DEPARTMENT OF DESIGN AND CONSTRUCTION

CITY AND COUNTY OF HONOLULU

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JEREMY HARRIS
MAYOR

GARY Q. L. YEE, AIA
DIRECTOR

ROLAND D. LIBBY, JR., AIA
DEPUTY DIRECTOR

IDEA 00-070

April 4, 2000

Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Dear Ms. Salmonson:

Subject: Final Environmental Assessment (DEA) for Narcissus Place Drainage Ditch Improvements, TMK: 3-4-10, 11, and 20, Honolulu, Hawaii

The Department of Design and Construction of the City and County of Honolulu has reviewed the attached Final Environmental Assessment for the subject project and anticipates a Finding of No Significant Impact (FONSI) determination. Please publish the notice of availability for this project in the April 23, 2000, OEQC Environmental Notice.

We have enclosed a complete OEQC Publication Form, four copies of the Final EA and the project summary on disk. Please call Gregory Sue at 527-6304 if you have any questions.

Very truly yours,

DNP GARY Q. L. YEE, AIA
Director

Encl.

50

2000-05-08-OA-FEA—

FINAL ENVIRONMENTAL ASSESSMENT/ FINDING OF NO SIGNIFICANT IMPACT FOR (THE NARCISSUS PLACE DRAINAGE DITCH) IMPROVEMENTS PALOLO VALLEY, OAHU

Proposing Agency:
Department of Design and Construction
City and County of Honolulu

Prepared By:
Marc M. Siah & Associates, Inc.

March 2000

Marc M. Siah & Associates, Inc.
Consulting Civil · Structural · Environmental & Ocean Engineers
810 Richards Street, Suite 888, Honolulu, Hawaii 96813

FINAL ENVIRONMENTAL ASSESSMENT/

FINDING OF NO SIGNIFICANT IMPACT

FOR

THE NARCISSUS PLACE DRAINAGE DITCH

IMPROVEMENTS

PALOLO VALLEY, OAHU

Proposing Agency:
Department of Design and Construction
City and County of Honolulu

Prepared By:
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March 2000

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Marc M. Siah & Associates, Inc.
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FINAL ENVIRONMENTAL ASSESSMENT
FOR
THE NARCISSUS PLACE DRAINAGE DITCH IMPROVEMENTS
PALOLO VALLEY, OAHU

This environmental document is prepared pursuant to Chapter 200 of Title 11, Department of Health Administrative Rules, "Environmental Impact Statement Rules"

PROPOSING AGENCY

Department of Design and Construction
City and County of Honolulu

ACCEPTING AUTHORITY

Department of Design and Construction
City and County of Honolulu

Responsible Official: _____

Date: _____

PREPARED BY:

Marc M. Siah & Associates, Inc.
810 Richards Street, Suite 888
Honolulu, HI 96813
(808)538-7180

March 2000

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Marc M. Siah & Associates, Inc.
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PREFACE

This Final Environmental Assessment is prepared pursuant to the requirements of Chapter 343, *Hawaii Revised Statutes*, Act 241, Section Laws of Hawaii 1992, and Chapter 200 of Title 11, Department of Health Hawaii Administrative Rules, "Environmental Impact Statement Rules".

This assessment documents the technical characteristics and environmental impacts of the proposed drainage ditch improvement project in Palolo Valley, Honolulu, and presents the findings, determination, and reasons supporting the determination associated with the significance of the project.

SUMMARY OF THE FINAL ENVIRONMENTAL ASSESSMENT FOR THE NARCISSUS PLACE DRAINAGE DITCH IMPROVEMENTS

Marc M. Siah & Associates, Inc.
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SUMMARY OF THE FINAL ENVIRONMENTAL ASSESSMENT FOR THE NARCISSUS PLACE DRAINAGE DITCH IMPROVEMENTS PALOLO VALLEY, OAHU

A. PROPOSING AGENCY

Mr. Gary Q.L. Yee, Director
Department of Design and Construction
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813
Contact: Mr. Gregory Siu

B. APPROVING AUTHORITY

Mr. Gary Q.L. Yee, Director
Department of Design and Construction
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813
Contact: Mr. Gregory Siu

C. NAME OF ACTION

Environmental Assessment for the Narcissus Place Drainage Ditch Improvements.

D. DESCRIPTION OF PROPOSED ACTION

The Department of Design and Construction, City and County of Honolulu is proposing to construct improvements to the existing earth-lined drainage ditch "B" located along Narcissus Place, and drainage ditch "A" mauka of Narcissus Street in Palolo Valley. The improvements consist of construction of two new 8-foot wide concrete-lined rectangular ditches to replace the existing earth-lined ditches. The two new ditches will ensure better interception and diversion of storm runoff from City and conservation lands into the existing intake structure at the end of Carlos Long Street.

E. PROJECT SETTING

The project site is located in Palolo Valley, Honolulu, Hawaii. The existing drainage system, located along Narcissus Place and above Narcissus Street, consists of two earth-lined drainage ditches referred to as diversion ditch A and B. Ditch A is approximately 389 lineal feet, and ditch B is approximately 264 lineal feet. The two ditches collect runoff waters generated on their tributary areas and drain into an existing concrete intake structure at the end of Carlos Long Street. The storm water then flows into a 36- inch storm drain along Carlos Long Street, and ultimately discharges into Pukele Stream.

F. RELATIONSHIP TO PLANS, POLICES AND CONTROLS

Plan, policies, and controls considered in the evaluation of the project site are as follows:

- State Land Use Districts
- Honolulu City and County General Plan.

G. PROBABLE IMPACTS

Impacts associated with the proposed project can be classified as having short-term and long-term effects. Short-term impacts are those related to construction activities, namely noise, air quality, water quality, erosion, and public health and safety. Long-term impacts are those associated with operation of the drainage improvements. These include impacts on flora, fauna, social, public health and safety, infrastructure and traffic.

Short-term Impacts

The impacts generated from the construction activities are not expected to be significant. During construction, soil erosion control measures and appropriate Best Management Practices (BMPs) will be implemented. Potential soil loss is anticipated to be minimal and within an acceptable range. There will be no impacts on water quality, historical or archaeological features, and there are no known rare and threatened species of flora and fauna in the project site.

Noise control measures such as muffling devices will be employed on construction equipment during construction.

Dust control measures such as sprinkling and watering will be implemented to minimize emissions.

Adequate traffic control and coordination shall be necessary during construction to minimize inconvenience to the residents.

Long-term Impacts

In the long-term, the projcct will not have adverse environmental impacts. In fact it will alleviate perennial flooding in the area. In addition, the proposed project is not expected to adversely affect the existing water quality or biota within the project site.

H. ALTERNATIVES CONSIDERED

No Action

The no action alternative means that no drainage improvements will be constructed which in turn may result in continued flooding during rainy seasons. This alternative is not acceptable to the community since the absence of suitable drainage facilities in the vicinity of Narcissus Street and Narcissus Place causes flooding which affects traffic and threatens residents' properties during heavy rains.

Delayed Action

The delayed action alternative means that the drainage improvements will be constructed some time in the future. This alternative will result in persistence of flooding hazard and traffic impacts on the community until the drainage improvements are constructed.

Alternative Designs

Two alternative designs were investigated in an engineering report for this project. They included a concrete-lined channel and CRM-lined channels. Hydraulic analyses of these alternatives concluded that, in order to accommodate the storm flows, a CRM channel would require a larger cross-section than a concrete channel. Concrete-lined channels, therefore, provided better hydraulic efficiency and lower construction costs than the CRM-lined channels.

I. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The proposed drainage improvement project involves irreversible and irretrievable uses of energy, labor, materials, and capital funds by the City and County of Honolulu. Construction of ditch improvements will resolve the flooding hazard in the Narcissus Street and Narcissus Place areas.

J. LIST OF NECESSARY PERMITS AND APPROVALS

Permits required in order to fulfill the drainage ditch improvements are listed as follows:

Permit	Approving Agencies	Approximate Processing Time
Grading Permit	Department of Planning and Permitting City and County of Honolulu Division of Site Development	2 - 4 weeks

SECTION 1

INTRODUCTION

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SECTION 1

INTRODUCTION

1.1 STUDY PURPOSE

The purpose of this study is to assess the environmental impacts of construction of improvements to the existing drainage ditches along Narcissus Place and mauka of Narcissus Street proposed by the City and County of Honolulu. Construction of these improvements will greatly improve the capacity and reliability of the existing drainage system and will reduce flooding in the area.

1.2 EXISTING DRAINAGE PATTERNS

Palolo Valley is located east of St. Louis Heights in the Honolulu Urban Center. The valley is bounded by the Kalaepohaku ridge on the north, Waialae Avenue on the south, and 10th Avenue on the east. Pukele and Waiomao Streams are the natural drainage path ways in the valley which meet at lower elevations to form the Palolo Stream. A network of storm drain system collects storm runoff from the urbanized sections in the valley and drains into the Palolo Stream.

The existing drainage ditches A and B, are two earth-lined diversion channels located along the southern boundary of the City land. The alignments, profiles and cross-sections for the two diversion channels are presented in Figure 1-1 through Figure 1-5. These two channels collect runoff water generated on conservation and City lands and drain into an existing intake structure at the intersection of ditch A and B at the end of Carlos Long Street.

1.3 PROPOSED ACTION

The action proposed by the Department of Design and Construction is to construct approximately 653 lineal feet of two new rectangular, 8-foot wide concrete-lined ditches to replace the existing and inadequate drainage ditches A and B. The new channels will collect runoff waters generated on areas mauka of Narcissus Place and Street and convey the runoff to an existing intake structure at the end of Carlos Long Street. The alignments, profiles and cross-sections for the two new concrete-lined channels are presented in Figures 1-6 through 1-9.

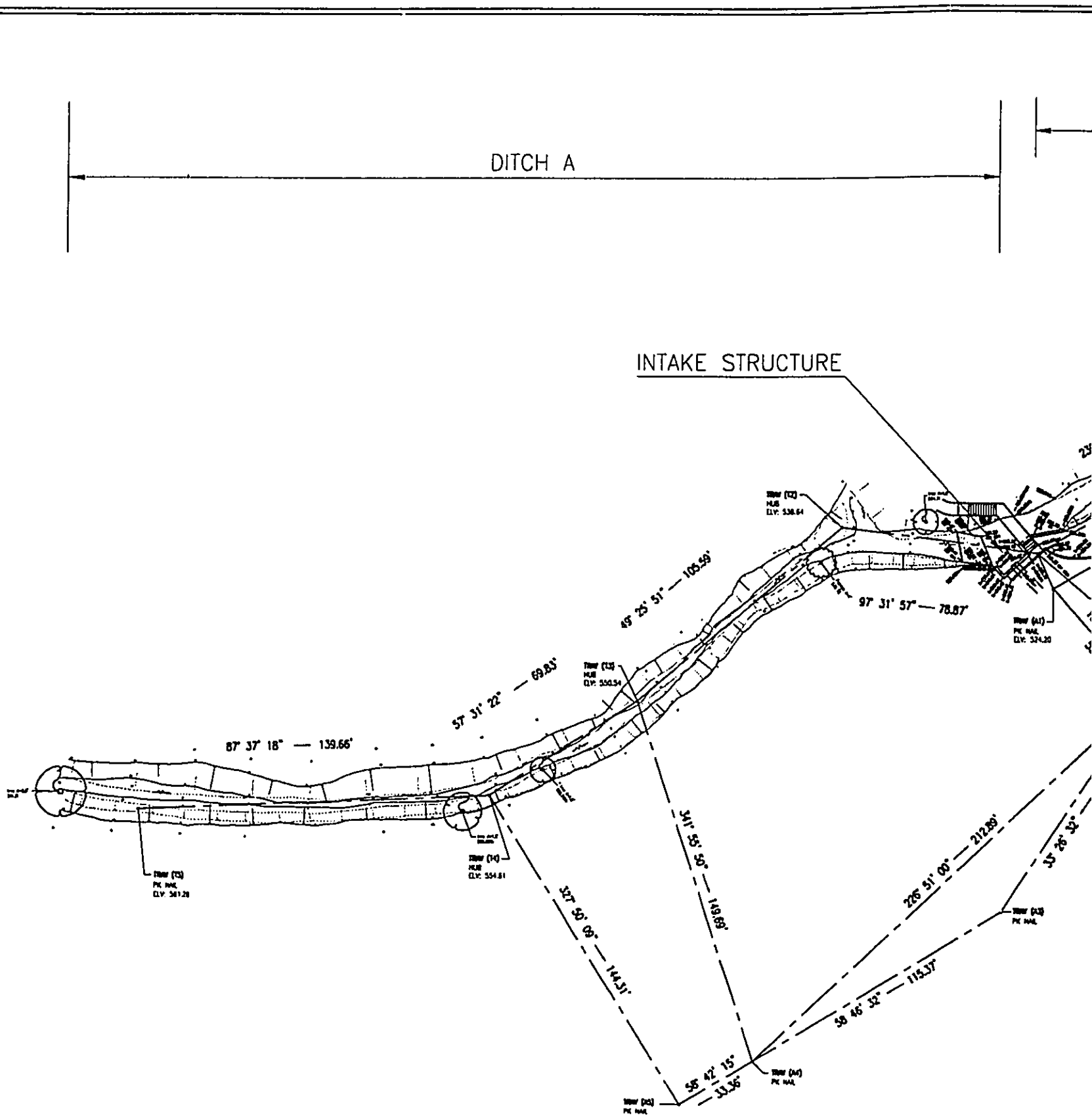

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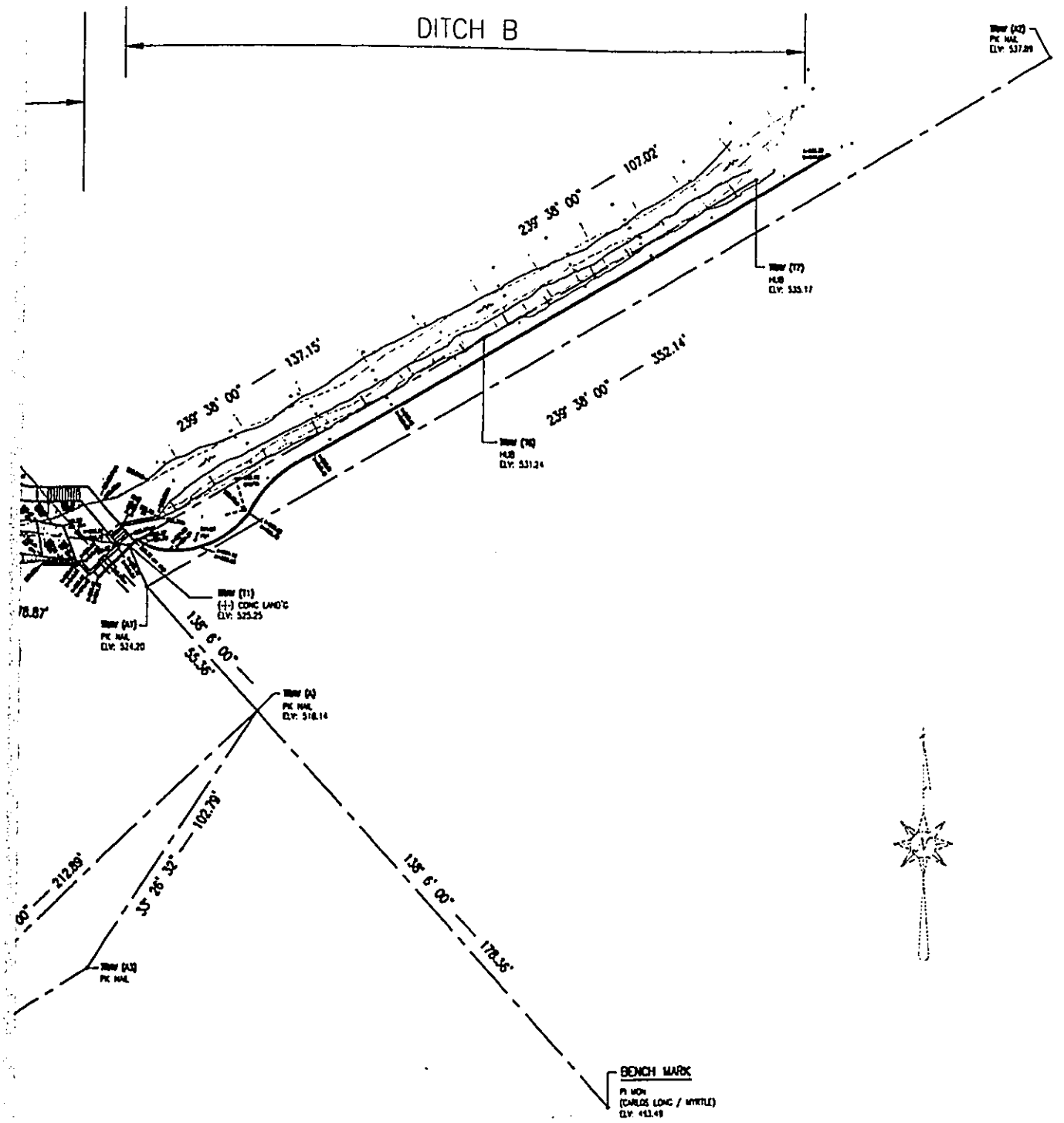
Figure 1-1 Alignments of Existing Diversio



xisting Diversion Ditches A and B

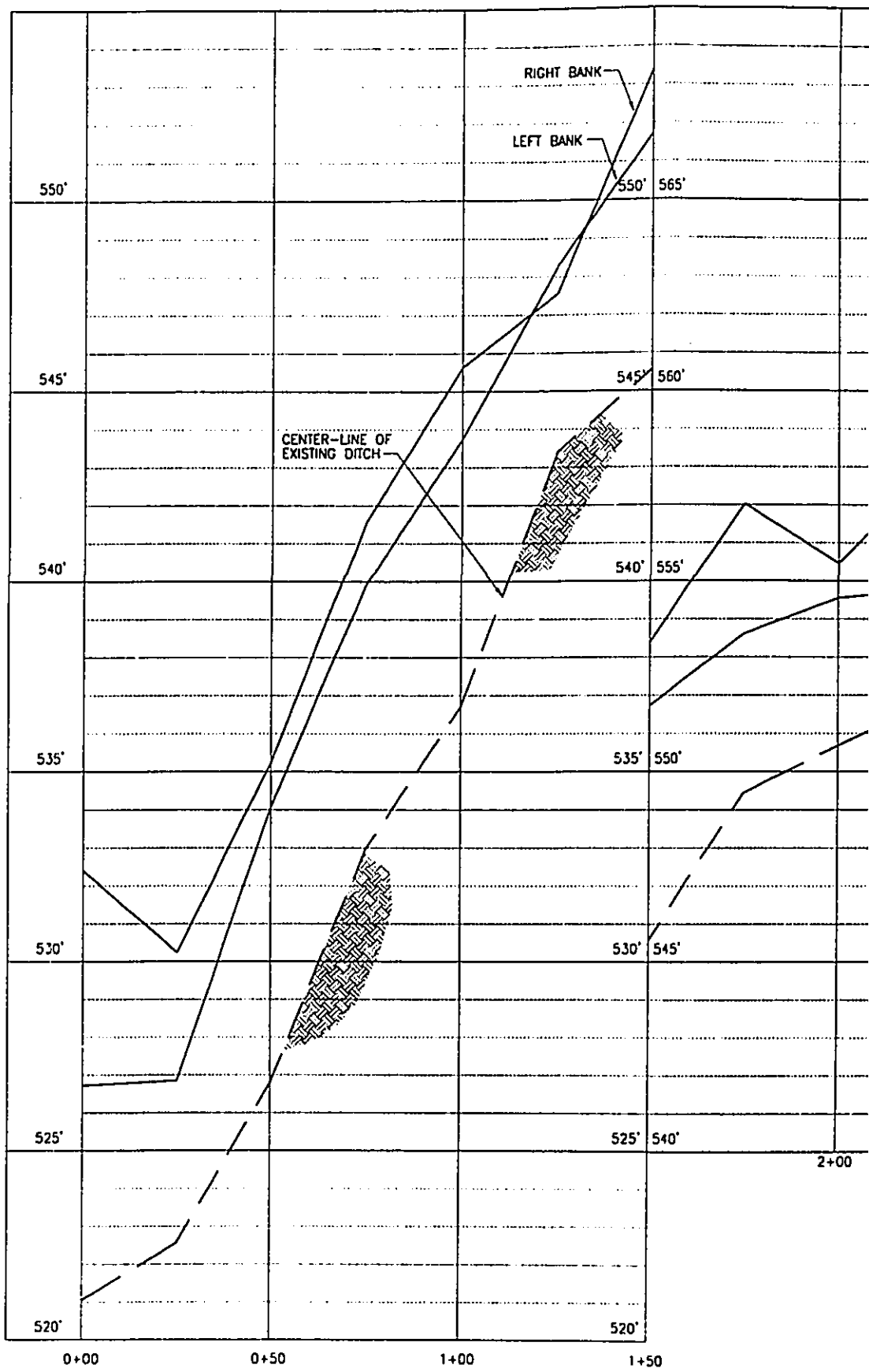


Figure 1-2 Profile of

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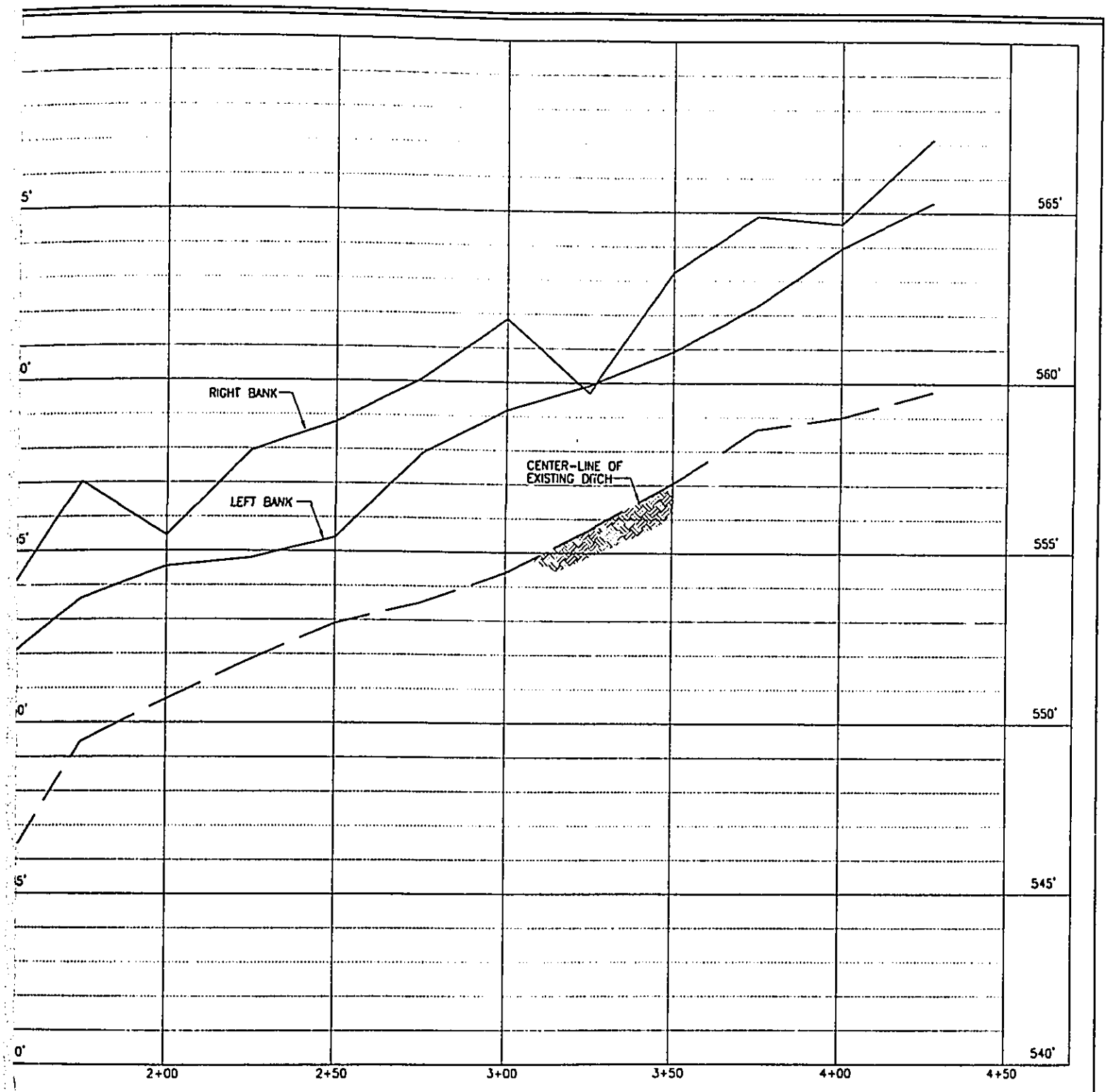

GRAPHIC SCALES:

2' 1' 0 1' 2' 4' 8'

VERTICAL SCALE: 1"=4'-0"

20' 0 20' 40' 80'

HORIZ. SCALE: 1" = 40'-0"

e 1-2 Profile of Existing Ditch A

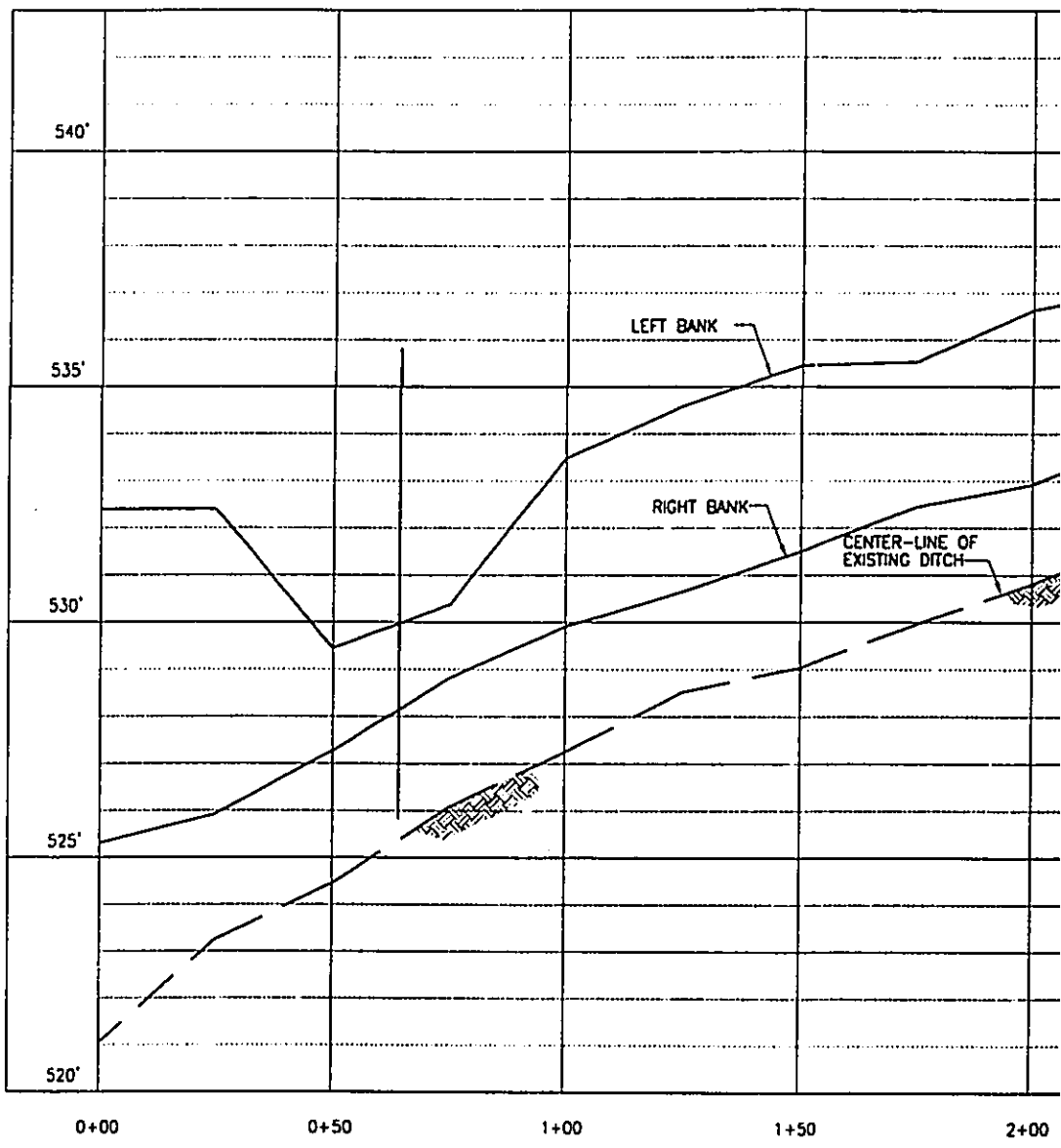

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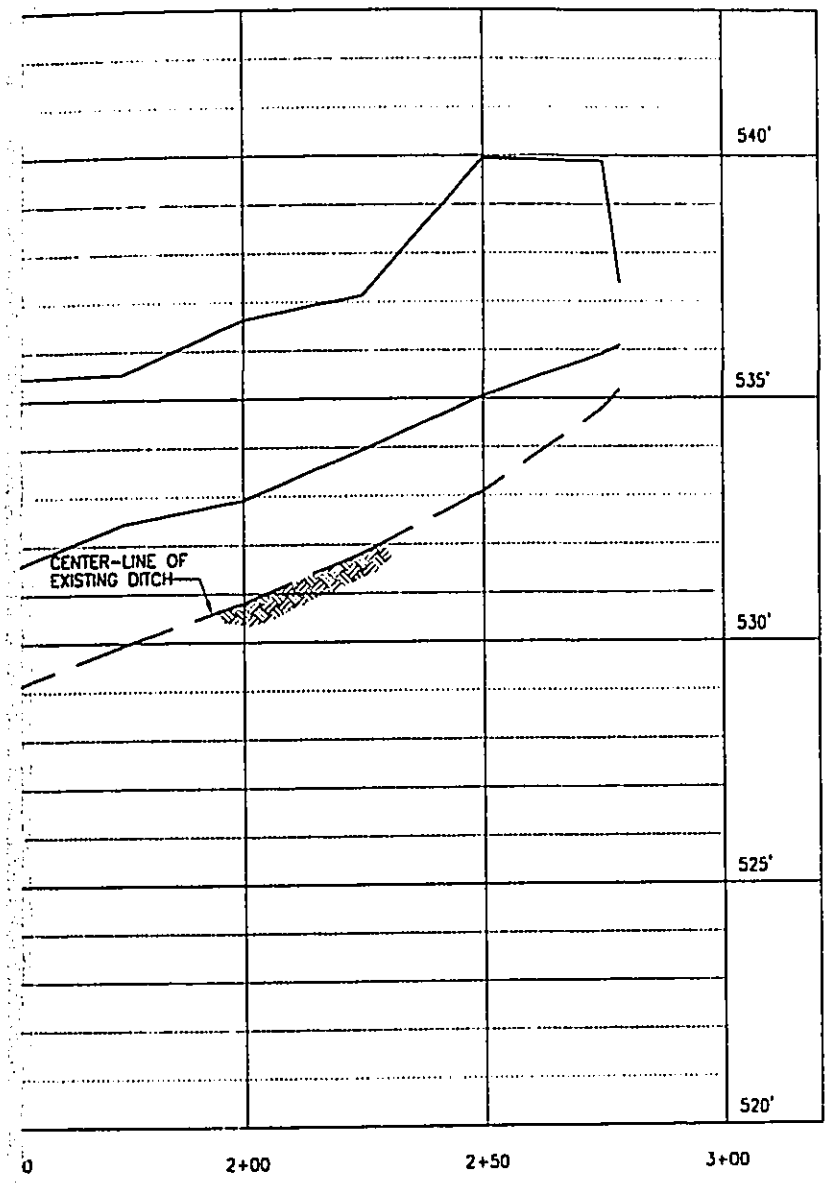
Figure 1-3 Profile of Existing Ditch B



Ditch B

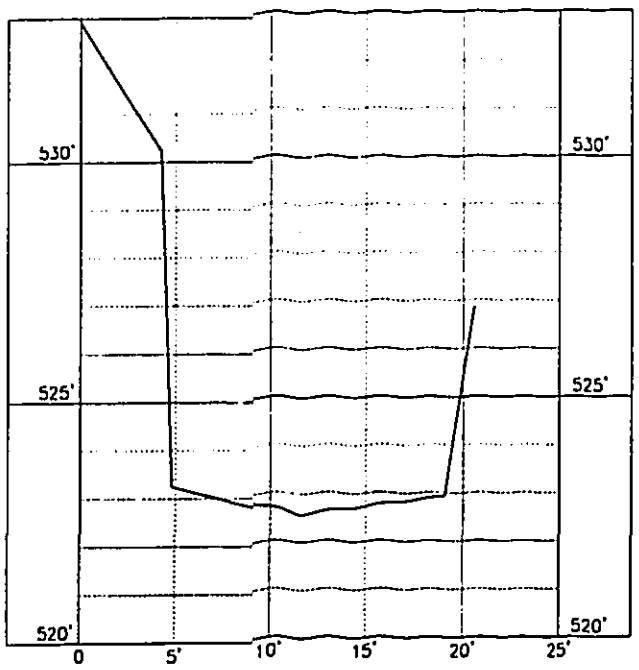
GRAPHIC SCALES:

2' 1' 0 1' 2' 4' 8'

VERTICAL SCALE: 1"=4'-0"

20' 0 20' 40' 80'

HORIZ. SCALE: 1" = 40'-0"



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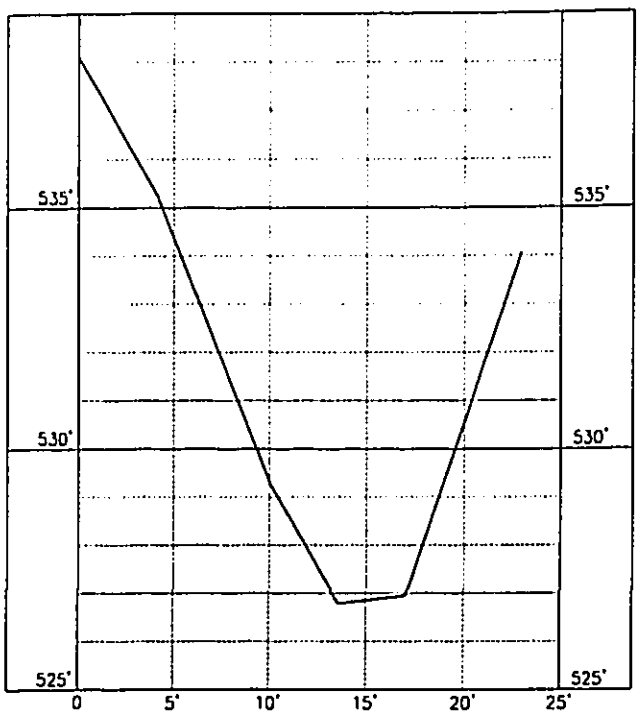

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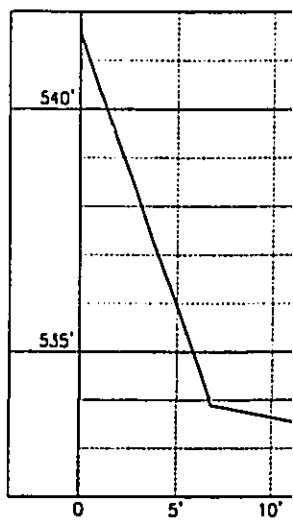
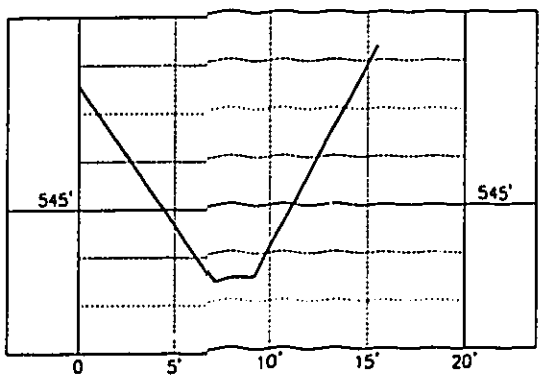


CROSS SE

SCALE: HORIZ: 1"



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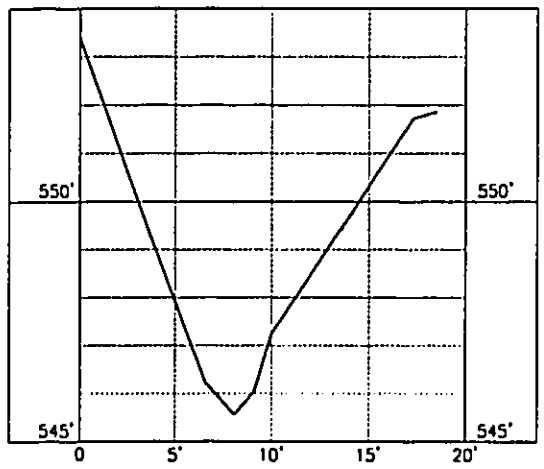

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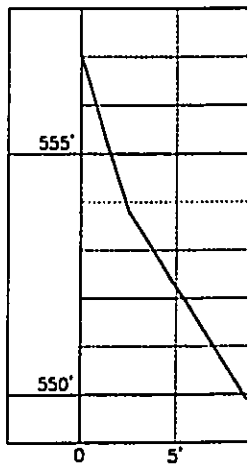

CROSS SEC

SCALE: HORIZ: 1"=5'

FIGURE4-23.DWG 12/08/99 14:00

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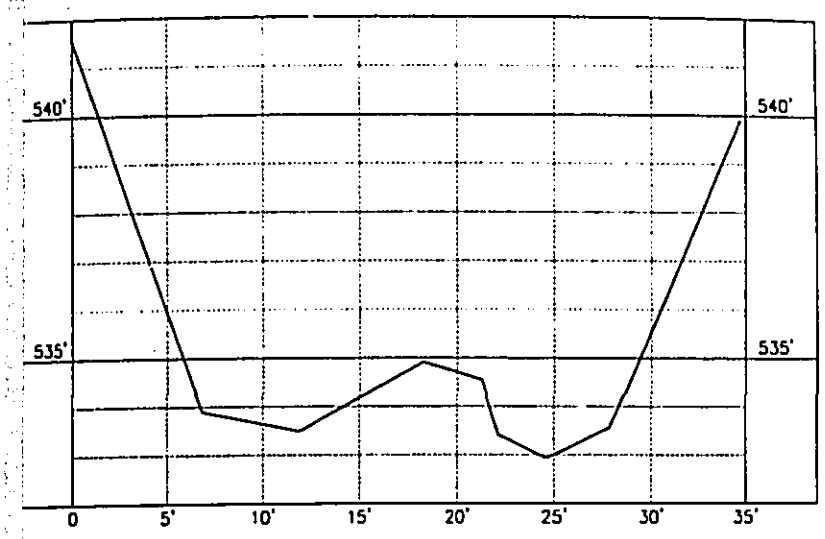
Figure 1-4 Cross-Sections Along Existing



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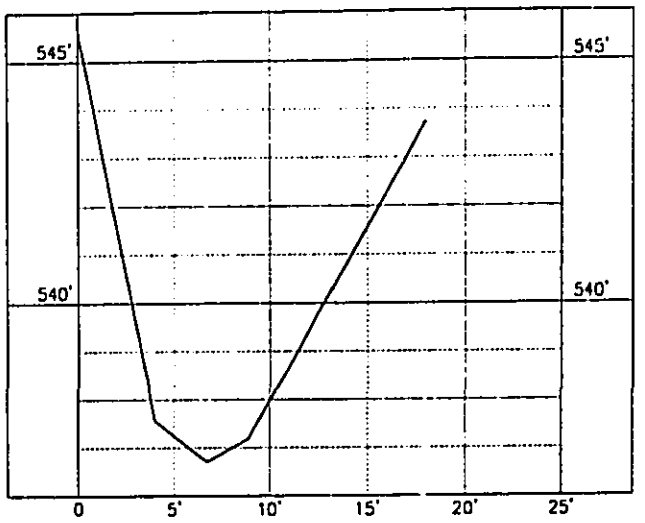

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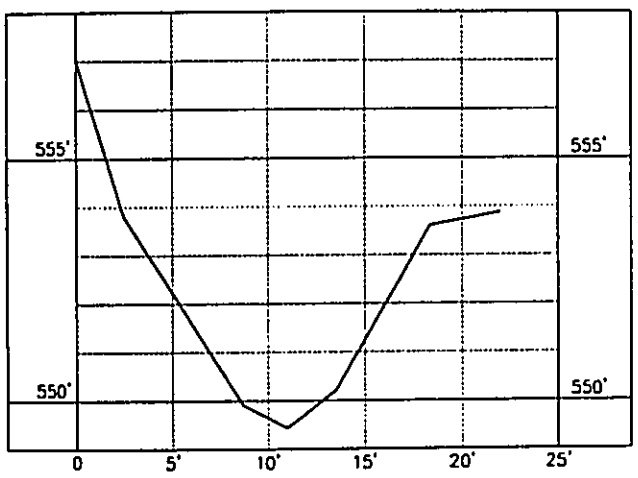

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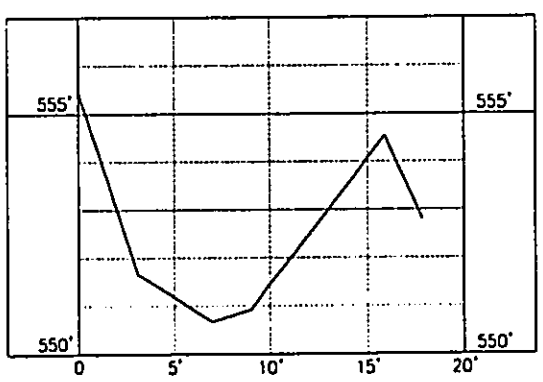

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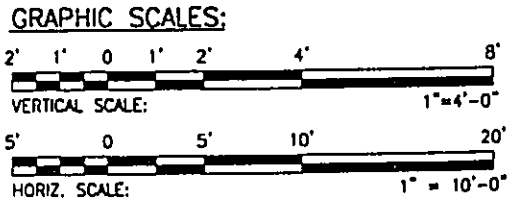
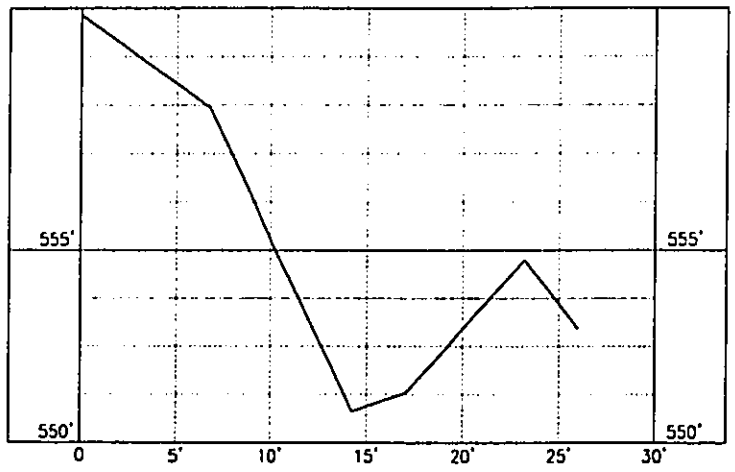
SCALE: HORIZ: 1"=5'; VERT : 1"=2'

GRAPHIC SCALES:



Along Existing Ditch A



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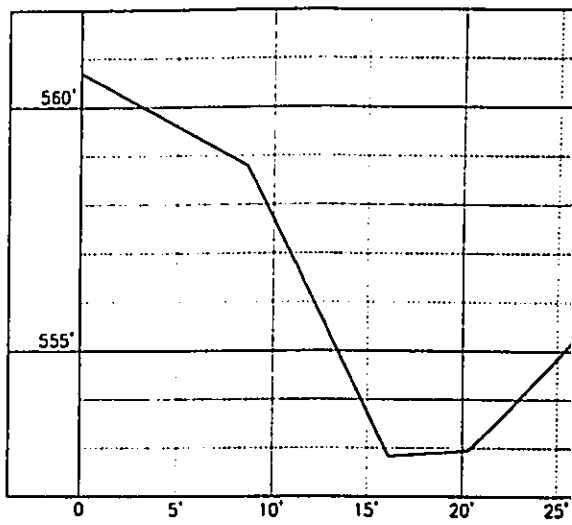

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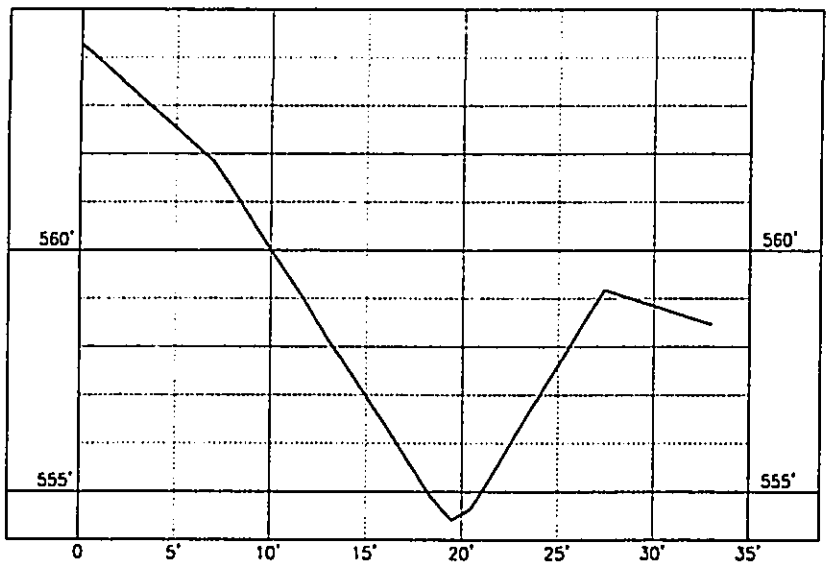

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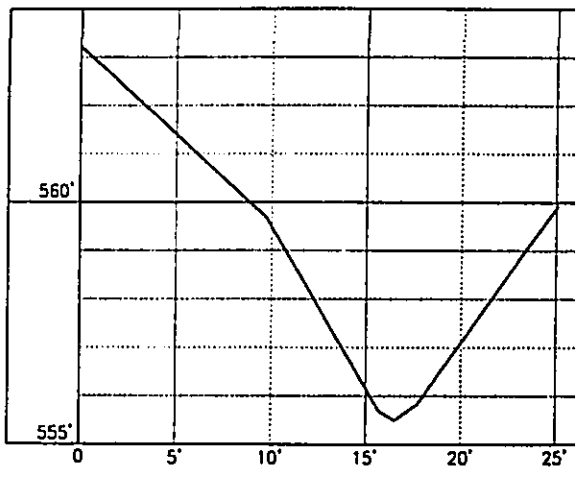

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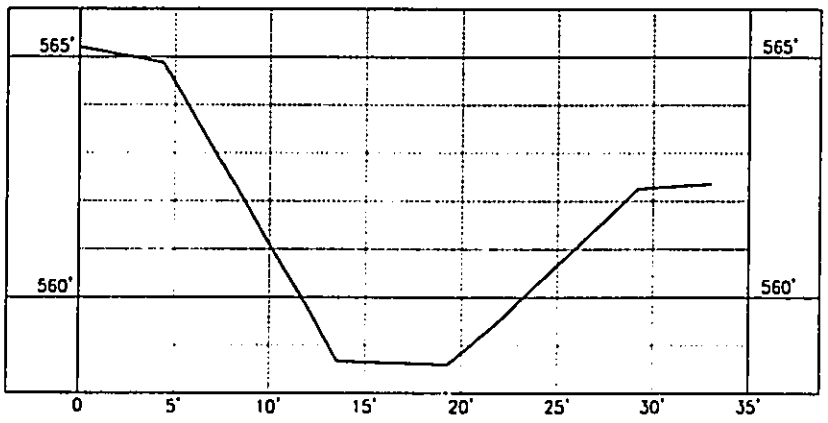

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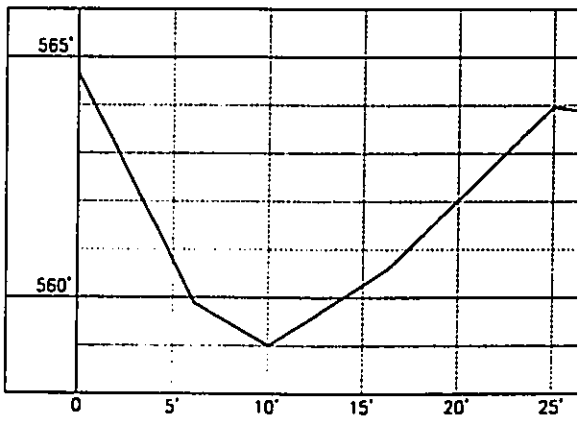

CROSS SECTION @ STA, 4

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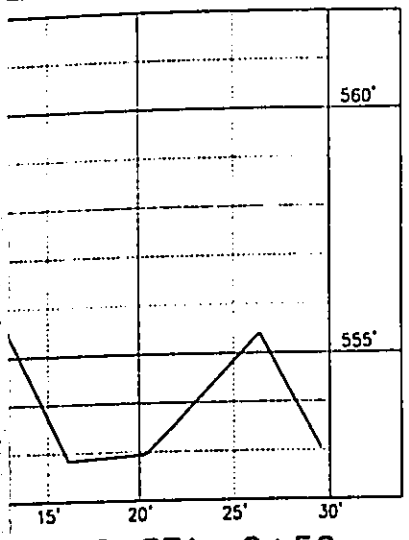
Figure 1-4 Cross-Sections Along Existing Ditch



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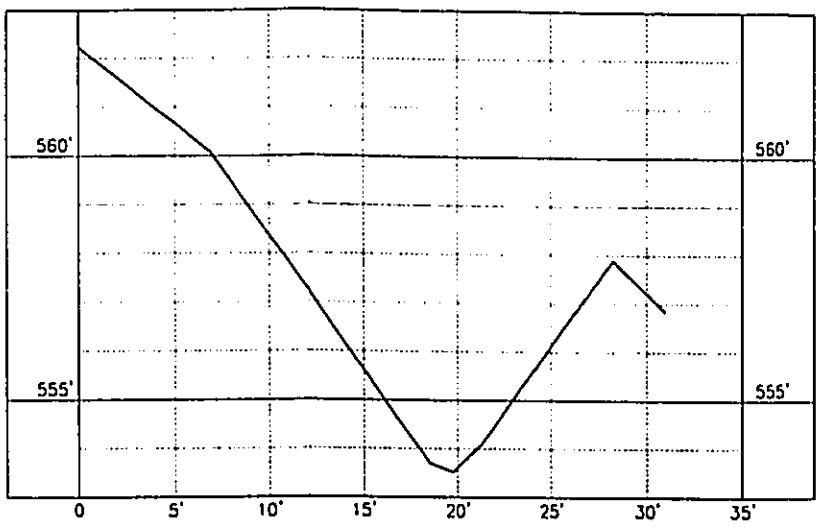

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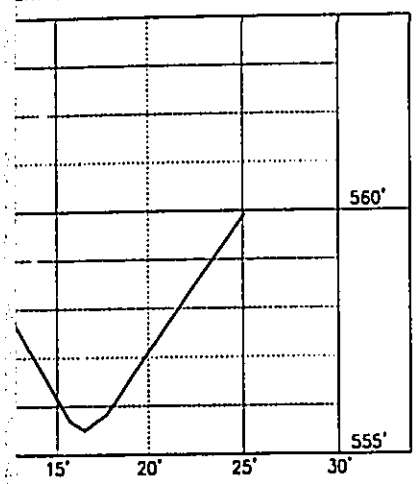
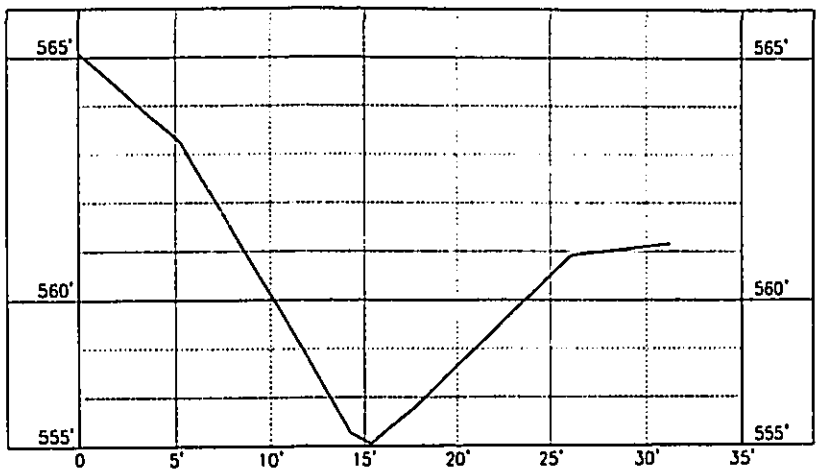


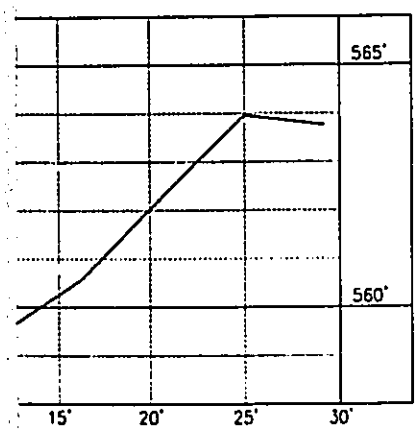
ION @ STA, 3+25

VERT : 1"=4'



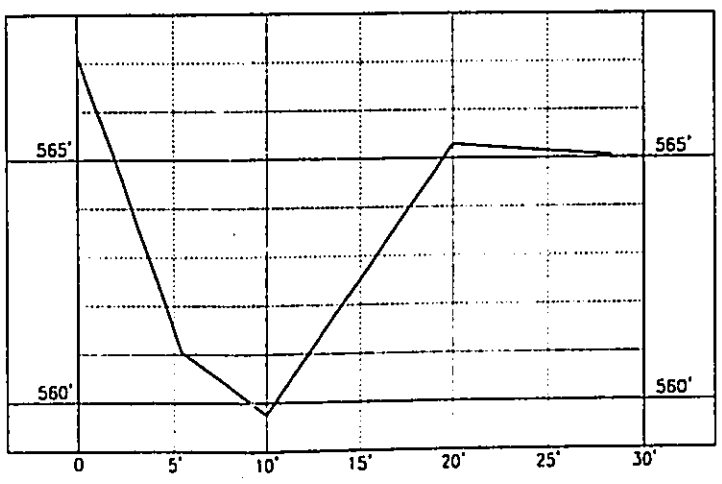
CROSS SECTION @ STA, 3+50

SCALE: HORIZ: 1"=10'; VERT : 1"=4'



ON @ STA, 4+00

ERT : 1"=4'

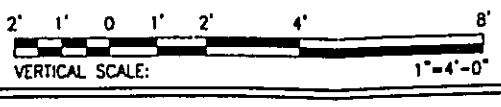


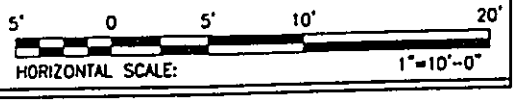
CROSS SECTION @ STA, 4+27.3

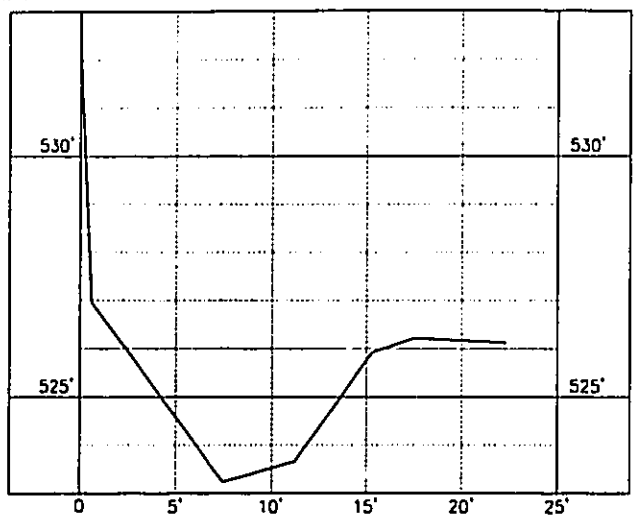
SCALE: HORIZ: 1"=10'; VERT : 1"=4'

g Existing Ditch A (Cont.)

GRAPHIC SCALES:







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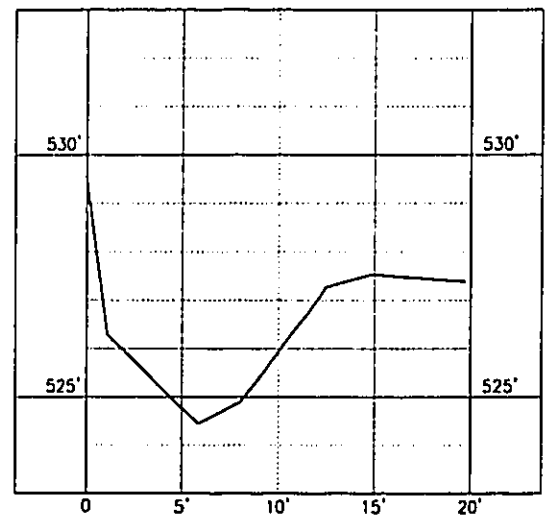

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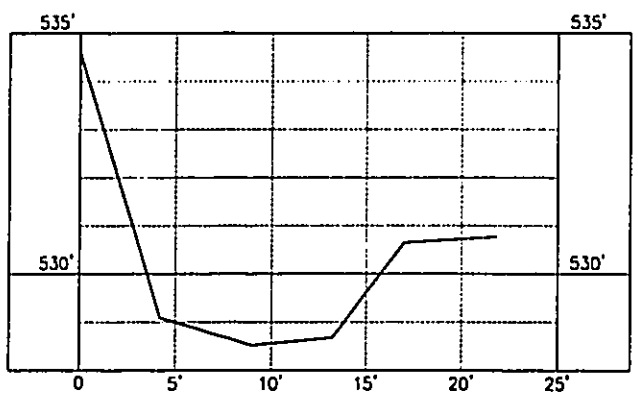
CROSS

SCALE: HORIZ



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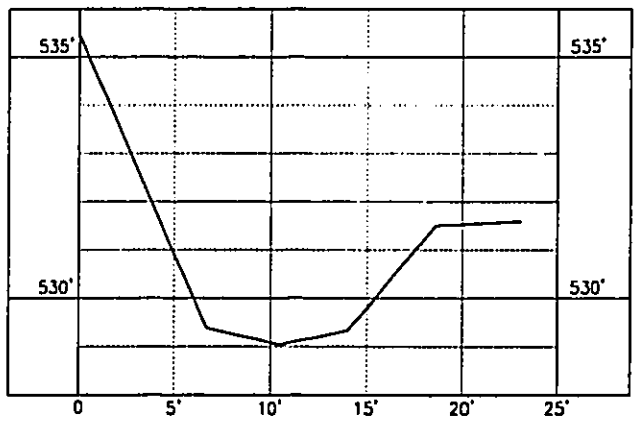

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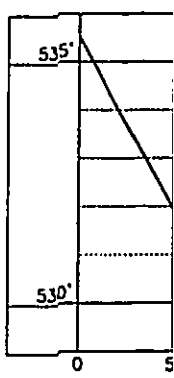
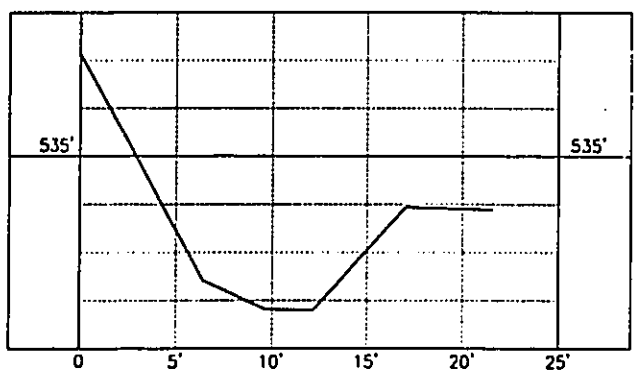


CROSS

SCALE: HORIZ



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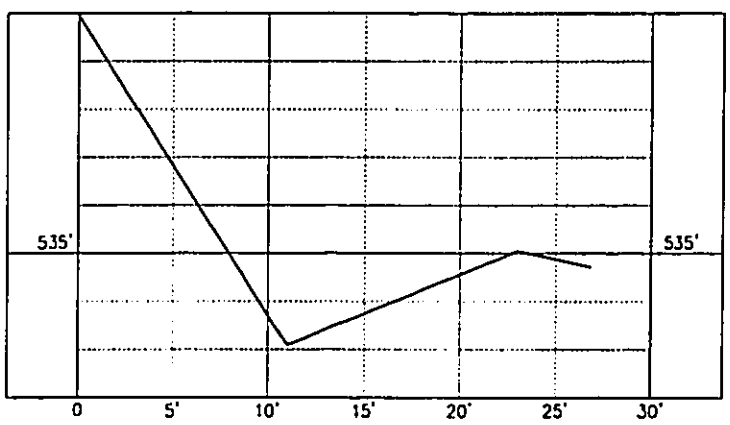

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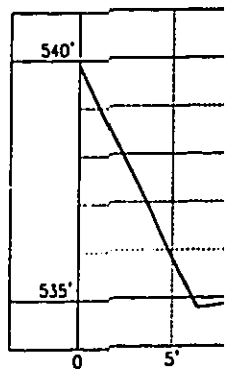

CROSS

SCALE: HORIZ:

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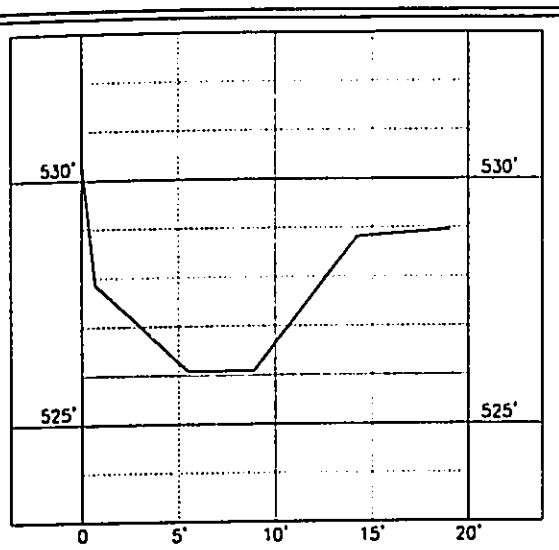
FIGURE4-23.DWG 12/08/99 14:00

Figure 1-5 Cross-Sections Along Existing Ditch



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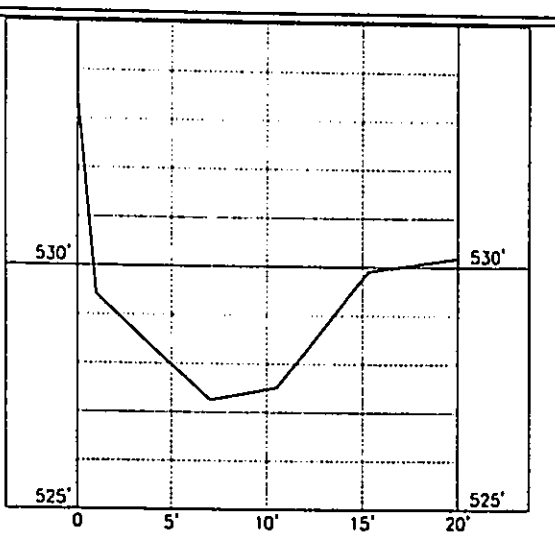

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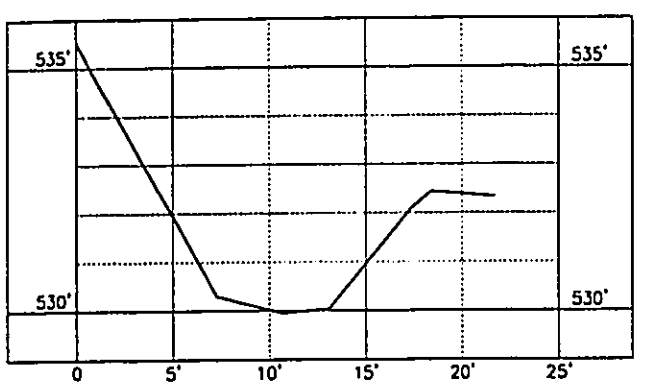

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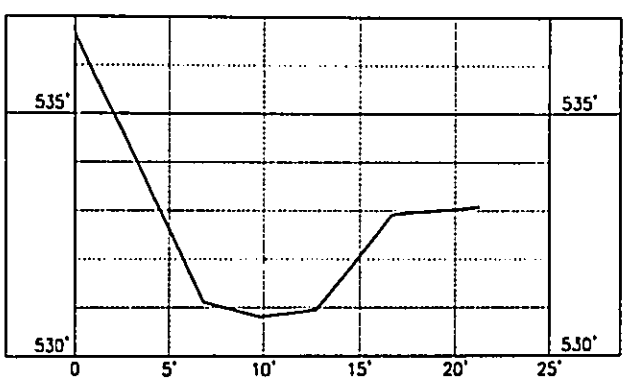

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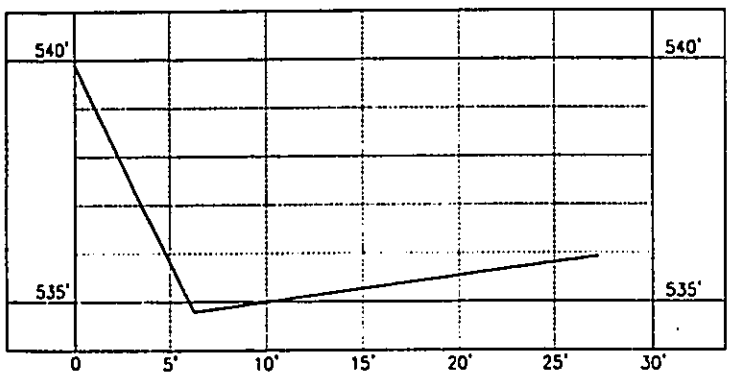

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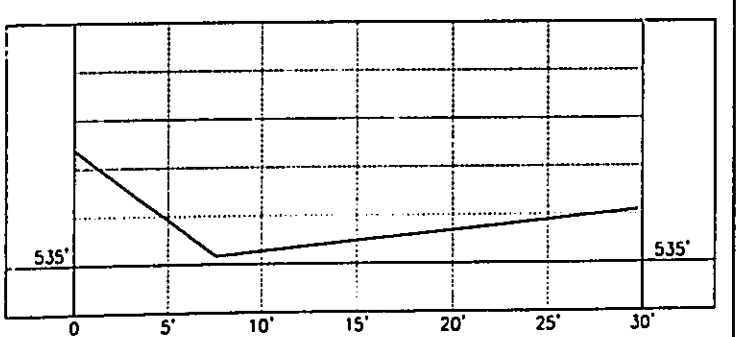
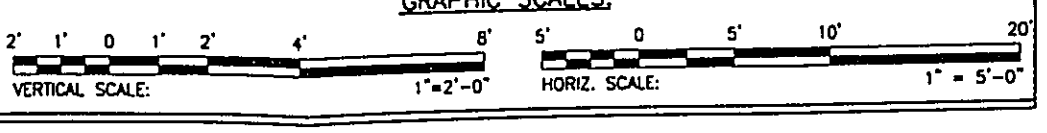


CROSS SECTION @ STA. 2+78.42

SCALE: HORIZ: 1"=5'; VERT : 1"=2'

Existing Ditch B

GRAPHIC SCALES:



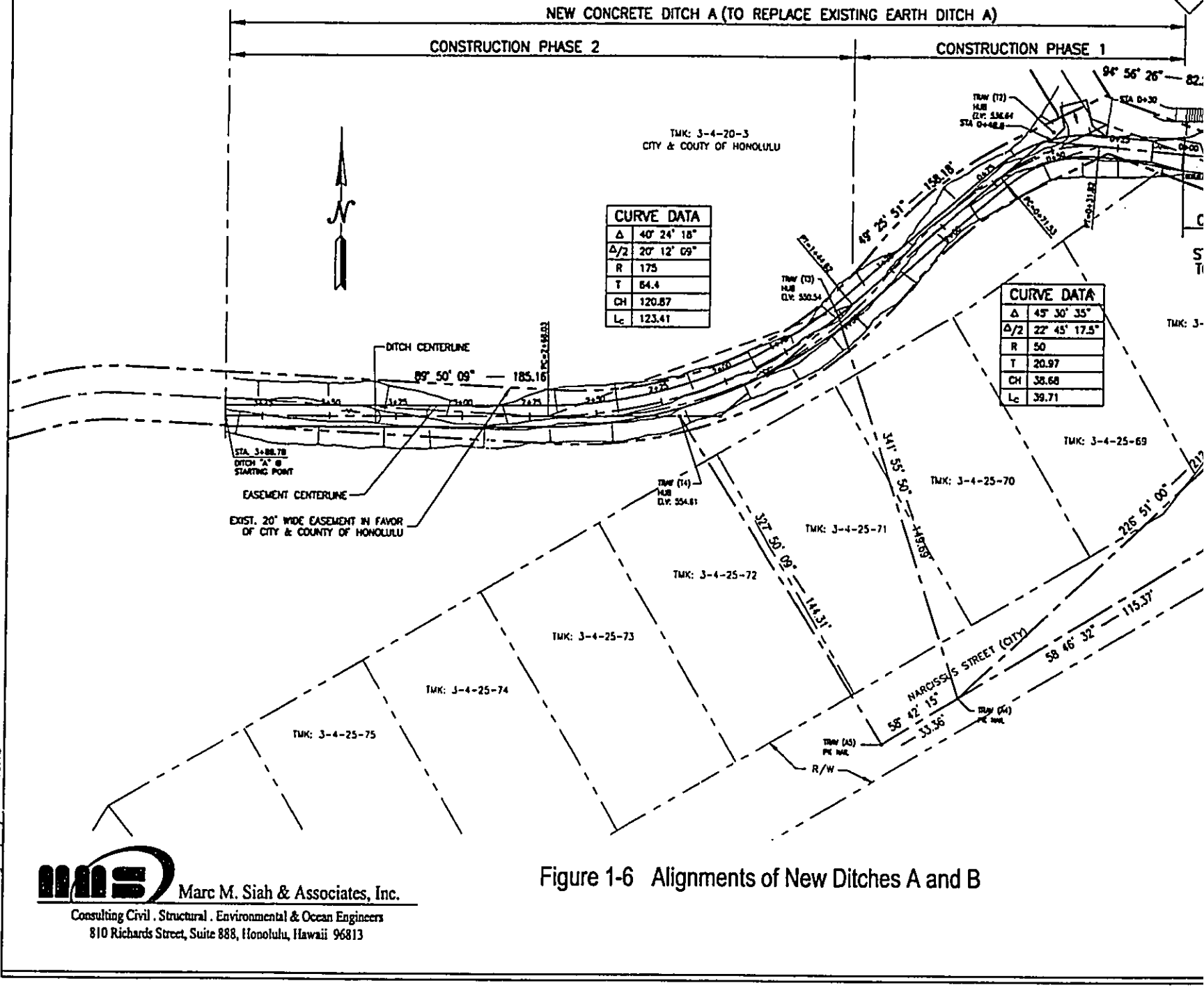


Figure 1-6 Alignments of New Ditches A and B

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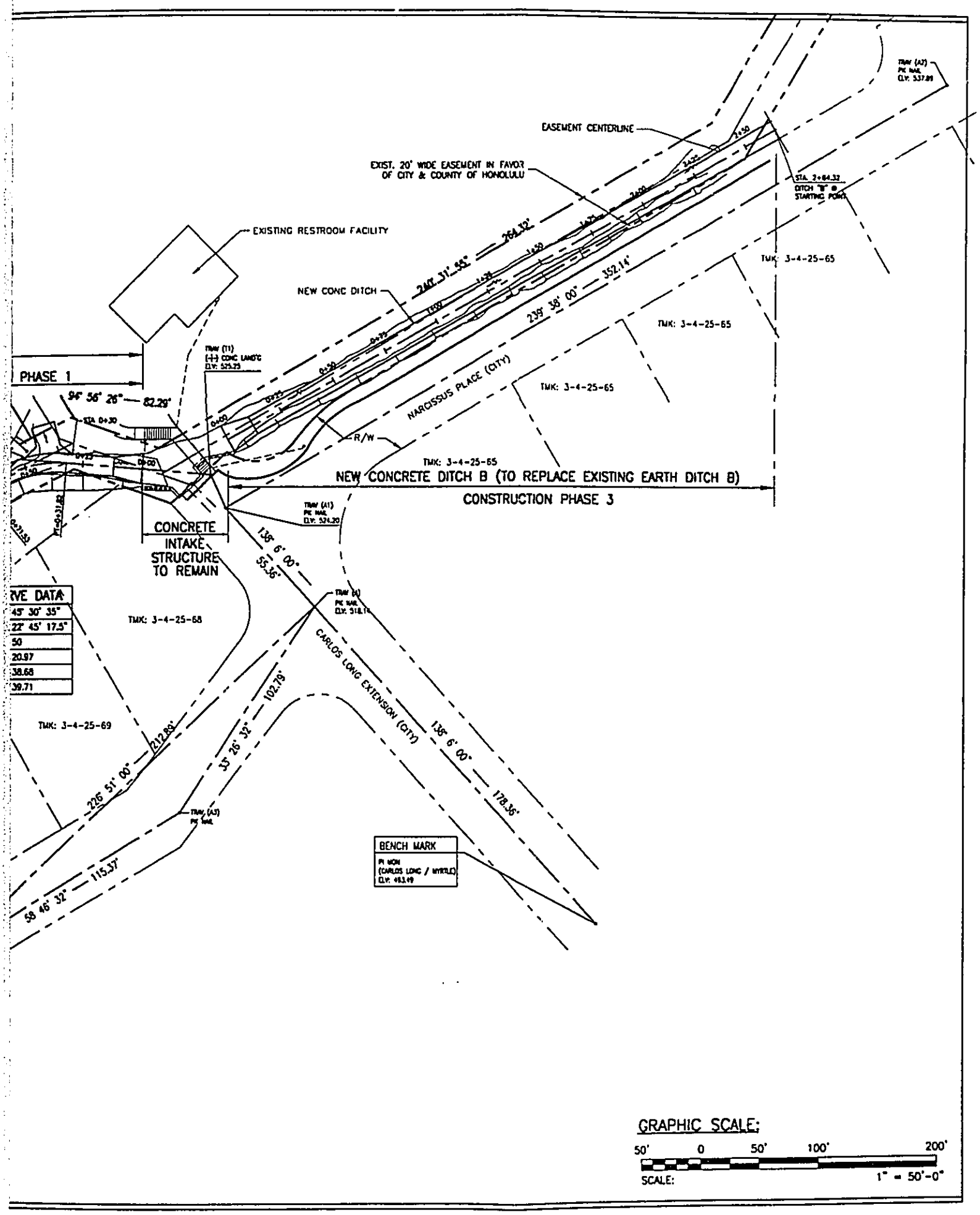
EASEMENT CENTERLINE
EXIST. 20' WIDE EASEMENT IN FAVOR OF CITY & COUNTY OF HONOLULU
EXISTING RESTROOM FACILITY
NEW CONC DITCH
PHASE 1
NARCISSUS PLACE (CITY)
R/W
TMK: 3-4-25-65
NEW CONCRETE DITCH B (TO REPLACE EXISTING EARTH DITCH B)
CONSTRUCTION PHASE 3
CONCRETE INTAKE STRUCTURE TO REMAIN
TMK: 3-4-25-68
TMK: 3-4-25-69
CARLOS LONG EXTENSION (CITY)
BENCH MARK
96° 56' 26" — 82.29'
264.32'
240° 31' 55"
239° 38' 00" — 352.14'
135° 6' 00" — 55.36'
135° 6' 00" — 178.35'
35° 26' 32" — 102.79'
226° 51' 00" — 212.88'
58° 46' 32" — 115.37'
RVE DATA
45° 30' 35"
22° 45' 17.5"
50
20.97
38.68
39.71
GRAPHIC SCALE:
50' 0 50' 100' 200'
SCALE: 1" = 50'-0"

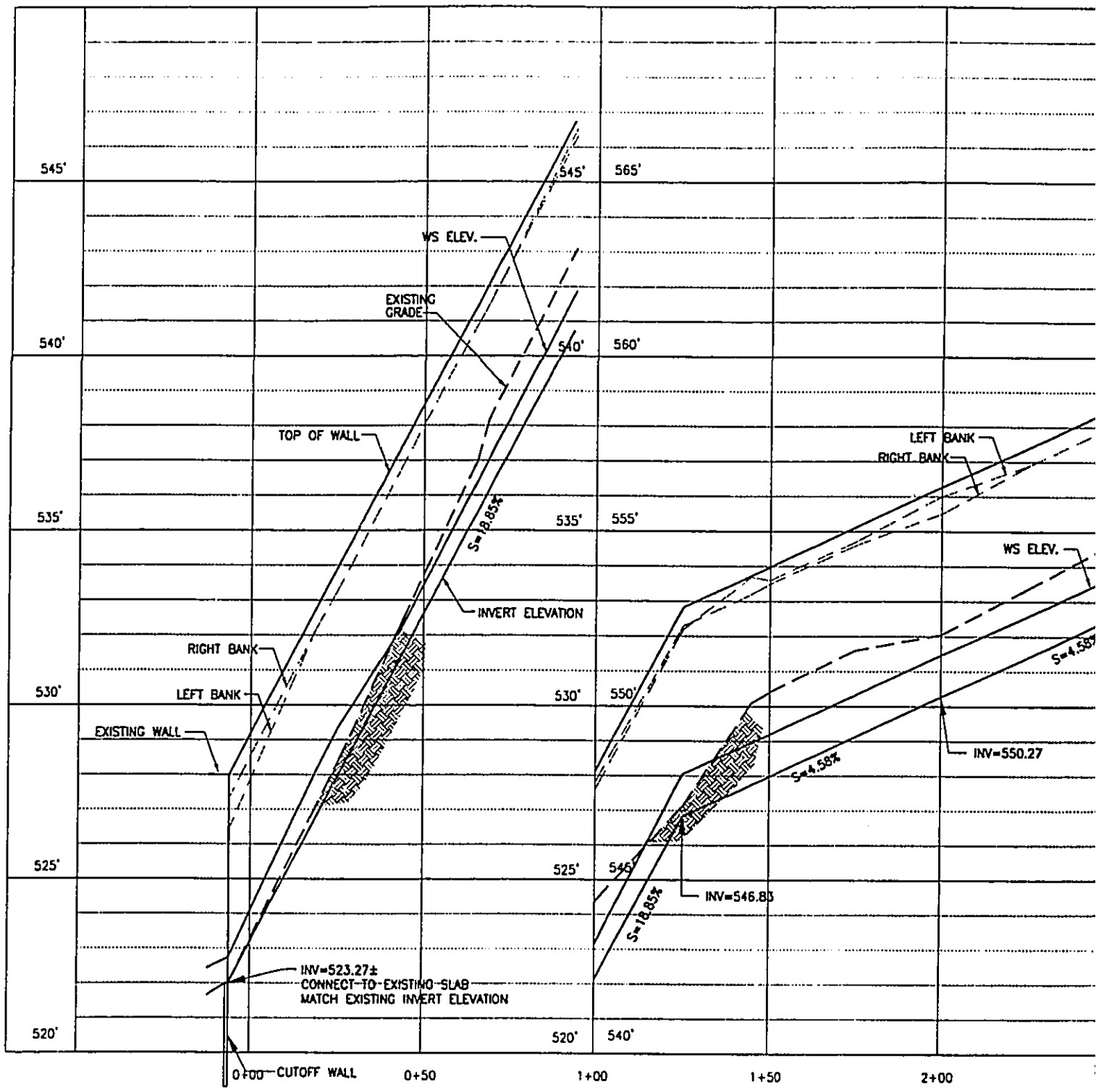

Figure 1-7 Profile of New Concrete-lined Rectangular Ditch A

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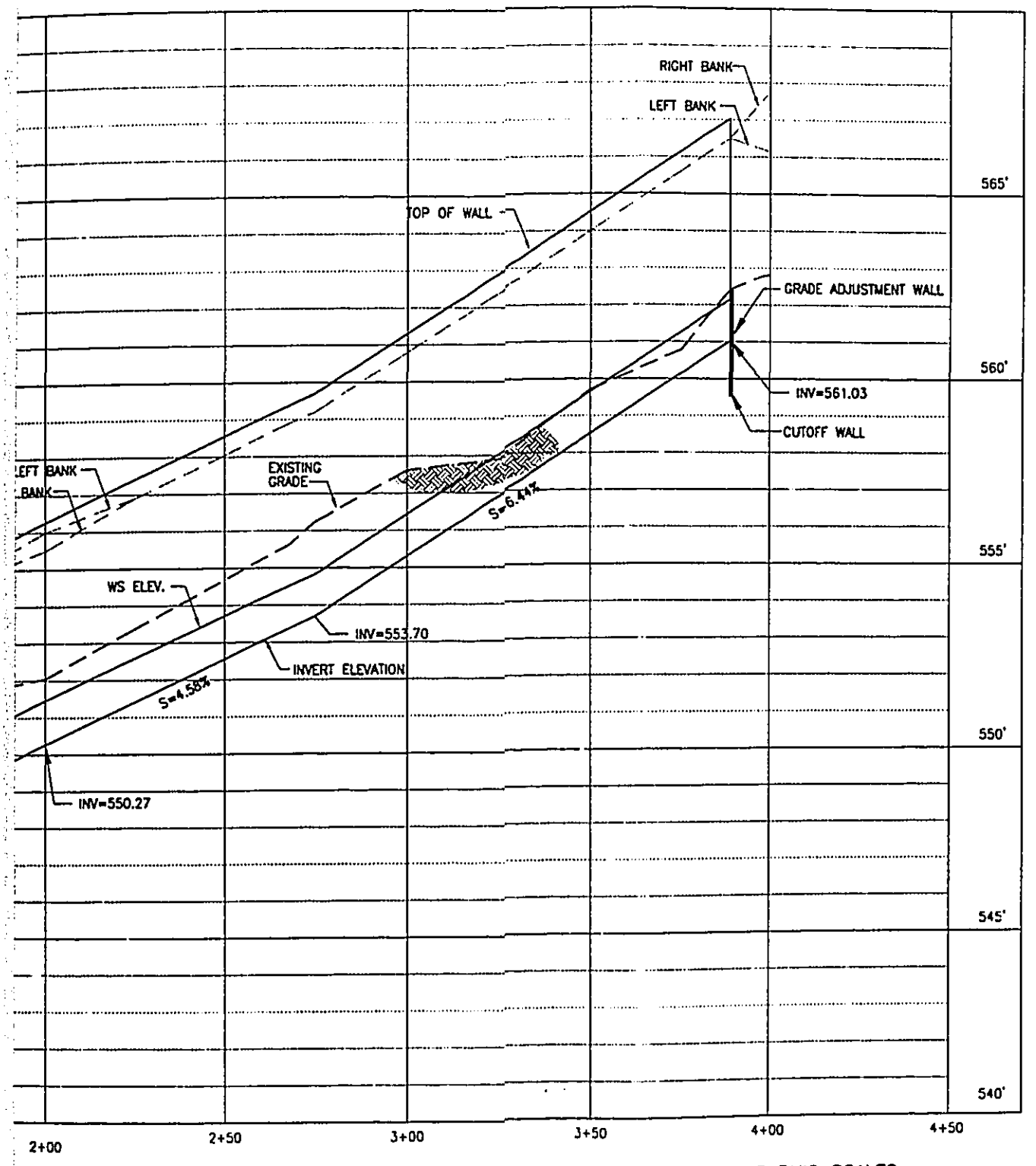

GRAPHIC SCALES:

4' 0 4' 8' 16'
VERTICAL SCALE: 1"=4'-0"

40' 0 40' 80' 160'
HORIZ. SCALE: 1" = 40'-0"

I Rectangular Ditch A

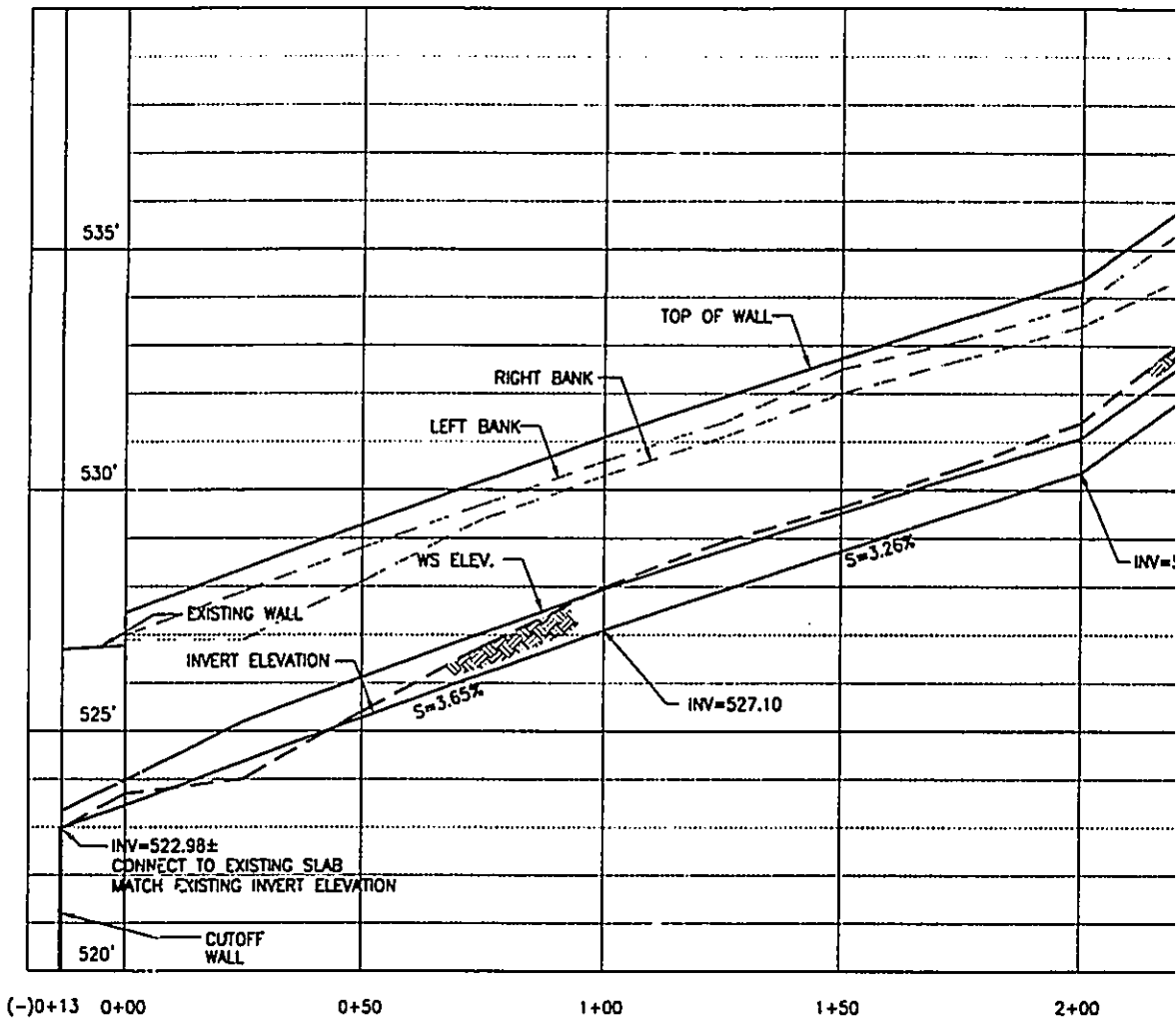

Figure 1-8 Profile of New Concrete-lined Rectangular Ditch B

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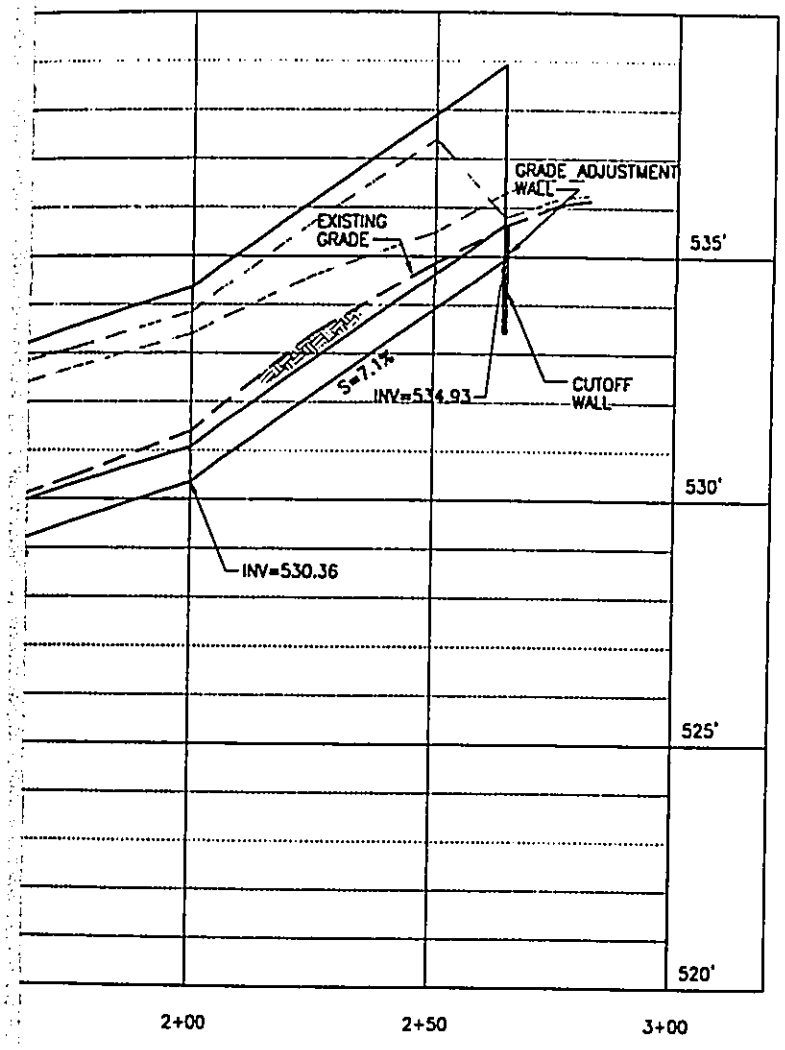

lar Ditch B

GRAPHIC SCALES:

4' 0 4' 8' 16'

VERTICAL SCALE: 1"=4'-0"

40' 0 40' 80' 160'

HORIZ. SCALE: 1" = 40'-0"

Figure 1-9 Typical Cross Section for Proposed Ditches A and B

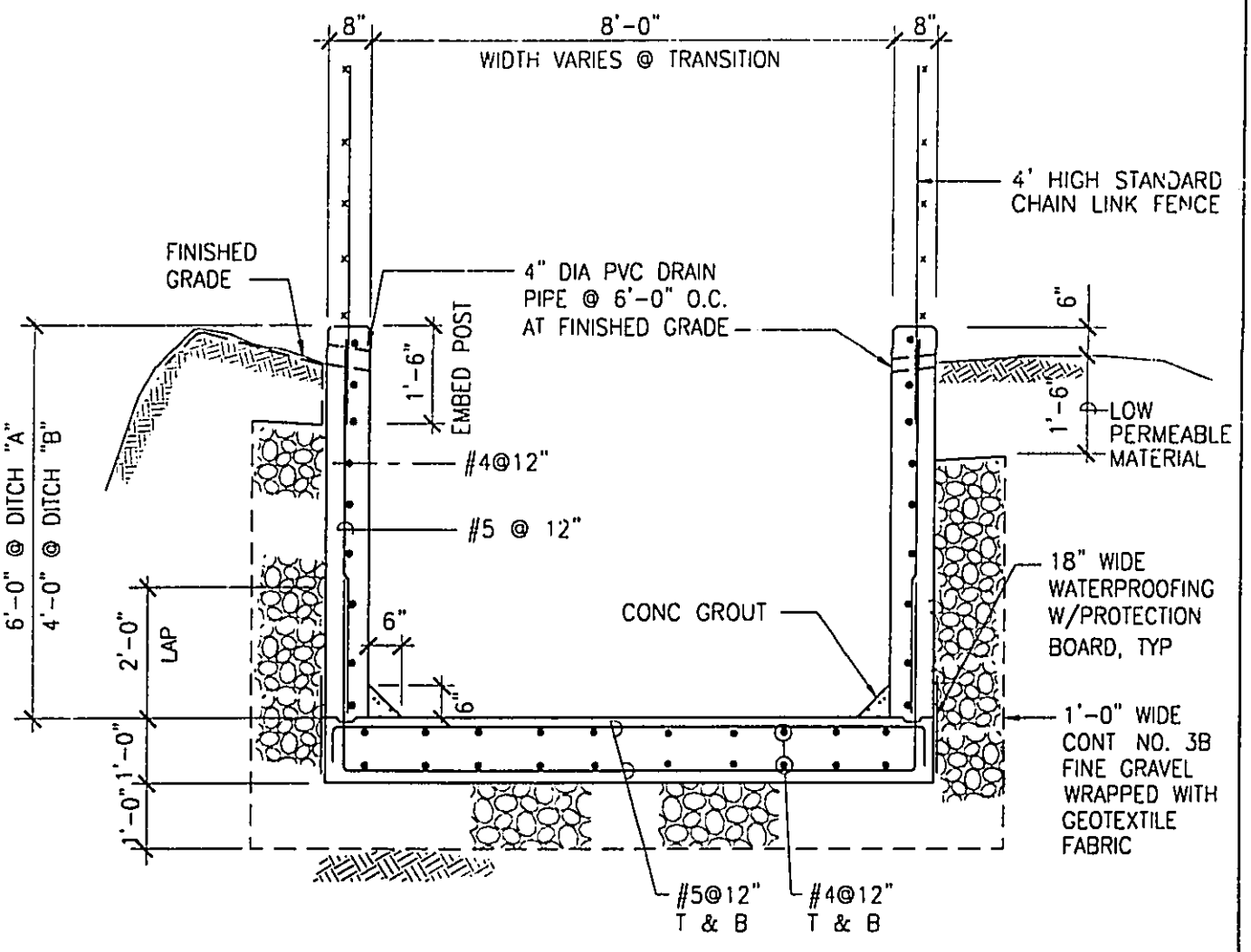

FIGURE4-23.DWG 12/08/99 14:00

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SECTION 2

DESCRIPTION OF THE EXISTING ENVIRONMENT

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SECTION 2

DESCRIPTION OF THE EXISTING ENVIRONMENT

2.1 PHYSICAL SETTING

2.1.1 Climate

Palolo Valley is located within the primary urban corridor in Honolulu. With the exception of few months in the winter, like most areas on Oahu, its climate is characterized by prevailing trade winds. The valley's climate is sunny and relatively uniform year-around. Day time temperatures range between 70-75 °F, whereas at night, the temperatures dip into the 60°s F.

The rainfall pattern on Oahu as shown in Figure 2-1, depicts the median annual precipitation in the Palolo Valley to be approximately 118-120 inches. Most of this rainfall occurs during winter months.

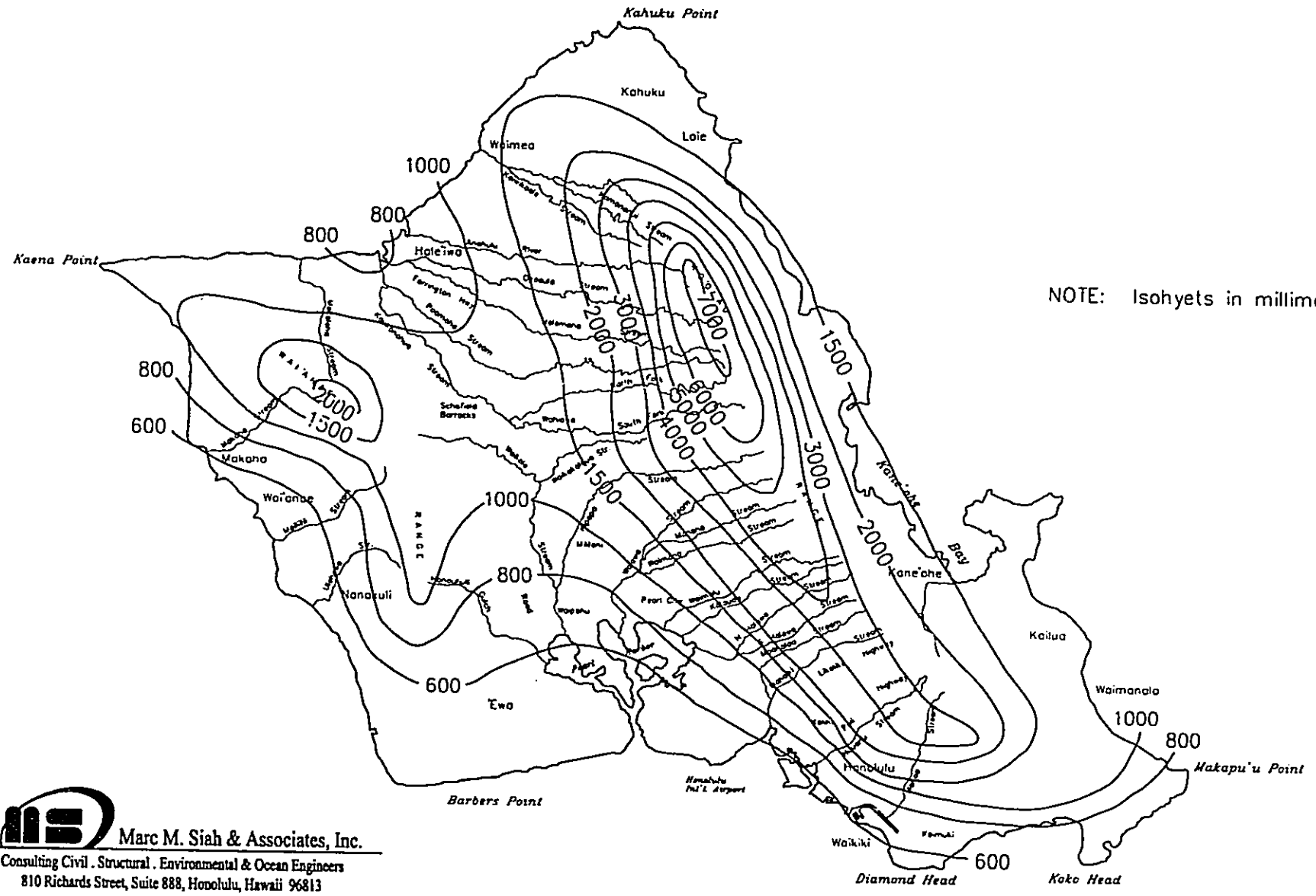
2.1.2 Geology

Oahu, the third largest island in the State, covers an area 44 miles long and 30 miles wide. The total land area of Oahu is 604 square miles. Palolo Valley is bordered by Diamond Head volcanic dome on the south east and Koolau range in the north. Geology of the valley in project area is characterized mostly by sedimentary rock and alluvial soil formed during the old, gravelly colluvium and alluvium. The upper elevations in the valley is an extension of erosional unconformity tertiary weathered volcanic formations of the Koolau Range. The lower elevations in the valley are mostly well-drained, fine textural soils. Figure 2-2 shows the geological features of Oahu.

2.1.3 Topography

The diversion ditchs A and B comprise the southern boundary of City land at the upper reaches of Palolo Valley. Ditch A starts at elevation of 559.75 ft above MSL and runs along the south western boundary of the City land, until it terminates at the intake structure with an invert elevation of about 523 ft. Ditch B starts at elevation of 535.17 ft above MSL, and traverses westward along the southern boundary of City land terminating at the intake structure. The invert elevation at its terminus is 523.73 ft.

Figure 2-1 Median Annual Precipitation



NOTE: Isohyets in millimeters

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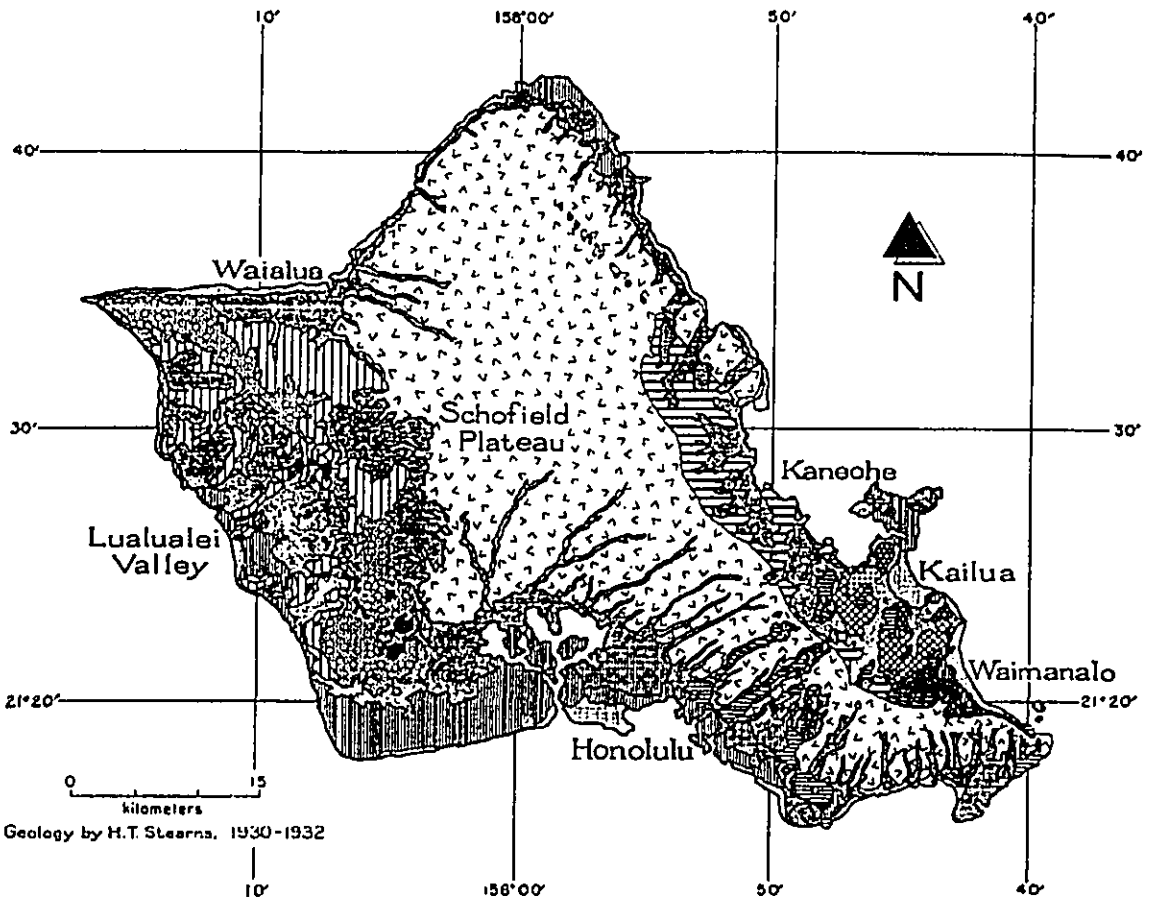
Figure 2-2 Geological Features of the Island of Oahu



SEDIMENTARY ROCKS

RECENT — PLEISTOCENE

Beach and dune sand

Alluvium

Limestone (Reefs and dunes)

VOLCANIC ROCKS

KOOLAU RANGE — WAIANAE RANGE

QUATERNARY

Lavas — Pyroclastics

Honolulu volcanic series

⊗ Kolekole volcanics

EROSIONAL UNCONFORMITY

TERTIARY

Flows — Dike complex

Caldera complex: Lava flows; Vent breccia; Dike complex

Koolau volcanic series

Upper member: Cone; Vent breccia

Lower and middle members

Waianae volcanic series

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Ground slopes in the area range from 25.23 percent to 44.35 percent. Figure 2-3 presents the general slope of the terrain in the area as delineated by U. S. Geological Survey.

2.1.4 Soils

Soils in the project area are identified as Lolekaa silty clay (LoD & LoF), and Kaena stony clay (KaeD & KanE) as depicted in Figure 2-4.

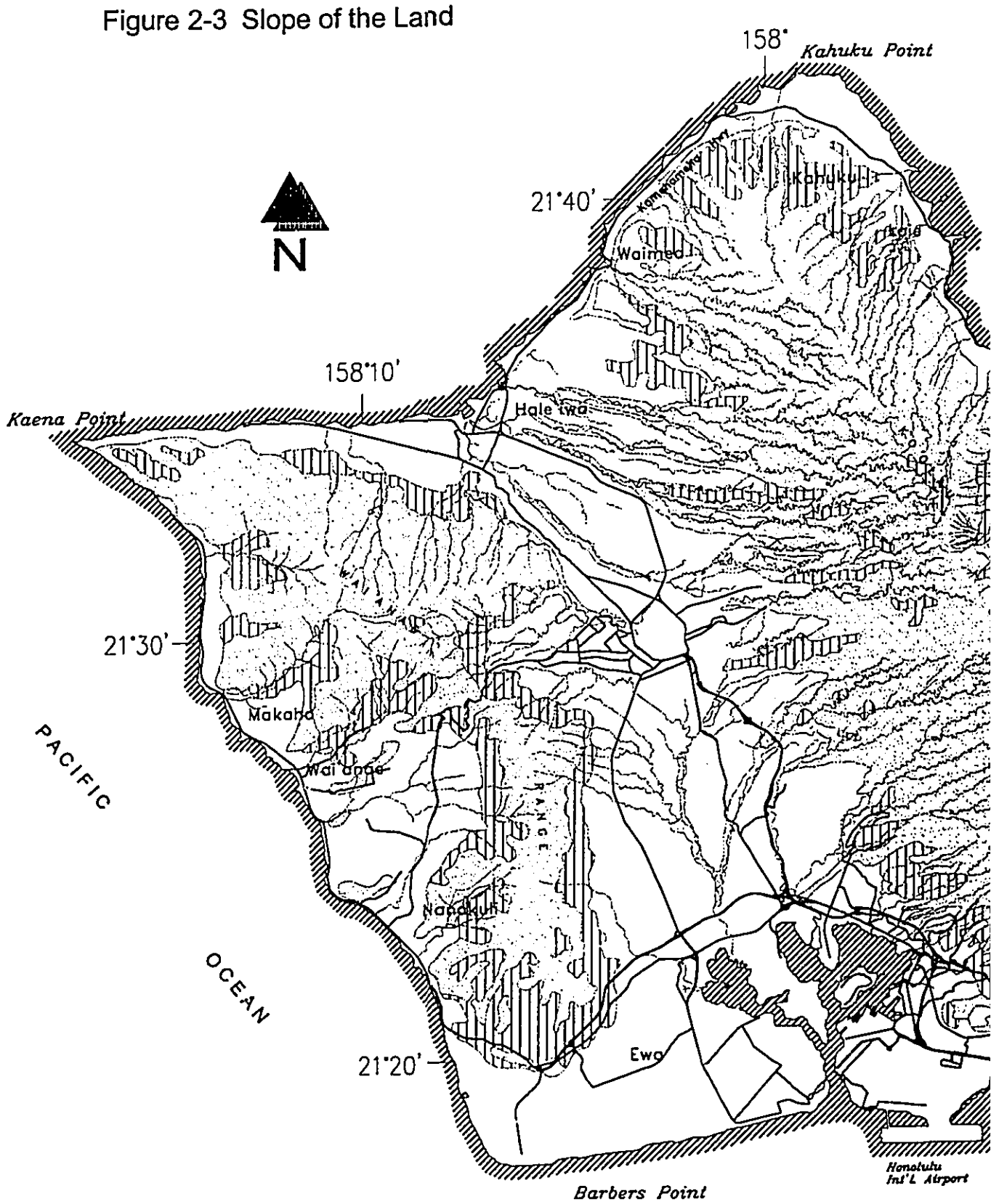
Typical slopes for Lolekaa silty clay (LoF) soil range from 15 to 25 percent. This is a very deep, well drained, moderately steep soil on side slopes of terraces and along drainage ways. It developed in old, gravelly colluvium and alluvium. The surface layer is silty clay. The subsoil contains weathered rock fragments and ranges from silty clay to loam. The soil is strongly acid in the surface layer and strongly acid to extremely acid in the subsoil. Eroded spots exists in this kind of soil. Permeability is moderately rapid. Runoff is medium, and the erosion hazard is moderate.

Typical slopes for Lolekaa silty clay (LoF) soil range from 40 to 70 percent. It is a very deep, well drained soil along drainage ways and talus slopes. It developed in old, gravelly colluvium and alluvium. The surface layer is silty clay. The subsoil comprises weathered rock fragments and ranges from silty clay to loam. This soil is strongly acid in the surface layer and strongly acid to extremely acid in the subsoil. Permeability is moderately rapid. Runoff is rapid and erosion is severe.

The slope of Kaena stony clay (KaeD) soil ranges from 12 to 20 percent. This very deep, poorly drained soil occurs on moderately steep alluvial fans and talus slopes. It formed in alluvium and colluvium. The surface layer and subsoil is very sticky and very plastic stony clay. It is slightly acid to neutral. Permeability is slow. Runoff is medium and the erosion hazard is moderate.

Similarly, the slope of Kaena stony clay (KanE) soil ranges from 10 to 35 percent. It is a very stony clay soil on moderately steep alluvial fans and talus slopes. It is very deep and poorly drained soil. It formed in alluvium and colluvium. It is slightly acid to neutral. Permeability is slow for this kind of soil. Runoff is medium and the erosion hazard is moderate. Workability is difficult since the soil is stony, steep, and very sticky.

Figure 2-3 Slope of the Land



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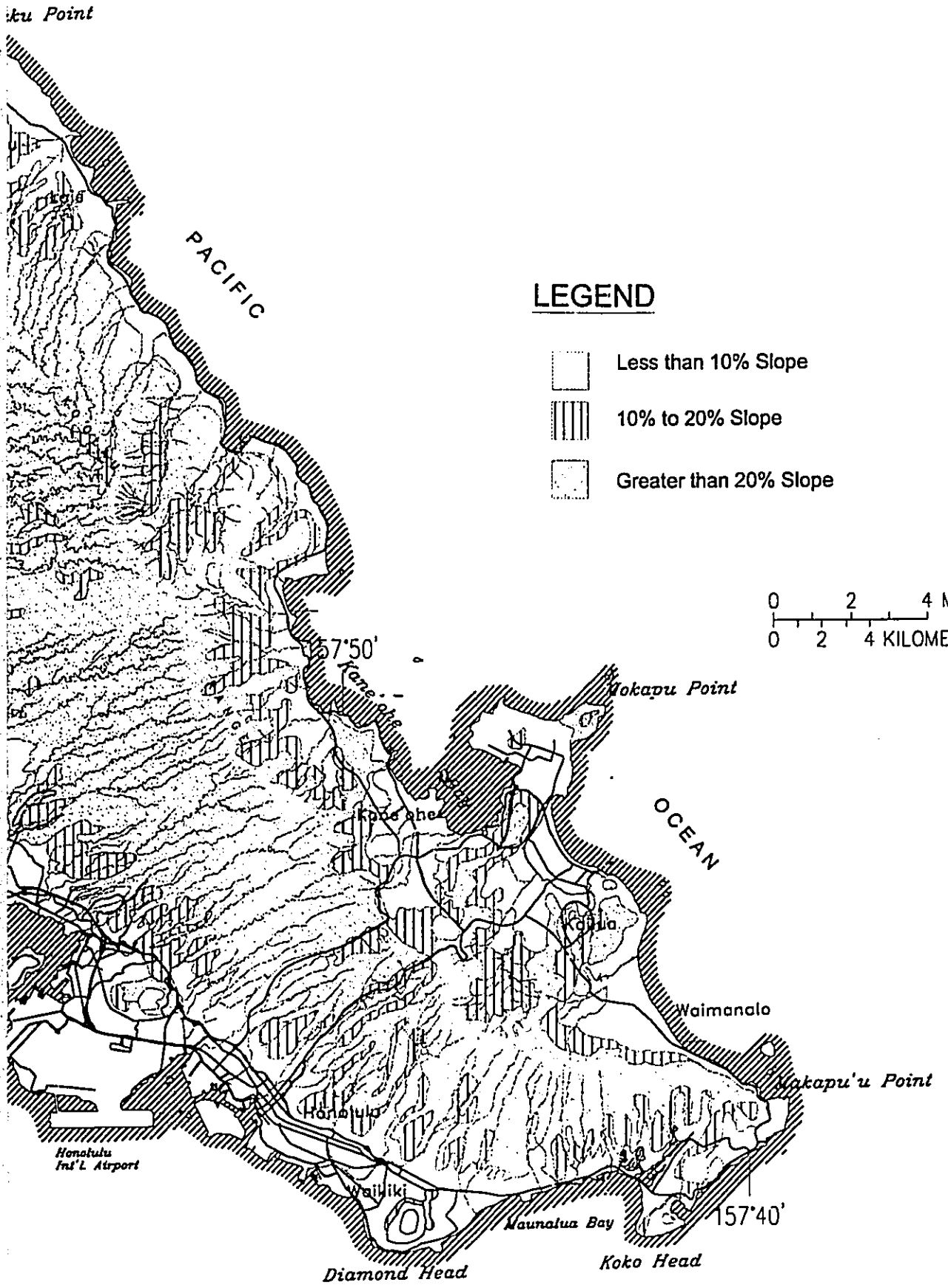
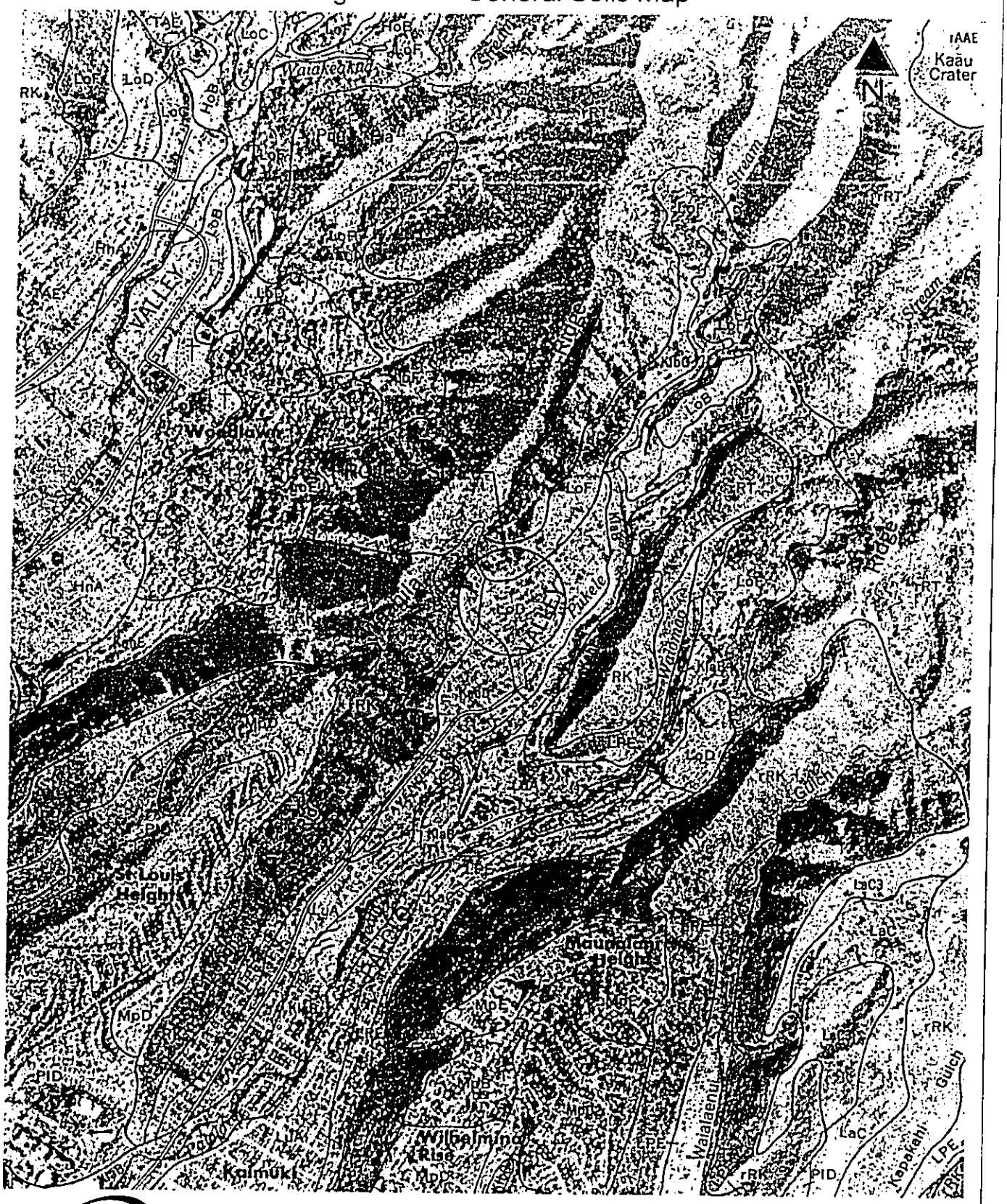

ku Point
PACIFIC
OCEAN
LEGEND
Less than 10% Slope
10% to 20% Slope
Greater than 20% Slope
0 2 4 MILES
0 2 4 KILOMETERS
157°50'
Kaneohe
Mokapu Point
Kaneohe
Kailua
Waimanalo
Makapu'u Point
Honolulu
Honolulu Int'L Airport
Waikiki
Maunalua Bay
157°40'
Diamond Head
Koko Head

Figure 2-4 General Soils Map



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2.1.5 Flood and Tsunami Hazard

The lowest ground elevation in the project area is approximately 520 ft. above MSL. Due to relatively high elevations, there is no flood or tsunami hazard for the area. The project site is designated Flood Zone X (CLEAR) in the Federal Flood Insurance Rate Map (FIRM). This means that the area is outside the 500 year flood inundation zone.

2.1.6 Flora and Fauna

Historically, lower elevations of Palolo Valley were extensively covered by terraces used for growing taro. Up until thirty years ago, both sides of Palolo Stream and upstream of the confluence of Pukele and Waiomao Streams, wild taro (Colocasia) grows abundantly.

Flora along the slopes of Palolo Valley is characterized by sparse vegetation. Natural Vegetation consist of ohia lehua, guava, open mamanenaio forest with subalpine shrubs, and Lantana-koa haole shrubs.

Indigenous birds near the project area include the permanent resident Hawaiian short-eared owl or pueo. Birds of foreign origin include cardinal, barred dove, myna, white eye stilt, house sparrow and golden plover.

There are no known rare or endangered species of plants and/or wild life in the immediate vicinity of the project area.

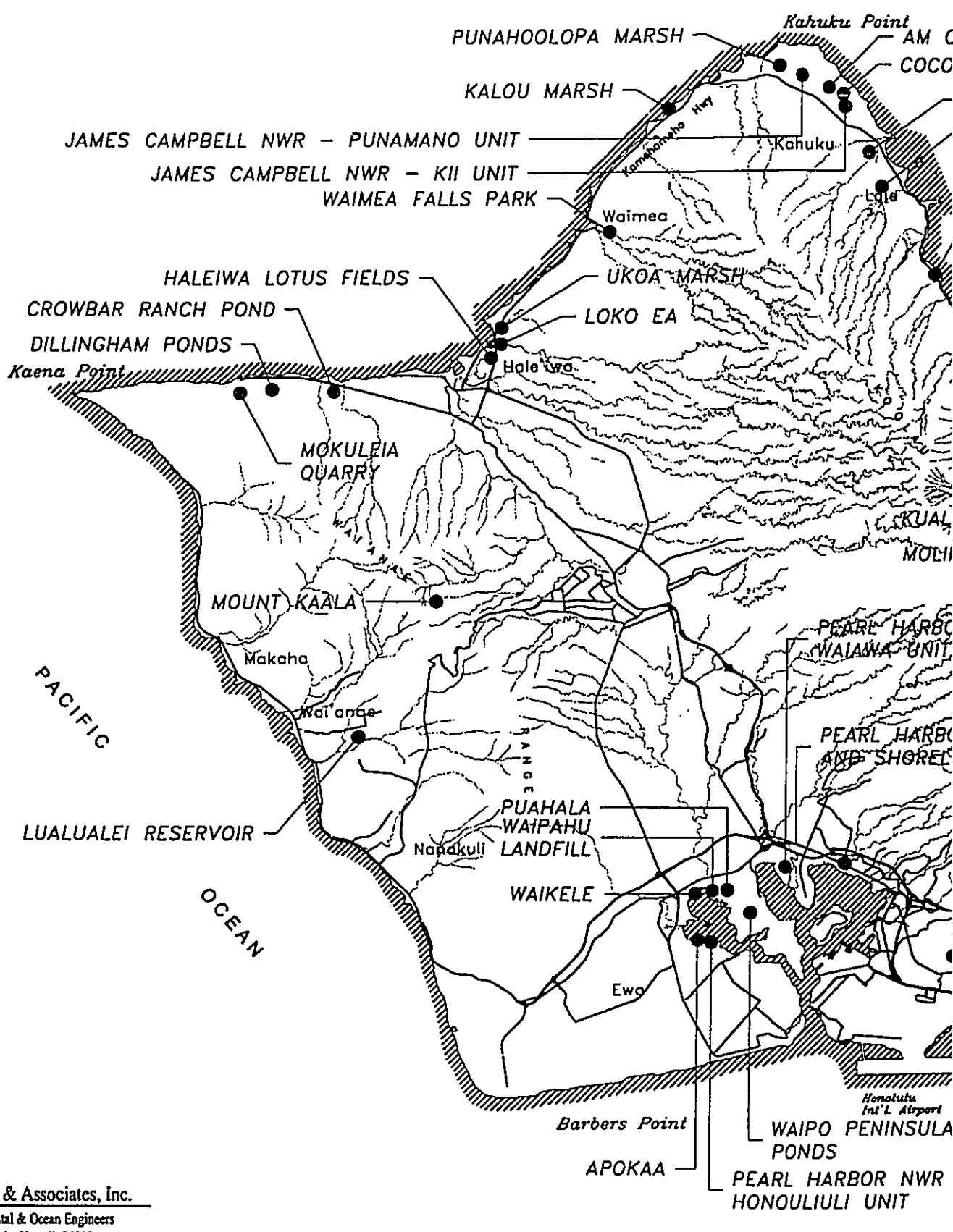
2.1.7 Historic/Archaeological Features

A historic/archaeological literature survey was conducted for the project site. A letter from the State Historic Preservation Office is included in Appendix A. A list of sources consulted for the historic archaeological literature survey is included in the reference section. Accordingly, there are no known historic/archaeological sites in the project area which may be affected by proposed improvements.

2.1.8 Wetlands

The State Office of Planning's Wetland and Waterbird Recovery Habit map shows no wetlands in the project site as presented in Figure 2-5. The only wetland and sensitive

Figure 2-5 Wetlands and Waterbird Recovery Habit Map



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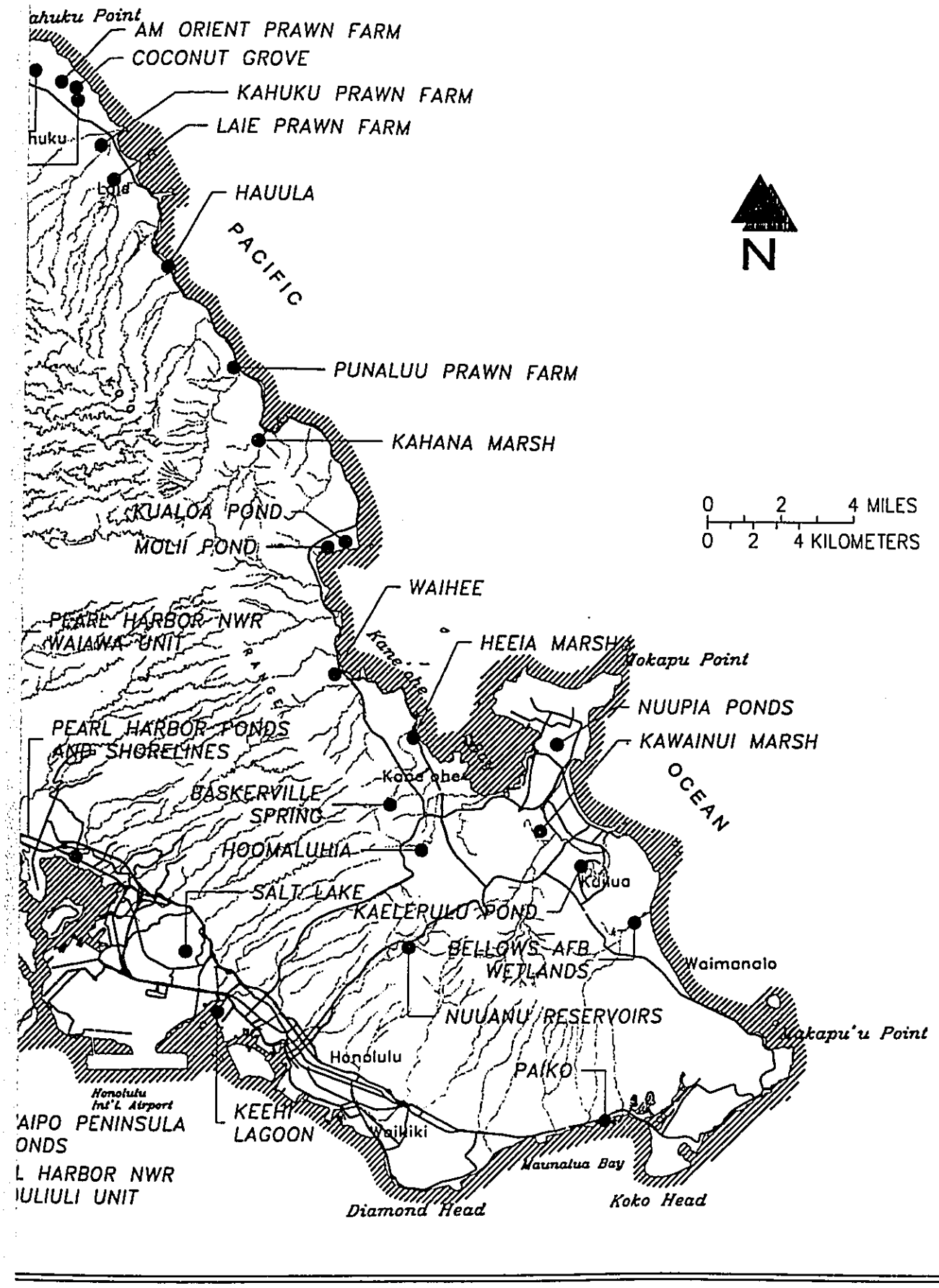

ahuku Point
AM ORIENT PRAWN FARM
COCONUT GROVE
KAHUKU PRAWN FARM
LAIE PRAWN FARM
huku
Laie
HAUULA
PACIFIC
PUNALUU PRAWN FARM
KAHANA MARSH
KUALOA POND
MOLII POND
WAIHEE
PEARL HARBOR NWR
WAIAWA UNIT
Kaneohe
HEEIA MARSH
Mokapu Point
NUUPIA PONDS
KAWAINUI MARSH
PEARL HARBOR PONDS
AND SHORELINES
Kaneohe
OCEAN
BASKERVILLE
SPRING
HOOMALUHIA
Kailua
SALT LAKE
KAELEPULU POND
BELLOWS AFB
WETLANDS
Waimanalo
NUUANU RESERVOIRS
Makapu'u Point
Honolulu
PAIKO
Honolulu
Int'L Airport
'AIPO PENINSULA
ONDS
L HARBOR NWR
)ULIULI UNIT
KEEHI
LAGOON
Waikiki
Maunalua Bay
Diamond Head
Koko Head
N
0 2 4 MILES
0 2 4 KILOMETERS

riparian habitats in Palolo Valley are confined to the immediate surrounding of Pukele, Waiomao and Palolo Streams. U. S. Fish and Wildlife Service's National Wetland Inventory Map identifies Pukele Stream and Waiomao Stream as PFO3A habitat or *Palustrine, Forested, Broad leaved evergreen, Temporary ecosystem*. Palolo Stream is identified as R3OWH or *Riverine, Upper perennial, Open water, Permanent habitat.*

2.1.9 Air Quality

Palolo Valley is primarily considered a residential area which is not exposed to adverse air quality conditions. There are no point sources of airborne emissions in the immediate vicinity of the project site. The vehicular traffic on Narcissus Street and Narcissus Place are the primary sources of indirect emissions in the project area. The air quality at the project site is generally considered good and well within the State and Federal Ambient Air Quality Standards.

2.1.10 Noise Characteristics

Since Palolo Valley is mainly a residential area, there are no significant fixed noise generators in the vicinity of the project site. Background noise in the area can be attributed to vehicular traffic on Narcissus Street, Narcissus Place, and Carlos Long Street. Ambient noise level in the project area is in the range of 25 to 30 decibels (dB) and is considered normal and acceptable. No speed limit signs were found along Narcissus Street and Narcissus Place. The speed limit posted along Carlos Long Street is 25 mph.

2.1.11 Water Quality

Palolo Valley is about 3.4 miles away from the ocean. There are two perennial streams within the Palolo Valley, namely, Pukele and Streams. The two streams converge and become Palolo Stream. The Palolo Stream drains into Ala Wai Canal. Pukele Stream which is the closest of the two streams to the project site, passes approximately 1,090 feet east of diversion ditch B. The streams in Palolo Valley are designated as Class 2 inland water according to the Department of Health Water Quality Standards Map.

2.2 COMMUNITY SETTING

2.2.1 Land Use And Ownership

Historically, Palolo Valley housed high and low level terraces used for taro farming. Based on state land use, nearly all land in Palolo Valley is classified as urban and predominantly planned for residential development. At the present time, almost all the usable land in the valley is developed with only a small portion categorized as vacant usable.

Land use within Palolo is generally characterized as residential, commercial, industrial, and public/quasi-public, and future project district uses. Most residences are owned rather than rented. More than half of the private residences are twenty and more years old. Single family units, generally one story with two to three bedrooms predominate. Narcissus Place and Street are exclusively residential, housing single, multi-family and apartment developments.

2.2.2 Population

The population density in Palolo is higher than the average density for Oahu. The area is "kamaaina" in character as the majority of the population have resided in Hawaii for twenty or more years. The population census indicates that the population in Palolo Valley reduced from 16,124 in 1970 to 14,895 in 1978. The projected population in the valley by year 2000 is 15,000 people.

2.2.3 Economy

The economy of Palolo, as well as the island of Oahu, is mainly service industry oriented. Average household income of residents in the valley is more or less the same as that of urban Honolulu.

2.2.4 Police and Fire Protection

The main police station dispatches patrols frequently, to conduct surveillance of the Palolo area.

Fire protection for the Palolo Valley area is provided by the City and County Fire Station located at 3345 Kiwila Street, between the 10th Avenue and Palolo Avenue. It houses a

500 gpm pumper truck with a 500-gallon reserve tank. There are at least 100 fire hydrants throughout the Palolo Valley area.

2.2.5 Medical Facilities

There are no medical facilities in the immediate vicinity of Palolo Valley. Health care on Oahu is provided by various general hospitals in Honolulu. Health care facilities for in-patient medical care include 29 hospitals of various types, including acute and long term facilities, 16 skilled nursing facilities and intermediate care facilities, and 261 care homes. Eight acute hospitals are operated directly by the state government and one by the federal government; 12 are nonprofit community hospitals. Most other medical institutions-skilled nursing facilities, intermediate care facilities, and care home, are privately owned. There are 7,651 beds available for general, acute, and other care services.

2.2.6 Recreational Facilities

Palolo Valley is served by numerous recreational facilities offering diverse opportunities for the neighborhood's residents. Major facilities include the Palolo District park, which includes Mini park, basketball, volleyball courts, baseball fields, swimming pool, and a gym.

2.2.7 Schools

There are three public schools in Palolo Valley: Palolo Elementary, Jarrett Middle School, and Anuenue Elementary. The nearest high school is Kaimuki High School.

2.2.8 Refuse Collection and Disposal

Solid waste collection is provided by City and County of Honolulu on a twice weekly basis. Refuse from this area is collected and transported to H-Power and the Waimanalo Gulch landfill for final disposal.

2.2.9 Public Transportation

Bus service is the only public transportation system available in Palolo Valley area. Regular daily bus schedules adequately provide transportation services to the residents.

2.3 INFRASTRUCTURE

2.3.1 Road and Traffic

The only access to the project site is provided by Carlos Long Street. Narcissus Street, and Narcissus Place are both 20-feet wide two way roads. Carlos Long Street is also a 20-feet wide two-way road feeding all side streets and cul-de-sacs. Since the area is residential, the speed limit is assumed to be 25 mph. Generally, traffic is mainly local and very light in the vicinity of the project site.

2.3.2 Water System

Water system infrastructure in Palolo Valley consist of two reservoirs and a network of 6, 8 and 12- inch transmission lines and laterals. Reservoirs and transmission lines in Palolo Valley are served by the City and County's Board of Water Supply. Water is first pumped from wells into a 0.2 MG reservoir at elevation 605 ft., referred to as the 605 - Reservoir, and a 1.0 MG reservoir at elevation 405 ft. or the 405 - Reservoir, respectively. Water is then either gravity or pressure fed from these two reservoirs by transmission lines to the respective service areas. Narcissus Street, and Narcissus Place are served by a 4-inch cast iron water line running along utility easement north of the road. Carlos Long Street is served by a 6-inch cast iron water line along utility easement north of the road. Palolo 605 - Reservoir supplies water mainly to the upper reaches of the valley. Palolo 405 - Reservoir supplies water to the lower reaches of the valley.

2.3.3 Wastewater System

There is no sewer line along Narcissus Place. Service laterals from residences along Narcissus Place are connected to a 8-inch sewer line located along a 10-ft easement south of the residential lots in Narcissus Place. This line after serving six residences turns southward and drains into an 8-inch sewer line along the north side of Myrtle Street. There is also a 6-inch sewer line immediately south of the intake structure in Carlos Long Street which services the restroom facility on the City land. The 6-inch line feeds into an 8-inch sewer line along the sewer easement located on west side of Carlos Long Street.

Narcissus Street is served by a 8-inch sewer line along an easement on the north side of the road which delivers the wastewater to the 8-inch line along Carlos Long Street.

Wastewater thus collected flows to Sand Island Wastewater Treatment Plant by a series of gravity, force mains, and pumping stations.

2.3.4 Electricity/Telephone

Electrical power in the Palolo valley area is available by over head lines and power poles.

2.4 RELATIONSHIP TO LAND USE PLANS, POLICIES, AND CONTROLS

The following land use plans, policies, and controls apply to the project area:

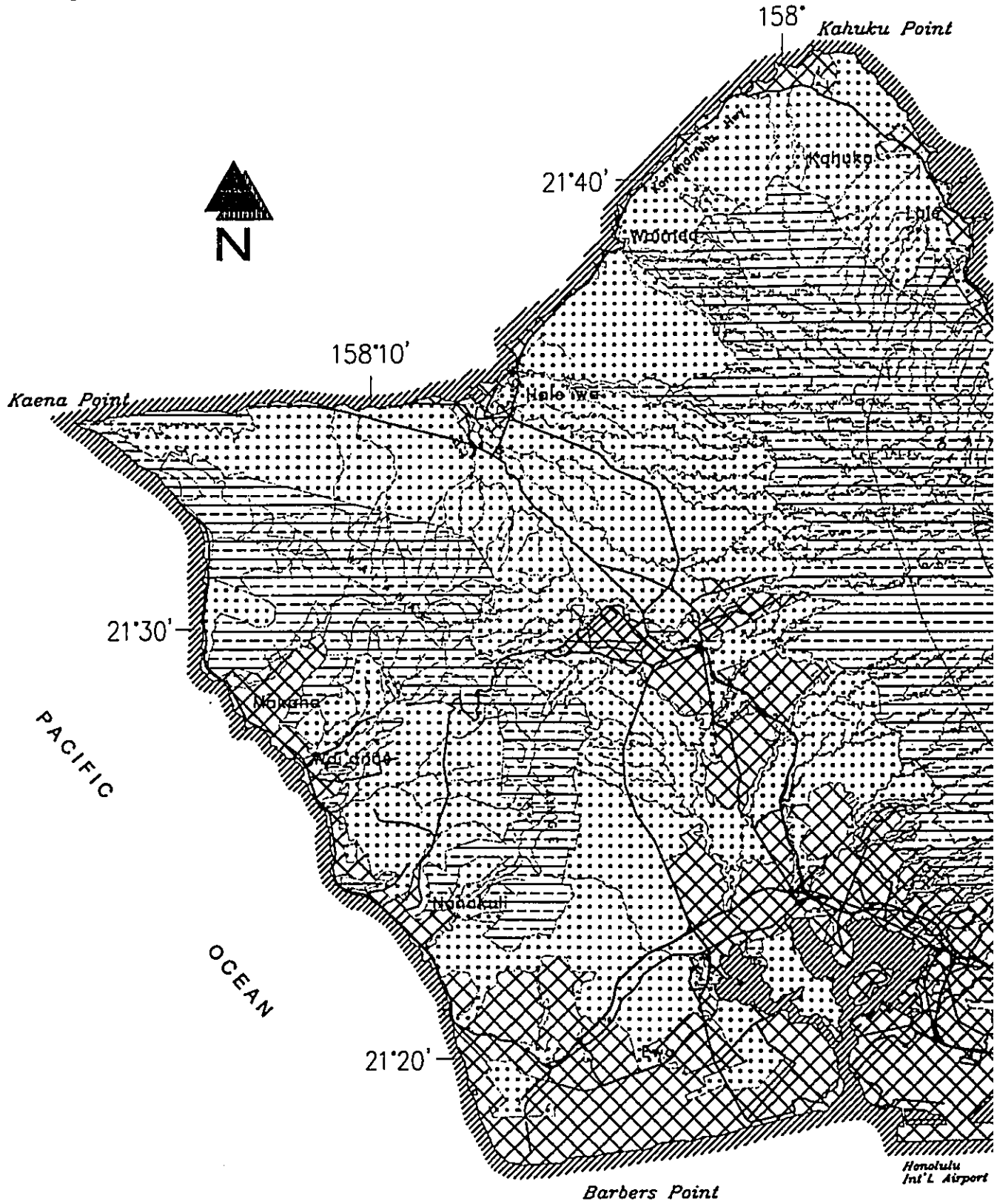
2.4.1 State Land Use Districts

Under the State Land Use Law, Chapter 205, Hawaii Revised Statutes, all lands are classified as either "Urban", "Rural", "Agricultural", or "Conservation". The project area is designated as an "Urban District" as shown in Figure 2-6. The proposed drainage improvements are allowed within the urban district.

2.4.2 Honolulu City and County General Plan

The City and County of Honolulu's General Plans are a comprehensive statement of objectives and policies which sets forth the long range development of Oahu's residents and strategies of actions to achieve them. The comprehensive general plan addresses physical, social, economic, and environmental concerns affecting the City and County of Honolulu. These objectives contain both statements of desirable conditions to be sought over the long run and statements of desirable conditions which can be achieved in the future. The main objectives of general plan are: (1) to control the growth of Oahu's resident and visitor populations in order to avoid social, economic, and environmental disruptions; (2) to plan for future population growth and to establish a pattern of population distribution that will allow the people of Oahu to live and work in harmony; (3) to promote employment opportunities that will enable all the people of Oahu to attain a decent standard of living; (4) to maintain the viability of Oahu's visitor industry and agriculture; (5) to make full use of the economic resources of the sea and to increase the Figure 2-6 State Land Use Districts amount of Federal spending on Oahu; (6) to protect and preserve the natural environment and to preserve the natural monuments and scenic views of Oahu for the benefit of both residents and visitors; (7) to provide decent

Figure 2-6 State Land Use Districts



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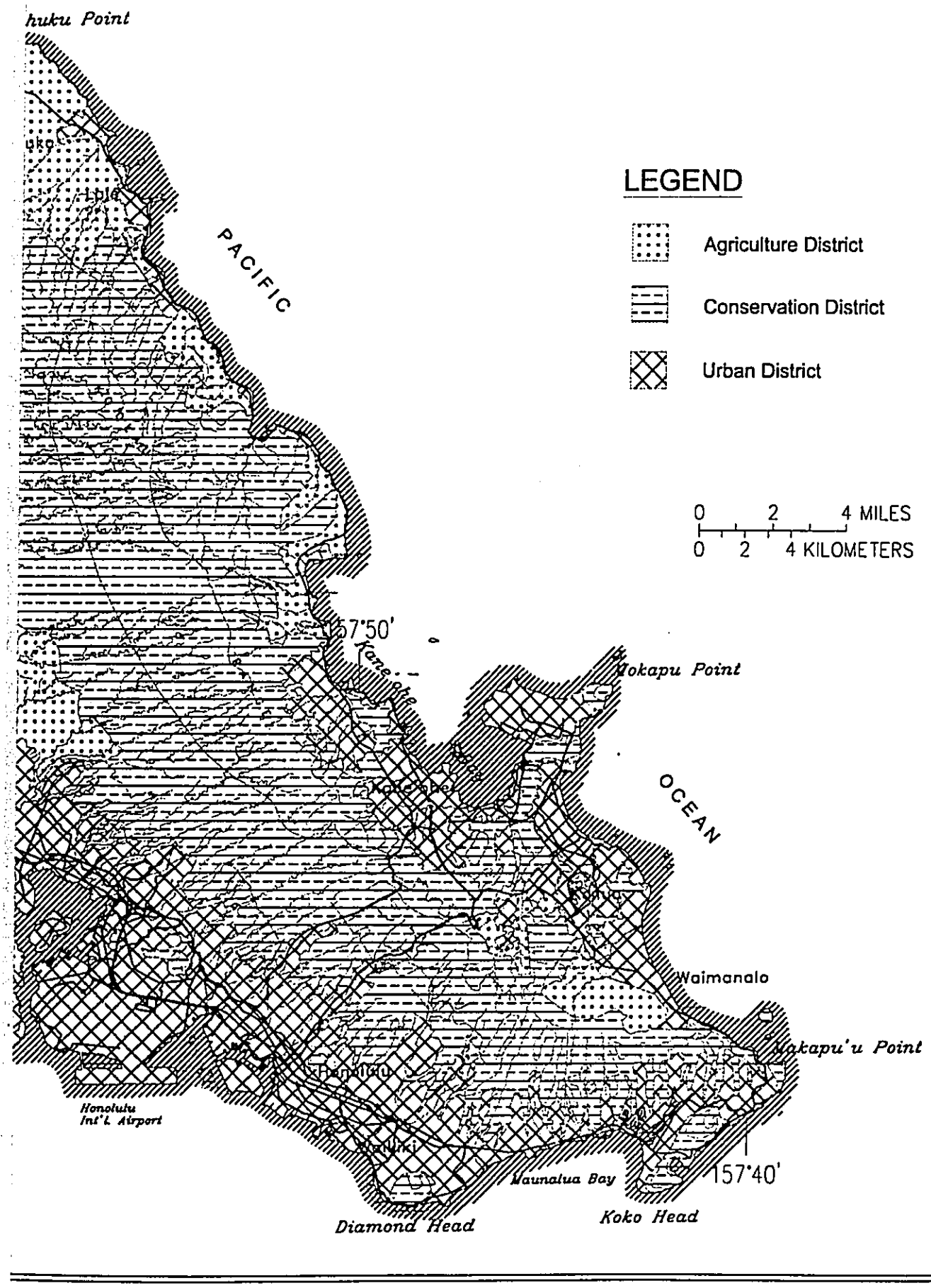
huku Point
uko
Iole
PACIFIC
157°50'
Kaneohe
Mokapu Point
OCEAN
Waimanalo
Makapu'u Point
Honolulu
Honolulu
Int'l. Airport
Waikiki
Maunalua Bay
157°40'
Diamond Head
Koko Head
LEGEND
Agriculture District
Conservation District
Urban District
0 2 4 MILES
0 2 4 KILOMETERS

housing for all the people of Oahu at prices they can afford; (8) to improve the transportation system; (9) to meet the needs of people of Oahu for an adequate supply of water and for environmentally sound systems of waste disposal; (10) to maintain transportation and utility systems which will help Oahu continue to be a desirable place to live and visit; (11) to coordinate change in the physical environment of Oahu to ensure that all new development are timely, well-designed, and appropriate for the area in which they will be located; (12) to maintain those development characteristics in the urban fringe and rural areas which make them desirable places to live and to maintain attractive, meaningful, and stimulating environments throughout Oahu; (13) to promote and enhance the social and physical character of Oahu's old towns and neighborhoods; (14) to protect the people of Oahu and their property against natural disasters and other emergencies, traffic and fire hazards, and unsafe conditions, etc. The proposed drainage improvement project is consistent with this general plan.

In addition to the General Plan, there are eight other development plans which serve to guide development and improvement of the City. These development plans, first adopted in the years 1981-83 cover eight geographical sub-regions, encompassing the entire City and County of Honolulu as shown in Figure 2-7. Each regions's growth and development is guided by its corresponding development plan, which delineates special area plans and zoning or other land use regulations in accordance with the City's General plan.

The proposed drainage improvements project fall within the boundaries of Primary Urban Center development plan. Currently a new Primary Urban Center development plan is underway and no significant modifications are expected for the area in the vicinity of the project site. The proposed drainage improvements are, therefore, consistent with the Primary Urban Center Development Plan.

2.4.3 County Zoning

The proposed drainage improvements take place in a 20-feet drainage easement which is bound on the north by City land and conservation lands with the zoning designation of P-1. On the south the easement is bounded by R-5 residential area as depicted in Figure 2-8.

Figure 2-7 Eight Geographical Sub-Regions

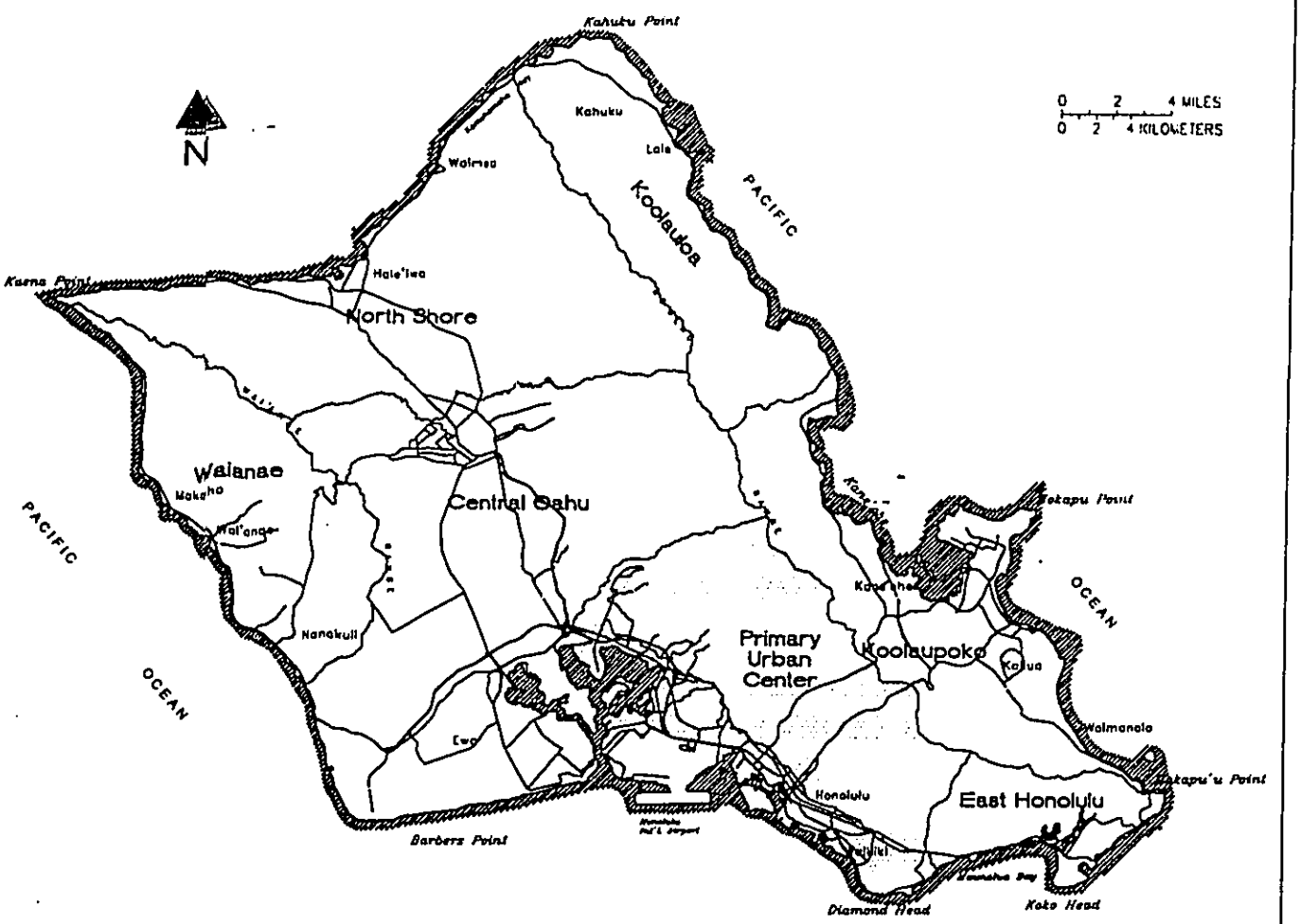

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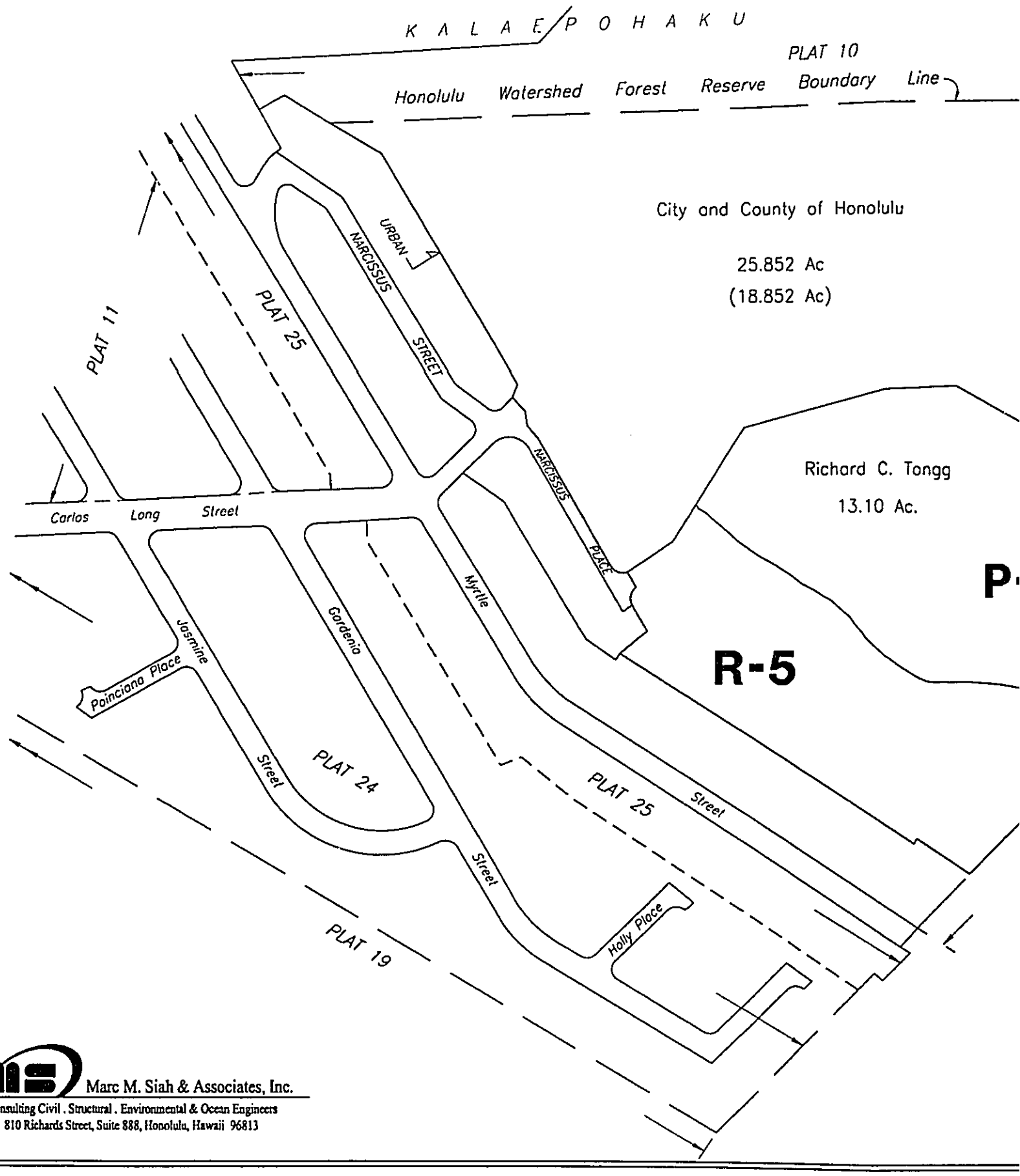
Figure 2-8 County Zoning in the Vicin



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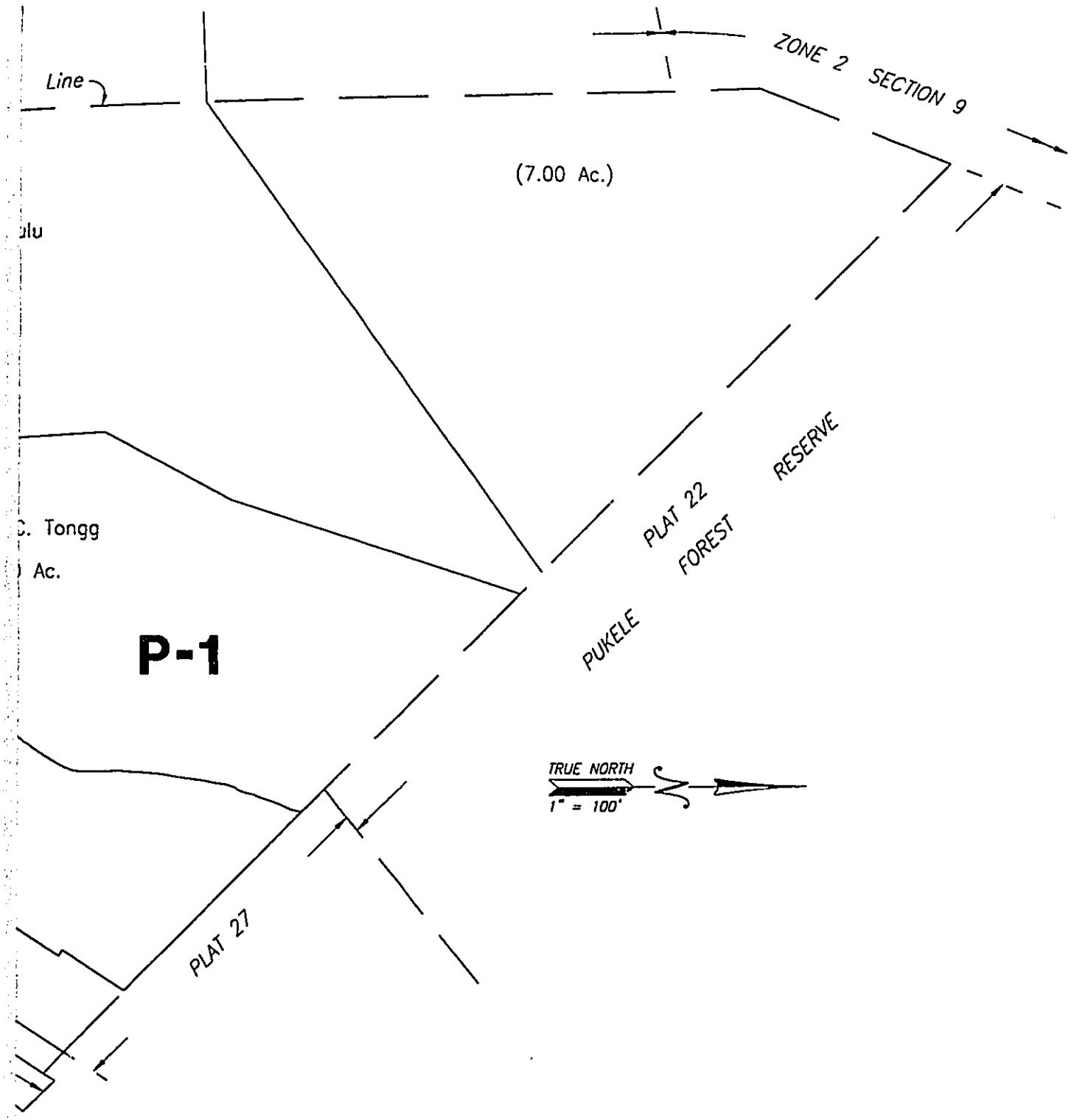
g in the Vicinity of Project Site



FIRST DIVISION		
ZONE	SEC.	PLAT
3	4	20
CONTAINING		PARCELS
SCALE: 1 IN. = 100 FT.		

2.4.4 County Special Management Area

The proposed project is not within the City and County of Honolulu's Special Management Area (SMA) as identified by the City and County of Honolulu's Department of Land Utilization. Thus, it is not subject to requirements of Chapter 205-A of Hawaii Revised Statutes.

SECTION 3

ENVIRONMENTAL CONSEQUENCES DURING CONSTRUCTION

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SECTION 3

ENVIRONMENTAL CONSEQUENCES DURING CONSTRUCTION

3.1 IMPACTS ON THE PHYSICAL ENVIRONMENT

3.1.1 Erosion and Dewatering Control

Erosion due to site preparation is anticipated to be minimal and well within acceptable limits since the nature of the soils involved is well-drained, rocky and stony. Therefore, the construction activity should not have an adverse effect on adjacent properties and resources.

Since the project site is in the upper reaches of Palolo Valley with average elevations of about 538 feet, and the water table well below the ground level, no dewatering issue exists during construction.

3.1.2 Water Quality

The proposed drainage improvements should not adversely affect water quality in the area, although the project site is adjacent to Pukele Stream. Appropriate best management practices shall be installed during the construction of improvements to impede transport of silt and debris to the downstream properties. Typical BMP practices shall include:

1. The contractor shall provide barriers or traps and other mitigative measures for sediment transport during construction in accordance with the City and County of Honolulu's rules for Soil Erosion Standards and Guidelines.

2. Silt fences shall be constructed prior to commencement of clearing and grubbing and on the downhill side of all slopes begin graded (please refer to construction drawings for the proposed improvements)

3. All unpaved site ingress and egress shall be graveled and the contractor shall insure that all vehicles leaving the construction site will be free of mud. Gravel areas shall be 8" deep and gravel size shall be 3/4". Install temporary gravel access at the start of the project and remove the temporary gravel access at the end of the project.

4. Filter fabric shall be placed over the bar screen at the entrance to the 36-inch storm drain in the intake structure.

3.1.3 Flora and Fauna

There are no known significant rare, endangered or threatened species of flora and fauna existing in the immediate project area. Narcissus Street and Narcissus Place are in a well developed area and no mitigation measures are necessary in this area.

3.1.4 Historical /Archeological Features

No adverse historical/archeological impacts are anticipated since no significant historic artifacts, or sites have been identified at the project site in past archaeological/historical surveys as listed in the literature.

3.1.5 Noise

Construction activity will unavoidably increase the ambient noise levels. Construction equipment such as rollers, dump trucks and trailers will be the dominant noise producers during the construction period. Impact tools such as hammers will also be a major source of noise. Contractors should implement mitigative measures through the use of proper muffling devices to minimize noise impacts from the project activities.

3.1.6 Air Pollution

Ambient air quality is expected to be affected due to the dust generated by short-term construction related activities. Site work such as clearing, grubbing and grading will generate air-borne particulate. The contractor should be responsible for utilizing dust control measures such as regular watering and sprinkling to minimize wind-blown particulates. Ambient air quality may be also adversely affected by emissions from construction equipment and other motor vehicles. The contractor will be required to minimize emissions through proper vehicle maintenance. Once the project is completed, no adverse impact on local and regional ambient air quality conditions are anticipated.

3.1.7 Public Health and Safety

The contractor shall take appropriate measures to ensure public health and safety during construction. The construction site will be secured with safety signs and devices as required by State and City and County regulations during non-work hours.

3.2 IMPACTS ON THE COMMUNITY SETTING

3.2.1 Local Economy

The construction of the storm drainage system will provide short term additional opportunities for local construction workers. It will also benefit the local material suppliers, in both retail and service sectors.

3.2.2 Other Community Services

The additional requirements for community services generated from the construction are expected to be minimal since only a few workers are needed. Therefore, there are no project associated impacts on the community service needs such as: police and fire protection, medical facilities, recreational facilities, schools, refuse collection and disposal.

3.3 IMPACTS ON THE INFRASTRUCTURE

The proposed drainage improvements on Narcissus Place will have some construction-related impacts in the vicinity. Traffic along the Carlos Long Street may increase and sometimes become congested. Work shift and materials transportation should be scheduled during non-peak traffic hours. Traffic monitoring and coordination should be conducted to minimize inconvenience.

Construction of the proposed drainage improvements will not affect water systems, electricity and telephone services, and/or the sewer line underlying Carlos Long Street.

SECTION 4

ENVIRONMENTAL CONSEQUENCES AFTER PROJECT COMPLETION

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SECTION 4

ENVIRONMENTAL CONSEQUENCES AFTER PROJECT COMPLETION

4.1 IMPACTS ON THE PHYSICAL ENVIRONMENT

4.1.1 Drainage Improvement

When completed, the proposed improvements will enhance the drainage capacity of diversion ditches A and B. The proposed concrete-lined channels will have adequate capacity to accommodate the runoff generated by a 50-year 1-hour storm on tributary areas north of the existing ditches. This will in turn alleviate flooding of the residential areas bordering the two ditches.

4.1.2 *Flora and Fauna*

The construction will be contained within the City's easement of existing earth-lined channels. There are no known significant habitats of rare, endangered or threatened species of flora and fauna in or around the project site. For this reason, no long term impacts are expected.

4.1.3 Visual Resources and Other Physical Environment

No visual resources will be affected in the vicinity of the project site. The drainage channels have a low profile and will drain into an existing intake structure, which in turn is connected to the 36-inch storm drain along Carlos Long Street.

The proposed drainage improvements is not expected to have any historical/archaeological impacts. The improvements will not have a significant impacts on the physical environment during and after the construction of the project.

Noise and air pollution impacts associated with the project will be eliminated after the completion of the project.

4.2 IMPACTS ON COMMUNITY SETTING

No long term impacts on the community setting are foreseen. The main benefit of the project is to provide protection against further flooding of the area.

4.3 IMPACTS ON INFRASTRUCTURE

The proposed construction has no short-term or long term adverse impacts on the infrastructure in the area.

SECTION 5

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES AND UNRESOLVED ISSUES

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SECTION 5

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF

RESOURCES AND UNRESOLVED ISSUES

The proposed drainage improvement project involves irreversible and irretrievable uses of energy, labor, materials, and capital funds by the City and County of Honolulu. Construction of drainage improvements will resolve the runoff hazard in both Narcissus Place and Street.

There are no unresolved issues for the proposed drainage improvement project at present time.

SECTION 6

LIST OF NECESSARY PERMITS AND APPROVALS

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SECTION 6

LIST OF NECESSARY PERMITS AND APPROVALS

Permits required in order to fulfill the drainage ditch improvements are listed as follows:

Permit	Approving Agencies	Approximate Processing Time
Grading Permit	Department of Planning and Permitting City and County of Honolulu Division of Site Development	2 - 4 weeks

SECTION 7

ALTERNATIVES TO THE PROPOSED ACTION

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SECTION 7

ALTERNATIVES TO THE PROPOSED ACTION

The alternatives for the proposed project are "No Action" and "Delayed Action". They are described as follows:

7.1 NO ACTION

The "No Action" alternative means that no drainage improvement will be constructed and residences bordering diversion ditches A and B along Narcissus Street and Narcissus Place, respectively, would be subject to flooding during heavy storms in rainy season. This alternative is unacceptable to the community, since flooding, traffic, and safety issues will remain unresolved.

7.2 DELAYED ACTION

The "Delayed Action" alternative means that the drainage improvements take place some time in the future. This alternative will postpone resolution of flooding problems in the area, causing continued potential property damage. Furthermore, the delay of the drainage improvements will also result in higher construction costs in the future due to inflation.

7.3 ALTERNATIVE DESIGNS

The reason for the proposed ditch improvements is the inadequacy of the existing earth-lined channels and high potential for severe erosion during storm events. Due to the extent of the watershed and its topography, only stabilized channels can convey the storm waters without significant erosion. In the Engineering Report prepared for this project, two alternative designs were investigated. They included: a concrete-lined channel and CRM-lined channels. Hydraulic analysis of these alternatives concluded that, in order to accommodate the storm flows, a CRM channel would require a larger cross-section than a concrete channel. Concrete-lined channels, therefore, provided better hydraulic efficiency and lower construciton costs than the CRM-lined channels.

SECTION 8

FINDINGS AND NOTICE OF ANTICIPATED DETERMINATION

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SECTION 8

FINDINGS AND NOTICE OF ANTICIPATED DETERMINATION

8.1 SIGNIFICANCE CRITERIA

The proposed drainage improvements project described in this environmental assessment involves the upgrading and lining of two earth-lined drainage ditches A and B. The improvements will be contained within the existing 20-foot drainage easement. The drainage improvements will alleviate flooding mauka of Narcissus Street, and Narcissus Place.

The proposed drainage ditch improvements project would not have a significant impact on the environment. Therefore, an Environmental Impact Statement is not required for the project. Based on the "Significant Criteria" listed in Section 12 of Hawaii Administrative Rules Title 11, Chapter 200, an applicant or agency must determine whether an action may have a significant impact on the environment, including all phases of the project, its expected consequences both primary and secondary, its cumulative impact with other projects, and its short and long term impacts. In making the determination, the "Significant Criteria" Rules established is employed as the basis for identifying whether the proposed project has significant environmental impacts. Based on the analysis, the following conclusions are reached:

1. *The drainage ditch improvements would not result in irrevocable commitment to loss or destruction of any natural or cultural resources.* The proposed improvements will be contained within an existing 20-foot wide drainage easement. There are no significant natural resources present within and in the immediate vicinity of the construction area. As confirmed by the State Division of Historic Preservation no known cultural resources would be impacted by the project.

2. *The proposed project would not curtail the range of beneficial uses of the environment.* In contrast, the project would certainly alleviate flooding of residential areas along Narcissus Place and mauka of Narcissus Street.

3. *The proposed project does not conflict with the State's long term environmental policies or goals and guidelines.* These policies as set forth in Chapter 344, Hawaii Revised Statutes espouse conservation of natural resources, and enhancement of the quality of life. The proposed project does not significantly impact natural resources, in contrast by alleviating and abating flooding in the area it will promote general welfare and improve reliability of flood control measures in the area.

SECTION 8: FINDINGS AND NOTICE OF ANTICIPATED DETERMINATION

4. *The economic or social welfare of the community or State would not be affected.* Construction of the proposed drainage improvements would result in temporary economic benefits to the construction industry and indirectly to other economic sectors as well.

5. *The proposed project would not substantially affect public health.* The project would improve reliability of the existing inadequate drainage infrastructure and will ensure abatement of flooding in the area.

6. *No substantial secondary impacts, such as population change, or effects, on public facilities are anticipated.* The proposed improvements are necessary to establish a reliable flood control measure for the community. Due to its nature and scale, it will not cause relocation and/or any changes in the population of the area.

7. *No substantial degradation of environmental quality is anticipated.* The project area is unremarkable in terms of environmental resources, and standard mitigation measures would suffice to protect the ambient environmental quality. The project is not expected to result in concentrations of air pollutants exceeding the State or federal standards.

8. *The proposed action does not involve a commitment to larger actions, nor would its cumulative impacts result in considerable effects on the environment.* The proposed improvements are self-contained and independent of other flood control measures in the area. The project will provide a reliable and safe flood control measure for the community.

9. *No rare, threatened or endangered species or their habitats would be affected.* No known endangered, threatened or candidate floral species would be affected by the project.

10. *Air quality, water quality or ambient noise levels would not be detrimentally affected.* There is no significant air or water quality impacts anticipated for this project. Short term impacts from construction activity include increased noise levels, dust and exhaust from construction machinery. Given the short duration of construction implementation of proper mitigative measures delineated in this assessment will ensure all compliance requirements.

11. *The project would not affect environmentally sensitive areas, such as flood plains, tsunami, inundation zones, erosion-prone areas, geologically hazardous lands, fresh waters or coastal waters.* No environmentally sensitive area would be affected by the

project. The proposed project is on sloping grounds well inland of the coast, and outside of tsunami inundation zones, flood plains, and geologically hazardous lands. Seismic risks are not great for the area as well.

12. *The proposed project will not require substantial energy consumption.*

8.2 NOTICE OF ANTICIPATED DETERMINATION

On the basis of the forgoing information, it is anticipated that the proposed drainage ditch improvements would not have significant impacts on the environment. As such, a notice of anticipated determination of *Findings of No Significant Impacts* for the proposed improvements is appropriate.

8.3 REASONS SUPPORTING THE ANTICIPATED DETERMINATION

The nature and scale of the proposed improvements are such that no significant environmental effects are anticipated. Potential impacts, if any, can be mitigated or minimized through sensitive site planning and engineering design, implementation of careful construction methods and compliance with all governmental requirements including those of the State Department of Health and the Department of Design and Construction of the City and County of Honolulu.

SECTION 9

AGENCIES AND BOARDS CONSULTED DURING THE PREPARATION OF THE FINAL ENVIRONMENTAL ASSESSMENT

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SECTION 9

AGENCIES CONSULTED DURING THE PREPARATION OF

THE FINAL ENVIRONMENTAL ASSESSMENT

9.1 Federal Agencies

Fish and Wildlife Service
Department of the Interior
P.O. Box 50156
300 Ala Moana Blvd.
Honolulu, HI 96850

Natural Resources Conservation Service
Department of Agriculture
P.O. Box 50004
300 Ala Moana Blvd.
Honolulu, HI 96850

Pacific Ocean Division
U.S. Army Corps of Engineers
Building 230
Fort Shafter, Hawaii 96858

9.2 State Agencies

Department of Land and Natural Resources
1151 Punchbowl Street
Honolulu, Hawaii 96813

State Historic Preservation Division
Department of Land and Natural Resources
33 South King Street, 6th floor
Honolulu, Hawaii 96813

Commission on Water Resources Management
Department of Land and Natural Resources
1151 Punchbowl Street
Honolulu, Hawaii 96813

Clean Water Branch
Department of Health
919 Ala Moana Blvd, Room 301
Honolulu, Hawaii 96814

Department of Business, Economic Development, and Tourism
Business Resource Center
250 S. Hotel Street, 4th floor, Ewa Wing
Honolulu, Hawaii 96813

Department of Education
Honolulu District
4967 Kilauea, Honolulu, HI 96816

Senator Matt Matsunaga
State Capital Room 226
Honolulu, Hawaii 96813

Representative Calvin Say
State Capital Room 306
Honolulu, Hawaii 96813

9.3 City and County Agencies

Department of Environmental Services
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Department of Planning and Permitting
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

Councilman Duke Bainum
Honolulu City Council
530 South King Street
Honolulu, Hawaii 96813

Mr. David Heinkin
Palolo Neighborhood Board, Chairperson
C/O Neighborhood Commission
City Hall Room 400
Honolulu, Hawaii 96813

9.4 Other Agencies

Hawaiian Electric Company, Inc.
P.O. BOX 2750
Honolulu, Hawaii 96840

GTE Hawaiian Tel
P.O. Box 2200
Honolulu, Hawaii 96841

The Gas Company
515 Kamakee Street
Honolulu, Hawaii 96814

Oceanic Cable
200 Akamainui Street
Honolulu, Hawaii 96789

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

MICHAEL D. WILSON, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

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GILBERT COLOMA-AGARAN

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CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION DIVISION
LAND DIVISION
STATE PARKS
WATER AND LAND DEVELOPMENT

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 6TH FLOOR
HONOLULU, HAWAII 96813

May 9, 1998

Marc Siah Ph.D., P. E.
Marc M. Siah & Associates, Inc.
735 Bishop Street, Suite 312
Honolulu, Hawaii 96813

LOG NO: 21471 ✓
DOC NO: 9805EJ01

Dear Mr. Siah:

SUBJECT: **Historic Preservation Review -- Preparation of Environmental Assessment for Proposed Drainage Ditch Improvements in Narcissus Place, Palolo Valley**
Palolo, Kona, O'ahu
TMK: 3-4-10, 11, 20

Thank you for the opportunity to comment during the preparation of the EA for this project. Our review is based on historic reports, maps, and aerial photographs maintained at the State Historic Preservation Division; no field inspection was made of the subject parcel. A review of our records shows that there are no known historic sites at the project location although historic sites, including shelter cave burials, have been recorded on the slopes to the west (makai) of the project. Since improvements are proposed to an existing earth-lined ditch, where it is unlikely that historic sites will be found, we believe that improvements to the ditch will have "no effect" on historic sites.

However, in the unlikely event that historic sites, including human burials, are uncovered during routine construction activities, all work in the vicinity must stop and the State Historic Preservation Division must be contacted at 587-0047.

If you have any questions please call Elaine Jourdane at 587-0014.

Aloha,

Don Hibbard, Administrator
Historic Preservation Division

EJ:jk

BENJAMIN J. CAYETANO
GOVERNOR

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
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December 28, 1999

Mr. Randall Y. Fujiki, Director
Department of Design and Construction
City and County of Honolulu
650 South King Street, Second Floor
Honolulu, Hawaii 96813

Dear Mr. Fujiki:

Subject: Draft Environmental Assessment for Narcissus Place Drainage Ditch Improvements, Palolo Valley, Oahu

Thank you for the opportunity to review the subject document. We have the following comments.

1. Please provide figures that show the alignments, profiles and cross-sections of the proposed ditches.

2. Please provide details of the Best Management Practice (BMP) procedures that will be implemented to minimize water quality impacts.

3. Please describe whether any aquatic species will be directly or indirectly impacted by the channelization project.

4. This project will increase the area of impervious drainage surfaces and potentially increase stream velocity, reduce filtration of pollutants and change the water temperature. Please describe how this project will affect downstream water bodies and its wildlife habitat.

5. Please consider alternatives than can meet the project objectives without increasing the amount of impervious surfaces.

Should you have any questions, please call Jeyan Thirugnanam at 586-4185.

Sincerely,

Genevieve Salmonson
Director

c: Marc Siah & Associates

DEPARTMENT OF DESIGN AND CONSTRUCTION
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IDEA 00-052

March 13, 2000

Ms. Genevieve Salmonson, Director
Office of Environmental Quality
State of Hawaii
State Office Tower, Suite 702
235 South Beretania Street
Honolulu, Hawaii 96813

Dear Ms. Salmonson:

Subject: Draft Environmental Assessment for Narcissus Place Drainage Ditch Improvements, Palolo Valley, Oahu, TMK: 3-4-10, 20, and 25

Thank you very much for your comments concerning the Draft Environmental Assessment (DEA) for the proposed drainage ditch improvements on Narcissus Place in Palolo Valley. We appreciate your thorough review of the document and offer the following responses addressing your concerns.

1. **Please provide figures that show the alignments, profiles, and cross-sections of the proposed ditches.**

   Section 1.3 of the DEA will be amended to include alignments, profiles, and cross-sections of the new drainage ditches A and B.

2. **Please provide details of the Best Management Practice (BMP) procedures that will be implemented to minimize the water quality impacts.**

   Section 3.1.2 of the DEA will be revised to include details of the BMP practices.

3. **Please describe whether any aquatic species will be directly or indirectly impacted by the channelization project.**

   The proposed concrete ditches A and B are improvements to the existing earth-lined ditches which only experience flow conditions during storm events. They serve to convey run-off water to the existing storm drain system underlying Carlos Long Street. Flow from these ditches passes through approximately 5,600 linear feet of either 36-inch storm drain pipe or channelized concrete ditch before

entering Palolo Stream. The significant stretch of existing channelization far exceeds the 600-foot of additional lining proposed by new ditches. It is not expected that the project will have any significant impacts on downstream aquatic species.

4. **This project will increase the area of impervious drainage surfaces and potentially increase stream velocity, reduce filtration of pollutants, and change the water temperature. Please describe how the project will affect downstream water bodies and wildlife habitat.**

   It is true that the proposed ditches will reduce the impervious drainage surfaces, potentially increase flow velocity, and reduce infiltration. However, in light of the fact that the channels experience flow conditions only occasionally, and the extent of increase in impervious surfaces or flow velocities are only marginal, the channelization impacts on downstream conditions is not significant. As mentioned in response to the previous comment, there is an extensive stretch of existing pipe and channelized section downstream of the proposed ditches that far exceed the 600 linear feet additional lining by the new ditches. It is not anticipated that the proposed action will have significant cumulative adverse impacts on Palolo Stream which has been receiving runoff water via the existing channelized storm drain system with no reported adverse impact on its water quality or wildlife habitat.

5. **Please consider alternatives that can meet the project objectives without increasing the amount of impervious surfaces.**

   The reason for the proposed ditch improvements is the inadequacy of the existing earth-lined channels and high potential for severe erosion during storm events. Due to the extent of the watershed and its topography, only stabilized channels can convey the storm waters without significant erosion. The engineering report prepared for the project investigated concrete-lined vs. CRM-lined channels. It was found that, to accommodate the storm flows, a CRM channel would require a larger cross-section than a concrete channel. Concrete-lined channels, therefore, provide better hydraulic efficiency and lower construction costs than the CRM-lined channels.

If there are any questions please contact Gregory Sue of the Division of Infrastructure Design and Engineering at 527-6304.

Very truly yours,

FOR GARY Q. L. YEE, AIA
Director

cc: Marc M Siah & Associates, Inc.

SECTION 10

RESPONSES AND COMMENTS TO EARLY CONSULTATION

Marc M. Siah & Associates, Inc.
Consulting Civil Structural Environmental & Ocean Engineers
810 Richards Street, Suite 888, Honolulu, Hawaii 96813

REFERENCES

REFERENCES

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2 Sate Department of Business, Economics Development & Tourism, *The State of Hawaii Date Book 1995.*

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4 U.S. Department of Agriculture, Soil Conservation Service, *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii.* August, 1972.

5 Katharine Tehranian, *A Study of Palolo Valley: Ethnicity, Class, and Spatial Identity.* 1993.

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9 Board of Water Supply, City and County of Honolulu, *Palolo Reservoir Map.*

10 Honolulu, Department of Parks and Recreation, *Community - Based Recreation Plan: DPA 1.1 - P.U.C. east, Neighborhood Board Nos. 3, 4, 6 - Waialae/Kahala - Kaimuki - Palolo.* June 1980.

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13 Macdonald Gordon A., Abbott Agatin T., and Peterson Frank L., *Volcanoes in the Sea.* 1983.