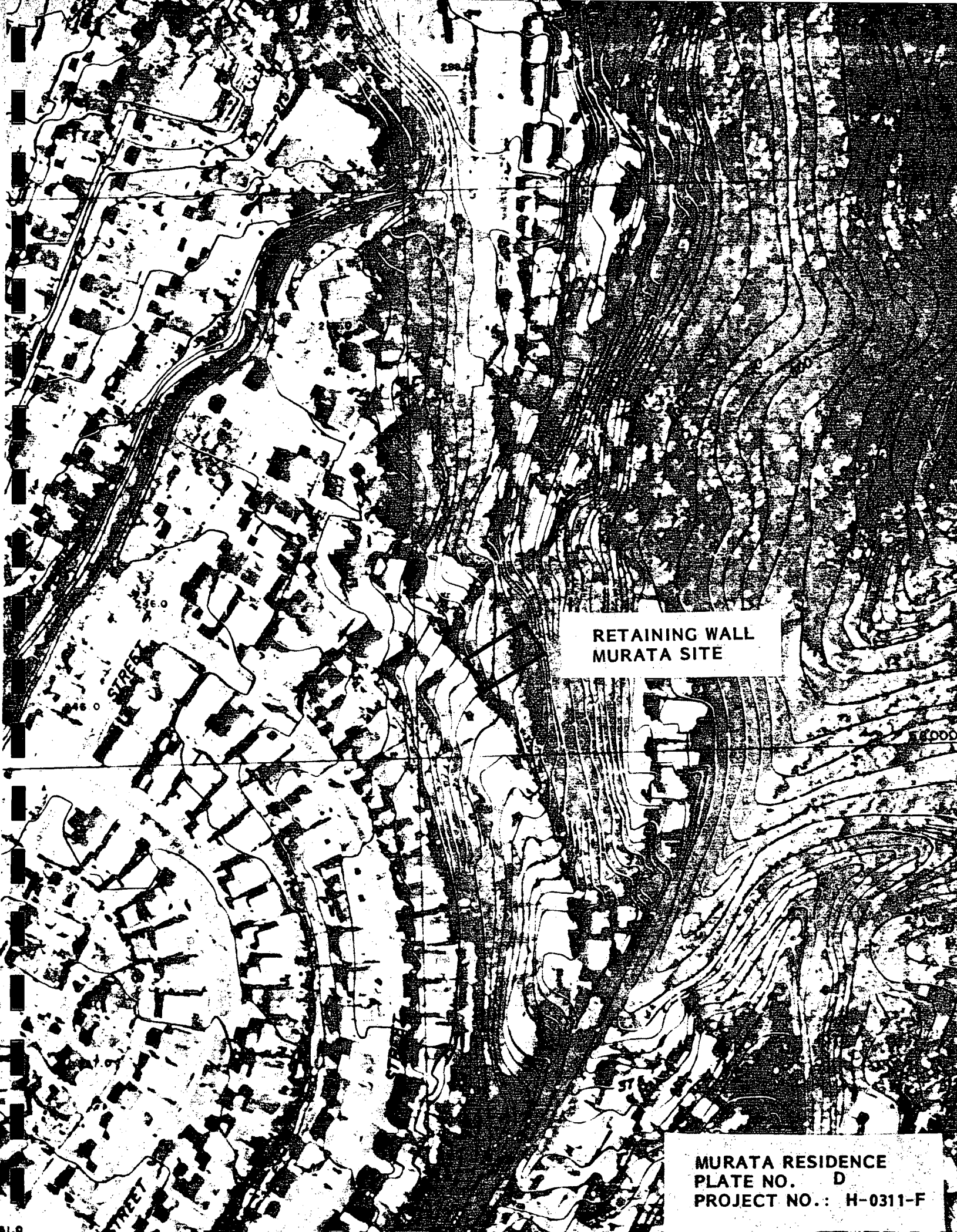
FROM. U.S.D.A. "Soil Survey of Island of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii - Plate 62, 1972

MURATA RESIDENCE

PLATE NO. C

SOILS INTERNATIONAL

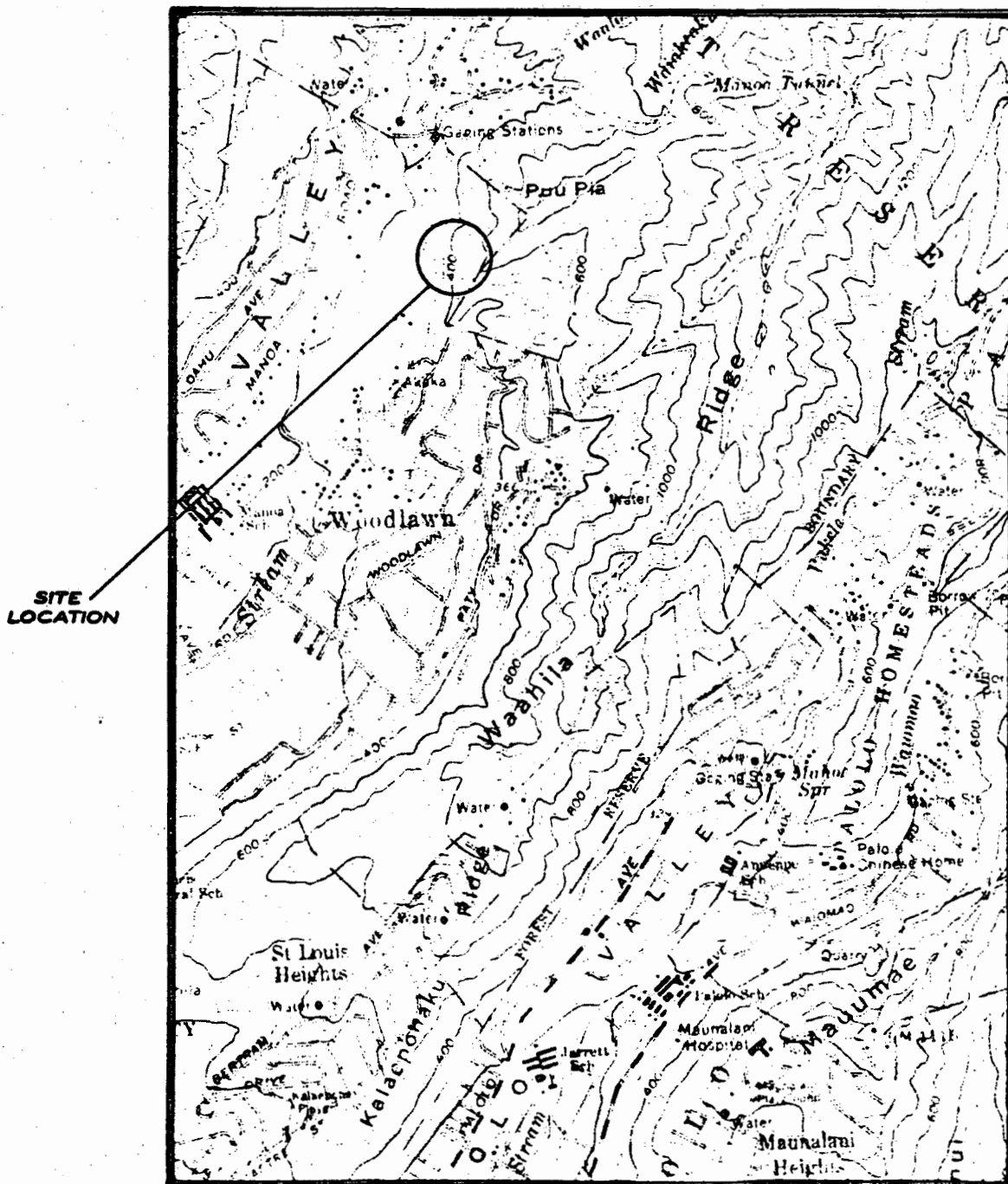
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RETAINING WALL
MURATA SITE

MURATA RESIDENCE
PLATE NO. D
PROJECT NO.: H-0311-F

VICINITY MAP



A horizontal scale bar with a double-line border. It has three major tick marks labeled '0', '2000', and '4000' from left to right. Below the bar, the text 'SCALE in feet' is centered.

REFERENCE

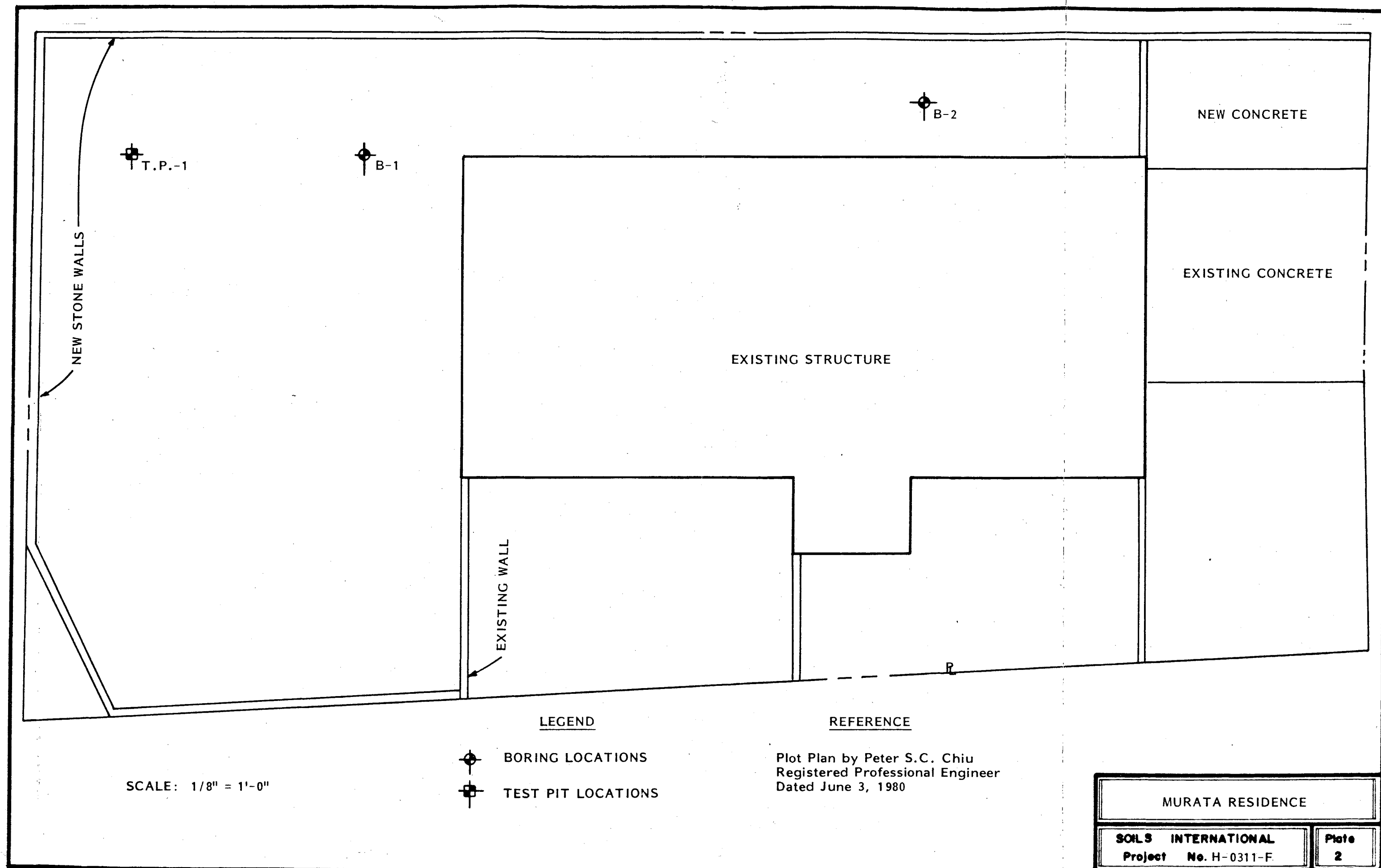
USGS Topographic Survey
Honolulu Quadrangle
Dated 1959

MURATA RESIDENCE

FILE NO. H-0311-F

SOILS INTERNATIONAL

PLATE NO. 1



LOG OF BORING NO. 1




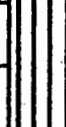


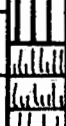
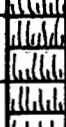
DATE

June 19, 1980

EQUIPMENT USED

Portable Drill Rig, 3" dia. flight auger

ELEVATION: +11.1' *

| NORMAL LOAD (KSF) | SHEAR STRENGTH (KSF) | DRY DENSITY (PCF) | MOISTURE CONTENT | BLOWS PER FOOT | SAMPLE DEPTH (FEET) | GRAPHIC SYMBOL | DESCRIPTION | TEST DATA |
|-------------------------|----------------------------|-------------------------|---------------------|----------------------|---------------------------|---|--|-----------------|
| | | | | | |  | FILL: dk. brn. CLAY, silty, wet, soft. (CL) | |
| .20 | .50 | 49 | 79.0 | 6 | |  | dk. red-brn. SILT, v. sandy (volcanic tuff), (ML/MH) | Expansion: 0.2% |
| .40 | .77 | 66 | 57.5 | 14 | |  | med. brn. SILT, clayey w/ gravels, moist, mod. stiff (MH) | |
| | | 61 | 63.5 | 12 | |  | | |
| 1.00 | .57 | 62 | 61.9 | 11 | |  | | |
| 1.30 | 1.12 | 64 | 61.3 | 18 | |  | dk. red-purple w/yellow and black mottling, SILT, (highly weathered basalt) clayey, moist, mod. dense | |
| 1.60 | 1.48 | 59 | 65.5 | 23 | |  | | |
| 1.90 | 1.17 | 62 | 65.1 | 23 | |  | | |
| | | | | | 20 | | End of Boring @ 18.5' No Groundwater Encountered | |

*Elevation relative to sidewalk at southeast corner of property (assumed as 0.0 feet)

MURATA RESIDENCE

PLATE: 3

SOILS INTERNATIONAL

FILE: H-0311-F

LOG OF BORING NO. 2

June 20, 1980

Portable Drill Rig, 3" dia. flight auger

ELEVATION: *6.1'

| NORMAL LOAD (KSF) | SHEAR STRENGTH (KSF) | DRY DENSITY (PCF) | MOISTURE CONTENT | BLOWS PER FOOT | SAMPLE DEPTH (FEET) | GRAPHIC SYMBOL | DESCRIPTION | TEST DATA |
|-------------------------|----------------------------|-------------------------|---------------------|----------------------|---------------------------|-------------------|--|------------------|
| | | | | | | | FILL: dk. brn. CLAY, silty w/some voids, wet, soft (CL) | Expansion: 0.66% |
| .20 | .68 | 63 | 58.1 | 6 | | | | |
| .40 | .77 | 65 | 54.4 | 24 | | | med. brn. SILT, clayey, sandy (volcanic tuff), moist, mod. dense (MH/ SM) | |
| | | | | | 5 | | v. stiff to dense (MH/SM) | |
| .70 | .88 | 51 | 80.8 | 33 | | | | |
| | | | | | | | dk. brn. SAND, silty, moist, mod. dense (SM) | |
| 1.05 | .72 | 55 | 76.2 | 24 | 10 | | brn. SILT, clayey, moist, mod. stiff (MH/CL) | |
| | | | | | | | brn. grey SILT, clayey (decomposed basalt) (ML/MH) | |
| 1.40 1.50 | 1.69 2.17 | 73 69 | 47.7 53.6 | 39 | 15 | | End of Boring @ 15.0' No Groundwater Encountered | |
| | | | | | 20 | | | |

LOG OF TEST PIT NO. 1

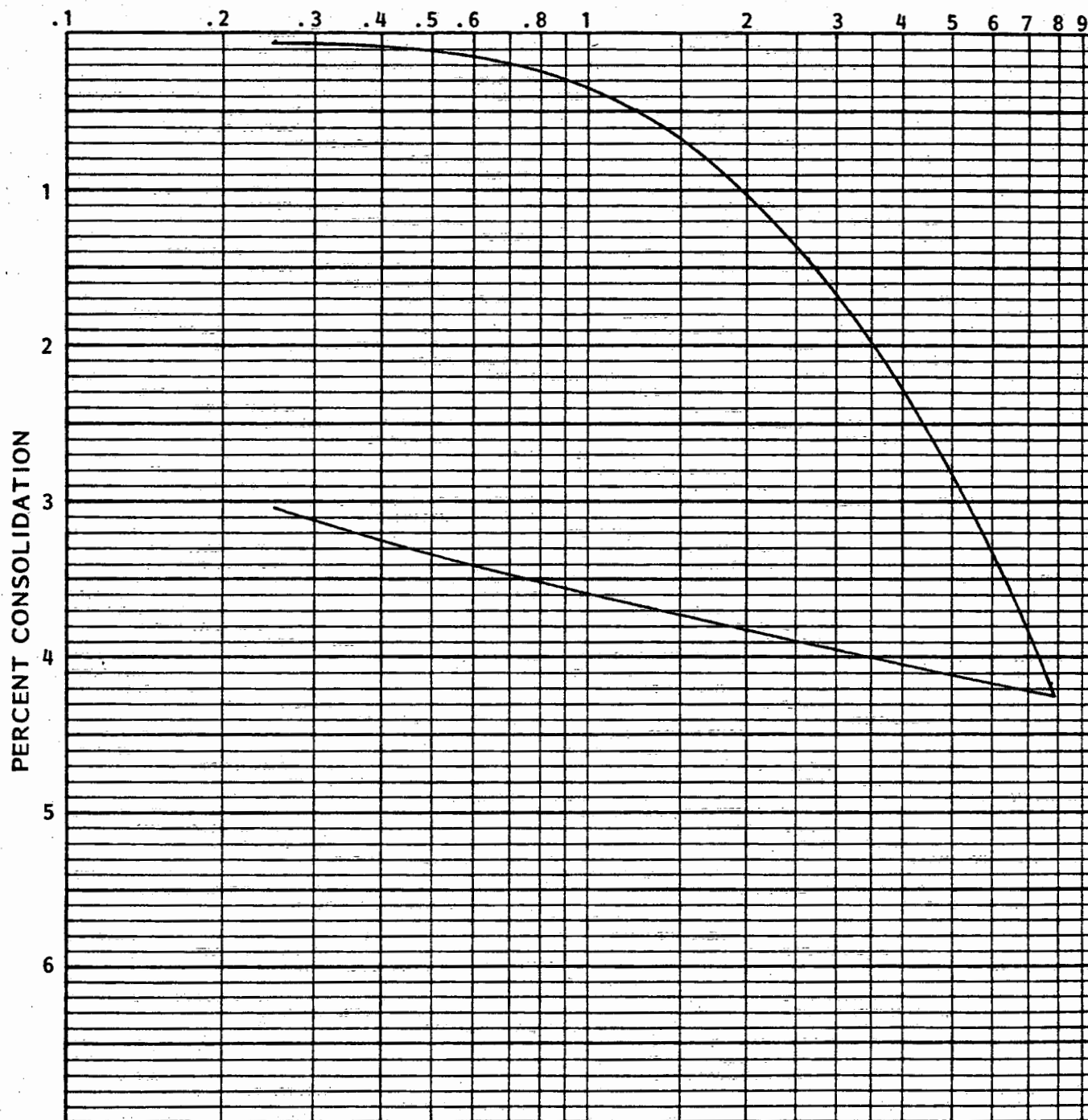
DATE June 20, 1980
EQUIPMENT USED Hand Auger

ELEVATION: *14.0'

| NORMAL LOAD (KSF) | SHEAR STRENGTH (KSF) | DRY DENSITY (PCF) | MOISTURE CONTENT | BLOWS PER FOOT | SAMPLE DEPTH (FEET) | GRAPHIC SYMBOL | DESCRIPTION | TEST DATA |
|-------------------------|----------------------------|-------------------------|---------------------|----------------------|---------------------------|-------------------|--|----------------|
| 1.00 | 0.86 | | | | | | med. brn. SAND, silty (volcanic tuff) SM/ML | |
| 2.00 | 1.24 | 55 | 64.0 | | | | | |
| 3.00 | 1.90 | 64 | 55.2 | | | | | |
| | | | | | 5 | | End of Pit @ 2.5' | |
| | | | | | 10 | | No Groundwater Encountered | |
| MURATA RESIDENCE | | | | | | | | PLATE : 5 |
| SOILS INTERNATIONAL | | | | | | | | FILE: H-0311-F |

CONSOLIDATION TEST DATA

PRESSURE IN KIPS PER SQUARE FOOT



Boring #4, Sample #2 @ 4.0'

MURATA RESIDENCE

SOILS INTERNATIONAL

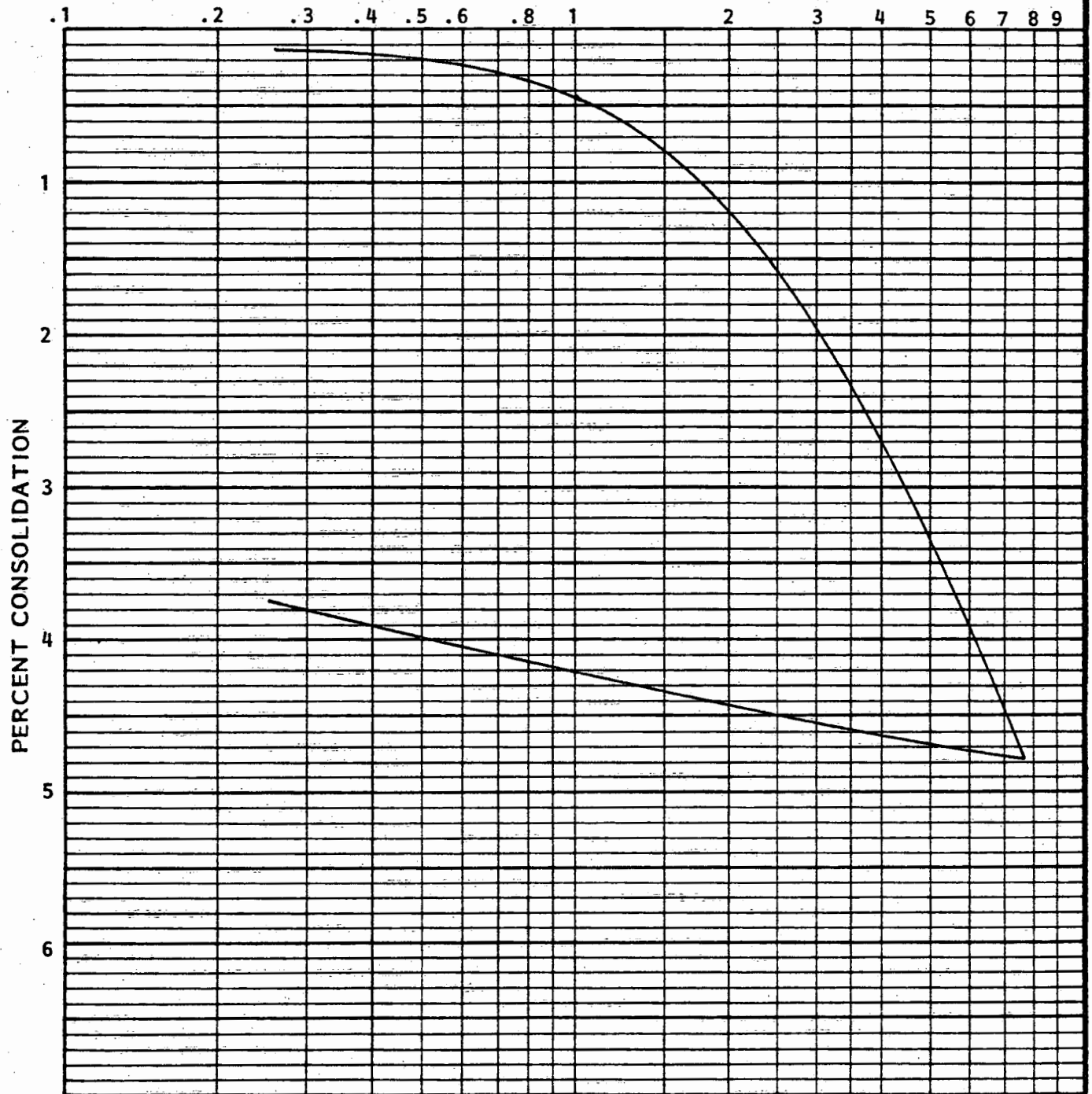
PLATE NO. H-0311-F

FILE NO.

6

CONSOLIDATION TEST DATA

PRESSURE IN KIPS PER SQUARE FOOT



Boring #2, Sample #1 @ 2.0'

MURATA RESIDENCE

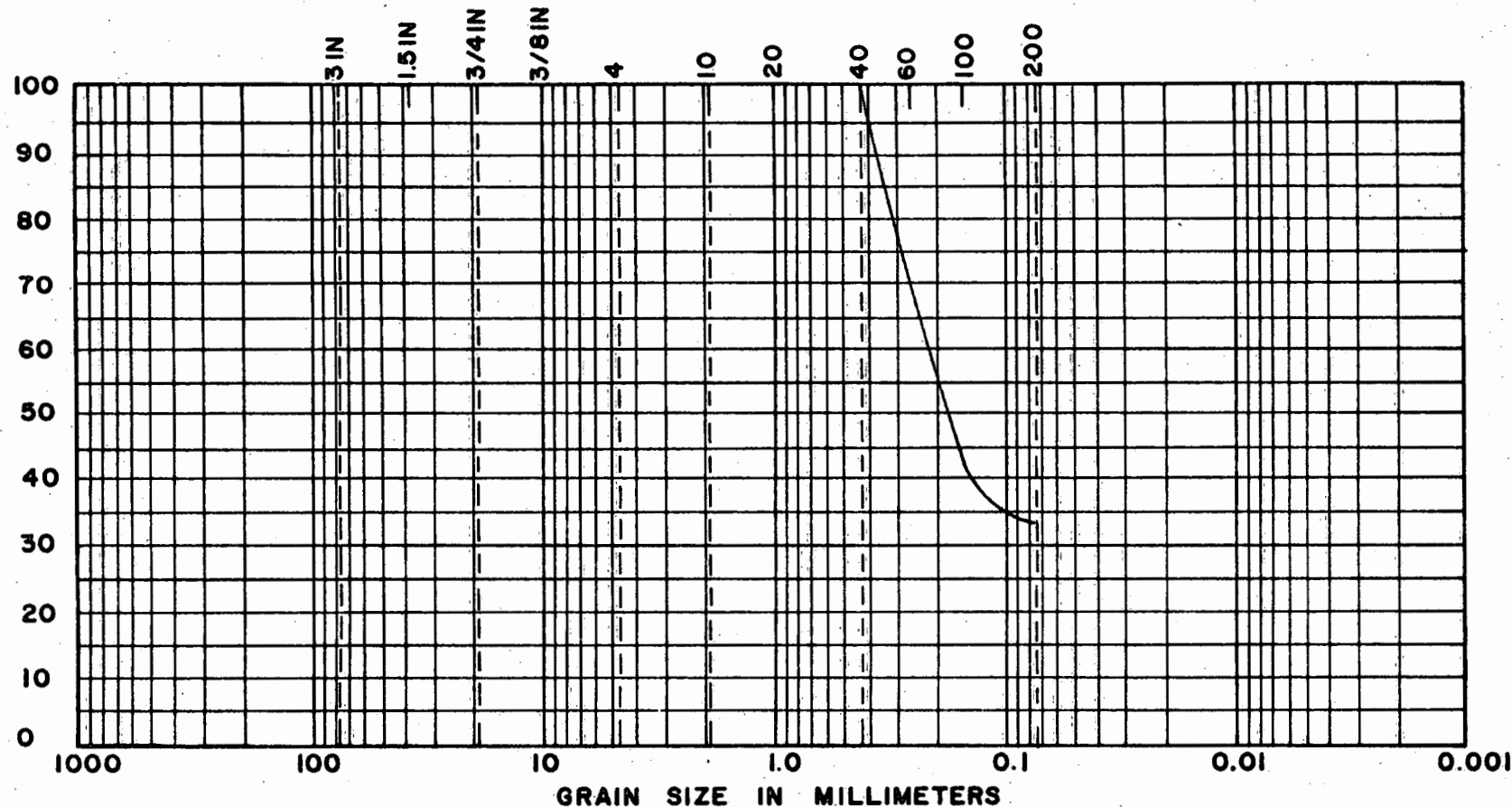
SOILS INTERNATIONAL

PLATE NO. 7

FILE NO. H-0311-F

PERCENT FINER BY WEIGHT

U. S. STANDARD SIEVE SIZE



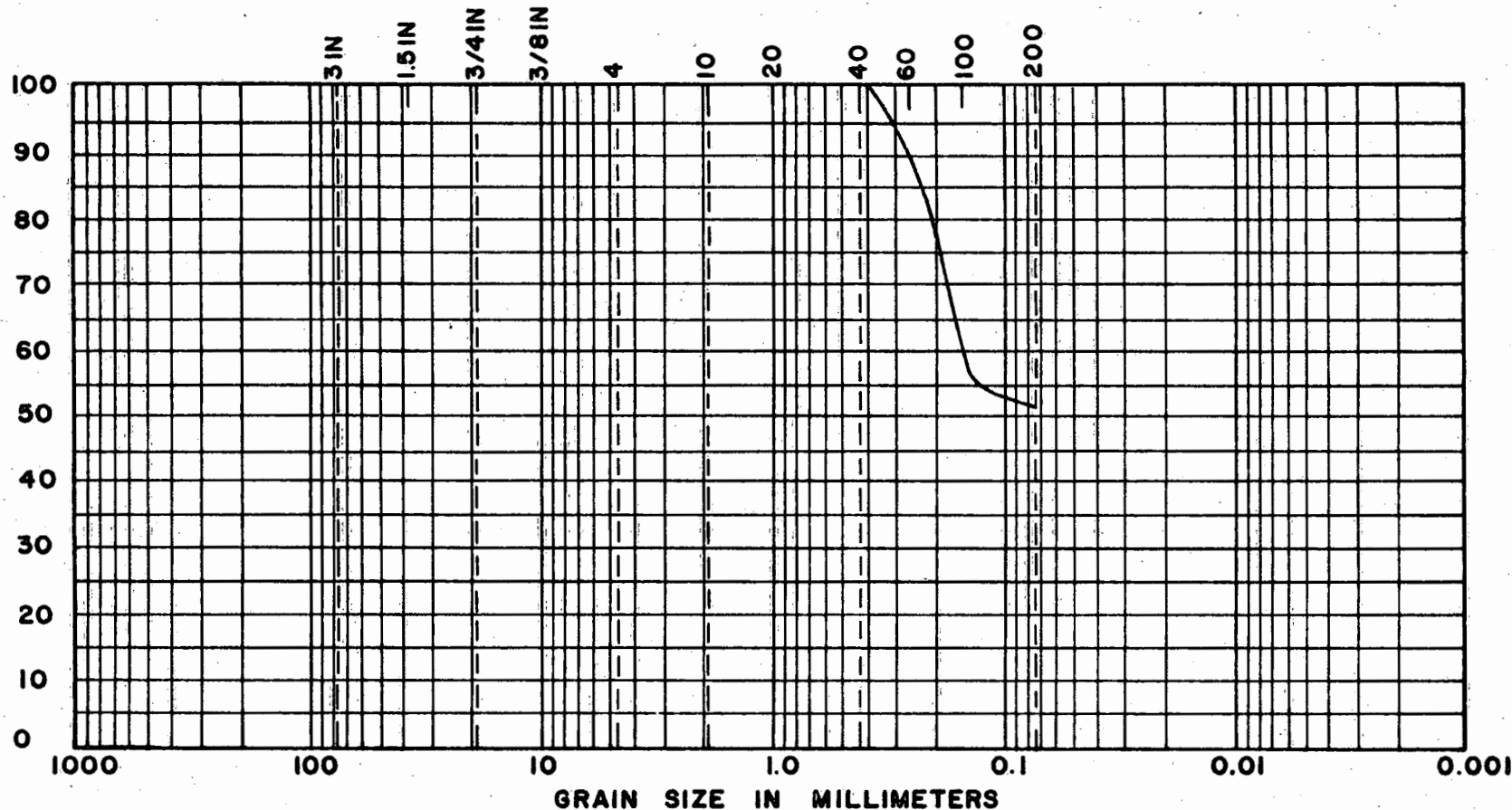
| COBBLES | GRAVEL | | SAND | | | SILT OR CLAY |
|---------|--------|------|------|--------|------|--------------|
| | COARSE | FINE | CO | MEDIUM | FINE | |

| LOCATION | DEPTH | CLASSIFICATION | | | | NAT.WC | LL | PL | PI |
|--------------|-------|----------------|-------------------------------------|--|--|--------|----|----|----|
| T.P. #1, S-2 | 2.0' | SM | SAND; silty, brown and orange-brown | | | | | | |

| | | | | | | | | | |
|---------------------|--|--|--|--|--|------------------|--|--|--|
| MURATA RESIDENCE | | | | | | PLATE NO 8 | | | |
| SOILS INTERNATIONAL | | | | | | FILE NO H-0311-F | | | |

PERCENT FINER BY WEIGHT

U. S. STANDARD SIEVE SIZE



| | | COBBLES | | GRAVEL | | SAND | | | SILT OR CLAY | | | | |
|---------------------|-------|----------------|---------------------------|--------|------|------|--------|------|--------------|----|----|----------|------------|
| | | | | COARSE | FINE | CO | MEDIUM | FINE | | | | | |
| LOCATION | DEPTH | CLASSIFICATION | | | | | | | NAT.WC | LL | PL | PI | |
| Boring #1, S-1 | 2.0' | MH | SILT; sandy, orange-brown | | | | | | | | | | |
| MURATA RESIDENCE | | | | | | | | | | | | PLATE NO | 9 |
| SOILS INTERNATIONAL | | | | | | | | | | | | FILE NO | NOH-0311-F |

WALL (B)

WALL (A)

EMENT

$H=10'$ $64.53'$ $H=12'$

$H=16'$ $TW+31.0'$ $H=18'$

E+30.0
F+15.0

NEW STONE WALL

CUT EX BANK

EDGE OF
CONC. FTG.

NEW CONC. SLAB

8
E+10.0

EF+10.5

EF+11.5

WALL

WALL (A)

WALL (B)

124.8

PL

28.5

16"

6"

12"

H VARIES

10'-0" TO 18'-0"

#6 WEIR HOLES
@ 8'-0" AC

#6 DOWELS @ 4'-0" AC
LAP 4'-0"

12"

1'-6"

1'-6"

2-#4
#4 TIES @ 12"

REINSTEEL

WHEN $H=10'$ #4 @ 12" AC

$H=12'$ #5 @ 12"

$H=14'$ #7 @ 12"

$H=16'$ #9 @ 12"

1'-6"

H VARIES

WHEN $H=10'$ B = 9'-6"

$H=12'$ B = 13'-0"

$H=14'$ B = 17'-0"

$H=16'$ B = 21'-6"

TYP WALL (A)

SEE 1/2" = 1'-0"

16"

2" CLR

28.5

12" MIN

WALL B

WALL A

EASEMENT

H=10' 64.53'

H=14'

H=16'

SW + 3.0 H=18'

E + 30.0
F + 9.0

NEW STONE WALL

EX + 5.5
F + 2.0

TW + 16.5

CUT EX. BANK

EDGE OF
CONC. FIG.

NEW CONC. SLAB

TW + 10.8
E + 9.0 F + 10.0

EF + 10.5

EF + 11.5

EX. WALL

WALL A

WALL B

H=10'

H=14'

H=12'

H=10'

4 TIES @ 12"

REINSTEEL

WHEN H=10' - #4 @ 12" OC

H=12' - #5 @ 12" OC

H=14' - #7 @ 11" OC

H=16' - #9 @ 12" OC

B VARIES

WHEN H=10' - B

H=12' - B

H=14' - B

H=16' - B

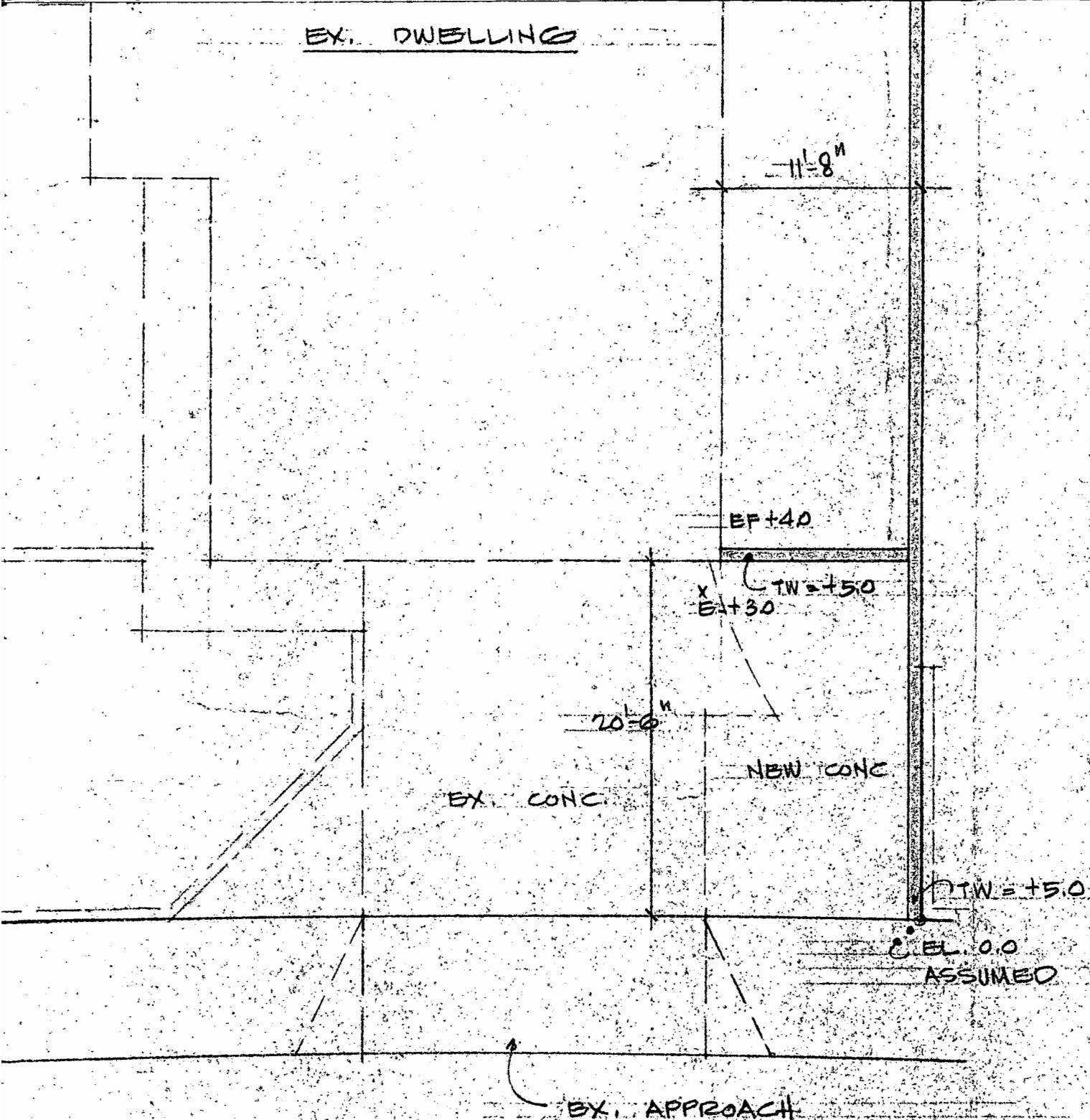
TYP WALL A

SC 1/2" = 1'-0"

124.8

126.0

EX. DWELLING



PINAOLA ST.

PLOT PLAN $\frac{1}{8"} = 1'-0"$

THIS WORK WAS PREPARED BY ME OR
UNDER MY SUPERVISION AND CON-
STRUCTION OF THIS PROJECT WILL BE
UNDER MY SUPERVISION, AS DEFINED
BY CHAPTER 10, SECTION 1.2(N) OF
THE REVISED LAWS OF HAWAII 1955.

Robert K. K. Pang 7/17/80



STONE WALLS for
MR and MRS. KENNETH MURATA
at 3240 PINAOLA ST. MANOA

tax key. 2-9-69-38
date. 6-3-80

1 OF 1

H - HEIGHT VARIES
2'-0" TO 10'-0"

4" CONC. REIN. w/
6x6 10/10 MESH
CUSHION FILL
H > 8' 4'-0"
H < 8' 4'-0"

WIDTH VARIES

DETAIL $\frac{1}{2"} = 1'-0"$

TYP WALL (B)

EXCAVATION REQUIRED = 330 C.Y.

GRADING PERMIT NO. 9230
JUL 18 1980

GRAVEL FILL

4" WEEPS
@ 8'-0" O.C.

FOUNDATION NOTES:

1. ALL FOOTINGS SHALL REST ON FIRM UNDISTURBED NATURAL GROUND.
2. FILLS TO BE USED TO SUPPORT THE FOUNDATIONS OF ANY BUILDING OR STRUCTURE SHALL CONSIST OF POROUS FILL PROPERLY PLACED AND COMPACTED IN ACCORDANCE WITH THE GRADING ORDINANCE AND SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
3. THE CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER 48 HOURS PRIOR TO POURING OF ALL CONCRETE FOOTINGS.

EX. DWELLING

H - HEIGHT VARIES
2'-0" TO 10'-0"

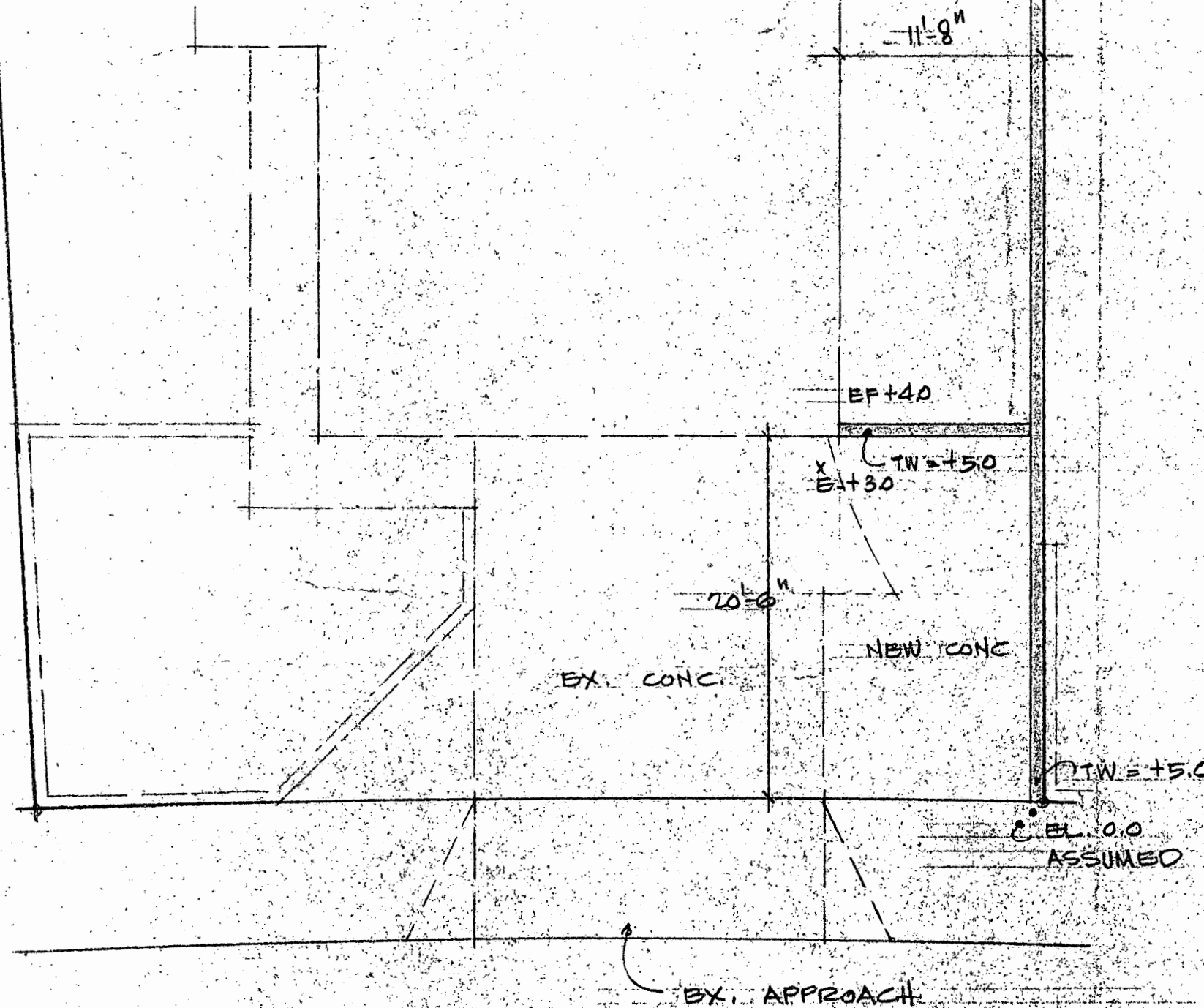
4" CONC. REIN. W/
6x6 10/10 MESH

CUSHION FILL
H > 8' 4'-0"
H < 8' 2'-0"

DETAIL

TYP. WALL

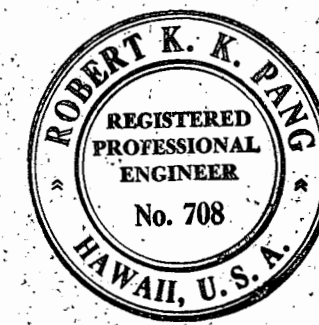
EXCAVATION REQUIRED



PLOT PLAN 1/8" = 1'-0"

THIS WORK WAS PREPARED BY ME OR
UNDER MY SUPERVISION AND CON-
STRUCTION OF THIS PROJECT WILL BE
UNDER MY SUPERVISION, AS DEFINED
BY CHAPTER 10, SECTION 1.2(N) OF
THE REVISED LAWS OF HAWAII 1955.

Robert K. K. Pang 7/17/0



STONE
MR. and M.
at 3240

tax key.
date.