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OFFICE OF
QUALITY CONTROL

October 31, 1994

Dr. Bruce Anderson, Interim Director
State of Hawaii
Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Dr. Anderson:

Subject: West Kuiaha Tank and Waterline
Final Environmental Assessment
Tax May Key: 2-7-08:20,113

The Department of Water Supply, County of Maui is filing the Final Environmental Assessment for the West Kuiaha Tank and Waterline in compliance with Chapter 343, HRS. The Department has determined that the action will not have a significant impact on the environment.

Enclosed are four (4) copies of the Final EA and a completed OEQC Document Publication Form. We respectfully request that notice of this filing be published in the November 23, 1994 OEQC Bulletin.

If there are any questions, please contact Herbert Kogasaka, County of Maui at 243-7835 or Ms. Lianna Chang of Sato & Associates, Inc. at 955-4441.

Sincerely,

David R. Craddick
Director

/hk
enc.
cc. Sato & Associates, Inc.

"By Water All Things Find Life"

149
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NOV 23 1994



Sato & Associates, Inc.
Consulting Engineers

FINAL
ENVIRONMENTAL ASSESSMENT

for the

WEST KUIAHA TANK AND WATERLINE
KUIAHA, MAKAWAO, MAUI, HAWAII
TAX MAP KEY: (2) 2-7-08: 20, 113

1994-11-23-MA-PEA- West Kulaaha Tank &
Waterline

FINAL
ENVIRONMENTAL ASSESSMENT

for the

WEST KULIAHA TANK AND WATERLINE
KULIAHA, MAKAWAO, MAUI, HAWAII
TAX MAP KEY: (2) 2-7-08: 20, 113

Proposing Agency:

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155

Prepared by:

SATO & ASSOCIATES, INC.
2046 SOUTH KING STREET
HONOLULU, OAHU, HAWAII 96826-2221

OCTOBER 1994

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I PERTINENT DATA

APPLICANT: Department of Water Supply
County of Maui
P.O. Box 1109
200 South High Street
Wailuku, Maui, Hawaii 96793-7109

Contact: David R. Craddick (243-7816)

PROJECT TITLE: West Kuiaha Tank and Pipeline Project

PROPOSED ACTION: Installation of a 0.25 million gallon reinforced concrete reservoir and replacement of approximately 1390 linear feet of existing waterline mauka of the reservoir

LOCATION: Kuiaha, Makawao, Maui, Hawaii
TMK: (2) 2-7-08: 20, 113

LAW PURSUANT TO IN THE PREPARATION OF THE ENVIRONMENTAL ASSESSMENT: Hawaii Revised Statutes Chapter 343

AGENCIES CONSULTED IN THE ASSESSMENT PROCESS: State of Hawaii
Department of Health (DOH)
Office of Environmental Quality Control
Clean Air Branch
Dept of Land & Natural Resources (DLNR)
State Historic Preservation Division

County of Maui
Department of Public Works (DPW)
Department of Water Supply (DWS)

ORGANIZATION CONSULTED IN THE ASSESSMENT PROCESS: The Nature Conservancy of Hawaii

GOVERNMENT PERMITS AND APPROVALS: Building Permit - DPW (LUCA)
Grading Permit - DPW (LUCA)
Approval for work in County row - DPW
Approval for water system improvements - DWS

II DESCRIPTION OF PROPOSED ACTION

WATER TANK

The proposed action consists of constructing a 0.25 million gallon (MG) reinforced concrete reservoir in Haiku. The dimensions of the circular tank are 54 feet in diameter and 19.5 feet in height. Elevations of the spillway and finished floor are 721.0 and 705.0 feet above mean sea level (MSL), respectively.

The proposed 250,000 gallon tank, as shown in Figure 1, will replace the existing West Kuiaha 70,000 gallon tank. The proposed tank is situated North-East of the existing tank on TMK (2) 2-7-08: 20 and TMK (2) 2-7-08: 113, respectively. See Figure 1. The existing tank, which is deteriorating, will be kept in service until the new reservoir is constructed and operational. Once service is transferred to the new tank the existing tank will be demolished.

The 0.25 MG tank will be supplied with water originating from the Kamole Weir located near the Wailoa Ditch and Hamakua Ditch in Haliimaile. Water from the weir is pumped mauka via a 24-inch force main to the Pookela Tank, a 2 MG high level reservoir tank near Olinda Road in Makawao. From the Pookela Tank water is transmitted by gravity flow via an 18-inch water main to the Kokomo Tank, a 100,000 gallon mid level reservoir located near the intersection of Kailili Road at Kaupakalua Road. Transmission continues makai on Kaupakula Road to West Kuiaha Road where a pressure relief valve reduces the water pressure. The resultant water will then be transmitted by gravity flow to the proposed tank via a series of 4-, 6-, and 8-inch pipes. See Figures 2 and 3. The new tank will provide storage to the distribution system for existing consumers and for fire protection.

The new tank will be outfitted with two inlet lines and a one outlet line to be installed separately. One of the inlet lines will be stubbed for future connections. The remaining inlet line will actively service the new tank. The existing chlorination system will remain operational, treating water before it enters the new tank.

The proposed tank will also contain an overflow valve and as such will include an easement for drainage purposes. Future expansion of the reservoir system will contain utilities such as pumps, controls, and telemetry facilities.

Section II Description of Proposed Action 3

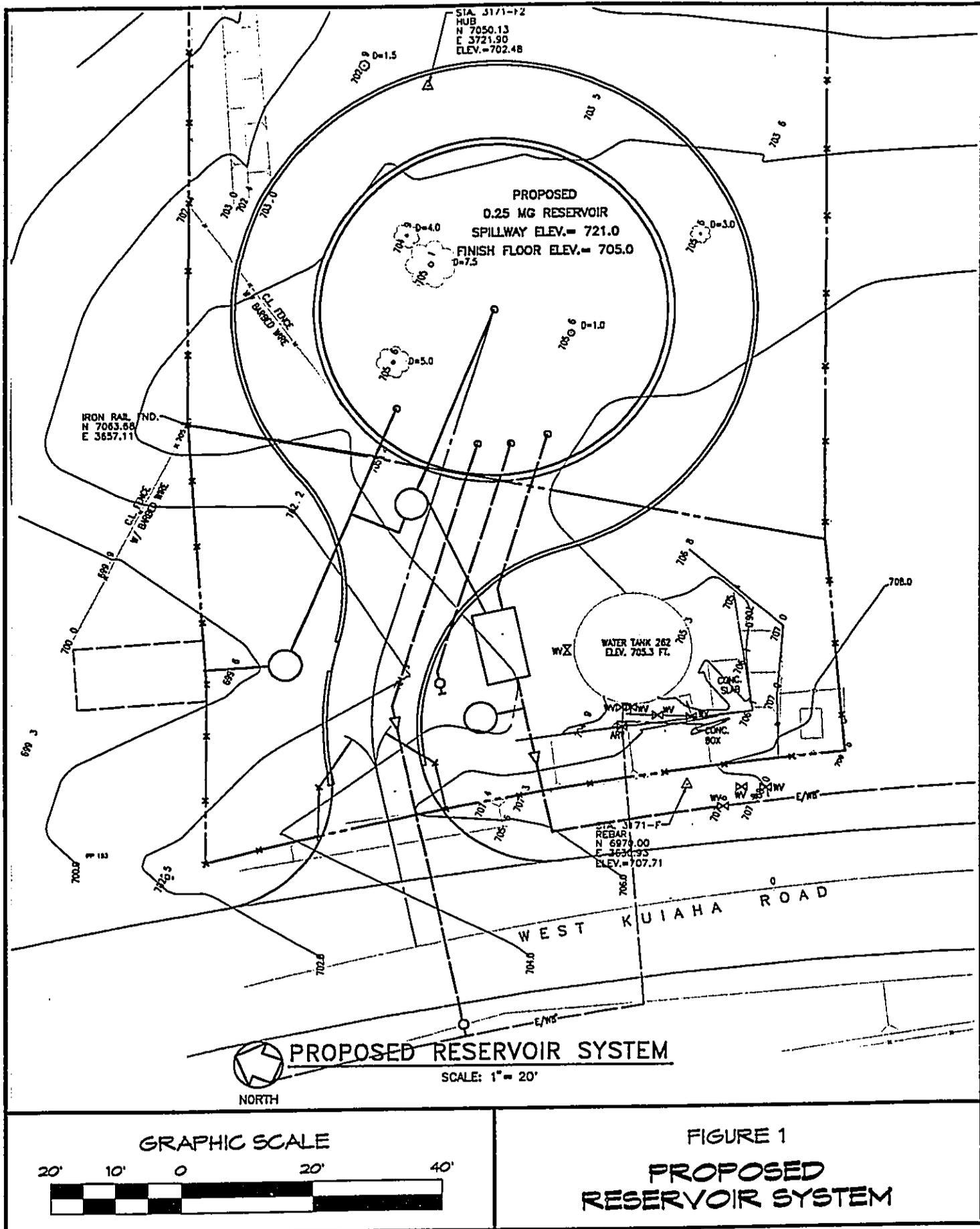


FIGURE 1
PROPOSED
RESERVOIR SYSTEM

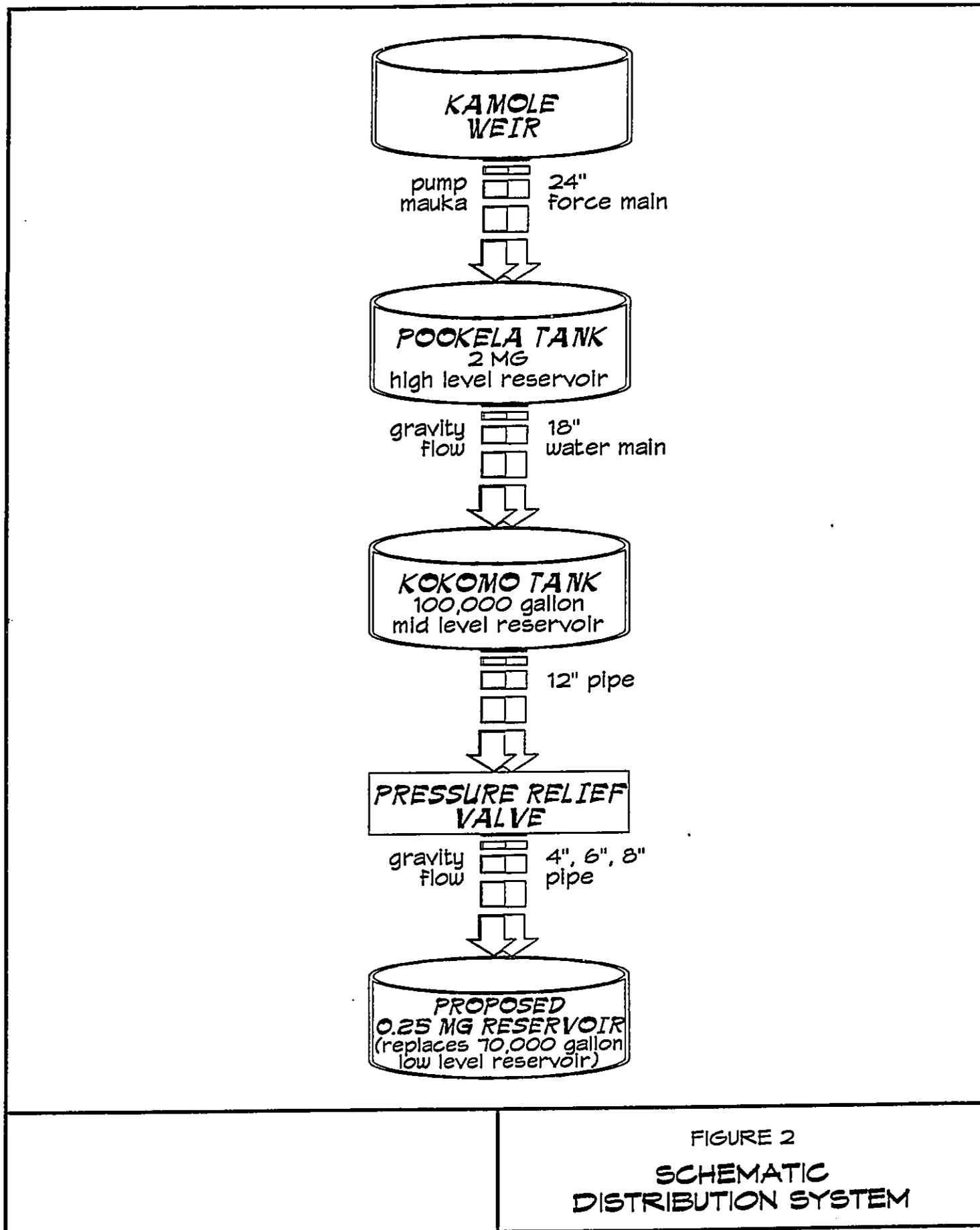


FIGURE 2
SCHEMATIC
DISTRIBUTION SYSTEM

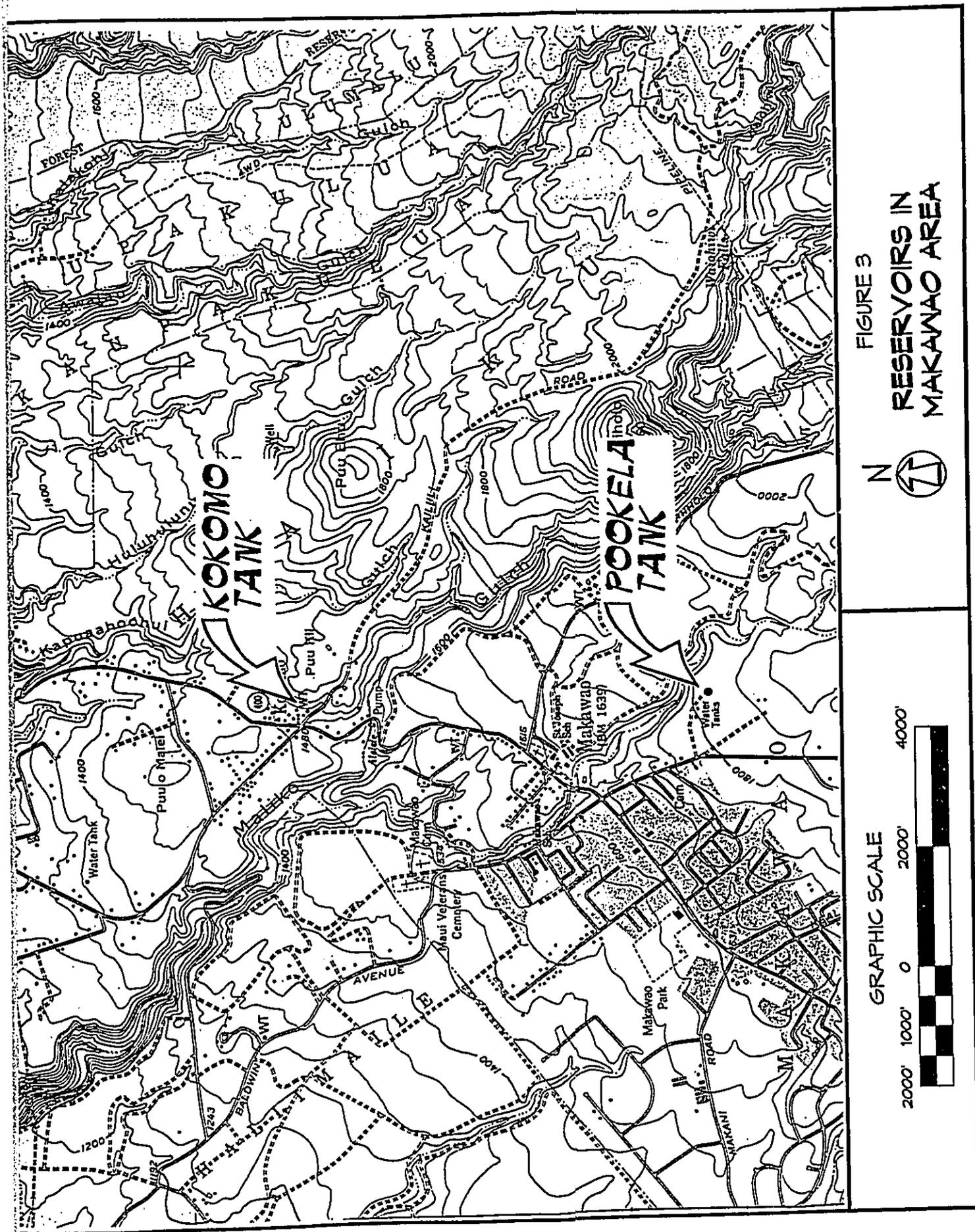


FIGURE 3
RESERVOIRS IN
MAKAWAO AREA

WATERLINE

The proposed action also includes installing an 8-inch waterline which will replace approximately 1390 linear feet of existing 4-inch waterline. The section of pipeline to be replaced is located on the eastern shoulder of West Kuiaha Road. The mauka end of the 8-inch waterline will connect to the existing 4-inch line and the makai end will connect to the existing 8" line feeding the tank. See Figure 4.

Alignment of the new line will follow the street right-of-way and roughly parallel the existing 4-inch pipeline which will remain in service until the new waterline is operational. The existing 4-inch line will then be abandoned in place.

The existing standpipes between the tank and along the proposed alignment will be removed and replaced with fire hydrants placed at 500 feet intervals. Existing water service connections on the 4-inch waterline will be reconnected to the new 8-inch line once the new line is in service. A profile of the waterline is illustrated in Figures 5 & 6.

ACCESS TO RESERVOIR SITE

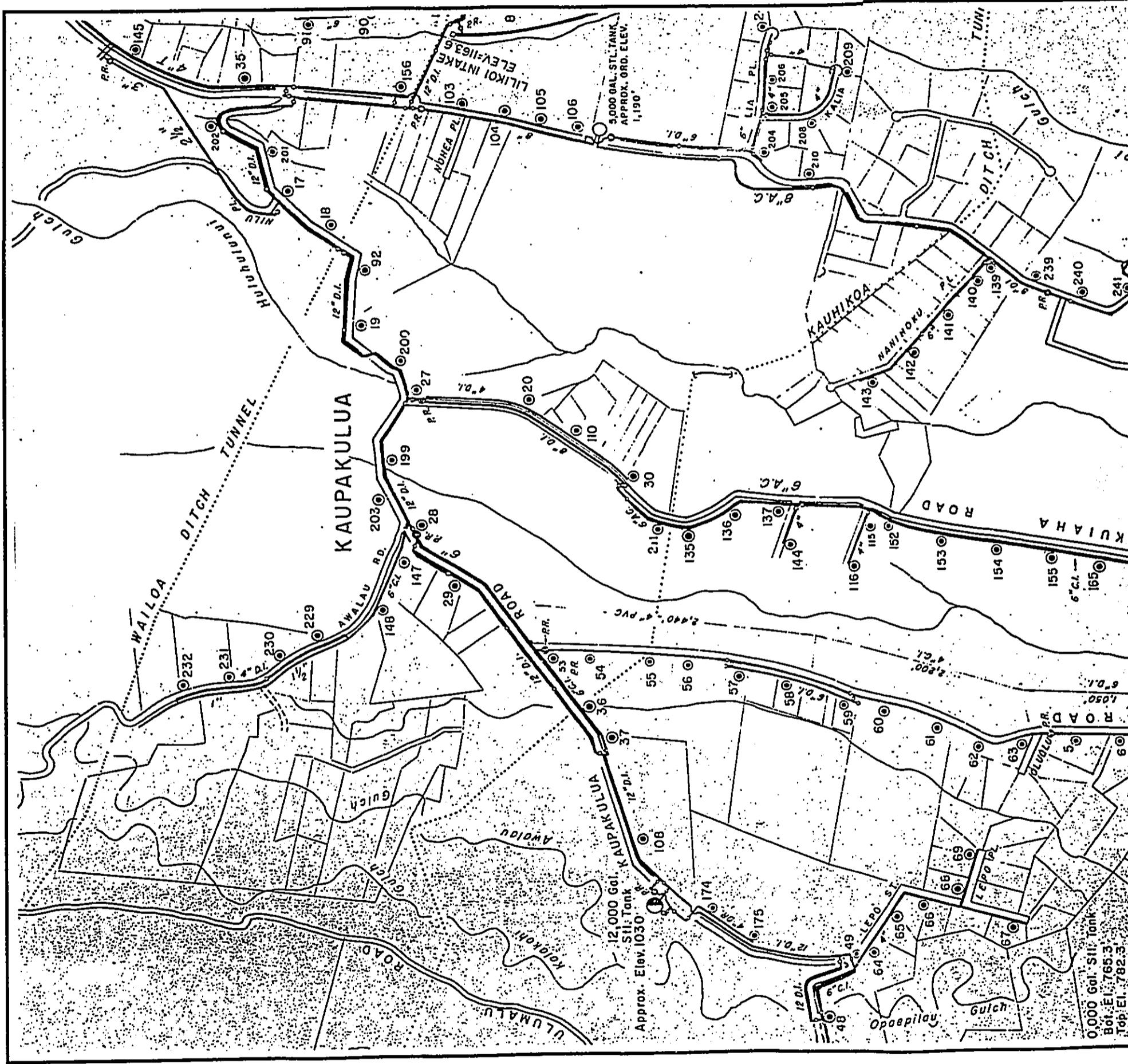
Presently, there is no access road to the existing water tank. Access to the proposed reservoir will be through a new 14 feet wide access road off West Kuiaha Road. The access road will have pavement grades of 1 to 4% constructed of asphalt concrete. A profile of the access road is illustrated in Figure 7.

PERIMETER ROAD

A perimeter road will be constructed around the reservoir to meet operation and maintenance requirements. The road will be 12 feet wide and constructed of asphalt concrete.

PROJECT SCHEDULE AND CONSTRUCTION COST

The estimated construction time for the proposed tank and waterline is 270 days. It is estimated that construction will begin in early 1995 and be completed later that same year. The estimated construction cost is \$700,000 and will be funded by the

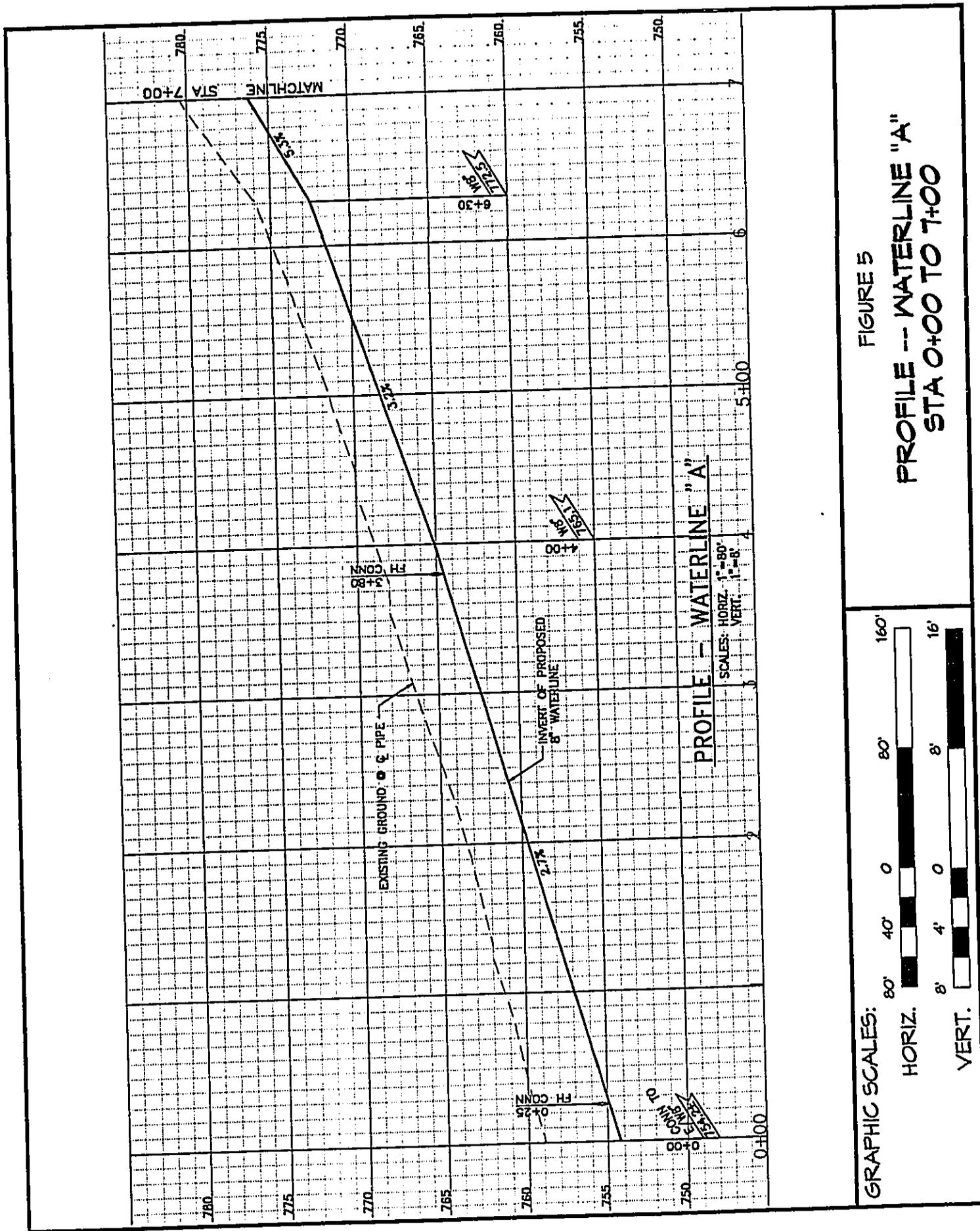


12,000 Gal. Sili Tank
Approx. Elev. 1030

5,000 Gal. Sili Tank
Approx. Ord. Elev. 1,190

0,000 Gal. Sili Tank
Bot. El. 765.3
Top El. 782.3





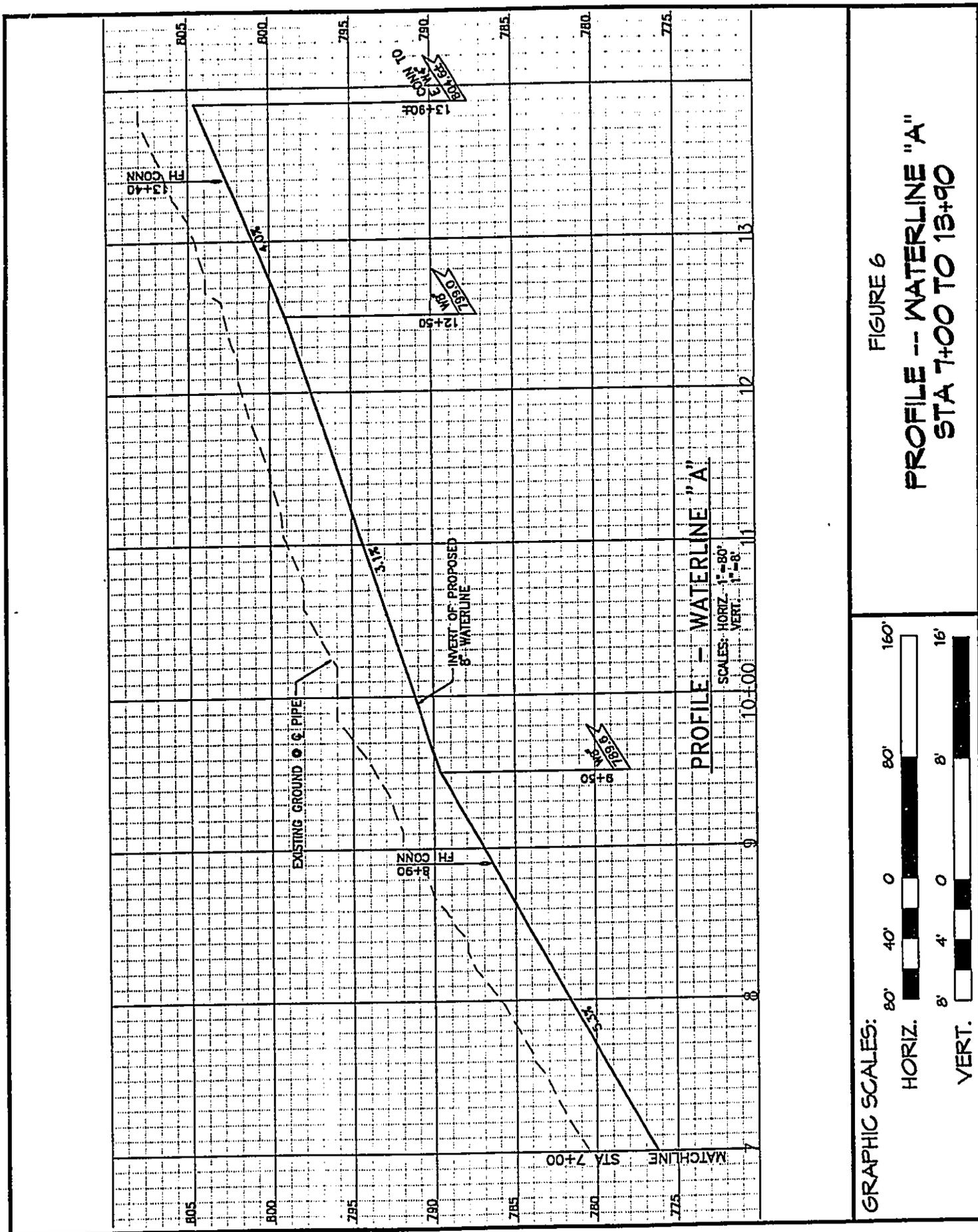


FIGURE 6
 PROFILE -- WATERLINE "A"
 STA 7+00 TO 13+90

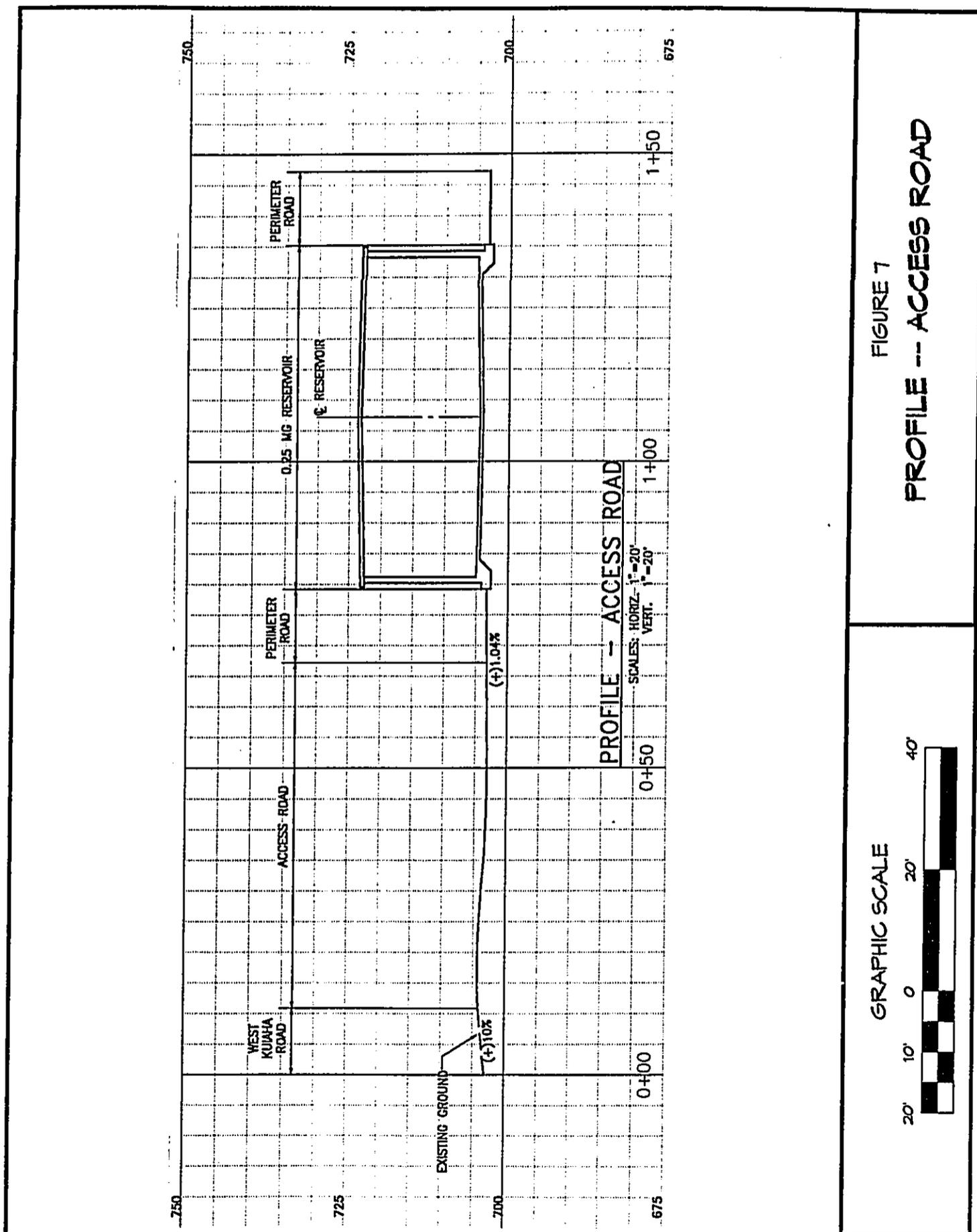


FIGURE 7
 PROFILE -- ACCESS ROAD

Department of Water Supply.

STATEMENT OF OBJECTIVES

The objective of the proposed project is to accommodate the growing needs of the rural and agricultural areas of lower Haiku. The proposed project is intended to provide storage to the distribution system for existing consumers and for fire protection.

III SUMMARY DESCRIPTION OF THE AFFECTED ENVIRONMENT

PROJECT LOCATION

The proposed project, located in the Kuiaha area, lies within the Makawao judicial district of the County of Maui. The Makawao judicial district, extends from Pauwela Point down to and including the island of Kahoolawe and from Lowrie Ditch to the crest of Haleakala Crater. See Figures 8 and 9.

Kuiaha is located approximately 19 miles and 14 miles east of Wailuku and Kahalui, respectively. The contiguous towns of Wailuku and Kahalui hold the largest concentration of population in Maui. Kuiaha is considered to be a rural community with most of the residents employed in Wailuku and Kahalui. Population in the Haiku-Pauwela area where Kuiaha is located was 5,695 in 1990, an increase of 60% from 1980.

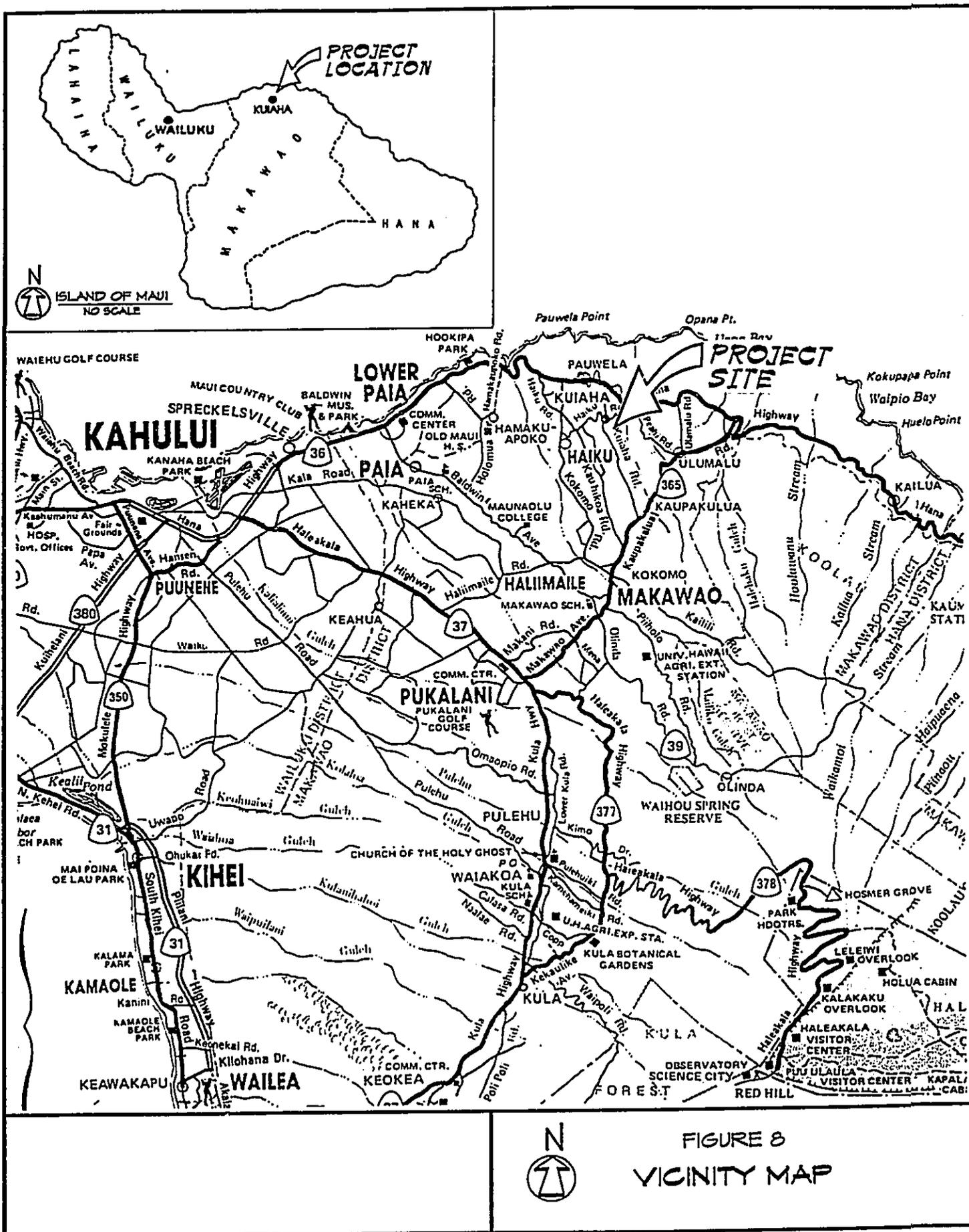
PROJECT SITE

The project site is located on West Kuiaha Road approximately 3/4 of a mile mauka of the Haiku Road-West Kuiaha Road intersection. The tank site is situated on the lower slopes of Haleakala and is adjacent to the existing 70,000 gallon tank. The existing tank is located on a 0.115 acre lot, the proposed tank site will encompass 0.230 acres.

Residential dwellings can be found both mauka and makai of the tank site. However due to the rural characteristics of the area, the dwellings are usually moderately spaced from each other. Lands immediately adjacent to the project site and the site itself are currently used as pasture land or undeveloped.

LAND OWNERSHIP

A portion of the site on which the existing tank is located is owned by the State of Hawaii. The remaining portion of the site is located on land owned by Patsy H. Izumo and Raymond T. Masuda. The Department of Water Supply is currently negotiating acquisition of this portion.



TOPOGRAPHY

The proposed site is situated on the lower north-west slopes of Mount Haleakala. The land generally slopes mauka-makai with an average slope through the site of approximately 5 percent. Elevations on the site range from approximately 708 feet to 700 feet MSL. The proposed tank site is presently undeveloped except for the portion on which the existing 70,000 gallon tank is located. Ground cover consists of heavy grass, brush and trees.

GEOLOGY/SOILS

According to the United States Department of Agriculture Soil Conservation Service Soil Survey, the surface soils in the area of the proposed project are Haiku clay. A representative profile of the surface layer would indicate a dark-brown clay about 14 inches thick. The subsoil, approximately 31 inches thick, is yellowish-red, dark reddish-brown, and dark-red clay or silty clay that has angular and subangular shape. The soil is very acidic in the surface layer and extremely acidic in the subsoil and substratum. Permeability is moderately rapid. Runoff is slow to medium, and the erosion hazard is slight to moderate.

The Soil Survey classifies Haiku clay as MH under the Unified Soil Classification System. This classification indicates that the soil consists primarily of fine-grained material with a high liquid limit.

CLIMATE

The Kuiaha area is located on the windward slopes of Haleakala and is subject to moisture laden northeast tradewinds the majority of the time. Temperatures average between 71 and 79 degrees Fahrenheit, with extreme temperatures ranging around 50 degrees for the low and 90 degrees for the high. The mean annual rainfall for the area averages approximately 69 inches per year.

FLORA/FAUNA

A search through the Hawaiian Heritage Program's Natural Diversity Data Base of the proposed site was conducted to identify any endangered, threatened and rare plants, animals and natural communities. The data base indicated that there were

no endangered plants or animals at or in the near proximity of the proposed location.¹

AIR QUALITY

The air quality monitoring data from the Department of Health, Clean Air Branch suggested that air quality standards are currently being met. Presently, there are two air quality monitoring stations in Maui, one in Lahaina and the other in Kihei. The pollutants sampled at the Kihei air quality monitoring station include PM-10 and sulfur dioxide. PM-10 is a particulate matter that is 10 microns or less in diameter and sulfur dioxide is a colorless irritating gas under atmospheric condition. Although these pollutants were sampled at the air quality monitoring station their concentrations never exceeded the Federal Primary or State Air Quality Standards during the period of January 1988 to December 1990.

AESTHETICS

Views of the existing tank from Hana Highway and areas below the site are screened by trees. The tank can be seen from areas above and directly adjacent to the site. However due to a number of tall trees in the area, the existing tank does not disrupt any view plains. The new tank is not expected to alter any existing view plains.

UTILITIES

The existing 4-inch waterline is located between the shoulder of West Kuiaha Road and the road right-of-way. Drainage culverts also cross the road at various locations and telephone and power lines are located overhead.

ARCHAEOLOGICAL SITES

A review of the records of the Department of Land and Natural Resources indicated that no known historic sites were present within the proposed site. A field inspection of the proposed site was conducted in February 22, 1994 by the Maui

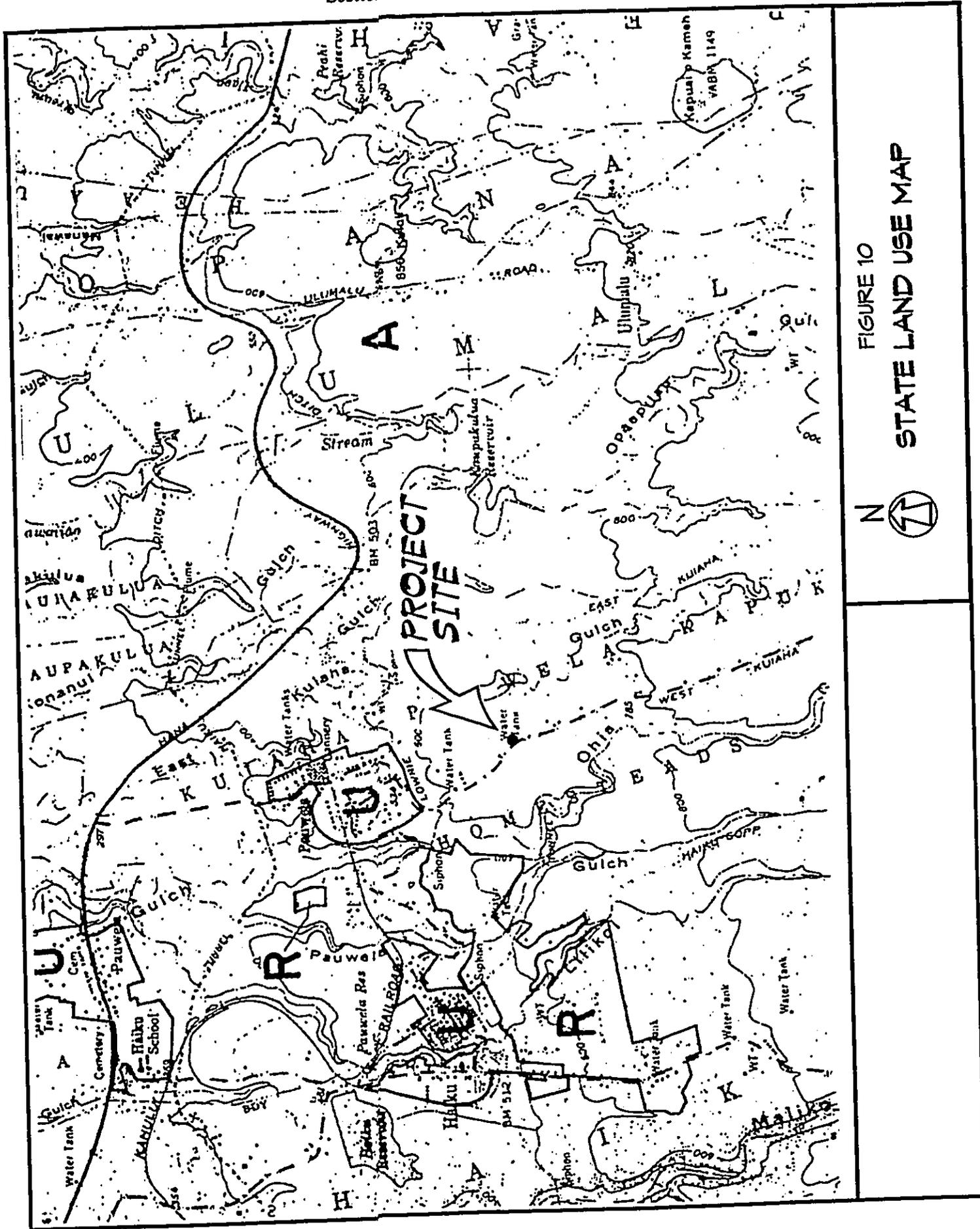
¹ Data provided by the Hawaiian Heritage Program do not constitute an official position of The Nature Conservancy.

DLNR Historic Preservation Division and found that no evidence of historic sites were observed.²

STATE LAND USE AND COMMUNITY PLAN DESIGNATION

The site of the proposed reservoir is designated by the State as Agriculture (AG). The site is not designated under County land use documents, however, the Community Plan designation is also AG. See Figures 10 and 11.

² See Appendix.



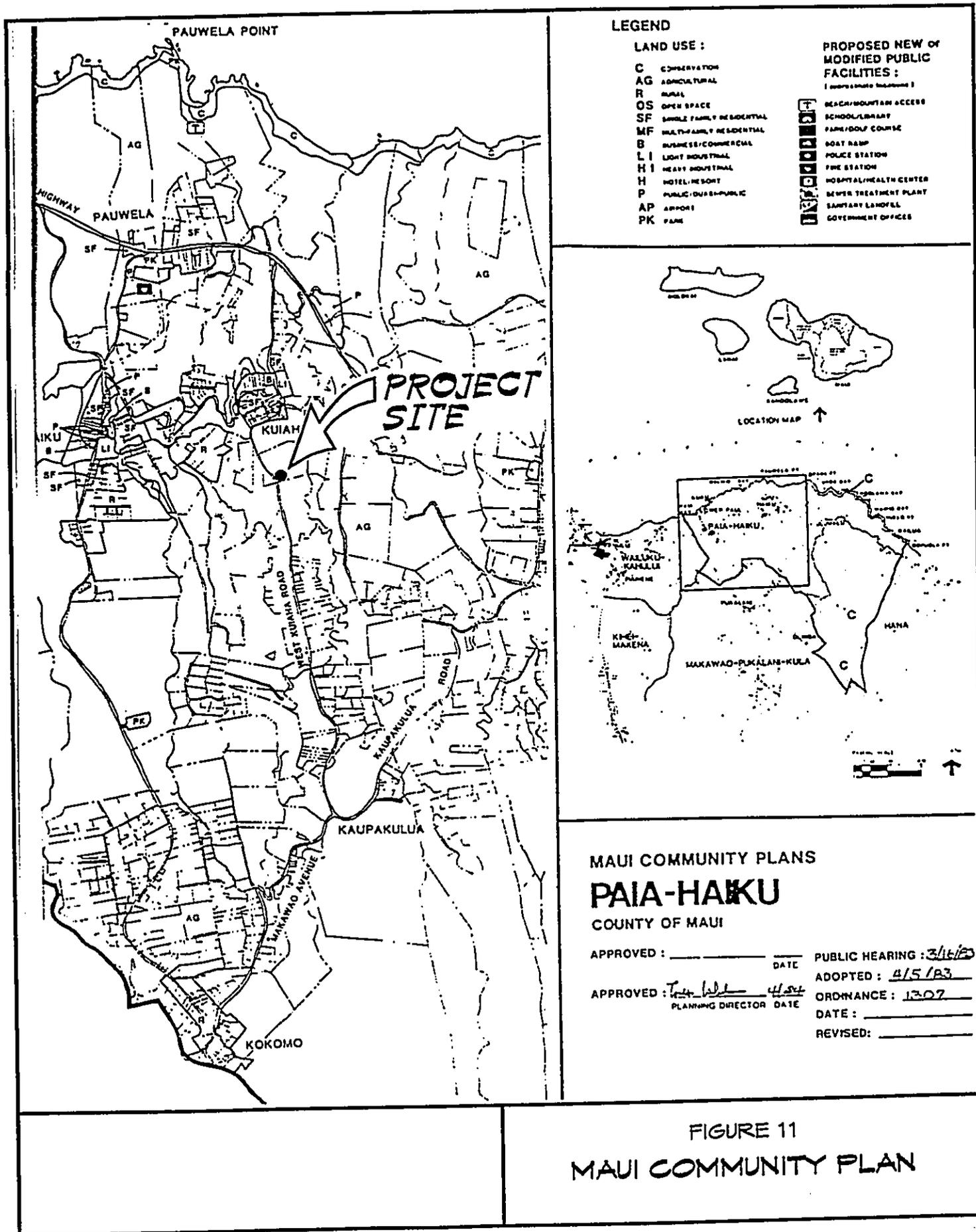


FIGURE 11
MAUI COMMUNITY PLAN

IV IDENTIFICATION OF MAJOR IMPACTS AND PROPOSED MITIGATION MEASURES

This section identifies the major impacts affecting the proposed project. The major impacts are categorized into short term and long term impacts. Short-term impacts are of short duration and confined to the length of the construction period and long term impacts result from operational activities.

SHORT-TERM IMPACTS

Construction of the proposed facilities will attribute to the major short-term impacts. Dust, noise, exhaust emissions and traffic disruptions will be the most prominent impact during construction.

LONG-TERM IMPACTS

The first major long-term impact of the upgrading of the water system in Kuiaha is providing additional reliability and assurance for an adequate water supply for fire protection.

The second long-term impact caused by the construction of the concrete reservoir is a visual impact. The proposed reservoir will be 54 feet in diameter and 19.5 feet in height.

MITIGATION MEASURES

Construction activities relating to the proposed project will be governed by federal, state and county laws and contract specifications. The contractor will limit construction activities between the hours of 8:00 A.M. to 4:00 P.M.

Noise

During the construction period elevated noise levels will be experienced by nearby residents. Noise from the operation of pneumatic excavation equipment, backhoe and trucks has been measured at levels ranging from 70 to 90 dBA (at 50 feet).

The contractor will be required to limit construction activities between the hours of

8:00 A.M. to 4:00 P.M. and generally during week days only. Noise from construction equipment will also be reduced by insuring proper functioning mufflers.

Air Pollution

Air quality degradation can be expected in the immediate vicinity of construction activity and is primarily attributable to fugitive dust and exhaust emissions from construction equipment.

The contractor will be required to comply with the air pollution control standards and regulations of the State Department of Health. The contractor shall also perform all grading operations in conformance with the requirements of Maui County Grading Ordinance. To meet these requirements the contractor will be required to implement measures to minimize air quality degradation. These measures include the application of water to control dust and the inspection of construction vehicles to prevent excessive exhaust emission.

Traffic Disruptions

Construction of the proposed project will cause traffic disruptions to residences along West Kuiaha Road. Construction activities especially during the installation of the waterline will cause periodic traffic delays. There will also be traffic interruptions caused by hauling trucks in the early stage of the project and by concrete trucks during the late stage of construction.

The contractor shall conform to the safety precautions and requirements of the "Rules and Regulations Governing the Use of Traffic Control Devices at Work Sites on or Adjacent to Public Streets and Highways" adopted by the Highway Safety Coordinator, and the U.S. Federal Highway Administration's "Manual on Uniform Traffic Control Devices for Streets and Highways, Part VI, Controls for Highway Construction and Maintenance Operations."

The contractor shall also obtain a "Work to Perform on County Roads Permit" from the County of Maui, Department of Public Works. Other conditions imposed on the contractor to minimize traffic disruptions include:

1. Access to and from driveways and public streets shall be provided at all

times.

2. During nonworking hours, trenches shall be covers with steel plates and all lanes shall be open to traffic.
3. As required, special duty police officers shall be hired to direct the flow of traffic.
4. All walkways and intersections shall be maintained in passable condition for pedestrian traffic.

Visual Impacts

As mentioned earlier, the new storage tank is not expected to significantly alter any existing view plains. This is due to the number of large trees that surrounds the site. Visual impacts can be further mitigated in the following manner:

1. Landscaping the area with tall foliage around the reservoir to provide a screening effect.
2. Landscaping exposed excavation cuts.
3. Paint the concrete reservoir with earth tone colors to blend with the surrounding environment.

V ALTERNATIVES CONSIDERED

NO ACTION

Presently, the existing tank is deteriorating and in need of a replacement. If no action is taken to build the reservoir and upgrade the water system, the Department of Water Supply would be hindered from providing additional reliability and flexibility to the Kuiaha water distribution system.

ALTERNATIVE ACTION

The alternative to the proposed action would be to construct an elevated steel tank. This alternative would be aesthetically unacceptable. Visual considerations and high maintenance efforts are deterrent factors to this alternative. There are also potential hazards associated with structural failure.

**VI DETERMINATION, FINDINGS,
AND REASONS SUPPORTING DETERMINATION** _____

DETERMINATION

A Draft Environmental Assessment was submitted for review and comment. Following the end of the review period, there were no comments or requests for further information. It was determined that the action will not have any significant impact, therefore, an Environmental (EIS) will not be required.

FINDINGS AND REASONS SUPPORTING DETERMINATION

The proposed action was determined to not have significant impact according to the criteria in Section 11-200-12 of the Environmental Impact Statement Rules. The criteria and findings are as follows:

1. **Criteria:** Involves an irrevocable commitment to loss or destruction of any natural or cultural resources.
Finding: There are no endangered native plants, animals or ecosystems nor are there any archaeological sites at the proposed site.
2. **Criteria:** Curtails the range of beneficial uses of the environment.
Finding: There is a 70,000 gallon tank located on a portion of the site. Building a new tank in approximately the same location will not significantly alter any view plains, however, there will be some loss of undeveloped land due to the larger tank size.
3. **Criteria:** Conflicts with the State's long-term environmental policies or goals and guidelines as expressed in Chapter 343 and 344 of the Hawaii Revised Statutes and any revisions thereof and amendments thereto, court decisions, or executive orders.
Finding: There is no known conflict.
4. **Criteria:** Substantially affects the economic or social welfare of the community or state.
Finding: The proposed action will improve the flexibility and reliability of the water distribution system. It will also improve fire protection, resulting in an

improvement to the social and economic welfare of the community.

5. Criteria: Substantially affects economic or sociological activities.
Finding: There is no known adverse effect.
6. Criteria: Involves substantial secondary impacts, such as population changes or effects on public facilities.
Finding: There will be no adverse secondary impacts. The new tank and waterline will provide a more reliable water distribution system for existing residents.
7. Criteria: Involves a substantial degradation of environmental quality.
Finding: There will be short term impacts caused by construction activities. No long term degradation of environmental quality will take place.
8. Criteria: Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions.
Finding: The proposed action, either individually or cumulatively will not have a considerable effect on the environment, nor will it involve a commitment to large actions.
9. Criteria: Substantially affects a rare, threatened, or endangered species of animal or plant habitat.
Finding: There are no rare, threatened, or endangered species of animal or plant habitat.
10. Criteria: Detrimentially affects air or water quality or ambient noise levels.
Finding: Finding There will be short-term impacts to air and ambient noise levels associated with construction activities. These impacts will be temporary and will cease once construction of the project is finished. The contractor will be required to conform to all applicable laws and regulations to mitigate construction-associated impacts. There will be no long term impacts associated with this proposed action.
11. Criteria: Affects an environmental sensitive area such as flood plain, tsunami zone, erosion-prone area, geologically hazardous land, estuary, fresh water,

or costal waters.

Finding: The project site is not located in a sensitive area.

REFERENCES

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

State of Hawaii Department of Health Clean Air Branch, Hawaii Air Quality Data January 1988 - December 1990

APPENDIX

JOHN WAIHEE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 8TH FLOOR
HONOLULU, HAWAII 96813

February 25, 1994

Ms. Liana Chan
Sato & Associates, Inc.
2046 South King Street
Honolulu, Hawaii 96826

Dear Ms. Chan:

SUBJECT: Historic Preservation Review of a Proposed Water Tank
Construction Project, Kuiaha, Makawao, Maui
TMK: 2-7-08: 20, 113

Thank you for the opportunity to review this proposed water tank construction project. The tank is to be constructed for use by the Maui County Department of Water Supply. It is to be located immediately east of an existing water tank, along the east side of West Kuiaha Road.

A review of our records indicates that no known historic sites are present within the proposed tank construction project area.

A field inspection of the proposed tank construction site was conducted February 22, 1994 by Historic Preservation Division staff archaeologist Theresa K. Donham. The area to be impacted by construction contains no evidence of historic sites.

We therefore believe that this project will have "no effect" on historic sites. Please contact Theresa K. Donham at 243-5169 if you have any questions.

Sincerely,


DON HIBBARD, Administrator
State Historic Preservation Division

KD:amk

KEITH AHLE, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCE

DEPUTIES

JOHN P. KEPPeler II
DONA L. HANAKA

AQUACULTURE DEVELOPMENT
PROGRAM

AQUATIC RESOURCES
CONSERVATION AND

ENVIRONMENTAL AFFAIRS
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES

FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
DIVISION

LAND MANAGEMENT
STATE PARKS

WATER AND LAND DEVELOPMENT

LOG NO: 10929
DOC NO: 9402KD23

MAR - 5 1994
STATE HISTORIC PRESERVATION DIVISION

END

CERTIFICATION

I HEREBY CERTIFY THAT THE MICROPHOTOGRAPH APPEARING IN THIS REEL OF
FILM ARE TRUE COPIES OF THE ORIGINAL DOCUMENTS.

2004

DATE

Alfred Takasaguchi

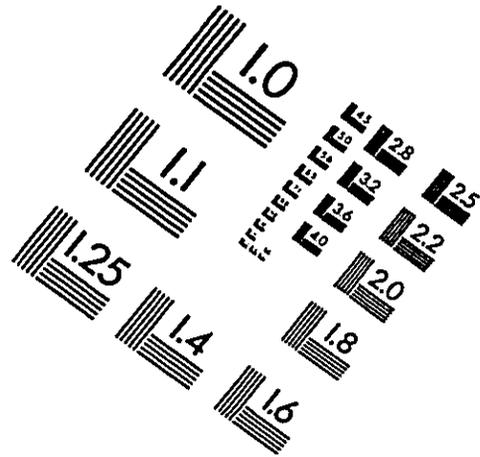
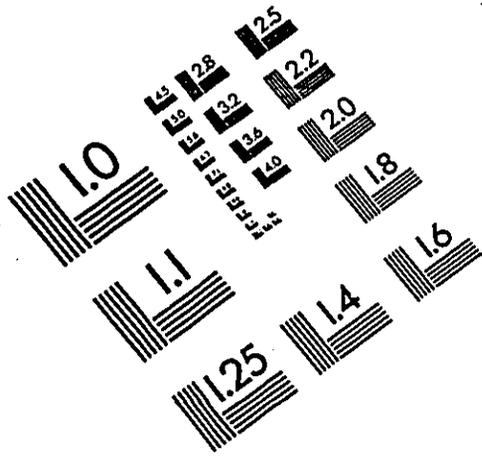
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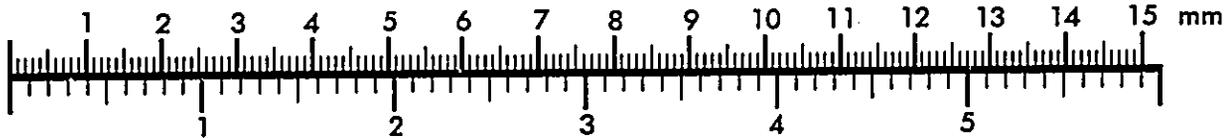
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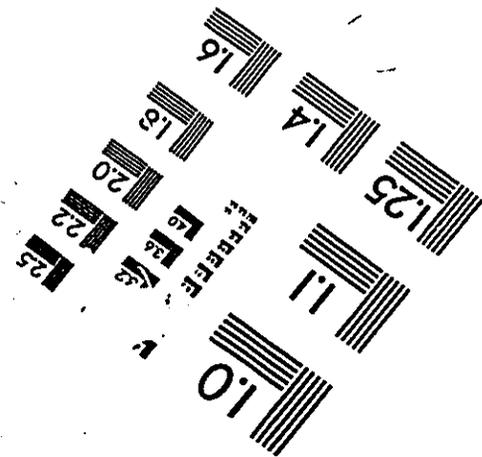
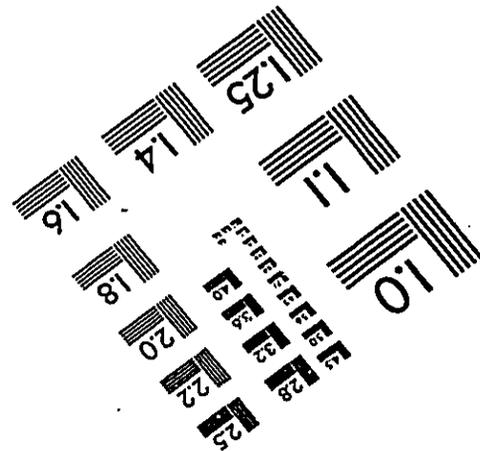
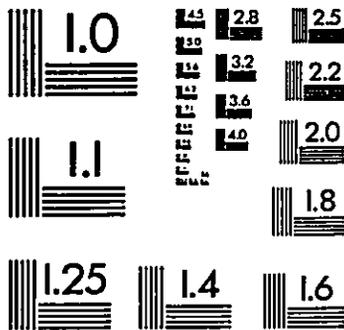
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Silver Spring, Maryland 20910
301/587-8202



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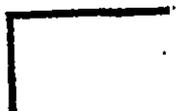


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DENSITY TARGET



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