

June 25, 1990

TO: Office of Environmental Quality Control
FROM: Department of Water Supply, County of Maui
SUBJECT: Notice of Determination

Proposing Agency: Department of Water Supply
County of Maui

Accepting Agency: Department of Water Supply
County of Maui

Proposed Action: The proposed action consists of (1) the replacement of a 50,000 gallon redwood tank with a 100,000 gallon glass-fused steel tank, (2) the installation of about 1,900 feet of a six-inch pipeline, and (3) the installation of a booster pump station.

Determination: It is determined that an environmental impact statement is not required. The 100,000 gallon tank, although forty-three feet high, will be equal in elevation with the existing 50,000 gallon tank; will be located in the same general area as the existing tank; will be located in a macadamia tree grove; and will be about 1,000 feet from the nearest residential structure. The pipeline will be constructed underground, along an existing dirt road. The booster pump station will be constructed at a site where there are existing three deepwell pumps and a 1.0 million gallon tank. Adverse effects will be limited to and will be minimized during the construction period.

Contact Person: The contact person is Vince G. Bagoyo, director of the department of water supply of the county of Maui, 200 S. High Street, Wailuku, Hawaii 96793. Ph. No. 243-7816.

1990-07-08-MA-FA

FILE COPY

ENVIRONMENTAL ASSESSMENT
FOR
UPPER WAIIEHU WATER PROJECT
PHASE I
WAIIEHU, MAUI, HAWAII

PREPARED FOR
DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI

BY
AUSTIN, TSUTSUMI & ASSOCIATES, INC.
ENGINEERS * SURVEYORS
HONOLULU, HAWAII

JUNE 1990

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HONOLULU, HAWAII

JUNE 1990

Prepared per Section 11-200-10 of Title 11 Department of Health Chapter 200
ENVIRONMENTAL IMPACT STATEMENT RULES

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3. Water System Map
4. Upper Waiehu Water Tank Site Plan
5. Upper Waiehu Booster Pump Station Site Plan
- 6A. Waterline Plan and Profile
- 6B. Waterline Plan and Profile



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ENVIRONMENTAL ASSESSMENT

FOR

UPPER WAIEHU WATER PROJECT
PHASE I
WAIEHU, MAUI, HAWAII

I. PROPOSING AGENCY

Department of Water Supply
County of Maui
200 South High Street
Wailuku, Maui, Hawaii
Director: Mr. Vince G. Bagoyo, Jr.

II. APPROVING AGENCY

Office of the Mayor, County of Maui

III. AGENCIES CONSULTED IN PREPARING THE ASSESSMENT

State of Hawaii

Historic Preservation Program, Department of Land and Natural Resources

County of Maui

Department of Water Supply

Wailuku Agribusiness

IV. DESCRIPTION OF PROPOSED ACTIONS AND STATEMENT OF OBJECTIVES

The proposed project involves construction of a 100,000 gallon bolted steel water storage tank of approximate dimensions of 20 feet diameter by 43 feet high. The project also involves construction of a duplex booster pump station and the installation of approximately 1,900 linear feet (LF) of 6-inch waterline along an existing agricultural dirt road from Malaihi Road to the relocated booster pump station.

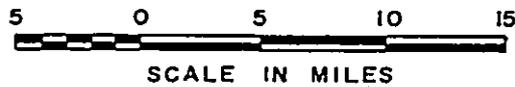
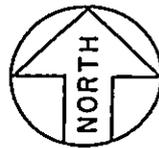
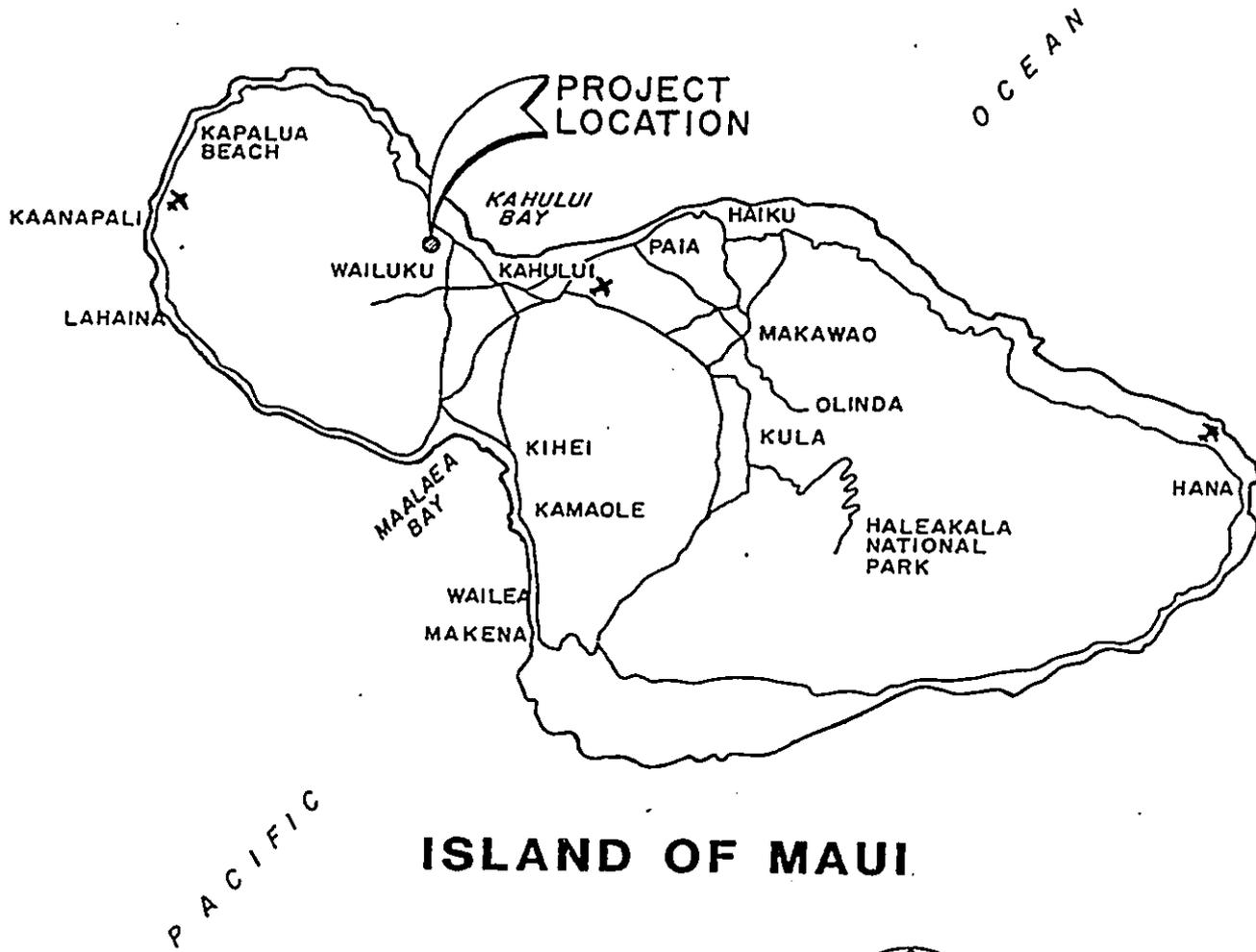
REPLY TO:
501 SUMNER STREET, SUITE 521 • HONOLULU, HAWAII 96817-5031
PHONE 808/533-3646 • FAX NO. 526-1267

OFFICES IN:
HONOLULU, HAWAII
WAILUKU, MAUI, HAWAII • HILO, HAWAII

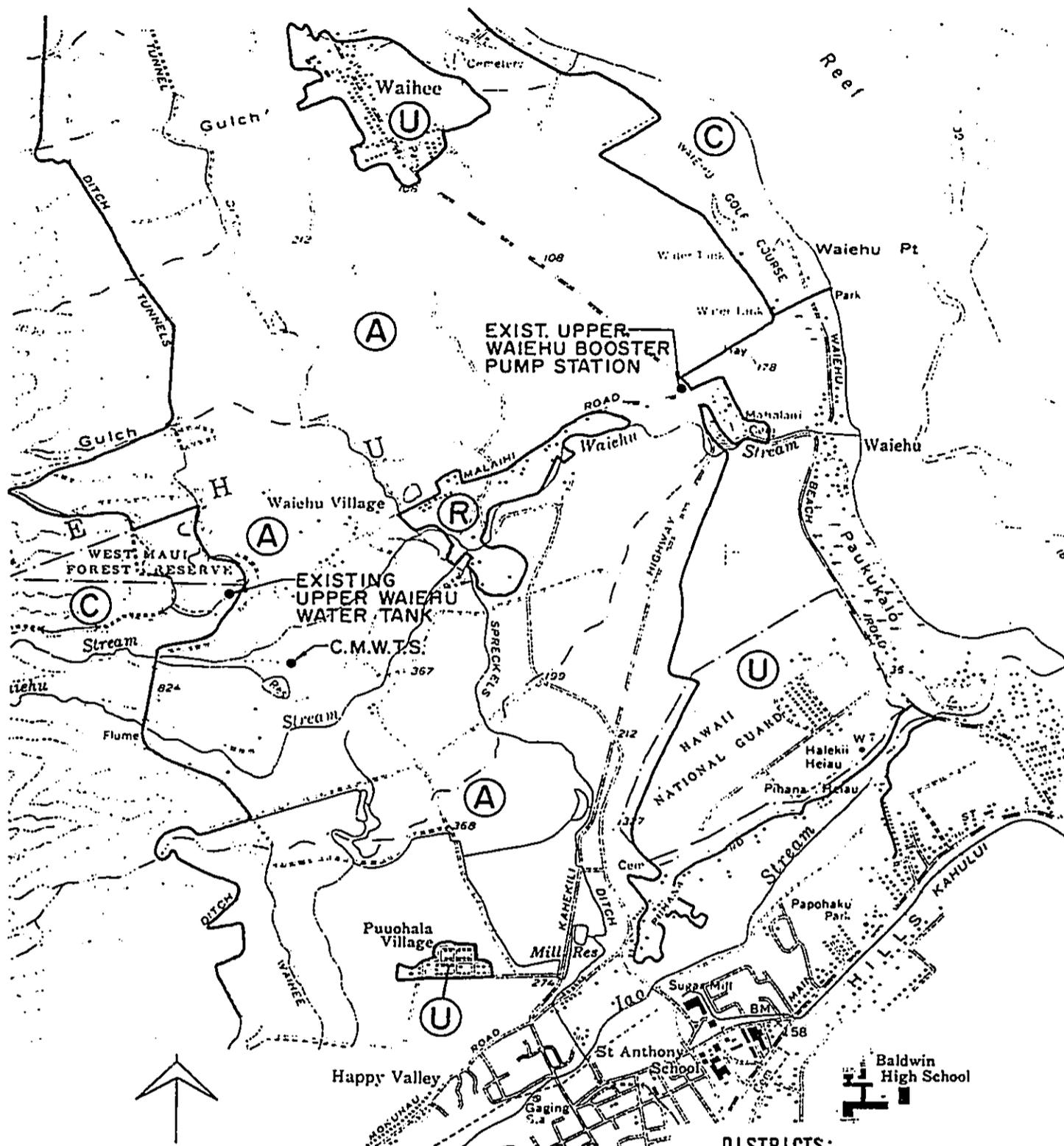


The entire Upper Waiehu Water Project, Phase I, is located in Upper Waiehu, Maui, Hawaii. (See location map in Exhibit 1.) The water tank will be located in an area currently cultivated in macadamia nut trees by Wailuku Agribusiness and, therefore, construction will necessarily require removal of several of these trees. The land to be used for the proposed tank site and waterline is owned by Wailuku Sugar Company and is identified by Tax Map Key Number: 3-2-13:15. The proposed booster pump station will be located at the existing 1.0 million gallon (MG) Central Maui Water Transmission System (CMWTS) Water Tank Site, on land owned by the County of Maui and is identified by Tax Map Key Number: 3-2-17:31. All of the land involved is designated Agricultural by the State of Hawaii Department of Business & Economic Development. (See Exhibit 2.)

The County of Maui, Department of Water Supply (DWS), proposes to construct a new water tank to replace an existing 50,000 gallon redwood tank, which is leaking substantially. This redwood tank will be demolished upon construction of the proposed 100,000 gallon tank. DWS also proposes to construct a new booster pump station to replace an existing booster pump station, whose equipment items are in poor electrical/mechanical condition. The new pump station will be located at the CMWTS site. Justification for the relocation is the use of the stored water in the new Upper Waiehu Water Tank for prelubrication of the three deepwell pumps at the CMWTS site via the new 6-inch waterline from the new tank to the CMWTS site and the savings in power cost to be realized by pumping through this new 6-inch waterline of shorter length and lower frictional losses. The existing booster pump station will be



<p>DEPARTMENT OF WATER SUPPLY COUNTY OF MAUI</p> <p>ENVIRONMENTAL ASSESSMENT FOR UPPER WAIIEHU WATER PROJECT PHASE I</p>	<p>AUSTIN, TSUTSUMI, & ASSOC., INC. ENGINEERS, SURVEYORS • HAWAII</p> <p>LOCATION MAP</p>	<p>EXHIBIT</p> <p style="font-size: 2em;">1</p>
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REFERENCE: STATE OF HAWAII LAND USE COMMISSION, DEPARTMENT OF BUSINESS & ECONOMIC DEVELOPMENT, LAND USE DISTRICT BOUNDARIES, DISTRICT MAP M-5, DEC. 20, 1974

- DISTRICTS:**
 R - RURAL
 U - URBAN
 A - AGRICULTURE
 C - CONSERVATION

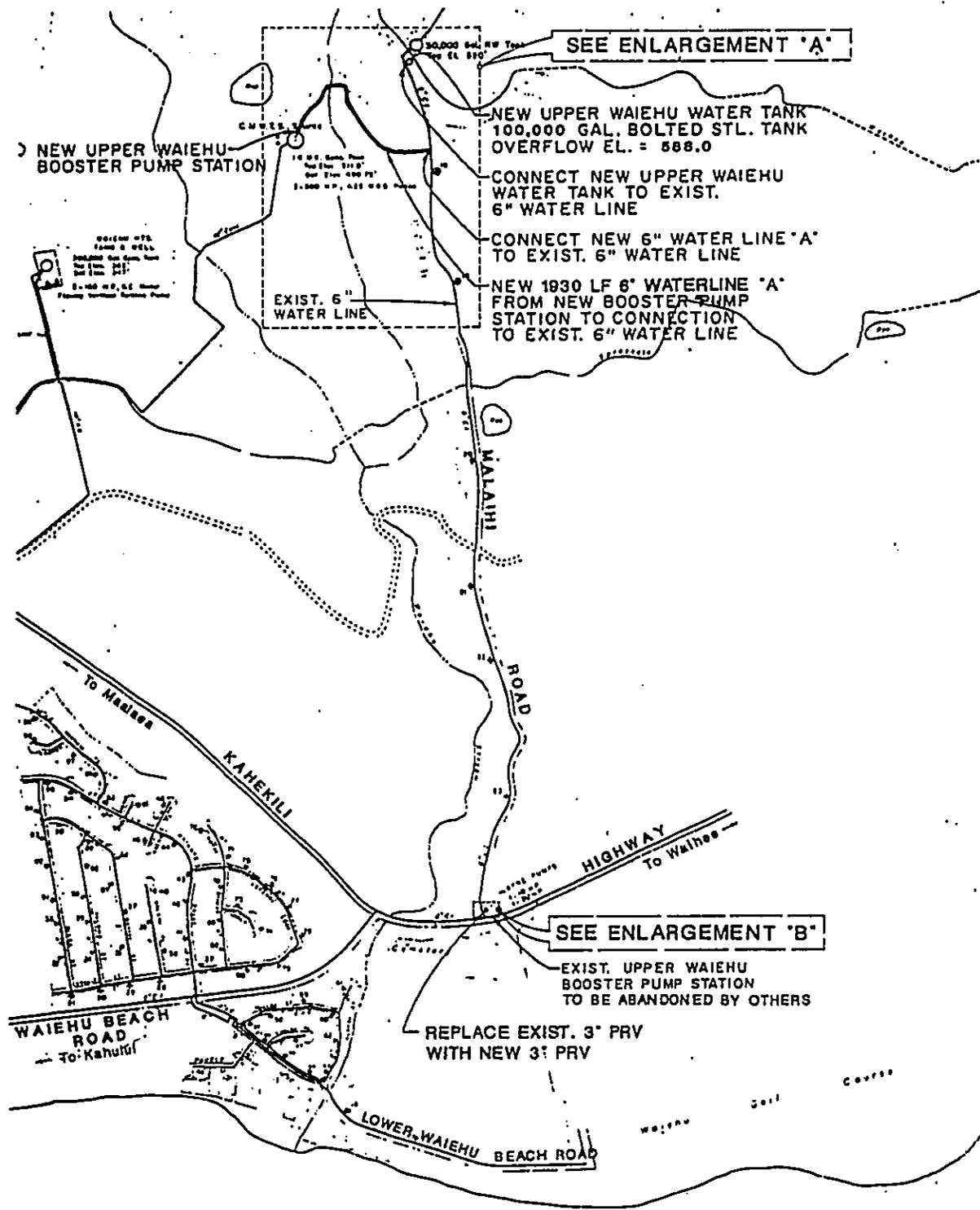
DEPARTMENT OF WATER SUPPLY
 COUNTY OF MAUI
 ENVIRONMENTAL ASSESSMENT FOR
 UPPER WAIEHU WATER PROJECT
 PHASE I

ATA AUSTIN, TSUTSUMI, & ASSOC., INC.
 ENGINEERS, SURVEYORS - HAWAII
 LAND USE MAP

EXHIBIT
 2



abandoned, except for the 3-inch bypass line, upon completion of the proposed pump station. It is not the intent of this water project to increase the flow capacity or pressures for the residences along Malaihi Road that are being served by the existing Upper Waiehu 0.05 MG tank. (See Water System Map in Exhibit 3.)



SEE ENLARGEMENT 'A'

NEW UPPER WAIEHU WATER TANK
100,000 GAL. BOLTED STL. TANK
OVERFLOW EL. = 588.0

CONNECT NEW UPPER WAIEHU
WATER TANK TO EXIST.
6" WATER LINE

CONNECT NEW 6" WATER LINE 'A'
TO EXIST. 6" WATER LINE

NEW 1930 LF 6" WATERLINE 'A'
FROM NEW BOOSTER PUMP
STATION TO CONNECTION
TO EXIST. 6" WATER LINE

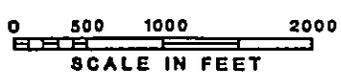
NEW UPPER WAIEHU
BOOSTER PUMP STATION

EXIST. 6" WATER LINE

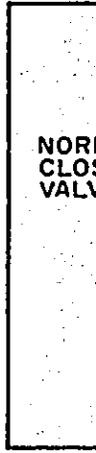
SEE ENLARGEMENT 'B'

EXIST. UPPER WAIEHU
BOOSTER PUMP STATION
TO BE ABANDONED BY OTHERS

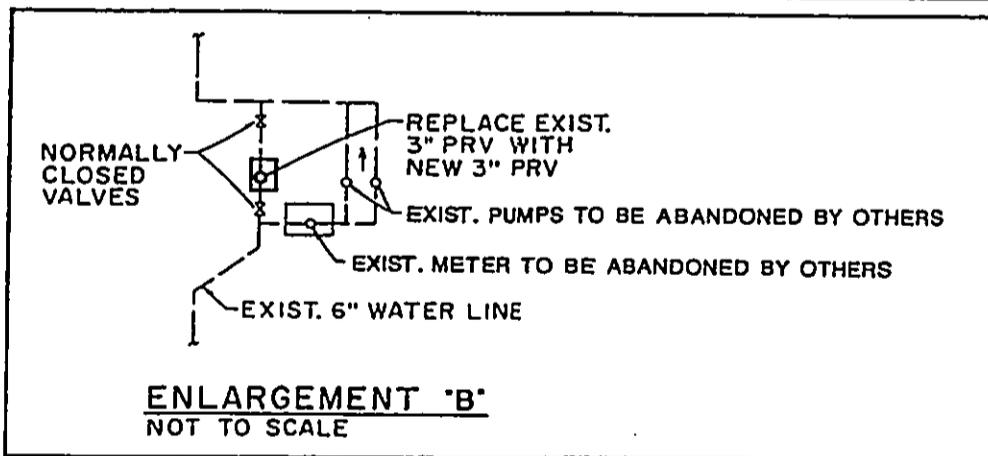
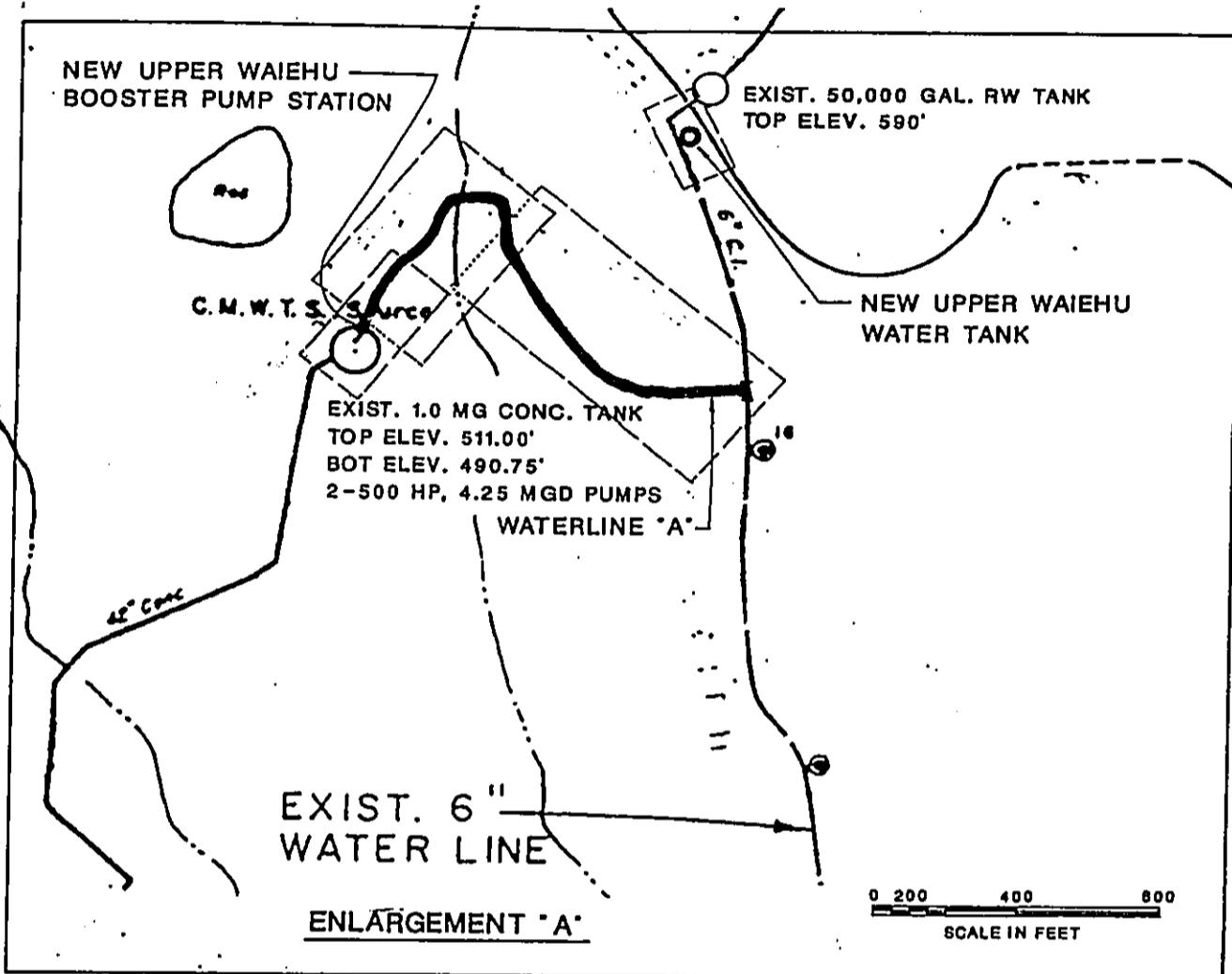
REPLACE EXIST. 3" PRV
WITH NEW 3" PRV



WATER SYSTEM MAP



DEPARTMENT OF
COUNTY
ENVIRONMENTAL
UPPER WAIEHU
PH



<p>DEPARTMENT OF WATER SUPPLY COUNTY OF MAUI</p> <p>ENVIRONMENTAL ASSESSMENT FOR UPPER WAIEHU WATER PROJECT PHASE I</p>	<p>ATA AUSTIN, TSUTSUMI, & ASSOC., INC. ENGINEERS SURVEYORS - HAWAII</p> <p>WATER SYSTEM MAP</p>	<p>EXHIBIT</p> <p>3</p>
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V. GENERAL DESCRIPTION OF PROJECT'S TECHNICAL, ECONOMIC, SOCIAL AND ENVIRONMENTAL CHARACTERISTICS

A. Technical Description

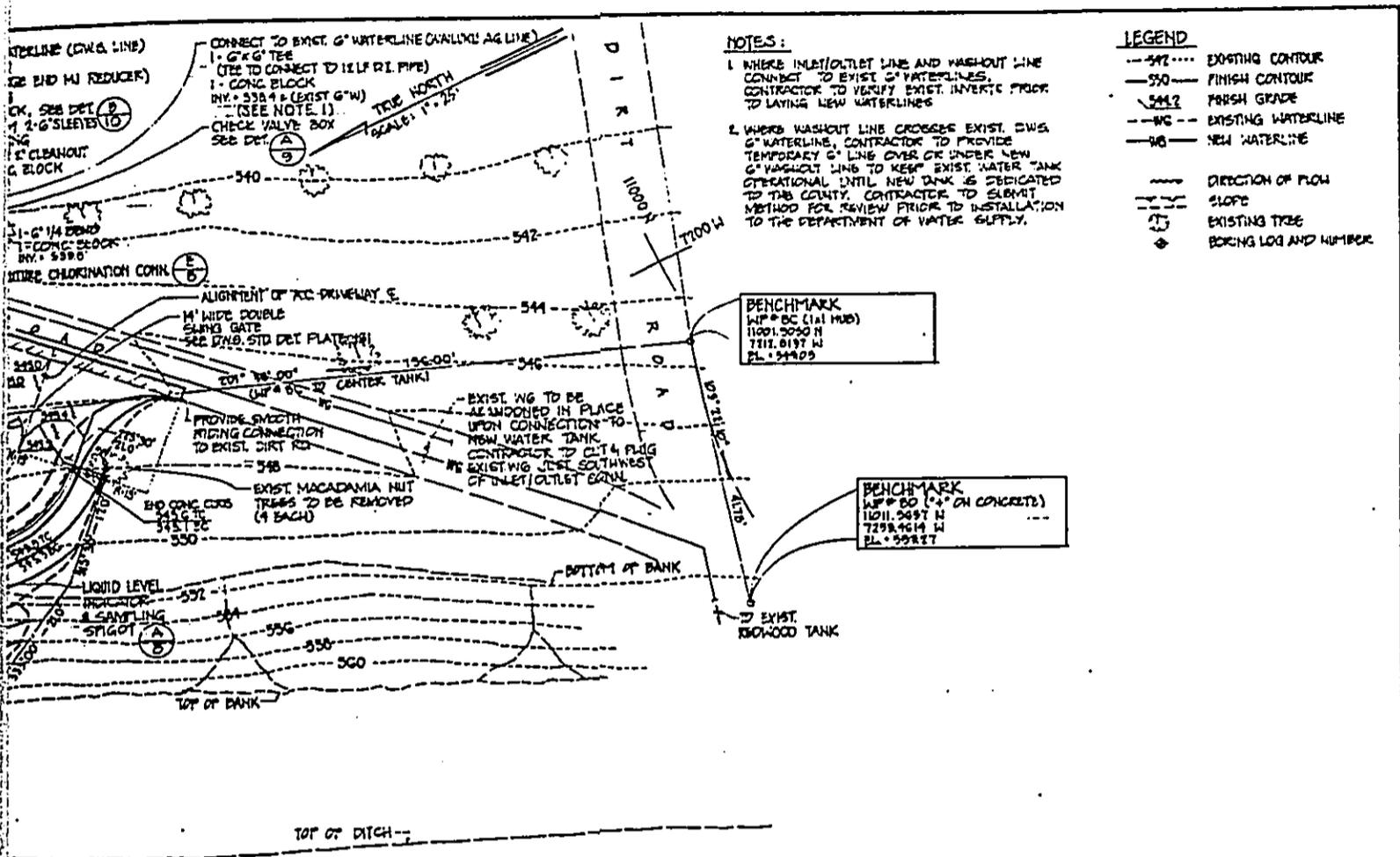
The proposed project consists of constructing a water tank, as shown on the Site Plan in Exhibit 4; constructing a duplex booster pump station, as shown on the Site Plan in Exhibit 5; and installing a 6-inch waterline as shown in Exhibits 6A and 6B.

The water tank will have a factory coating for corrosion protection. The overflow elevation of the tank will be established as high as that of the existing Upper Waiehu tank to provide adequate water pressure to the community.

The proposed booster pumps at the CMWTS site will be automatically activated by a telemetry system. The system will be comprised of a solar powered, radio wave level transmitter at the new Upper Waiehu Water Tank, to the controls at the CMWTS site and electrical and telemetry controls housed in the existing control building at the CMWTS site. The two booster pumps, each with a pumping capacity of 220 gallons per minute (GPM), will be driven by 7-1/2 HP, 3500 RPM motors.

The new waterline will be Class 52 ductile iron pipe with polyethylene wrap. The design concept calls for the pipe to be installed with a minimum cover of three (3) feet within an existing dirt roadway.

All construction work will be in accordance with construction drawings and specifications prepared for the project, into which the latest editions of the Maui County Department of Public Works and



NOTES:

1. WHERE INLET/OUTLET LINE AND WASHOUT LINE CONNECT TO EXIST. WATERLINES, CONTRACTOR TO VERIFY EXIST. INVERTS PRIOR TO LAYING NEW WATERLINES.
2. WHERE WASHOUT LINE CROSSES EXIST. DWIS 6\"/>

LEGEND

- 542--- EXISTING CONTOUR
- 550--- FINISH CONTOUR
- 544.2--- FINISH GRADE
- WG--- EXISTING WATERLINE
- W6--- NEW WATERLINE
- >--- DIRECTION OF FLOW
- S--- SLOPE
- EXISTING TREE
- ⊕ BENCHMARK LOG AND NUMBER

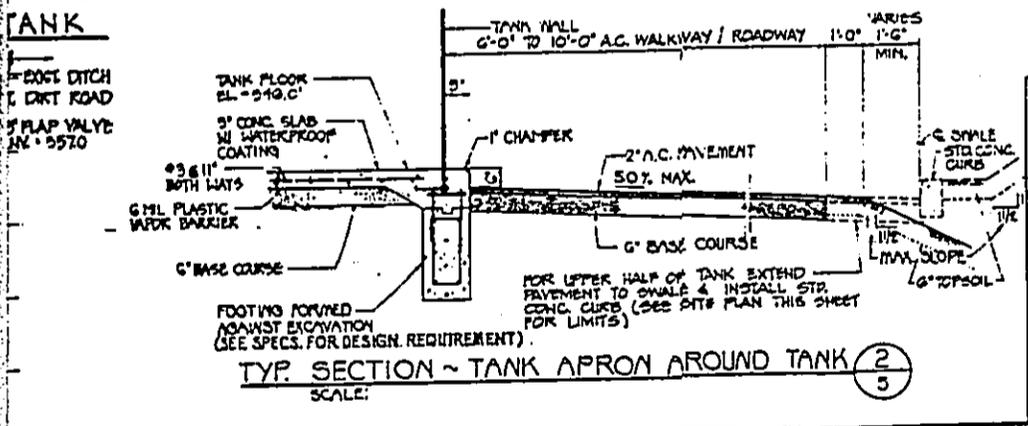
BENCHMARK
 W.P.# 60 (1st HUB)
 11001.0050 N
 7311.0197 W
 E.L.# 54409

BENCHMARK
 W.P.# 60 (2nd ON CONCRETE)
 11011.0497 N
 7298.1614 W
 E.L.# 54827

ESTIMATED EARTHWORK QUANTITIES

AREA TO BE GRADED --- 3750 SQ. FT. (0026 A.C.)
 EXCAVATION --- 256 CY.
 EMBANKMENT --- 3 CY.

THE EARTHWORK QUANTITIES ABOVE ARE APPROXIMATE AND ARE SHOWN FOR PERMIT PURPOSES ONLY. THE CONTRACTOR SHALL MAKE HIS OWN DETERMINATIONS AND VERIFY THESE FIGURES.



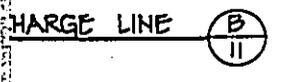
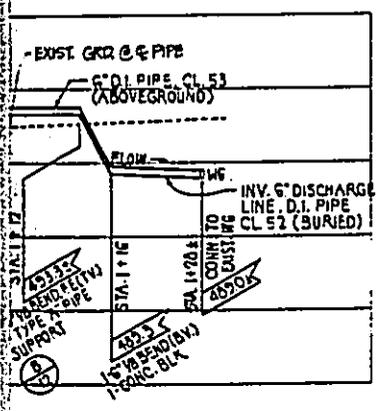
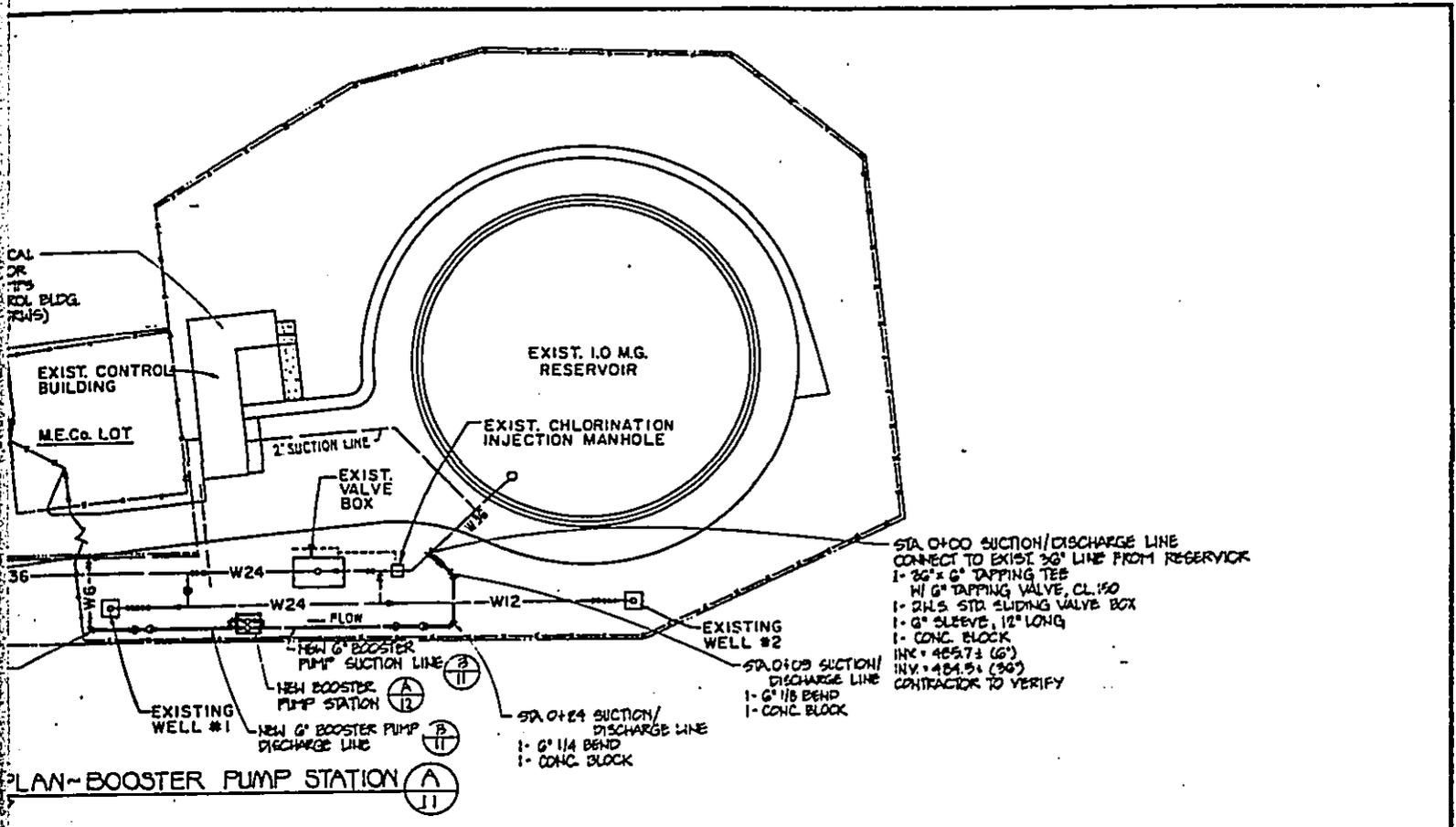
TYP. SECTION ~ TANK APRON AROUND TANK
 SCALE: 2/5



DATE	BY	APPROVED BY
DEPARTMENT OF WATER SUPPLY COUNTY OF MAUI HAWAII, MAUI, HAWAII		
UPPER WAIIEHU WATER PROJECT PHASE I WAIIEHU, MAUI, HAWAII		
WATER TANK SITE PLAN AND SECTIONS		
DESIGNED BY: T.A.M.	CHECKED BY: D.D.	APPROVED BY: P.A.A.
APPROVED	SUBMITTED BY	
DATE	FILE NUMBER	DATE

SHEET OF

DEPARTMENT OF WATER SUPPLY COUNTY OF MAUI ENVIRONMENTAL ASSESSMENT FOR UPPER WAIIEHU WATER PROJECT PHASE I	ATA AUSTIN, TSUTSUMI, & ASSOC., INC. ENGINEERS SURVEYORS - HAWAII UPPER WAIIEHU WATER TANK SITE PLAN	EXHIBIT 4
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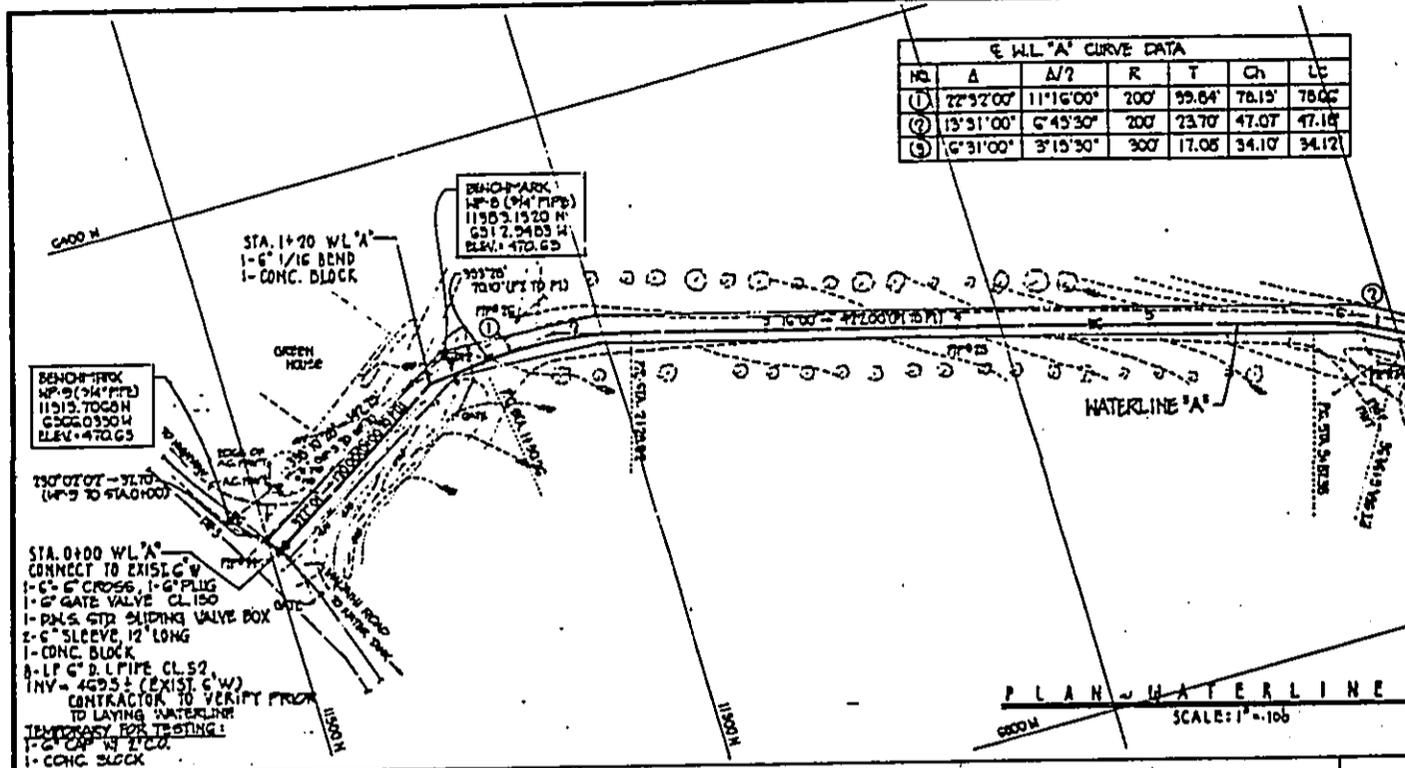
	DEPARTMENT OF WATER SUPPLY COUNTY OF MAUI WAIHEHU, MAUI, HAWAII
	UPPER WAIHEHU WATER PROJECT PHASE I WAIHEHU, MAUI, HAWAII
	BOOSTER PUMP STATION SITE PLAN AND PROFILE
	DRAWN BY: [Signature] CHECKED BY: [Signature] APPROVED BY: [Signature] SUBMITTED BY: [Signature]

DATE: _____

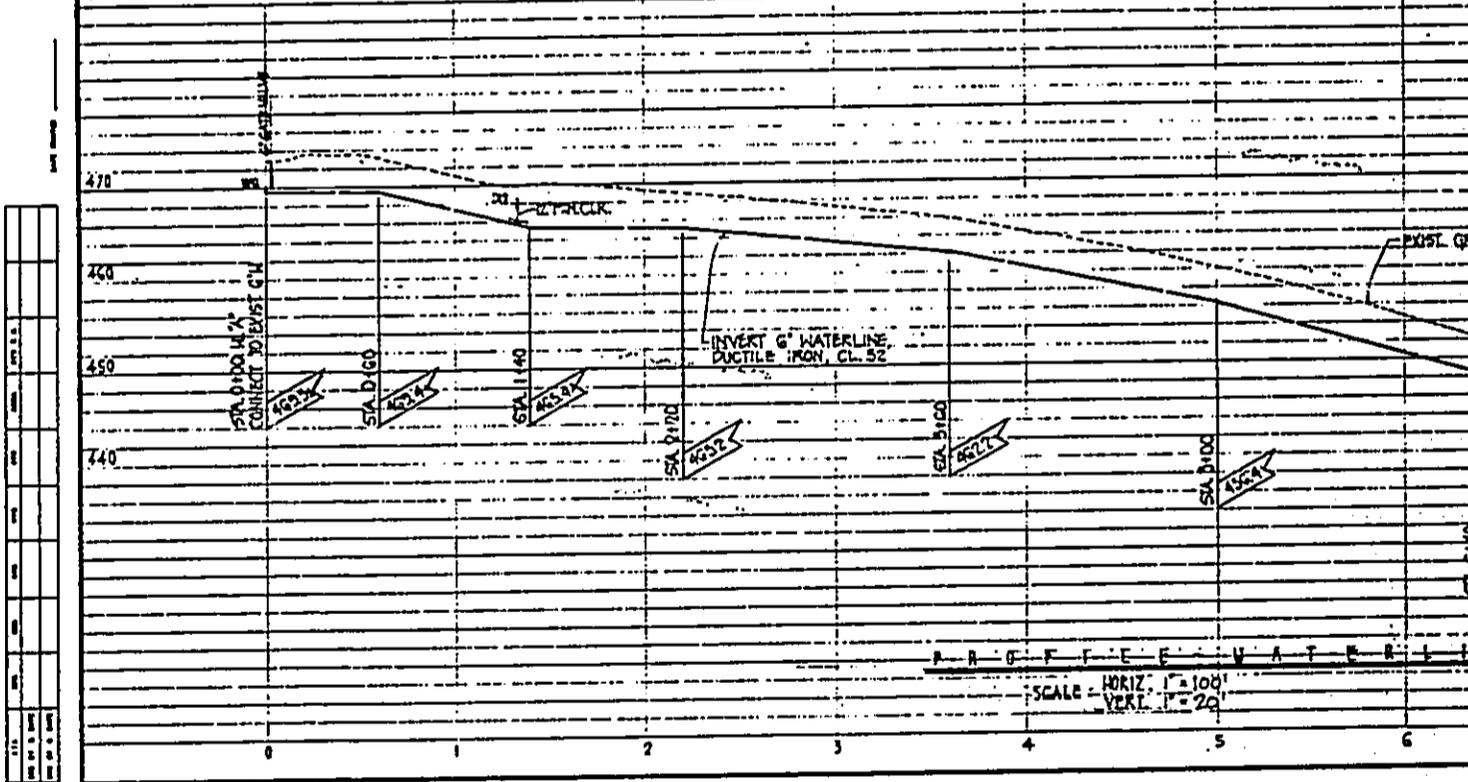
SHEET OF _____

DEPARTMENT OF WATER SUPPLY COUNTY OF MAUI ENVIRONMENTAL ASSESSMENT FOR UPPER WAIHEHU WATER PROJECT PHASE I	ATA AUSTIN, TSUTSUMI, & ASSOC., INC. ENGINEERS SURVEYORS - HAWAII UPPER WAIHEHU BOOSTER PUMP STATION SITE PLAN	EXHIBIT 5
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E WL 'A' CURVE DATA						
NO.	A	A/2	R	T	Ch	Lc
①	27°52'00"	11°16'00"	200'	99.84'	78.15'	78.02'
②	13°31'00"	6°45'30"	200'	23.70'	47.07'	47.18'
③	6°31'00"	3°15'30"	300'	17.08'	34.10'	34.12'



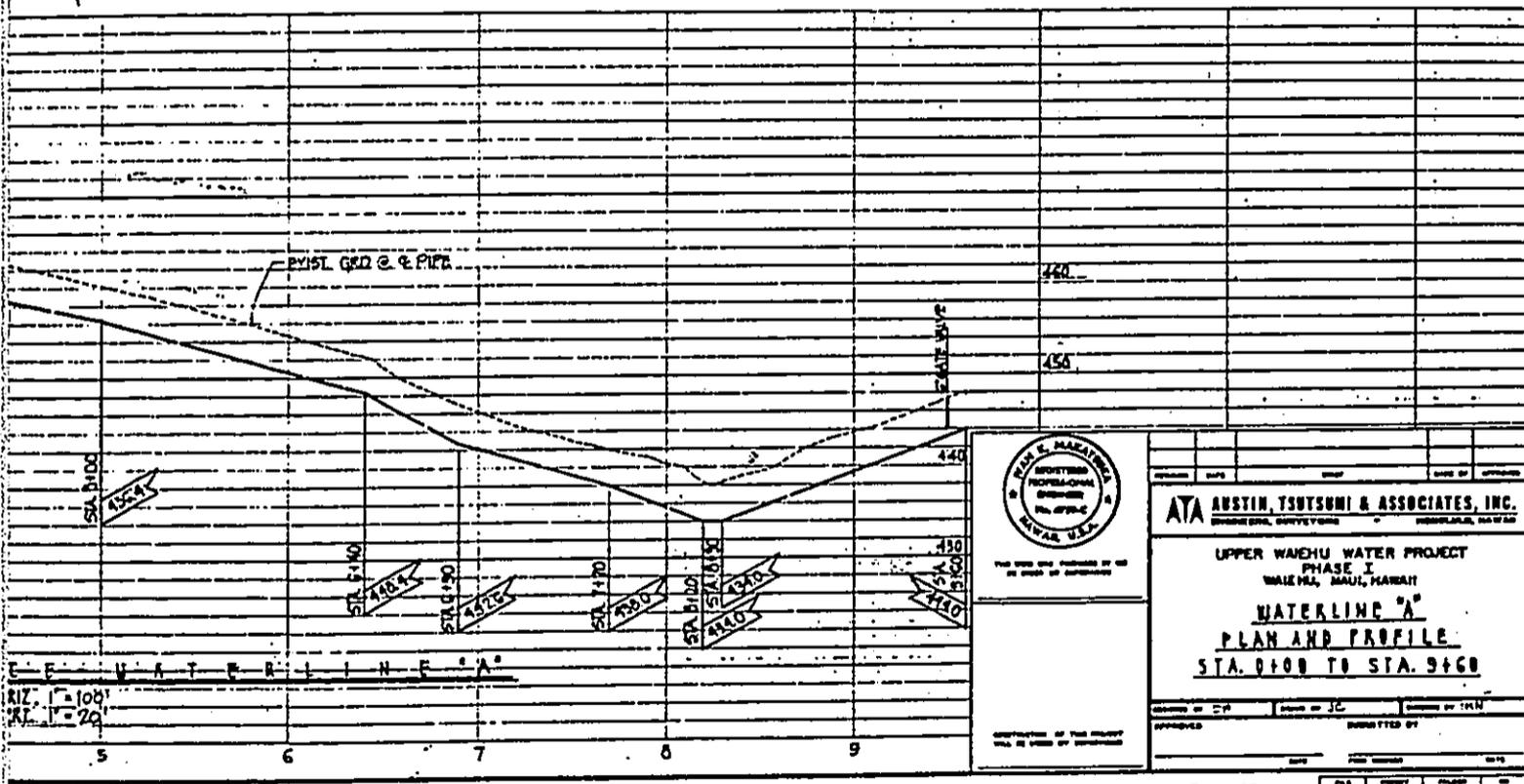
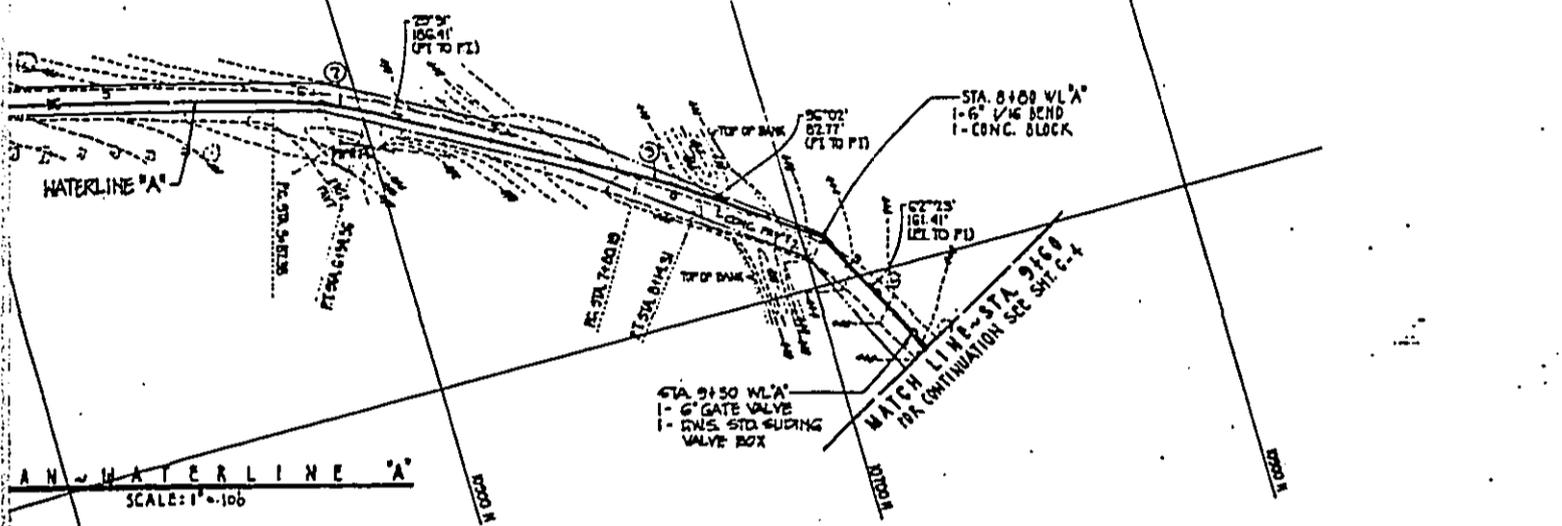
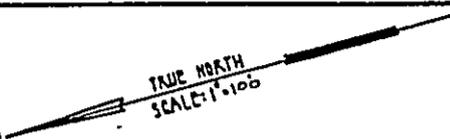
STA. 0+00 WL 'A'
 CONNECT TO EXIST. C.W.
 1-6" C. CROSS, 1-6" PLUG
 1-6" GATE VALVE CL. 150
 1-P.M.S. STD. SLIDING VALVE BOX
 2-6" SLEEVE, 12' LONG
 1-CONC. BLOCK
 8-1/2" D. L.P. PIPE CL. 52
 INV. = 469.5 ± (EXIST. C.W.)
 CONTRACTOR TO VERIFY PRIOR
 TO LAYING WATERLINE
 TEMPORARY FOR TESTING:
 1-6" CAP W/ 2" CO.
 1-CONC. BLOCK



STATION	ELEVATION
0+00	469.5
0+60	469.5
1+40	469.5
2+00	469.5
3+00	469.5
4+00	469.5
5+00	469.5
6+00	469.5

JOB NO. M-86-560

"A" CURVE DATA				
Δ/2	R	T	Ch	Lc
16°00'	200'	99.84'	78.19'	78.00'
45°30'	200'	23.70'	47.07'	47.18'
15°30'	300'	17.05'	34.10'	34.12'



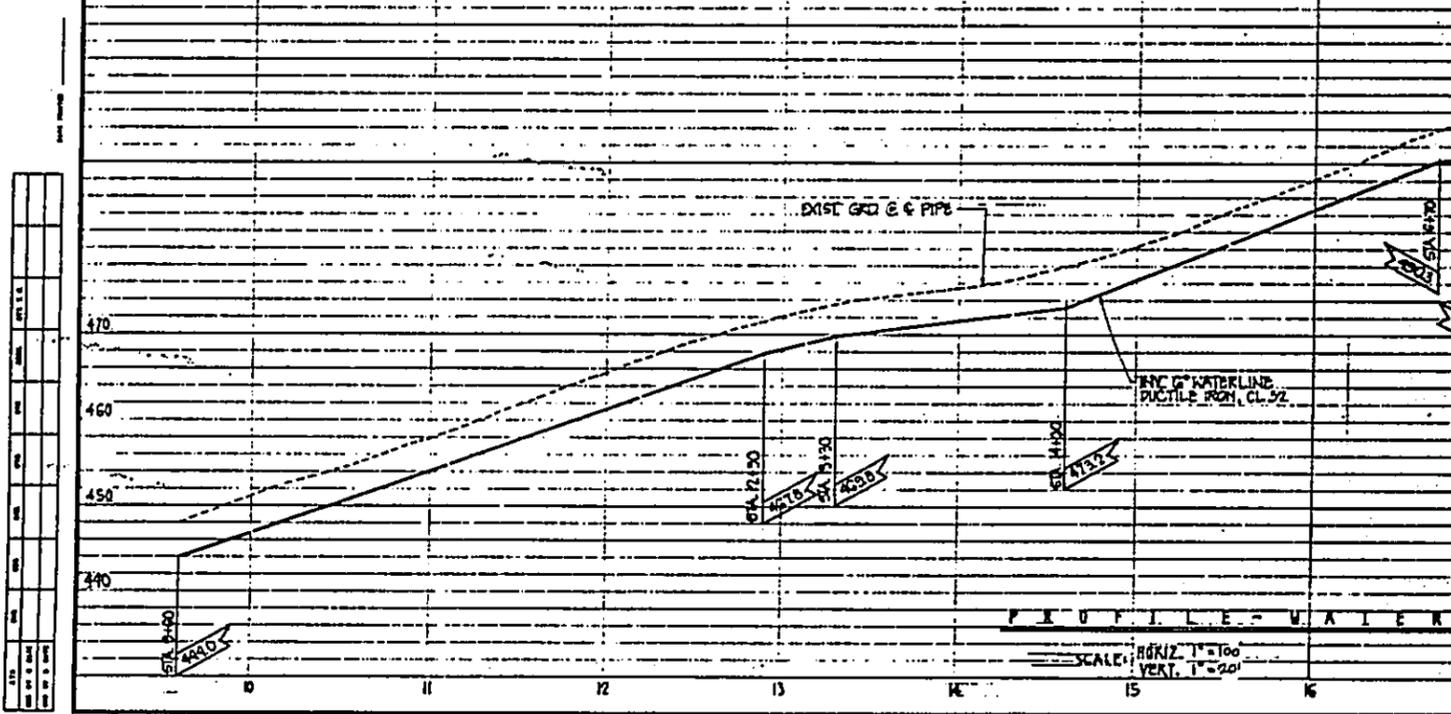
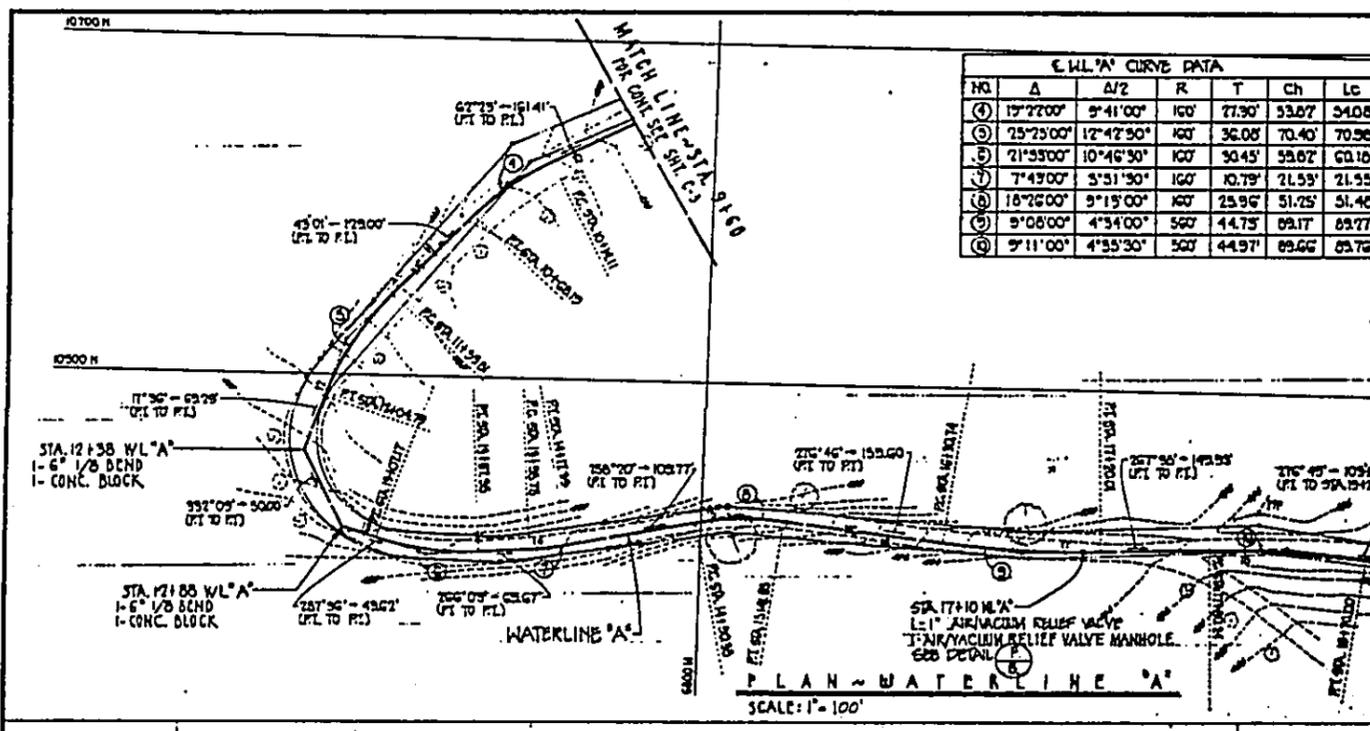
ATA AUSTIN, TSUTSUMI & ASSOCIATES, INC.
ENGINEERS, SURVEYORS

UPPER WAIIEHU WATER PROJECT
PHASE I
WAIIEHU, MAUI, HAWAII

WATERLINE "A"
PLAN AND PROFILE
STA. 8+00 TO STA. 9+60

DATE: 12/15/88

DEPARTMENT OF WATER SUPPLY COUNTY OF MAUI ENVIRONMENTAL ASSESSMENT FOR UPPER WAIIEHU WATER PROJECT PHASE I	ATA AUSTIN, TSUTSUMI, & ASSOC., INC. ENGINEERS SURVEYORS - HAWAII	EXHIBIT 6A
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JOB NO. M-56-560

E
U



Department of Water Supply Standards have been incorporated. The estimated construction cost for the project is \$670,000.

B. Economic and Social Characteristics

The land use and lifestyle of the area should not change with the construction of this project. Also, further development of the area would not be encouraged.

C. Environmental Characteristics

Construction of the water tank will require grading within a 0.10-acre fenced site. Aside from the water tank and fence, aboveground structures will be limited to pipes protruding no more than 4 feet above the finished grade and an approximately 6 foot by 5 foot concrete check valve box which, although predominantly belowground, will protrude above the finished grade by no more than a few feet. Except for the area of the tank, a circumferential asphalt concrete road/walkway and valve box, all graded areas will be grassed in accordance with the Maui County Grading Ordinance. Four macadamia nut trees at the tank site area will have to be removed.

There will be no major changes to the environmental characteristics of the area in regards to the proposed booster pump station and the proposed 1900+ LF of underground, 6-inch waterline. The proposed booster pump station will be installed completely within the existing CMWTS site. The entire length of waterline will be installed within an existing dirt roadway. Upon completion of the construction of the waterline, all affected areas will be restored



to near original condition and existing general drainage patterns will be maintained.

VI. DESCRIPTION OF AFFECTED ENVIRONMENT

The tank site is currently cultivated in macadamia nut trees and is sloped at about 15%. Four trees at the tank site will have to be removed and the site will have to be graded to accommodate construction of the tank within a leveled area of approximately 0.05 acre. The total graded area of approximately 0.09 acre will include excavated banks with a maximum slope of 1-1/2:1, which was determined to be the maximum allowable by the geotechnical engineer for the project.

The waterline will be installed within a 15+ foot wide dirt roadway, which is sloped between 4% to 7%. The booster pump station will be installed within a specific area at the CMWTS site.

The major soil classification that will be encountered within the project area is Wailuku silty clay (WvC) as classified by the U.S. Soil Conservation Service. Permeability is moderate; runoff is slow to medium; and the soil erosion hazard is slight to moderate. The annual rainfall amounts to 20 to 40 inches.

There are no known historical or archaeological sites at the tank site or along the waterline alignment. No rare or endangered species of flora or fauna have been identified within the project area.

VII. IDENTIFICATION AND SUMMARY OF IMPACTS AND PROPOSED MITIGATION MEASURES

Aside from the replacement of less than one-tenth of an acre of macadamia nut field area by the proposed tank and the resultant visual impact of the 40+ foot high tank, there should be no permanent adverse environmental impacts created in the area by the proposed project.



Existing macadamia nut trees within the tank site construction area will have to be removed and the tank will be of a color compatible with the surrounding environment to minimize any adverse visual impact. Graded areas will be grassed to prevent erosion, in accordance with the County Grading Ordinance. The closest inhabited area to the tank being a residence approximately 1,000 feet makai, further substantiates the claim of minimal negative aesthetic impact.

Some temporary unavoidable adverse environmental effects will occur during construction. These effects will be noise and airborne emissions from construction equipment and inconvenience to the few property owners abutting to the dirt road alignment of the waterline during the construction period. The Contractor will be required to observe all Federal, State and County rules and regulations concerning air, noise and water pollution during the construction period.

During the limited amount of construction activity near paved roadway areas, at the connection to the existing waterline on Malaihi Road, the Contractor will be required to comply with safety precautions and measures, which can be found in the latest edition of "Rules and Regulations Governing the Use of Traffic Control Devices at Work Sites on or Adjacent to Public Streets and Highways" as adopted by the State Highway Coordinator, and the "Manual on Uniform Traffic Control Devices for Streets and Highways, Part VI - Traffic Controls for Street and Highway Construction, Maintenance, Utility and Emergency Operations".

There should be no other significant adverse effects on the environment of the area.



VIII. ALTERNATIVES

A. Tank Site

Two alternative tank sites in the vicinity were investigated. The first site was adjacent to the existing redwood tank above the Waihee Ditch in Conservation District Land and the second, below the ditch in Agricultural Land. The criteria used for determining the better location for the tank were:

1. The overflow elevation for the tank should be at about the same level as that of the existing tank to maintain the present service pressures;
2. Vehicular access to the tank site should be available for future maintenance purposes;
3. Land utilization concerns, in regards to approval for construction by governmental agencies and Wailuku Agribusiness; should be considered;
4. Construction cost should be minimized;
5. Compatibility with the overall water system plan for the Central Maui area should be considered; and
6. Conformance with DWS water standards should be considered, in regards to providing adequate domestic and fire flow service and storage capacity.

The alternative of locating the tank above the ditch has the cost advantage of slab-on-grade construction of a 50,000 gallon tank of about the same height and diameter as the existing redwood tank, as compared to a substantially more expensive elevated tank for the other alternative. This cost differential, however, would be offset by the cost of



constructing a new vehicular bridge across the Waihee Ditch for access to the tank, and the cost associated with more difficult clearing, grubbing and grading work.

The alternative of locating the tank below the ditch has the aforementioned disadvantage of higher cost associated with any elevated tank. Also, land currently cultivated in macadamia nut trees must be displaced. The advantages are that the site is already readily accessible by vehicle, and clearing, grubbing and grading work would be substantially less. In discussions with local tank suppliers, it was concluded that the cost of a tall, slab-on-grade tank would probably be less than a smaller capacity elevated tank on "stilts" of the same diameter. Therefore, a tall, 100,000 gallon slab-on-grade tank could be constructed for less than the cost of an elevated 50,000 gallon tank.

Upon evaluation of the total construction costs for the two alternatives, it was determined that the cost of the alternative of a 100,000 gallon tank below the ditch would be slightly less than that of a 50,000 gallon tank above the ditch. Based on this cost differential, and the advantage of having a surplus storage capacity of 50,000 gallons, it was concluded that the alternative of a 100,000 gallon tank below the ditch is the more feasible alternative.

B. Waterline Size

Alternative waterline sizes were evaluated based on the criteria of conformance with DWS Standards, in regards to velocities within the waterline, and offsetting costs associated with construction and operation. The latter criteria involved an evaluation of installing a smaller diameter waterline at the expense of higher pumping costs, due



to greater frictional losses. It was determined that a 6-inch diameter, ductile iron pipe waterline is the most feasible.

C. No Action

The alternative of "no action" would mean retention of the existing redwood tank, which is leaking substantially. This alternative was deemed unacceptable to DWS in operating a reliable, efficient water system.

IX. DETERMINATION

After completing the assessment of the potential environmental effects of the proposed project as presented hereinbefore, it was determined that the adverse effects should not be significant and an environmental impact statement is not warranted. Therefore, this document constitutes a notice of negative declaration.

The proposed project is necessary to replace an existing water tank and existing booster pump station. The project will provide a more reliable domestic and fire flow service to the people of the area. The project is in accordance with the Department of Water Supply's long-range program to incrementally improve the water system on Maui. The new water tank will be a significant distance from any inhabited areas; will encompass a relatively small area of land; and should be visually unobtrusive. The new waterline will be under a minimum of 3.0 feet of cover, and should not alter the character of the land. The relocated booster pump station will be constructed entirely within the existing CMWTS site and should not disturb the environment. No homes or businesses will be relocated. No rare or endangered species of flora or fauna have been identified within the project area.



The new 6-inch waterline will enable stored water from the new tank to provide prelubrication for the CMWTS well pumps. The waterline will also provide savings in power cost due to the waterline's shorter length and lower frictional losses.

During construction, there will be temporary inconvenience to the public, as well as construction-related adverse impacts, such as noise, airborne emissions and minor soil erosion during heavy rainfalls. However, the Contractor will be required to minimize these impacts through existing laws and regulations, and no permanent or significant adverse effects on the environment are anticipated.