



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

Ref: wup765.sub2

STAFF SUBMITTAL

for the meeting of the
COMMISSION ON WATER RESOURCE MANAGEMENT

July 12, 2006
Honolulu, Oahu

Sandwich Isles Communications
APPLICATION FOR A WATER USE PERMIT
SIC-01 Well (Well No. 2801-03), TMK 9-5-002:003, WUP No. 765
New (Agriculture and Landscape Irrigation) Use for 0.470 mgd
Wahiawa Ground Water Management Area, Oahu

APPLICANT:

Sandwich Isles Communications
1001 Bishop St.
Pauahi Tower, 27th Floor
Honolulu, HI 96813

LANDOWNER:

Same

SUMMARY OF REQUEST:

The applicant requests that the Commission approve a water use permit for an allocation of 0.470 million gallons per day (mgd) of non-potable basal ground water from a new well (Well No. 2801-03) to supply agriculture and landscape irrigation water for 152.5 acres of land surrounding its proposed Network Operations Center (NOC) in Wahiawa, Oahu.

LOCATION MAP: See Exhibit 1

BACKGROUND:

On May 14, 2004, Sandwich Isles Communications (SIC) initially submitted this water use permit application.

On June 21, 2004, the Supreme Court issued an opinion in the Waiahole Ditch combined contested case hearing (Case No. CCH-OA95-1) clarifying that, in addition to the seven criteria outlined in §174C-49(a) Hawaii Revised Statutes (HRS), the public trust doctrine imbedded in the reasonable-beneficial use criterion requires that water use permit applicants must also provide an analysis of alternatives and adequate justification for the requested duties.

Based on the Supreme Court's opinion, on July 23, 2004, staff requested that SIC provide: 1) an analysis of alternatives and 2) justification for irrigation demands.

On August 18, 2004, staff submitted the application to the Commission to address the 90-day requirement for action. The Commission approved staff's recommendation to defer action for sixty days to allow additional time for the applicant to submit its alternatives analysis and demand justification. If the applicant did not provide the additional requested information within the sixty-day deferral period, the Commission ruled that the application would be deemed automatically denied without prejudice due to the failure of the applicant to meet its burden of proof.

On October 22, 2004, staff notified the applicant that their application was denied without prejudice as of October 17, 2004.

On February 17, 2006, SIC resubmitted its water use permit application, supported by an analysis of alternatives and justification for the requested quantities. The proposed end water uses are identified in Exhibit 2 and described in Exhibit 3.

On May 24, 2006, the Commission deferred action on the water use permit application pending a recalculation of the irrigation demands by Dr. Ali Fares and SIC's response to questions and issues raised by the Commission.

On June 14, 2006, staff notified SIC of the Commission action and outlined the Commissioner's questions (Exhibit 4).

On June 27, SIC submitted its responses to the Commissioner's questions (Exhibit 5). As part of their response, SIC has reduced the requested allocation amount from 0.576 mgd to 0.470 mgd and the total net irrigated acreage from 154.25 acres to 152.5 acres.

Additional information regarding the source, use, notification, objections, and field investigation(s) is provided in Attachment A.

ANALYSIS/ISSUES:

Section 174C-49(a) of the State Water Code establishes seven (7) criteria that must be met to obtain a water use permit. An analysis of the proposed permit in relation to these criteria follows:

(1) Water availability

Through the Hawaii Water Plan, the Commission has adopted 23 mgd as the sustainable yield for the Wahiawa Aquifer System Area. Individual existing water use permits in this aquifer system are shown in Exhibit 6. A summary of the current ground water conditions in the aquifer is provided in Table 1:

Table 1. Wahiawa Aquifer System Area

ITEM	Wahiawa Aquifer System Area (mgd)
Sustainable Yield	23
Less: Other Existing Water Use Permits (shown in Exhibit 6)	20.386
Reservation to DHHL	0
Subtotal (Current Available Allocation)	2.614
Less: Other Completed Applications	0
Less: This Application	0.470
Subtotal (Potential Available Allocation)	2.144

Table 1 shows that there is adequate water available to accommodate this request. The total reported withdrawal from this aquifer as of December 31, 2005 is 10.183 mgd (Exhibit 7)

(2) Reasonable-beneficial

Section 174C-3 HRS defines "reasonable-beneficial use" is

"...the use of water in such a quantity as is necessary for economic and efficient utilization, for a purpose, and in a manner which is both reasonable and consistent with the state and county land use plans and the public interest".

I. Purpose of Use

The applicant is requesting the use of non-potable ground water for its proposed agriculture and landscape irrigation uses surrounding its NOC in Wahiawa, Oahu. Exhibits 2 and 3 provide a breakdown and description of the proposed end uses. Based on information obtained from the exploratory well construction, the well water is very fresh (20 ppm of chloride) and may be of potable quality, although testing for other water quality parameters has not been done. SIC has no plans to drink the well water.

The Declaration of Policy section, §174C-2(c) HRS, states that the Water Code shall be liberally interpreted to obtain maximum beneficial use of the waters of the State for various purposes including irrigation and other agricultural uses. The applicant is a cooperator with the West Oahu Soil and Water Conservation District and is currently working on a conservation plan for the parcel.

II. Quantity Justification

SIC's amended request is for a total of 0.470 mgd. SIC has consulted with agricultural farmers and growers producing similar plantings (Exhibit 5). SIC also utilized Table 4-4 from the 1992 Draft Oahu Water Management Plan.

The Commission used to rely on county guidelines (Table 4-4, Oahu Water Management Plan, 1992 Draft and County Water System Standards, 1985) to determine reasonable water use quantities for various crops. However, the findings in the Waiahole Ditch contested case hearing suggested that the guidelines overestimate irrigation requirements. In addition, the guidelines do not take into account regional climatic variability and other factors that determine water use, such as soil properties, irrigation system type and other agricultural practices.

The Commission recently approved staff's request to enter into a contract with the University of Hawaii's College of Tropical Agriculture and Human Resources to develop an irrigation model that would address some of the deficiencies in the guidelines. It is anticipated that development of the model will take about 18 months. In the interim, the principal investigator for the irrigation model study, Dr. Ali Fares, has agreed to review some applications for irrigation use. Dr. Fares' has recalculated the irrigation demand based on new information and more representative climate data. A summary of Dr. Fares' report is attached as Exhibit 8.

The main differences between the two sets of calculations by Dr. Fares (initial calculation presented at the 5/24/06 Commission meeting) are:

1. Changing the climate station from Kunia (SKN 740.5) to the more representative Wahiawa station (SKN 872). The change of weather station resulted in:
 - a. An increase in rainfall from 20.8 to 56.3 inches (this is the major cause of differences in IRR), and
 - b. A decrease in ETo from 55.6 to 51.1 inches.
2. In the previous calculation, runoff was ignored because of the low rainfall at the Kunia station. In the new calculation, runoff has been included.

Recorded rainfall is higher at the Wahiawa station than at the Kunia station. Higher rainfall results in more runoff because runoff is linearly correlated to rainfall. Drainage will also increase because the soil can only hold certain amount of water, and any excess rainfall above its water-holding capacity will be lost as drainage. Consequently, if rainfall is higher, less irrigation makeup water is needed.

A comparison of the requested duties with the various guidelines for the different crop types is shown in Exhibit 9. Because Dr. Fares' calculations take into account many of the factors that influence actual demand, staff is recommending that the Commission approve an allocation based on Dr. Fares' analysis. According to Dr. Fares' analysis, the irrigation requirement for the proposed end uses is 0.260 mgd.

At the May 24, 2006 meeting, the Commission inquired about the possible phasing in of irrigation water, in light of the applicant's testimony that the construction of the NOC and required landscaping would be the first development priority, and because there were questions regarding the viability of the agricultural operations. Table 2 provides a breakdown of the agriculture and landscape end uses. SIC has stated that the agricultural uses are actually dual agricultural/landscape uses because the plants are for landscaping, but would also be available for sale.

Table 2. Landscape versus Agricultural Quantities

Area	Agriculture/ Landscape	Landscape
Pasture	44,175	0
Nursery/Shade Cloth	77,375	0
Entry (Foliage)	8,855	0
Apartments (Foliage)	5,313	0
SF Lots (Foliage)	5,313	0
Gulch-Entry (Foliage)	3,542	0
Lo'i	19,908	0
NOC Landscape	0	33,649
Jog Paths (Foliage)	0	10,626
Spur (Tea Garden)	0	4,949
Gulch Basin	0	5,313
Caretaker Nursery	4,643	0
Gulch Slope	5,580	0
Orchard	30,325	0
TOTALS	205,029	54,537

SIC has stated that it will be harmed if the Commission only approves the immediate landscaping needs in the following ways:

1. SIC will not be able to implement the approved conservation plan and will risk jeopardizing its status as a District Cooperator with the West Oahu Soil and Water Conservation District;
2. SIC spent over \$3,200 in 2005 to irrigate the property, including the shade nursery plants, palms, etc; and
3. A substantial portion of the requested water for the first year is needed to control erosion, separate the agricultural uses from the neighboring properties, and for security.

Staff is recommending that the Commission approve an allocation for 0.260 based on the 4-year projected demand, as adjusted for Dr. Fares calculated duties and SIC's reduced estimate of net irrigated acreage.

III. Efficiency of Use

SIC has identified the following conservation measures:

- Part circle irrigation heads will be employed in numerous locations, especially along boundaries, to minimize overspray;
- Routine monitoring of the long term weather forecasts would be done to anticipate storm conditions and the irrigation rate would be reduced in advance; and
- On rainy days, SIC will shut down the irrigation system.

In addition, the applicant has also amended its application by reducing the requested amount because some of the landscaped areas will now include xeriscape plantings.

The Commission has not adopted any water conservation guidelines for agricultural irrigation. The only guidelines that have been developed are for the Ewa Caprock Aquifer Sector Area (Exhibit 10). Of the identified water conservation measures, the only ones that are specific and applicable to SIC's application are the use of mulching to minimize evaporation and the scheduling irrigation to minimize water demand. Staff believes that these measures should also be employed at the SIC property.

With the addition of mulching and irrigation scheduling, the proposed efficiency measures are adequate.

IV. Analysis of Practical Alternatives

The applicant has identified seven alternatives to the proposed use of water from Well No. 2801-03. The applicant's analysis of each alternative is followed by staff's analysis:

1. Surface Water – There are no streams, ponds, or lakes in the vicinity of the parcel.
Staff Analysis: The only surface water source in the vicinity of the property is Waikakalaua Stream. However, the stream is separated from SIC's property by Waikalani Drive and the Ridgecrest Condominium complex. Streamflow is intermittent. This does not appear to be a practical alternative.
2. Waiahole Ditch – The ditch is at a lower elevation, so a large pump would be needed to bring water to the top of the property. A lease or easement would be needed from a private property owner in order to house the pump and for electrical connection. A pipeline would need to be constructed from the ditch to the property, a distance of approximately 3.5 miles, conservatively estimated to cost \$295,000 per mile of pipeline. Agribusiness Development Corporation, which owns and runs the ditch system would impose a cost for the water. The property is bounded by Kamehameha Highway and H-2 Freeway. The applicant has provided a letter from Department of Transportation (DOT) stating that DOT does not allow private lines running laterally within DOT's Right-of-Way.
Staff Analysis: This does not appear to be a practical alternative. The cost of the pipeline alone is estimated to be \$1,032,500. The inability to place a pipeline in DOT Right-of Way may or may not be an issue because the pipeline could be placed within the property, instead of within the DOT Right-of-Way. However, the pipeline would have to cross Meheula Parkway, a large 4-lane thoroughfare, and a large gulch to reach the property.

3. Lake Wilson – Wheeler Air Force Base lies between Lake Wilson and the SIC property. The U.S. Air Force will not allow a pipeline to go through the base. If the pipeline were to go around the base, a very large pump would be needed to move the water. Permission from Dole Food Company would be needed to divert the water. The water in Lake Wilson would need to be treated prior to irrigation application. Similar to the Waiahole Ditch alternative, the property is bounded by Kamehameha Highway and H-2 Freeway, so there is no way to get the water to the property.
Staff Analysis: According to the Department of Health’s Guidelines for the Treatment and Use of Recycled Water (2002), R-2 water applied via subsurface irrigation may be used for landscape, orchards, pastures, and food crops that are above ground and not contacted by recycled water. The Guidelines also allow R-2 water applied by any form of irrigation to be used on landscape vegetation and non-edible plants provided access is controlled so the irrigated area cannot be used as if it were a part of a park, school yard or athletic field. However, the inability to place a pipeline in the DOT Right-of Way and the fact that the pipeline would most likely need to go around Wheeler Air Force Base renders this an impractical alternative.
4. Other Nearby Wells – There are two existing wells in the vicinity of the property. One well is located on Schofield Barracks and is an Army monitoring well. This well is not available for use. The other well is a capped well to the south located in a gulch. There are intervening landowners and the water would need to be pumped up from the gulch. Further, the well is located in the Pearl Harbor Ground Water Management Area, which is fully allocated.
Staff Analysis: Because DOT will not allow any private lines within its Right-of-Way, all alternatives, except those located below the property, are impractical. The only existing wells that are within the Kamehameha Highway and H-2 Freeway Right-of-Ways are the Schofield Battery (Well Nos. 2901-01 to 07, 10), a public water system used by the military, and Well No. 2801-01. Our database shows Well No. 2801-01 has been sealed and no longer exists. The Pearl Harbor Aquifer System Area is not “fully allocated” and has over 20 mgd available for allocation, however, other existing wells do not appear to be a practical alternative.
5. Water Re-Use – The BWS has conceptual plans to provide R-1 water to Central Oahu Regional Park, but no funds have been set aside in the current budget for the engineering of the project. SIC would consider use of R-1 water if and when it becomes available, but does not desire to leave its land unused until that time.
Staff Analysis: BWS’ review comments indicate that recycled water is not available at this time, but recommends that the Commission require conversion to this alternative when it becomes available as a condition of the water use permit. Therefore, recycled water does not appear to be a practical alternative at this time.

6. Potable Sources – The property has no commitment from BWS to supply the necessary amount of water needed. To obtain a water commitment, SIC would have to provide money or another source of water and pay the municipal agricultural rate.

Staff Analysis: Staff finds that the use of potable water from the municipal system, which may have been treated to meet Department of Health standards for potability, is an inferior alternative to the use of water from Well No. 2801-03, which has neither been tested nor treated for potability.

7. Rainfall – Rainfall is not consistent enough to sustain the proposed agriculture and landscape uses. The applicant has provided a statement from Dole, the previous owner of the property, stating that the property was not considered ideal for agriculture because of its lack of a reliable water source and that rainfall was the only source of water.

Staff Analysis: According to Dr. Fares' analysis, rainfall alone is insufficient to support the proposed agriculture and landscape water demands.

It does not appear that there are any practical alternatives to the proposed use of ground water.

(3) Interference with other existing legal uses

There are 15 other wells currently in use within 1 mile of this source (Exhibit 11). The military uses 8 of the wells for its water supply. Three of the wells are used by BWS for municipal water supply. One of the wells is abandoned, one of the wells is unused, and the other two are observation wells used by the Army. Pump test data for this well shows that the well can be pumped at 700 gpm (1.008 mgd) with no significant adverse impacts to ground and surface water resources or other well owners.

(4) Public interest

Public interest is defined under §174C-2 - Declaration of policy, as follows:

“(c) The state water code shall be liberally interpreted to obtain maximum beneficial use of the waters of the State for purposes such as domestic uses, aquaculture uses, irrigation and other agricultural uses, power development, and commercial and industrial uses. However, adequate provision shall be made for the protection of traditional and customary Hawaiian rights, the protection and procreation of fish and wildlife, the maintenance of proper ecological balance and scenic beauty, and the preservation and enhancement of waters of the State for municipal uses, public recreation, public water supply, agriculture, and navigation. Such objectives are declared to be in the public interest.”

The well water will be used for irrigation and agriculture, which are listed as beneficial uses in the above Declaration of Policy. Through the public notice, review, and objection process, no party has come forward to assert that their water rights, or that any of the objectives declared to be in the public interest, will be impacted by this proposed water use.

SIC is committed to providing economic and employment opportunities to native Hawaiians. SIC has and will continue to employ native Hawaiian youths to work on the property. SIC is working with the Department of Hawaiian Home Lands to provide state of the art telecommunications systems and to explore employment and economic opportunities through the development of this property. SIC is also seeking to provide a positive work environment for its employees by providing a jog path and attractive landscaping. The lo'i will be available to anyone who is interested in working in the taro patches to learn about taro cultivation and the significance of kalo to the Hawaiian people.

Because the proposed uses are beneficial uses, and no negative impacts to the objectives declared to be in the public interest have been asserted, the proposed water use appears to be consistent with the public interest.

(5) State & county general plans and land use designations

The proposed uses are in the State Agricultural District, and the county zoning is AG-1. The City Department of Planning and Permitting (DPP) and the State Land Use Commission have reviewed this application and have confirmed that the proposed use is consistent with these land use designations. Therefore, these proposed uses are consistent with the state and county general plans and land use designations.

Normal agency review also includes:

- 1) the State's Department of Land and Natural Resources (State Parks, Aquatic Resources, Historic Preservation, and Land Divisions); Department of Health (Clean Water, Safe Drinking Water, and Wastewater Branches); Department of Hawaiian Home Lands; Land Use Commission; the Office of Hawaiian Affairs;
- 2) the Mayor's Office and the City's Department of Planning and Permitting and Board of Water Supply.

No objections from these agencies were raised through this review.

(6) County land use plans and policies

The Mayor's Office, the Department of Planning and Permitting, and the Board of Water Supply have reviewed this application. No objections were raised. DPP stated that the proposed use is consistent with the Central Oahu Sustainable Communities Plan. Therefore, these proposed uses are consistent with the county land use plans and policies.

(7) Interference with Hawaiian home lands rights

All permits are subject to the prior rights of Hawaiian home lands. The Department of Hawaiian Home Lands has submitted a letter in support of this application. Standard water use permit conditions 3.g., 6., and 9.f. notify all water use permittees that their permits are subject to and cannot interfere with Hawaiian home land rights. Therefore, this application will not interfere with Hawaiian home lands rights.

RECOMMENDATION:

Because the proposed water use has been shown to be consistent with the legal criteria for obtaining a water use permit, staff recommends that the Commission approve the issuance of Water Use Permit No. 765 to Sandwich Isles Communications for the reasonable and beneficial use of 0.260 million gallons per day of ground water for agriculture and landscape irrigation from the SIC-01 Well (Well No. 2801-03), subject to the standard water use permit conditions listed in Attachment B and the following special conditions:

1. Should an alternate permanent source of water be found for this use, the Commission reserves the right to revoke this permit, after a hearing.
2. In the event that the tax map key at the location of the water use is changed, the permittee shall notify the Commission in writing of the tax map key change within thirty (30) days after the permittee receives notice of the tax map key change.
3. The permittee shall use mulching to decrease evaporative losses and manage irrigation scheduling to minimize water demand.

Respectfully submitted,

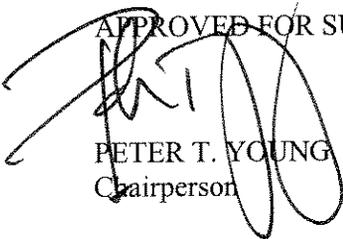


DEAN A. NAKANO
Acting Deputy Director

Attachment(s): A (Water Use Permit Detailed Information)

- Exhibit(s):
- 1 (Location Map)
 - 2 (Proposed End Uses)
 - 3 (Description of Proposed End Uses)
 - 4 (6-14-06 Letter from Dean A. Nakano to Mr. Edsel Yamada)
 - 5 (6-27-06 Letter from Dawn N.S. Chang to Mr. Dean Nakano)
 - 6 (Existing Water Use Permits)
 - 7 (Graph of Reported Pumpage – Wahiawa Aquifer System Area)
 - 8 (Irrigation Calculation by Dr. Ali Fares)
 - 9 (Irrigation Duty Summary)
 - 10 (Conservation Conditions, Ewa Caprock Water Use Permits)
 - 11 (Other Nearby Wells)

APPROVED FOR SUBMITTAL:



PETER T. YOUNG
Chairperson