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2001/CO-1(ET)

June 29, 2001

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

Dear Ms. Salmonson:

Final Environmental Assessment for the Proposed Mililani Mauka
Phase III Development Plan Land Use Map Amendment from Public
Facilities to Residential and Low Density Apartment
Tax Map Key: 9-5-49: portion of parcel 27
Folder No. 2001/CO-1, Mililani, Oahu, Hawaii

This is to notify you that the Department of Planning and Permitting has reviewed the comments received during the 30-day public comment period which began on February 8, 2001. The agency has determined that this project will not have significant environmental effects and has issued a findings of no significant impact (FONSI). Please publish this notice in the July 23, 2001 OEQC Environmental Notice.

We have enclosed a completed OEQC Publication Form and four copies of the final EA. Should you have any questions, you may contact Eugene Takahashi of our staff at 527-6022.

Sincerely yours,

RANDALL K. FUJIKI, AIA
Director of Planning & Permitting

RKF:mo
g:dlu/general/ipd/dplum/01co1fc2.wpd
Enclosures

cc: Castle & Cooke Homes Hawaii, Inc.
Kusao & Kurahashi, Inc.

Appendix A: Transcript of Interview with Tom Lenchanko and Dan Au

Interview with: Tom Lenchanko (TL) and Dan Au (DA)
Project: Mililani Mauka Phase III Traditional Practices Assessment, Mililani, O`ahu
Interviewed by: Kristina Bushnell for Cultural Surveys Hawaii (CSH)
Place of Interview: Waikakalaua Gulch
Date: May 12, 2001

CSH: We're down in Waikakalaua Gulch with Tom Lenchanko and Dan Au who are community members. This is for the Mililani Mauka Phase III Project, also known as Waip 11 and I'm just going to ask Tom and Dan a little about themselves. Let's start with you Tom. What is your full name and where are you from?

TL: My name is Tom Lenchanko. I'm from Wahiawā. Originally, my family is from Waipi`o Acres, small subdivision adjacent to this project. I've lived up here all my life which is about 49 years right now. I'm with the Hawaiian Civic Club of Wahiawā also the O`ahu Council of Hawaiian Civic Clubs and different factions that are working towards preservation, restoration of *wahi pana* or the cultural sites [wind interference] traditional practices. For the past ten years, we've been trying to consolidate some of the areas and give our testimony so that they can get documented for future use.

CSH: Aren't you involved with Friends of Kūkaniloko?

TL: The Friends of Kūkaniloko is a research arm for the Hawaiian Civic Club and our basic goal was to research areas that relate to the Birth Site which is an area of some 36,000 acres of Central O`ahu that were part of what was known as the Lō Lands or the lands that belonged to the Lō Chiefs. So we've come up with a minimum of 36,000 acres which starts out in Hālawa Valley, goes all the way out to Nānākuli, comes up through Mililani, all the way out to Waialua, through Halemano out to Wai`anae and the *ka`ānani`au*, or boundaries that demarcate the property lines that would encompass both the Ko`olau Mountains and the Wai`anae Mountains. So, our quest is to gather as much information, take it to our elders for their review and then give it to the general public for a better understanding of who we are as a Hawaiian people.

CSH: Okay, how about you Dan? Could you give us your name, and a little bit about where you're from and where you grew up.

DA: Dan Au, from Wahiawā. Currently, I live in Mililani Mauka, but I grew up in the Wahiawā area. And if anybody knows anything about Wahiawā boys, they tend to roam all around the areas that they live in and this is one of the areas. But our family has been here for many years and this is one of the areas that we used to gather materials to make leis, back when.

CSH: Your family did too?

DA: My family did. Well, it started off with my Dad would take us to these different valleys and show us the different things, what's there, the unique things. My brother would be there, my older brother and we would be gathering stuff, mainly the two of us in the different valleys.

CSH: What kinds of things did you gather?

DA: Some of the things that we gathered was *`a`ali`i*, *pūkiawe*, *lehua*. There used to be some nice *lehua* trees up here before this housing unit came up. And, just different ferns that grew in this area at one time.

CSH: And were those used for *lei* or medicinal purposes or?

DA: *Lei* making. Sometimes, things were used for food or medicines, like the *lehua* would be used for medicine as well as leis.

CSH: Is there a *lapa`au* connection in your family from way back?

DA: Yeah, there is. We don't practice it as much today as in years past, in generations past, but we do use some of these things 'til today. Like Tom, I'm part of Wahiawā Hawaiian Civic Club. I'm also part of Friends of Kūkaniloko, the research arm for Wahiawā Hawaiian Civic Club and before we do anything, we consult our *kupunas* as to what is proper, and if it's *pono*, if it's okay with them to continue what we're doing. And if it's not, then we come to a stop, all things ceases.

CSH: And you also dance hula, yeah?

DA: Yeah, I dance. I've been dancing for a number of years. First with Pi`ilani Lua and now with Vicki Holt Takamine. I also danced for Ho`oulu Cambra at one time, but she's passed away.

CSH: So, now we're going to take a walk and see some of these ? [Wind interference]] Just feel free if I ask anything you don't want to answer, that's fine, you don't feel comfortable answering, that's fine. Other than that, if you can try to come close, we can stick together and try to be near the microphone so we can get it on tape.

[tape recorder temporarily off]

DA: --an old trail prior to the development in here.

CSH: Which trail are you talking about?

DA: The old trail that used to come through this area here, but it's all covered up now.

TL: Right where we're walking now?

CSH: It was an old trail, or it was an old road, or?

DA: Like horse trail.

CSH: Probably, it started out as a walking trail, an old, traditional or ancient trail?

DA: I know when World War II came around, they used that trail. They kind of developed it more because they had offices up here, up in the valley.

CSH: The Army did?

DA: But, when we were walking, it was not used much anymore, so it fell in disrepair. So eventually the plants crowded in and so it became a trail again instead of a road.

CSH: So, do you know anything about the stream. Are there any fish, or *'ōpae* or anything in the stream at this point?

TL: I don't think when they did this development, it was claimed that there was nothing anymore. But I know back in the old days, there was, had catfish, there was crayfish, there was *'ōpae* at one time. When I was small kid, we used to come here.

CSH: You used to come here and fish for *'ōpae* and catfish.

TL: We used to take 'em out by the five gallon buckets, pick 'em up, take 'em home, grind 'em. Before this development, and I guess with the advent of the diversion of the water too, up above. There's no transition to go back and forth, anything. 'Cause now, without it, we can see water today, but a lot of times it's just intermittent, it's non moving. Today, I guess because of the rains over the last couple weeks, we get one surface flow again.

CSH: But, generally, it's an intermittent stream?

TL: Yeah, intermittent.

DA: Sometimes it's a river, well, more like a lake, when the big rains come. This whole area would be flooded.

TL: You can see the waterline, it's about 10, 12 feet. Back in '76 when we were doing the freeway. I swear. This ridge came all the way out to where that little shack is, that basketball court. But the water, easy, was about the height that we're standing at now, if not the height of the road.

CSH: That's like 25 feet.

TL: Yeah, it's major. Because there were concrete pilings, 60 foot pilings that cross, span the stream so that we could get up and drill all the footing on the freeway. We had about 30 pilings set across, used as a bridgeway. When we came back that morning, all that pilings was downstream. You're looking at 10, 8 to 12 tons per piling. [Wind interference]

CSH: So, you worked on the building of H-2?

TL: Yeah, we had all the what they call the case-on drilling for the footing, the bridge piers, yeah. We were drilling at Waikakalaua. We were going down, I think our deepest was about 80 feet in the stream bed and 25 or 30 feet as you go up towards the ridge. I think right where we standing now was a portion of the truck road, the old trail. When I first came home, I think one day on the freeway, I look down and they had one D-10 parked right on this ridge. So I came down the road and I looked. Just was an old fence before to keep people from going in the property. The [D-]10 had already cut half of the mountain away. So when I walked up, when you walk up right where the building area stay, get one portion of one old trail. They claim was one old horse trail that meandered around the ridge like this, but it went right through the *ka`ānani`au* O`ahunui. When you look up on the face of the hill, you can see the pilings yeah. According to Joe Kennedy, when they did the assessment for Town Realty, they came up with 3000 stones in various pilings up the face of that hill.

CSH: This one right here?

TL: Right in this valley. This valley used to come all the way and touch the stream. So, what they took out in this part here, was major. I was trying to tell them about that, but according to the archaeologists, they were not significant, they were sweet potato mounds. What we were trying to explain to them is it demarcates in a form of a triangle that goes up the face of the ridge, the *ka`ānani`au* O`ahunui and from this vantage point, along with the stream, it marked the boundary between the Waialua District and the `Ewa District at one time.

CSH: So, this was a boundary point?

TL: This is the boundary marker that supposedly is the place of the stones that give you, coming from the oceanside, O`ahunui.

CSH: So, you know on all the maps you see today, the Wahiawā District is kind of further that way, further north. So, what you're saying is the actual boundary between the districts was right here in Waikakalaua Valley?

TL: Between `Ewa and Waialua. Of course, you get the Wai`anae Uka too that cuts through just above this.

DA: The Wahiawā District wasn't formed until the overthrow the monarchy. So, it was cut into existing *mokus* that were there. But, this predates that.

CSH: Okay, so we're standing right by the basketball court here at Launani Estates and the river, looking up, looking north, northwest, north.

DA: We're actually on the old trail.

CSH: On the old trail that followed the stream. So, can you tell me some more about O`ahunui?

DA: O`ahunui. It's a long story. Long story or short story. I'll give you the short story. Well, in the Kumulipo, they mention Kalua`a`ahu and this is Kalu`a`ahu. That *pōhaku* down there that's jutting out represents O`ahunui. And in ancient times, they said if you come here and you haven't been around O`ahunui, than you haven't been around all of O`ahu. So, notice that there's a little trail that goes around, on that *pōhaku*, so that you can actually walk on it. And, if you bathe in the pool, then you've seen all of O`ahu. In other words, you've seen O`ahu from the water point of view. So, that's the kind of like the hidden, the riddle for this area. But, there's a whole story, a legend about O`ahunui and how he befriended the Kalo `aikanaka which was the man eater, the cannibal and basically to make a long story short, after it was found that he had eaten his nephews, he was slain by Lehuanui and later turned to stone. Under the water, which you can't see today, are other stones, *pōhaku* , which represent the retainers of the Lō Chief O`ahu. There's a whole long story about that.

CSH: Okay, do you want to say anything about that?

DA: No.

TL: Well, the whole story was that O`ahunui and his sister, Kilikili`ula, ruled the island of O`ahu [Wind interference]. So, Kilikili`ula's husband was Lehuanui, and he was a chief from Waialua. It just happened at this certain gathering, O`ahunui made a proclamation. 'Ahh, I can hear a yellow bellied *āholehole* knocking upon the mākāhā at `Uko`a Pond'. So, in reality, it was a directive for someone to go and fetch the *āholehole*. So being that O`ahunui was *mō`ī* and Kilikili`ula was *mō`ī* and her three children were of a status, that left Lehuanui as the lesser chief among the group. So, it was his responsibility to go to Hale`iwa to `Uko`a Pond and fetch the *āholehole*. So, he took off, went down in his travels, gathered the fish. Before returning *mauka*, he decided he would rest himself. As soon as he laid to rest, he had this vision that his sons were being eaten. So he hurried coming back up *mauka*. When he reached *mauka*, he found on a tree two skulls, small skulls wrapped in red *kapa*. He searched out his brother-in-law and Lehuanui slew the chief O`ahunui because he supposedly was full of this young flesh of the nephews and out on *`awa*. So he lays here in the stream today petrified as a stone with all the retainers surrounding him that helped prepare the young nephews. He searched out his daughter and his wife, found them in this region here. And as he grasped to take his young daughter with him, Kilikili`ula grabbed on to him. He looked at her and said, 'Why did you let this happen to our children? Why did you let your brother consume our children?' She had no answer. He took his adze and slayed her. And she supposedly at that time, lay clinging to the mountainside which she was for many years. For some reason today, she rolled from that significant spot into an area just on the bank of the stream. The interpretation here when this development came through was that on that side of the stream [East side of the Waikakalaua stream] there would have been a two or three story parking facility that would

accommodate this area here. They withdrew the application, I guess, because it's not there no more. That, supposedly, is the legend of O`ahunui. It's a nice story, but I don't think Hawaiians were cannibals. But, it's a nice story. I think it's a pretty much, pretty cool interpretation of what might have been, but we know that we were not cannibals. `Aikanaka was supposedly a Fijian, drifted up on Kaua`i, had his practices there and they were banished from the island when he landed in Mokule`ia, then came up into the region just outside of Kūkaniloko, out near Halemano where he set up his band and was discovered later and then banished once again.

CSH: So, how is this area connected to Kūkaniloko?

TL: *Ka`ānani`au* is what was demarcated by the chief Mā`ilikūkahi. And, what he did was set up these areas that would show his domain. Because what his practice was, was to take the first born of the chiefly class and the common class and raise them as his own. In that respect, he put up sites in Hālawa Valley, he went all the way out to Nānākuli — he called that one Kulihemo, making a transition around the Wai`anae side into the Wai`anae Valley where we have our fourteen district *lo`i*, became Kānewai, coming over Kalena, you find Halahape, somewhere behind the highschool, I think it is, in Waialua, coming back up *mauka* through Halemano, you find the *ka`ānani`au*, Halemano, circle back through the central part of the island, find Paupalai, somewhere up here in Mililani Mauka, the plains of Punalu`u, Maunauna [wind interference]. These are all in *ka`ānani`au*, as so described by the guy that supposedly set the six districts that still remain until today: Ko`olau Loas, Kona — which is Honolulu today, `Ewa, Wai`anae, Waialua. So those were established by Mā`ilikūkahi at that time. Distinguished [wind interference] on the isle, with his signature of the *laua`e* fern. So, when we go to these places you find the *laua`e* fern growing within the *ahu* that is there. You come to assess, minimum now, 36,000 acres that encompass this lands of the *lō* chiefs where one could be obtained. So, the significance here is that the *ka`ānani`au* overviews the boundary between `Ewa and Waialua.

CSH: To you, what does *ka`ānani`au* mean?

TL: *Ka`ānani`au* is the *kapu* boundary mark, setting place in — that is [wind interference] each *moku* or one of these districts that are so designated has one within its district. So, its like a meeting place between the uplands and the lowlands. So, by taking the first-born of each family, at one time, Mā`ilikūkahi drew peace and prosperity — it drew the people very close, the environment had a lot of water, it was very fertile but, it made everybody a close-knit family. Because you had the first-born — all that you would work for would be attributed to the chief and the care of your child. And, he raised them — in the long houses which were known as the *kūlanakauhale*, from O`ahu Nui all the way out to Halahape. So you talking almost the whole central part of the island. And I like what Dan always says is the lands of the *lō* chiefs was like the old university of Kūkaniloko.

DA: The second University of Hawai`i. And, the first one was at Holoholokū on the island of Kaua`i, which was the first birthing site of the *ali`i* or ruling chiefs. So, later the second University of Hawai`i was set up — the University of Kūkaniloko. And, here we are today.

TL: The reason was just to educate and rear managers of people, which is what they were — managers of people. When one was needed, they would come to Kūkaniloko and fetch one to manage people. We call 'em *ali`is*, western interpretation: chief.

DA: See, they were special as far as their status. They were called *lō ali`i* — not "l-o-w" but *lō* for the word *loa`a* — meaning to obtain. What do you obtain? You obtain a chief, a person to organize your society if somebody from your district failed to do so. So if, for instance, you come from Waikīkī and there's nobody to organize your society there, then a *lō*, a chief would be sought and that person would go down there and would already have the skills to manage the people there. That's what it was. So, they learned everything in this area and beyond — as far as navigation, as far as star gazing, growing crops, growing food, raising animals, shelter making, canoe making, all of these things — things necessary for life in those days. That's what it was.

CSH: I know that a lot of people know about Mā`ilikūkahi because of what they read in McAllister about how he defeated the invading chiefs of Hawai`i who came and tried to take over. And, that battle supposedly started in this gulch and crossed over the plain and ended at Kīpapa?

DA: It actually started from Honouliuli side and then commenced this way and went around toward the — the last skirmishes were probably like [at] Waimano. But, Kīpapa and this area was the stronghold. Actually, Kīpapa was the stronghold.

CSH: So, what place did this gulch play in that and also what you call Punalu`u right now?

DA: This is Punalu`u? [Question to TL.] I think so Punalu`u was where Chief, where Ali`i Punalu`u was slaughtered. Because it was he and the Hilo brothers that came from the Big Island, he had Luakoa from Maui. They were all causing war at the same time on Mā`ilikūkahi. So, the reason why Mililani Highschool, that area there and extending up here, was called the plains of Punalu`u was because that's where he was slaughtered.

TL: It's attributed that from O`ahunui is where Mā`ilikūkahi's stood and gazed upon the warring chiefs. It wasn't war — it was more a rebellion, yeah, because only four chiefs partook in what was going on. So, working their way up from Honouliuli through Waikele, as they come through, the lowland people would be screaming and yelling like something is happening. But, what they were doing is opening the path so these rebellious chiefs could

come through with their warriors and close the door behind them. And, as they moved up *mauka* from [unintelligible] the chief, Mā`ilikūkahi, the armies were then just put to death. You know, Punalu`u being slain in what is today Mililani Mauka. Some four thousand warriors lost their lives in Kīpapa, which means "bodies placed prone", and the battle, like Dan says, took them all the way up in retreat to Waimano where the Hilo brothers were caught, decapitated, their heads stuck on posts and, and at Honouliuli, in the place still known today as Po`o Hilo, their heads stood as a, I guess, testimony that if you rebel against Mā`ilikūkahi this would be the punishment.

CSH: When you say "stood gazing over O`ahunui" do you mean the whole area called O`ahunui? Or do you mean right here at this stone?

TL: Well, from O`ahunui you can see all `Ewa, too. So, he could be just watching as the battles or those little eruptive phases coming up *mauka* looking and searching out the chief. 'Cuz that's what they were doing. They were searching out Mā`ilikūkahi. At the same time, his forces were closing in behind him so that when they had his view of certain death, it all collapsed upon them. And they were put to death. That was the punishment for rebelling against the *mō`ī* of O`ahu — it was death. So, when you say he reviewed from O`ahunui, he looked over his whole domain. Not just at this site, but as the islands were making noise that people were coming, trying to invade the island of O`ahu.

CSH: Should we cross the river and take a look at O`ahu Iki?

TL: If you want to. I can see it from here.

DA: It's beyond that tree.

TL: Right where the avocado tree is. I think the most significant thing is the traditional gathering. Even with the development coming through, a lot of plant life is still intact. We're trying to work on the stream, but that's very difficult because of the control of the water. Waikakalaua does mean "water rough in rain". And, it starts in the Ko`olaus until it spills out into Waikele and then eventually goes out into Pualoa [Pearl Harbor].

CSH: I see coffee.

TL: Oh, there were truck farms in here at one time. Truck farmers came in and at that time [unintelligible] on the plantation.

CSH: So, are you aware of other people who use this area besides, perhaps, your family?

DA: I know of people that came up here. Exactly what they did, I'm not sure. I

know when I was growing up, we came up here primarily to gather stuff and if we had the whole day to mess around then we'd go up *mauka* and go play in the tunnels or go beyond that and look for sandalwood sticks, that kind of stuff. There's other people that I'm aware of, yeah, that they used to come to this area. That you would have to talk with them and see what they did here.

CSH: I read in [John Papa] ʻĪʻī — he talks about the trail that goes to Waialua and then certain trails that go off of that trail, one of them coming to Oʻahunui and he mentions a place called Piliamoʻo. Do you know where that is?

TL: I don't know where that is.

CSH: How about the trail that leads to Oʻahunui? Do you know what he's talking about?

DA: This was the trail.

CSH: This one? [Where we were standing next to Waikakalaua Stream]. Okay.

TL: I think this was a trail right here. Although, whatever condition it was in because of time, yeah, but this whole general area is Oʻahunui and as you go more toward the Waiʻanae range [and] Waikele Stream you going run into Kalakoa, Keahumoa, Popouwela, Puohala. These are all the old — just like *ʻilis* of a certain area, Honouliuli. The more *mauka* you going come into Kalena, Haleʻauʻau, *, Māʻili. Towards Waialua you get Kamananui, Halemano, Kawailoa. That's all the old *ahupuaʻa*, yeah, Waialua District. So, the place names are significant but in development, those names no longer exist. So, when you try to sight, because of the rearrangement of the land, it's very difficult to get the bearing again. They moved the whole mountain — of the mountain right here at Oʻahunui. The old path right along the trail that runs right through the *kaʻānaniʻau*. It runs right through there but it was not recognized at the time of the construction project. Human remains were found on here. So, there are burials within the valley that we know of on both sides of the stream. So, if you have both sides of the stream, those were the guardians of the path in traditional style. I think our *kupuna* expressed, at one time, to the developer and his archaeologist — you can work above the ground, that's fine — in the transmission of one electric line towards the conservation and preservation land *mauka* of this project. But, do not dig into the land. That is uncomfortable, you digging into the land. I think in the last push of the dozer in the ridge development, this housing right off to the left here, human remains were uncovered. In the last push, when he just was grading the mountain side, human remains came out. I talked with Eddie Ayau of Hui Mālama. He came and reinterred the remains. I think back in the [19]70's, some of the folks in Melemanu, the subdivision in the lower part of the valley had called Bishop Museum asking for them to come out and research a burial

that was on the Honolulu side of Waikakalaua. But, it was determined that there was no significance within that valley. So, I don't think that research was done. But, hearsay, yeah. But, for me personally, I know the valley is *kapu* through the acts of O`ahunui and the decree by the god Kāne that no one should live in this valley from that time on. But then I guess things change. People come in — we all need place for stay — so, it's a sharing. It's always been a sharing between Hawaiian people and everybody that come from all over the world. And, it'll be that way forever. We need to understand that in these areas, where the valleys are, where you find the running water, this is where the people would live. Testimony so proves — Hālawa Valley, the Hale o Papa on the right, the men's *mua* on the left side of the stream — it's at every valley. It's the same process because that's how the people lived. It was traditional. You go up into Kolekole, Moakea Stream, you find Kalena, Hale`au`au. This traditionally represents the beautiful women of the area, there on the right hand side of the stream looking *mauka*. On the left hand side of the stream you find Mālamanui and Kalakoa. These represented the handsome men of the area in Central O`ahu. So, traditionally, everything still stands. The names are there because it's significant of the lifestyle of the land. And, to come in and forget that, you lose all testimony and history of an area that you push to live in. It's nice to live in an area, but you should understand the cultural significance of the area also and have that play into the aspect and the growth of the community. It's essential, yeah. Because, you might hear it from me and Dan today and tomorrow you won't hear it anymore. There's nobody else. When we look behind towards our offspring, there are none that follow the line as it was done in the past. So, we're becoming remnants just like the *wahi pana* — all the sacred sites, we're becoming remnants because we've been taken apart and scattered around and it's becoming very difficult to assess an area for the quality of what it really is. You just look at it as a stream, trees, some stone pilings may be some significance, but there is no oral interpretation. You can't read it in a book. A book is misrepresentation, misinterpretation because it's what you hear and what you try to figure out — "What did that guy say? Oh, maybe he meant this." So, our testimony is the way it was passed down generation to generation and that's how we know about O`ahunui. It's a generation thing for O`ahu Island.

CSH: You've talked to your *kūpuna* — the *kūpuna* that live around here?

TL: It's a family thing, yeah. So, when it comes down to the bulldozer is at the door, what are you going to do? I gotta go down there and investigate what are they doing and give them an interpretation hoping that what I am telling them sounds real. For the most part, I give them credit for not putting up the parking garage here, but they still went and dug into the land — which had to be done — we understand. We're not here to stop any project in any matter. All we want to do is make sure that you're educated culturally with respect to traditional practice. Today, for us to come in here, to bring people in — students, different working groups, we apply for a permit, a waiver of

liability to come in and do what we do. Even to *mālama* the place, to clean around the area we have to get a waiver of liability. Which is fine. We're not destroying anything. All we doing is taking care of something that our families have been taking care for generations. And, now we have to be more specific because it's out in the open. This thing was here — it lay hidden maybe a thousand to fifteen hundred years since the last chief stood on the hill and decreed, "Do not rebel against me. The punishment is death." We cannot do that today. We'd get arrested and put up in Hālawa. But, the interesting point is that the valley holds the key and when you come in and look at the area, you going see the traditional plants. That is the first sign of something of significance. When you see the plant life, they can still be used as dyes, you can pound *kapa*, you can take [it] medicinally. It's all here yet. It's just not determined. It was never assessed in any form of impact statement to the valley and to its people. And, I think that is what we're trying to do by coming and giving interpretation that in future projects maybe we could be consulted in some form. Not after the fact, but be part of the assessment from the beginning. And, I think that is the position of the Friends of Kūkaniloko — to be that shield for our *kūpuna*, to take all the spears, to take all the blows, but yet have everybody understand what is important to us as a people.

DA: You talk about plant life, yeah, even up until this project came in, there used to be *koa* trees, Hawaiian *koa* trees where these apartment buildings are today. And, even before that, in ancient times, this place was so rich with plant life, native plant life and bird life, that the *kia manu* or the royal bird catchers would be up here looking for the birds for the feathers to make feather cloaks and helmets.

CSH: Do you know if people are still involved in that — Hawaiian?

DA: Well, there's no birds left in this area. They primarily feed off of the *lehua* trees which you don't see too many of today in this area. A bunch got bulldozed as these projects were being put up. There's still some in the upper valley. There used to be some along this trail further up. There used to be like a concrete house or pad up there, like a well under — the stream was next to it — and there were some *lehua* trees there. But, over time, with all these weedy plants coming in like the ironwood, they tend to overtake the area. So, with the disappearance of the habitat, you lose the birds.

CSH: The birds are gone or gone up *mauka*.

DA: Or gone completely.

CSH: This is a USGS quad map. We're somewhere down here, yeah?

TL: We're over here.

CSH: We're over here? Okay. So, right up there is the project area, this whole thing.

TL: That's a big area.

CSH: It's a hundred acres.

DA: Wow, would be nice if you could buffer over here.

TL: We can give comments to that or what?

CSH: First, let me ask you about — I don't know if you're familiar with this area, but it's all second growth from pineapple fields. It was all pineapple fields before. Right along the gulch, just over the edge of the gulch, there's *ʻaʻaliʻi* and *koa*. But, are you folks aware of any past history of this land before pineapple?

TL: That's before my time.

CSH: I know, it was a long time ago. But, just from what you know —

TL: When we was up in [19]59, the pineapple was all there already — when we used to roam the hills. The pineapple was there. In Waipiʻo — one finger here, one finger here, one finger here — for each one of these fingers come back up *mauka*. And, the old ditch line that runs on the top of the hill is this ditch here. They used to pump the water from the stream somewhere way in the back here.

DA: Oh, right here.

TL: Yeah. They used to bring 'em all the way through and go down past Kīpapa School and everything. Each one of these fingers lead back into the valleys, yeah, go all the way back. Of course, the freeway repositioned all the land again. And, they covered some of the areas that used to have one [unintelligible] going right through in the valley. 'Cuz, we used to stand up on the ridge and watch the military guys do their training.

CSH: You stand up here [in the vicinity of the project area] and watch the military do their training down here [in the Waikakalaua Gulch].

TL: Yeah. They used to do, you know, whatever they doing, packing their packs and walking to the yard. And [we would yell], "Hey!". And, they would be looking like, "Wow, what you guys [doing up there?"] We'd be up in the plantation on this boundary here, looking down in here. That's when they used to use it as a training site, which no longer happens .

CSH: How far up did they come?

DA: Oh, they went way up.

TL: They went all the way up. Tie into to East Range in here. This is all —

CSH: That was in the [19]60s? When was that?

TL: In the [19]60s. All of this is all military property. Waikakalaua is — they had reservoirs, yeah.

CSH: They had storage facilities.

DA: I think they used it to the [19]80s too because we used to — well, we used to go on our own, but then if we were up there officially, we had to get permission from the military to be up in this area. By the time I was in highschool, the hiking club advisors would get military permission to be in the tunnels. So —

CSH: Even ???

DA: Yeah.

TL: Get all the rock wall in place there. Some areas still get the older *lo`i*. Coming up from Kīpapa is the same thing when you come in the back side. And then you climbed all the mountain range.

CSH: So, what, get old *lo`i* up here?

TL: Beyond the —

CSH: Way in the back — the developed area?

TL: You know where used to have the lychee farm before? That's way up there. That's way up on top.

CSH: Oh, that's way up there.

TL: Used to have one trail that go down inside there. I think had one of the tunnels back there too. But, when you cross the stream, you go on the other side of the stream, it's all inside there.

DA: You should talk to some of the hunters.

TL: Maybe Hayashi.

CSH: Yeah. Castle and Cooke said they had come across plenty people accessing — trying to get access for pig hunting.

TL: The Campbell family?

CSH: They didn't give me any names 'cuz he didn't know the people personally. But, it would be good to talk to them if you can give me some names.

TL: I don't know if Aunty Francis' grandson. I don't know where he stay now.

DA: Ke`ahialaka Balaz.

TL: Yeah, when they used to live here, he used to go bike riding all the time. But, that's where he was. He was way up inside there. That would be one guy that we know.

DA: Pia's — Wade Pia, Henry Pia.

TL: Because they just had access, they just went. There was no restriction 'cuz they lived *right here* in Melemanu. It wasn't like, "Hey, I need a pass." I the last guy live at the end of the road. There was nobody behind. And, even the *mauka* side, never have anybody. The only people that was in *mauka* was the people that lived in Kīpapa Gulch — the Iges and Hayashis, Arakaki, Kishis, all them guys. That's all the guys that's in the valley. Another lady, Linda Gallano Māhoe-

Side Two:

TL: — some testimony of the old — she doesn't know all because she say she not really from there, but she lived there long time. But, that's all the old trails up inside there, Koa Ridge.

DA: She knows a lot of the hunters, too.

CSH: That's right, 'cuz she's a hunter.

DA: Yeah, well, her husband, too.

CSH: Are you aware of any old trails through this project area, this outline or in this area or going down into the gulch from maybe over in this area?

DA: Where's the new development now?

CSH: This part here is developed. And, this part here is developed.

DA: Okay, down here then. That's where the trail was, yeah? Come down to the stream. Get all houses over there now.

TL: That's right where my sister live. That was the `ole* — you come right above — that's K-5.

CSH: Can you mark that?

DA: Right there where the flume thing going.

CSH: Ah, that's where had the old trail? Do you think that trail is because they built the flume there or do you think it was there before then?

DA: Probably before then. Well, hard to say. It's been there a long time.

CSH: And, that comes from where and goes where? It goes down to the stream, right?

DA: It goes down to the pump station used to be, yeah?

TL: Yeah.

CSH: And, then it goes where from here?

DA: Where ever you like go. That was all pineapples that's why.

CSH: Okay. This area is all second growth and bulldozed.

DA: Well, when they put the tree farm in there, they went scrape about two feet of dirt, huh?

CSH: I don't know.

TL: Well, we assume that's all part of the old mesic forest, huh? Still in the same region? So, you going get all the Ko`olau *brand of —

DA: Plants

TL: *Koas* and everything else, *lehuas* and whatever.

CSH: Are you aware of any burials in this area?

TL: After a hundred years of plantation going down two feet every so many years, you'd think they would hit something. If they did, they didn't care. That's what it comes to. There was no NAGPRA or anything. They didn't follow guidelines or anything like that. I think that's that part of development. They've been up there for how many years already, so who's gonna tell them that something is there?

CSH: Too late.

TL: Yeah. 'Cuz the plantation did its damage and we're just assuming the role, yeah. The only thing coming up [is] housing, now.

CSH: Where do you live up in Mililani *Mauka*? It's not on here though. This is an older map.

DA: This is the subdivision now, yeah?

CSH: Yeah. This is Pacific Islander subdivision. This is like a bunch of townhouses. And, this is all built up over here, too.

TL: Where's K-5?

CSH: K-5 was up here.

DA: So, I'm right here somewhere. This is the tall trees, yeah?

CSH: Yeah. This is that little gulch.

DA: So, I'm around here somewhere.

TL: 'Cuz you look right into it from your house.

DA: Yeah.

CSH: Do you use that area for plants?

DA: I would love to if I could get access to it.

CSH: But, couldn't you? It's Castle & Cooke lands. They said it was zoned as open space.

DA: Now, the word that Castle & Cooke puts out to the residents is you cannot take anything from those gulches. But, from my understanding it's turned over to the City and County so you actually can. And, there's so much land in there. You could actually build houses in there. I would love to grow trees or medicinal plants in that area. There's a couple of bamboo groves if you go on — I'm not sure where the road is that comes across the gulch — but, on one side you have a grove of bamboo, that's the big bamboo, and on the opposite side you have the skinny bamboo. So, they had different uses. And, it's just growing there. So, it would be nice to have access. The road that actually went through that gulch — now you have houses on both sides, so you can't really go down there unless you talk to the person that has a house there. I think they have fences up. That would be an inconvenience to them. You cannot just go.

CSH: Oh, I see. It's probably up here.

DA: It's actually down here somewhere.

CSH: Oh really? 'Cuz down here, there's a culvert, a bridge. The Castle and Cooke folks said people go down there all the time.

DA: To gather stuff?

CSH: No. They don't know.

TL: Drink and sleep and * — homelands

CSH: Trespassing! They mentioned that pig hunters and people just wanting to hike and curiosity seekers [go down there]. So as far as O`ahunui, where would you say the *ka`ānaniau* are on this side of the gulch?

DA: Where's the freeway?

CSH: Here's the freeway, basically, over here. It's this boundary. So, it goes over there and down there, somewhere like that.

DA: Down in this corner right here. That's where we are right now.

CSH: And, where do you think O`ahu Iki was before he decided to come down toward the stream? On the cliff side or up on top?

TL: He was right in the back here.

DA: Above all the *pūkiawe.*

CSH: So, on the cliff side?

TL: He might have been in two places, but the place that was given reverence is right behind all this *kukui,* 'cuz get one cluster of *ti* leaf. And, then you get that one *lehua* tree — Kilikiliula`s tree.

DA: I don't know if still get the *ti* leaf. Used to have 'em. Before, you could go from that stand on top that side of the gulch and look across and all the *ti* leaf growing over there.

TL: Still little bit weaker now. Not as thick as it was in the beginning. 'Cuz I go over there and I clean 'em all out. I just clean 'em up, sit down over there relax. Because when we first came through, all the time we was up there with Aunty Sarah, something was like shining over there. All you could see was the tops of the — in fact I can see the top of the *ti* leaf right now. And was just like shining over there. And, come to find out, we made this discovery. And, not just the day before, my son went catch all kind fish in the stream. And, the water wasn't moving. I was walking all around wondering what is over there? What is over there? I found that stone over there. I come [and] I look at this stone from that side of the river not

understanding what it was. And, Aunty Sarah them came. They make like they don't know nothing, but they knew everything what was going on — "Whoa, come over here!" And, Dan was sick that day.

TL: [He said,] "I gotta get some water." That was a historical day. O`ahunui

CSH: Who's was Aunty Sarah?

DA: She passed away already.

TL: One of the *kūpuna*. She was down in Wai`anae Valley — the homestead over there.

CSH: But, she was from over here?

TL: The family.

DA: From generations and generations.

TL: See, they was always tight with Nathan Napokā them.

DA: And, all of those guys.

TL: The family originally from Big Island. Then, they went move up Papakōlea and all that. They was all from up inside there.

DA: In fact, one branch of the family *[birthed] descendants from Kūkaniloko, the *lō* chiefs that were born there — direct descendants.

CSH: You mean, part of Sarah's family?

DA: Well, she is a direct descendant — was a direct descendant.

TL: IS. She's in the *pō* now.

DA: She's in the *[*pohaku*] — the next level.

TL: You know, from back in the past, when I first started over here, I asked them if they would buffer the area. When the college came up, I said, "Oh, that's perfect." Then, when the college fell apart, I said, "Well, a hundred acres would be a nice buffer." Just like one park for the community. I guess hundred acres is too big.

CSH: Well, they're making a park for the community. It's over this way. I don't know how big it is. It's pretty big.

DA: So, this area here is development, but then this area's going to be a park?

CSH: There's a area that is over — I'm not sure how far over this way. But, there's a big area over here that's going to be like a district park, as far as I know. In fact, they're making it right now and then they're going to develop this land. That's their plan.

DA: Okay, I know where that thing is. It's graded already. They have the backdrop up.

CSH: Right.

TL: They're gonna adjust to make one corridor that follows the stream line? Make one corridor along the tech park. The *pua`a* still come down, yeah. Before this project started, had like about — I would say at least 250 to 300 pound female [*pua`a*]. The first time I went walk the trail and I came up from the back side before had anything there because I wanted to see how it looked from that side if I was one invading force. I came down the trail, the pig was on its back. Huge! "Oh, my goodness!" That's one sign already. Right on the main trail right there, upside down. I think the head was facing down into the valley. And, all up inside here, all the trails, you know how they come and they rub against the bark or brush their body? You can see. Now, the trail is still there, but it's not huge. Only get small tracks now — the kind like something's running around. But, the whole thing come all the way down. They forage right around this wall, you know. And, then they go and return back up.

CSH: Yeah, I saw some pig tracks in this gulch over here.

TL: But, this is the one. It's all this — it's gone already. It's gone already.

DA: This is all houses in here.

TL: So, if anything to keep one transition or at least one corridor to pass — ten foot wide, four foot wide, whatever. But, at least get one path that is consistent from *mauka* side coming down to this area here.

CSH: So, this is all along the gulch here? And, they have a 30 ft. buffer zone between where they start building and the edge of the gulch.

TL: I think 30 ft. is too small.

DA: They going grade or what?

CSH: Oh yeah.

TL: And they say it's for utility, too — power line or whatever, emergency access.

DA: Yeah, that's what it is. They going do emergency access.

CSH: So, basically, you're not aware of any traditional practices on this piece of property here up above the gulch?

TL: No. I think only inside the valleys — all the adjacent valleys. That would be the only place that would have any remnant. Everything on the surface is gone already.

DA: Like in our time was all pineapple. There was nothing that you could gather other than from the edges.

TL: Bamboo and rosey apple. And, you have to go way up *mauka* into the valley. That's why all that is gone already. It's just a memory. It's somebody that passed away already.

CSH: Yeah, it was so long ago.

TL: If anything, all you can do is recall the winds that come down through the area, the place name of the wind and all that kind, the rains that would come through the valley.

CSH: Do you know them?

TL: No.

DA: No. Waikōloa, is all [I know].

CSH: Waikōloa? That's the –??

DA: The name of the wind.

CSH: The name of the wind that comes down this valley?

DA: This general area.

TL: That would be the only reference that when you put the development in you give the name of the wind or the fragrance. [Unintelligible] the name of the streets, then. That way you keep the life of the area and you pay respect to the ancestors, too.

DA: Used to have all kind fragrance in here with the different plants before.

TL: Ka`ihikapuamanuia, Kūamanuia, Ha`o, all them guys, Kekela, the lands were distributed to them and they had a portion of the lands. So, the Ko`olaus were attributed to Kūamanuia [Ka`ihi]Kapuamanuia had all of Kona. So Kona come up to maybe Moanalua, all the out to Kuli`ou`ou with the transition in the old days. And, then Ha`o and [his] sister Kekela — what was her name?

DA: Ha`o was —

TL: The youngest brother --

DA: No, son.

TL: Ha`o was the youngest brother of Kūamanuia and Ka`ihikapuamanuia. So, Ha`o had everything outside which was considered `Ewa. So, that's all of the boundary between Hālawa and Moanalua, from all the way up to here to all the way back down around Wai`anae — because Waialua, too, yeah? That was one parcel that was given. Because Waialua was Kekela's. Ha`o had `Ewa-Wai`anae. So, it doesn't look the way it looks now, yeah, because now you get six *moku*. But, in those days, each child was given that domain. So, Ha`o/Kekela was like one whole thing because they were the two youngest. Kū had all of the Ko`olaus and Ka`ihikapu had Kona because they had different — Kū was supposed to be the overseer of the lands, Ka`ihikapuamanuia took care the god. And, then Ha`o and Kekela had the bread baskets. Wai`anae had all the *lo`i*, Waialua had the fishponds.

DA: Until the beef. [Laughter]

CSH: So, Waikakalaua was part of Waialua?

TL: Well, the old boundary. So, when you look at the map, the one that shows Waikele --

CSH: You see how it's kinda marked off?

TL: That's the government map. This is the government. Just like you said, "Oh, that's the army, this is the government, this is one jurisdiction. This is where this thing come. I think was the Gillman Trust. This is their property. That's why it's designated in this manner here. This is Grant 106 — I don't know what it was, I forget — but, this is the Gillman Trust. Then Hedricks went try to develop and then the [unintelligible] whoever they are. That's what this is right here, the Gillman Trust.

CSH: So, from where, where was the boundary of Waialua and `Ewa?

TL: It's the stream.

CSH: Down to which point?

TL: Where it comes to Waikele —

CSH: Ah, where it comes to Waikele, it becomes `Ewa?

TL: Now, you also gotta remember that Honouliuli at one time came all the way

up *mauka* to be inclusive of Popouwela, Pouhala, Līhu`e.

CSH: I think Pouhala is over here right?

TL: Pouhala is right on the face here.

CSH: The old road.

TL: This is Kamehameha [Highway], yeah. So, you know where Wheeler, the old — they call 'em the gulch runway. That's Waikele Stream or Wai`eli Stream or whatever it is. On the upper face. 800 acres today. Pouhala. 800 acres. I call 'em Crown lands, they call 'em ceded lands. That's the remnant that is there today. But, that one is on the face. So, where Waikakalaua, this one here, meets Waikele, supposed to get one line that touches Maunauna. And, Mauna`una is the cut-off here where the thing going come back. So, hit Mauna`una and then follow the ridge of Wai`anae going all the way back to `Ewa. The mountain is inclusive of the lowland. But, that's how the King's *moku* was given. Was supposed to come all the way up, but prior to when it was Maui a ka Lana and his sons, Nānāmo`a, Nānākulei and Nānāka`ōko — three generations — Līhue, Wahiawā, Halemano, this is another section. The hidden and the *kaona* that is placed upon the districts or the *moku*, like you get one — what you call those things?

DA: GIS. Acetate. You put your map over here and you superimpose 'em. Put the acetate on top. This is the hidden *moku*. That's what it is.

TL: So, you get the six districts to put in, but then on top of that you get *ka`ānani`au* — that's the seventh district which was — in fact, that was the *moku* of O`ahu. That's where all the first-born, all the ruling class, all the *kahunas* were educated and trained. This is what it was. I know sound kinda strange, but, —

CSH: No. I'm just trying to figure it out.

TL: Well, you gotta be able to see the *ka`ānani`au*. If you cannot see the *ka`ānani`au*, you not going know what we talking about. 'Cuz you looking at Waikakalaua, O`ahunui, then you get Mauna`una, then you get Hālawa. And, in between Hālawa, you get Paupalai.

CSH: I thought that was one of these?

TL: That's just a stream, yeah.

CSH: Oh, that's not Paupalai?

TL: That's just a stream, maybe, right? But, the site itself, too, now. It's in the river. There's one area right in Kīpapa Gulch just below the freeway where

get one *ahu* with the *laua`e* fern. And, Mililani, in their conversion of all storm water, it's like one whole stream not channeling any map. Just went cut right through, coming right down the hill like that, went break the military road, just washed the military road out, came right around the *ka`ānani`au* and go down. So, we're looking like, "Oh, wow, what is it?" That's Kāne. You get all the *laua`e* fern and get *ahu*. But, the old trail is the old Kamehameha Highway, the one that meanders down through like that. That's the old trail and that's where Moa`ula and `Umi *heiau* is, right inside there. They [archaeologists] keep telling everybody, "Hey, it's gone!" "No, it's there. You just don't know how to look at it." Oh, the thing's been destroyed totally, just like this triangle on the hill, totally destroyed. That what the triangle notes. The triangle is the demarcation of what it is — it all points *mauka*. And, you know, on the ridges up here, get designation stones that give direction. On the point here, there's one where those ironwoods are and they get one more just above the ridge and what it does, it goes like to Mauna`una. From Mauna`una, you go over the mountain range, the thing *(trips) into Kānewai. Kānewai is up above Punana`ula* [sp.] *heiau*, *in front of that.* And, then you get one 'nother one. The other one is right up behind Aunty Mercy's house in Wai`anae Valley — that's the last house up in the valley. Behind her is one magnificent directional marker. It's like, one is called Kuapu`u. And, the other one is the Hawaiian name for the caterpillar —

DA: *`Enuhe.*

TL: Get one 'nother name, too. I went look and the way it points from that position there, Kuapu`u - Kūkaniloko. So, it's like one trapezoid and it's back to back. And, it points to the birth site. Unreal! The big map is only one *heiau* that is shown on that map that is in Mākaha. Now, you take the faces of the *heiau* in its position and how it's described on that map and you run one straight line across the island of O`ahu, the top or the west to north end of the *heiau* comes right across Central O`ahu, cuts through Kūkaniloko and ends up at `Ō`io Point, Kualoa, Ka`a`awa. It goes right out and it goes right out into the ocean and its way outside over there, maybe like thirty miles outside in the ocean — maybe cannot see 'em from land, but it's out there. And, you take the other transition — the *ahupua`a* of Kualoa. Get one boundary mark for this that is present 'til today. You take those two lines — but the one in the ocean get one *ahupua`a* boundary mark made out of coral. The thing stand about eight feet and twelve foot wide at the base — all out of coral. So, when it's still in the ocean, [there's] this white thing you can see. That's the *ahupua`a* boundary marker. It goes all the way up inside the [unintelligible] West Loch, I think by Iroquois Point, somewhere around there, you take that line and you transition all the way across and it goes all the way and Chinaman's Hat, it touches the outside of Chinaman's Hat and end up on the islet outside of `Ō`io Point. That's two places of the triangle. You take the second one, now, and the boundary mark, the *ahupua`a* boundary at Kualoa, you run 'em and you tie 'em in to where the *heiau* is

like this, make one right corner, it makes one diagonal like this and go right through. If you take it little bit out farther, you know, the one that I showed you earlier, it's one triangle, almost one isosceles triangle where two sides are — equal and the *long* one at the top. Land navigation. That's what it's all about because from land navigation, they went on the sea. Kūkaniloko is one stop short from the land in Central O`ahu. And, that transition is how people migrated in the old days as an *understanding* to which they just stopped some — what is 900 A.D.? That's when they stopped sailing.

DA: Every island get one *pōhaku* like that, in that shape that maps the story that is used for navigation.

TL: They all play off each other. Each site plays off the other and you can line this up from the site. So, this one has a triangle here, so from the top, each corner will be the lay-out to another site. How significant it might be, depending upon where you going. I always thought was Orion and you gotta reverse it on the land. You watch the stars, you get one bowl of water, then you take the reflection and its backward, yeah. So, you have to use the same concept when you put it on the land. The last 15 years, that's what I been trying to do. Gotta go cut our way to find it. Some is mixed inside the quarries. You wonder, "What is this quarry doing here?" — when you look hand to hand, passing the stone to build this marker.

CSH: The stones up there, they point to Kūkaniloko?

TL: No. I think it points to the stone like **. But, the top, where the top stay —

CSH: I'm sorry. There's one over there and then there's one on this side?

DA: Get plenty in the bushes. Some got cut away over here, but they kinda form a triangle —

CSH: Going this way. And, they all point to O`ahunui?

TL: This one points to O`ahunui. So, you can stand at each *ahu* and when you look down, it points right down here. And, the transition is that — when got cut over here, it took a lot out. I came and I took pictures down the valley and when I look at it, it's gone. The part that has the meaning down here is gone already. Although they say that stone over there could not be moved. They tried very hard. They couldn't move that stone. That's why it's part of the park. No matter what they did, they couldn't budge it from that spot. That's what they say.

CSH: What is that up there that looks like maybe a trail, a road cut?

DA: Oh, that's the water flume, yeah?

TL: The old ditch for the plantation. It follows the whole ridge line —

CSH: All the way to where?

TL: It goes all the way around those fingers, around Waipi`o and then it used to come down Kīpapa Drive. Come down Kīpapa Drive by the Chevron station, cross over Kamehameha Highway and then it meandered down to what is now the golf course.

CSH: So, that was put in by who? Do you know?

TL: That's the plantation, to service and irrigate the field.

CSH: By which plantation?

TL: I think it was the sugar company because all this ended up, you know where Lua Reservoir is? I think the back line of Mililani Golf Course get one big reservoir. I don't know if it's still there. [*Looking at map*] It's way down there somewhere. There's one reservoir and from there, it services the plantation.

CSH: But, they never planted cane up here, huh?

TL: They said they did.

CSH: They did?

TL: Yeah. Cane came before pineapple, yeah. When it was cane fields, because they tried to discover everything. Some wouldn't grow some places, whatever.

CSH: 'Cuz this map I have — I don't know.

DA: Pineapple didn't make its debut until Dole made 'em famous, yeah. And, that was what — 1906 or something. They started off in Wahiawā.

CSH: And, prior to that was cane?

DA: Was cane. Cane was the big one. And, coffee. Down `Ewa side and Ka`ena side they tried sisal.

CSH: So, you think they grew cane up here on this —

TL: They said was all the way up into Kīpapa, Kīpapa Gulch.

DA: Yeah, I know it was up to Kīpapa. I not sure, up here, if they had. Maybe they did.

TL: I don't think sugar came all the way up there. This was school lands in the old days. I think was Department of Instruction at that time, when Papa `Ī`ī was. The lands were not cultivated in any manner. And, I think even testimony of George Galbraith, in his 2,200 acres. The land was never to be plowed and stones were never to be removed. That was his will and testimony.

CSH: Which one?

TL: George Galbraith.

DA: See, prior to sugar was cattle. And, up to where the sugar went, I don't know. And huge tracts of land from this mountain to that mountain.

CSH: Yeah, there's documentation of that, but I never read anywhere or saw on any maps that said they were growing cane up here.

DA: Yeah, even Puku`i [Mary Kawena Puku`i]. Puku`i talks about coming up to Kīpapa and having sugar cane. Now, beyond that, I don't know.

TL: You know, that was *kapu* ***

CSH: So, which wind is this?

DA: Cold wind. [Laughter]

TL: Every time we give testimony and stuff, come like this. I think that's the wrath of Kāne! [Laughter]

DA: The other time was raining hard.

CSH: The other time was raining hard?

TL: Several times.

DA: School kids, how much had?

TL 150.

CSH: Ho!

TL: Mililani Mauka [School].

DA: And, was raining!

TL: But, they enjoyed it. That's the whole thing — if you enjoy the atmosphere.

CSH: Oh, you take the kids out of the classroom, they're bound to enjoy it, right?

TL: Well, it's the testimony, too, that one of those children will recall this some day in the future and give testimony to them —

DA: That seek the knowledge.

TL: That's all we can do. You know, just give them an oral interpretation hoping that you capture one in the call. If it's not, then we experience what the *kūpuna* go through — finding the chosen one to carry on the testimony. It's very difficult. Almost impossible. But, for me, the give back is that I find them in the stone. That's my reward. *Makua, `aumakua, akua.* Plenty meaning, yeah, in those words. That's our family. Well, we gave you something solid to stand on.

— END OF INTERVIEW —

Appendix B: Transcript of Interview with Richard DeLima

Interview with: Richard DeLima (RD)
Project: Mililani Mauka Phase III Traditional Practices Assessment, Mililani, O`ahu
Interviewed by: Kristina Bushnell for Cultural Surveys Hawai`i (CSH)
Place of Interview:
Date: May 24, 2001

CSH: Could you give me your full name?

RD: My name is Richard DeLima Jr.

CSH: Did you grow up here?

RD: All my life, in Waipi`o from three years old to 42, now.

CSH: Where were you born?

RD: In Honolulu.

CSH: What year?

RD: [19]58, November 13.

CSH: So, your parents used to live in Honolulu?

RD: Maui. They're from Maui.

CSH: What brought them over to O`ahu?

RD: I guess my grandma them just moved here, bought one house in Kalihi, and my dad, at the age of twelve he was on his own. So, he just was going from brother to sister. And, when he graduated from Lahainaluna, he went into the service and was stationed here. He used to work at the Dole Cannery and that's how he met my mom.

CSH: So, what's your dad's name?

RD: My dad's name is Richard DeLima Sr.

CSH: And your mother?

RD: It's Diana DeLima.

CSH: Your grandparents was from Maui, too?

RD: Yeah, from Maui.

CSH: Your grandfather was a DeLima. What was his name?

RD: I only know him as one DeLima. My dad never told me much 'cuz he was on his own from 12 [years of age].

CSH: So, how come your dad was on his own since he was twelve?

RD: His mom and dad died. His dad died first and his mom after, when he was twelve.

CSH: So, he had older sisters and brothers?

RD: Older sisters and brothers.

CSH: What ethnic background are you?

RD: Hawaiian, Portuguese.

CSH: How long ago did your Portuguese relatives come to Hawai`i?

RD: I wouldn't have no idea.

CSH: So, the Hawaiian side of the family is your mom's side?

RD: My dad. My mom's side is almost pure Portuguese.

CSH: And, that Hawaiian side of the family is from Maui, then?

RD: From Maui originally.

CSH: From Lahaiana side?

RD: Lahaina.

CSH: What is the Hawaiian name of your family?

RD: I haven't a clue. Terrible.

CSH: So, you grew up right here and you went school where?

RD: I started off with Kīpapa Elementary. Then, I went to Wahiawa Intermediate and I graduated from Leilehua [Highschool in] 1976.

CSH: Then, did you go into the military?

RD: No. My dad knew some people so I got into the merchant marines for a year. And, then I went work at the Wahiawa Botanical Garden for 11 months. Then, I got into the —

CSH: Doing what?

RD: Just the grounds — grounds worker — raking leaves on the top, making trails. And, then from there — I was under the SIDA Program so that's only there for a year. Then, my dad knew a lot of the bosses in the City 'cuz my dad work for the City, too — the Waste Water Management, so —

CSH: What does he do for them?

RD: Pump station supervisor. But, he knew the big boss that run the Waste Water department at that time. And, he told my dad, "Your son ready for work?" And my dad said, "He's ready." So, I ended up going for interview and had six people on the table and all of them knew me from when I was three years old. So, they was all laughing. So, I ended up started working. I been doing this for 22 years now.

CSH: Doing the same job your dad did?

RD: No. I started off as one yard man. Then, I went work as one treatment plant worker for Waialua for seven years. And then, my last fifteen years been in Wahiawa treatment plant as one truck driver. I drive one 18-wheel rig.

CSH: So, now you live with your mom. Is your mom retired?

RD: No. My dad didn't want my mom working. She raises cactus. She used to put the cactus in little soda cans and one lady in Waipahu — Tanaka, her name was — she had one nursery and she really went like my mom. So, she had one whole table reserved for my mom and that's how my mom made some extra money selling cactus plants.

CSH: So, she still does that?

RD: She still have all the cactus but my mom no sell 'em anymore.

CSH: Oh. So, she not working no more?

RD: No. Never did work. Only except for that.

CSH: What is your mom's name?

RD: Diana DeLima.

CSH: What is her maiden name? Do you know?

RD: Phillips.

CSH: Phillips.

RD: From Maui.

CSH: So, when did you start hunting?

RD: From about 13 years old.

CSH: And, you learned from your dad?

RD: I learned from my dad.

CSH: And, your dad learned from his dad?

RD: My dad used to hunt with the neighbor down the street when he first moved over here. My dad used to hunt, I guess, in Maui. He'd catch pheasants and fish and all that when he was small, yeah. That's how he used to get his food. So, when he came over here, he bought this house in Waipi`o. Then, he met the neighbor down the street — Richard Estoesta, who used to hunt all these mountains. Then, my dad started to go with him from when he was in his twenties, I guess. My dad hunted his whole life until 51years old when he passed away. And, then I started hunting at the age of 13. Now, I'm 42 years old and I haven't stopped yet.

CSH: So, your dad learned from Richard Estoesta?

RD: Yeah.

CSH: And, they're about the same age?

RD: The same age. Yeah, about the same age.

CSH: And, Richard Estoesta is still alive, yeah?

RD: Still alive.

CSH: And, his son hunts too?

RD: His son hunt too. But, the son, he more into — he pick up cars and sell parts and all that now. He hunt, but not as much.

CSH: So, when you were a kid where did you used to hunt?

RD: In the back of Waipi`o. That's called Mililani Mauka now.

CSH: Mostly in the river valleys or up on the table land too?

RD: Mostly into the river. Only into the river. 'Cuz all the top parts was all pineapple field. So, from Waipi`o Valley, we used to go right down, walk, into the place they call Devil's Swamp. And, then we used to just walk all the way up that river until you come to Paradise and hunt all back there.

CSH: So, where the water tank stay on the military side — you know, where we went? From about there and then *mauka* is considered Paradise?

RD: Yeah, right.

CSH: Do you know where that name came from?

RD: That's all I know from when I was small. They told me that place was called Paradise.

CSH: Your dad went tell you?

RD: Yeah. Dad and all the people from when I used to be in Summer Fun and [the] Summer Fun leader would take us all the way back to the pineapple fields on one excursion. We used to walk all the way back to there and swim for the whole day and then come back. That's what we used to grow up doing.

CSH: And, when you went to Paradise, how did you get there?

RD: We either would go up from Waipi`o Valley, where it's called Waikalani Woodlands, now. That's what it's called. And, we used to just walk all the way up that river. Had one old road and then we take 'em all the way to Paradise. Or, we would either go from Mililani *Mauka*, where used to be all pineapple fields and then we used to just ride our bicycle and then go all the way back there. Then, had one old road we used to go down and hide our bicycles and we used to just walk down and swim at the hole, at Paradise swimming area.

CSH: So, you used to access it from both inside the valley and from up above, from the pineapple fields?

RD: Yeah, right. Either from the pineapple fields or in the valley.

CSH: And, what did you do in Paradise? You went hunting, but what else did you do?

RD: Oh, we used to go hunting for frogs. We used to catch pan tat — you know,

Chinese catfish. And, then used to have jojos before.

CSH: What is jojos?

RD: That's one small little — look like one eel fish — jojo. We used to call 'em jojo. Used to catch those. Used to have plenty sword tails. Used to have the red ones and the regular sword tail.

CSH: What about crayfish?

RD: Oh, had crayfish, but I don't remember if had prawns. I remember had crayfish.

CSH: Had *`ōpae*?

RD: No. No *`ōpae* over there. I don't remember *`ōpae*. We used to get ti leaves, ginger.

CSH: And, what you did with the ti leaf and the ginger?

RD: The ti leaf we used to use for make *laulau*. And, then the gingers and stuffs, we use to pick 'em for graves or for make arrangements, flower arrangements. We even go pick the *`ōhi`a* flowers, too, before.

CSH: Use to have plenty up there?

RD: Use to have plenty in the back.

CSH: In Paradise or more *makai*?

RD: By Paradise side use to have 'em.

CSH: So, that area that's sort of *makai* of Paradise, where I showed you, where kind of the project area is, did you guys use to go back there?

RD: We used to play back there mostly. Ride bicycle and walk dogs around. I just grew up playing around over there.

CSH: But, you never used to hunt over there?

RD: No. I never did hunt in that particular area.

CSH: When you played there, you mentioned there was one road that went up.

RD: Yeah. Had one little one. Had one old road before [that] they used to use. And use to have — in the back, before Paradise, get houses in there. Used to have houses in the valley over there before. People use to live back there. I

don't know — maybe 20 to 30 years ago, the people, I guess they had to move out of the valley. I don't know for what reason. But, we use to go and camp in the old houses. Just go — you know, the houses are still up, had the roof, everything. The windows and things would be all broken, the doors rotten, but we used to go in the kitchen area 'cuz that's the only place that didn't leak. We would sleep over there over night. That's what we used to do.

CSH: Do you know who put that road in or how it got there?

RD: I don't know. I think that road was there for the people that used to live in the valley. 'Cuz had like — I think had two or three houses. I not too sure.

CSH: And, where exactly was those houses?

RD: The house was right where I took you. Right below had one house in there.

CSH: Where they're doing the development now?

RD: Yeah. Right where the development is, where it's completed already, in the back, had one home right there. Even still had the old road. Probably still going up to the top. That old road used to come from the pineapple fields. One of 'em used to come right down to that house.

CSH: The pineapple fields on the —

RD: The *mauka* side. Mililani *Mauka.*

CSH: On the Mililani *Mauka* side, the Honolulu side or on the other side?

RD: No, the Mililani *Mauka* side.

CSH: Had one road that went down from up above?

RD: Yeah. Up above to his house and then had one road along the river — had one road, too. 'Cuz they used to divert the water. They had one flume or something built in there. They use to have like one gate where they could divert the water. But, I don't know what they use to use that for. 'Cuz, when I was small, the thing was already broken.

CSH: The flume?

RD: Yeah.

CSH: So, what was the water like when you was young? That stream. Did it meander like this or did it go straight?

RD: Oh, no. The river bends a lot.

CSH: And, what was the water like?

RD: Oh, the water was crystal clear. You know, you talking twenty years ago. We use to drink the water was so crystal clear. Now, I don't even know what it's like. I heard it's real murky. You know, we don't have rain like we use to have. You know, 20 to 30 years ago, use to be constantly raining so the water use to be always crystal clear. Every time when we use to swim, three to four feet, you can see the bottom. It was so clean the water.

CSH: Did the water always run or was it sometimes —

RD: Now, with the weather the way it's been, the river dries. Completely dry. Most of the fish and everything, I don't think they even have 'em anymore. You know, get lot of stagnant ponds and —

CSH: But, before, when you was little, the stream went run all the time?

RD: Oh yeah. All year long that stream would run. I never seen that river go dry.

CSH: But, only recently?

RD: Yeah. In the last maybe ten years or so maybe, or more — fifteen years. We been getting plenty drought weather where the river just completely go dry. The thing stays dry for like a month or more.

CSH: So, besides the road that went along the stream and the road that went up from the houses up to Mililani *Mauka*, was there any other trails or roads down there that you remember?

RD: I know they get one bunker, like one army bunker or something over there.

CSH: Where exactly?

RD: It's close by where that house I told you, from where you talking about, from where they going make the development, it's little bit more in, maybe like —

CSH: More *mauka*?

RD: Yeah. More *mauka*, more up towards the mountain. On the *mauka* side, there's a tunnel.

CSH: There's a tunnel?

RD: Yeah. Like a army bunker or whatever, with the army doors and I don't even know if they're welded shut or whatever became of it. And, then if you go by Paradise, and you go more in the back, there's like three more army

bunkers. That's where we used to park all our trucks and we use to go hunting from that area, or go fishing.

CSH: So, when you went down from the Mililani *Mauka* side into the gulch over there, was there one place you use to go down all the time or you just went down where ever you could find —

RD: We use to always just go down by that one area where had all the army bunkers. We use to drive right down there. Was a nice, like kinda pavement road, nice. Then we park and get one trail, one nice trail go right down to the river. And, from there, we would climb up and we'd be on top the Francis Brown Ridge. And, then either we would cross over to East Range River and then we'd fish for bass — small-mouthed bass.

CSH: Where is East Range River?

RD: It's more toward Wahiawa.

CSH: And you also mentioned small Kīpapa. Where is small Kīpapa? I'm going to show you this map. You might not be able to read it, but maybe between the two of us, we can figure it out. It's one USGS quad map. Where we went today was more or less East Pump Reservoir. I think was over here, kind of where we was. And, this is all Mililani Mauka.

RD: Yeah, small Kīpapa is on the opposite side.

CSH: And, over here is Kīpapa Stream.

RD: Small Kīpapa is right in between. You going see one small stream.

CSH: There's these small gulches inside Mililani Mauka subdivisions. I don't know. These are gulches, little gulches.

RD: Yeah, they get trails in there now. Hiking trails, like cement walkways.

CSH: So, when you was a kid and you went into this gulch, sometimes you would come up to the pineapple fields here and then go down over here?

RD: Yeah, we'd go down in the back.

CSH: But, it was more up here.

RD: More up, yeah. More into the mountain. Kīpapa River is this one, yeah?

CSH: I think the lychee farm's over here.

RD: Yeah, right there.

CSH: This is Kīpapa River right here. This is one small gulch. These are two small gulches in between. This is like all the tablelands in between Kīpapa and this gulch, the Waikakala`ua Gulch. And, I think this was where you was telling me get the —

RD: The horse ranch over here.

CSH: Yeah, that green metal —

RD: Yeah, this is the big Kīpapa River. But, if you look, get one more river over here.

CSH: Maybe it's this one.

RD: Yeah, that's small Kīpapa River. Small Kīpapa River go all the way back to the summit, too. Almost. Small Kīpapa River meet big Kīpapa River. I mean, you know the ridge, the thing meet together.

CSH: Oh. So, that's really far up then?

RD: Yeah. That's more towards the — the thing meet the Francis Brown — actually, the small Kīpapa Ridge.

CSH: And, then the lychee farm stay over here?

RD: Yeah, right here. So, I talking way back here. But, this part right here, that's more like the banana farm, more down in there.

CSH: Here's H-2?

RD: Yeah, so all down in here is the banana farm.

CSH: Now, what about — that's Kīpapa and then this one, what you always call this gulch over where you live? You know, you live way down here.

RD: Oh, Devil's Swamp.

CSH: Devil's Swamp?

RD: Yeah.

CSH: The whole thing?

RD: That one area where I told you we use to swim, the swimming hole, we use to call that one area Devil's Swamp.

CSH: Oh. But, Devil's Swamp was inside Paradise, yeah?

RD: Below Paradise.

CSH: Below Paradise?

RD: Yeah.

CSH: Oh. Okay, so Paradise was more up than Devil's Swamp?

RD: Yeah.

CSH: You remember where I told you the project area was?

RD: Yeah. From there —

CSH: You think that was called Devil's Swamp for you guys?

RD: No, was lower.

CSH: Was lower?

RD: Yeah, more down. Devil's Swamp is right where these apartments is right now, where get the park. We use to just go right there and then call that Devil's Swamp.

CSH: Do you know where that name came from?

RD: No. When I was a small boy, I move over here, they said, "Devil's Swamp. That's where we go swimming." That water was always crystal clear — not like it is today. Totally different. That whole place went change.

CSH: What about right down here? So, let's say Devil's Swamp is up here, Paradise is up there, what about more *makai*, like just right above, just *mauka* of H-2? Did that area have a name?

RD: I not too sure what the name was. 'Cuz yeah, you talking Devil's Swamp over here, yeah? Below the freeway, yeah?

CSH: Oh, that's Devil's Swamp?

RD: Yeah.

CSH: Oh. Below H-2?

RD: Below H-2. That's all Devil's Swamp. And, from here is where you talking about where they going build now.

CSH: That's where they building right now and then they going build this up on

the tableland, on the plateau land. And, then up here was Paradise.

RD: And, then this side, Kīpapa side, they was talking about building one big golf course in that valley, once the banana farmers get out of there. They said they not going renew the lease. That's what I heard. Whatever people live there, they going live there 'til the end of their life or whatever. They going leave them there and once that's it, that's it. Unless things change. They wanted to build one whole golf course in there. I think we get 'nough golf courses on this island already.

CSH: So, do you know anybody who actually hunts or use to hunt in this area?

RD: I have no idea. Most of the hunters I know, they hunt all in the back from Paradise up.

CSH: Oh, from Paradise *mauka*. And, they always have?

RD: Always have from all my life that I known, every hunter hunt up. 'Cuz everybody mostly hunt in the mountain. We never did fool around that lower part.

CSH: Besides those broken down houses and the bunkers, was there anything else in that area that you remember when you was growing up?

RD: Use to have the small dirt trucks going back and forth.

CSH: Dirt trucks?

RD: Dirt hauling trucks. Big red trucks. Tonka toys. We use to always run from them when we was small. They would be hauling dirt out of the valley, from in the back.

CSH: Military trucks?

RD: No. Just regular trucks.

CSH: Hauling dirt?

RD: Hauling dirt.

CSH: You don't know why?

RD: I don't know why. They just was taking dirt out of —

CSH: And, you guys would run away?

RD: Yeah. We run away when we see the truck.

CSH: You didn't want them to see you?

RD: Yeah. Just never like get into trouble.

CSH: So, when your father took you hunting, you guys would start round Paradise and then go up into the Ko`olaus?

RD: Yeah. From Paradise we go into the Ko`olaus. We would either hunt Francis Brown or either we would hunt East Range.

CSH: So, Francis Brown is this what, this area? Or bigger?

RD: Yeah. From where I took you on that road, you follow that ridge, I told you the border line, that border line ridge, to the right of the ridge is Francis Brown, to the left is East Range. So, we would just go straight in the back, we'd just cut down straight in the back and hunt the river. Hunt the river all day.

CSH: So, you just follow the river and look for signs?

RD: Follow the river and check all the pockets. Yeah. Look for sign[s].

CSH: Do you think your father had a unique way of hunting that was different from other people?

RD: You know, the hunters back before was really strict. They no allow you for talk, no noise. The hunting now is like more mellow. I'm more lenient. The dogs back then, fifty years ago, cannot compare to the dogs today. 'Cuz the pigs fifty years ago use to be all in the river. You know, never had so much hunters as today.

CSH: So, what do you mean the dogs cannot compare?

RD: The dogs fifty years ago, you know, everybody had good dogs back then, too. But, the pigs would be mostly in the river. They'd be digging in the river. So soon as you would drop down into the river, the river would be all digging already so the dogs would just run up the river and grab the pig right off the river banks. Today, hunting in 2001, the pigs ain't living in the river anymore. They live on the side of the mountain in the ferns, in the valleys. So, we gotta take the dogs way inside the pocket. You know, practically on top of the mountain before you find the pigs now. Hunting is way — to me, way harder than back then. You need way better dogs today than you did before.

CSH: So, what is the function of the dog? What does the dog do with the hunter? How do they work together?

RD: I don't know. Most of my dogs, I raise 'em all from puppy. Just like companion. I hardly even spank my dogs. I just talk to them. More or less the dog, he just goes out on his own. So I get like several dogs [and] they just become the leader. So, soon as all of a sudden, we start walking on the trail and we come across fresh pig tracks and these circling dogs, they just go out looking for the pig. And, then we get our grab dogs that stay by us. Once the dog bark at 'em, the rest of the dogs answer and they just grab a hold of the pig.

CSH: So, in the group of the dogs, get the leaders who go off and look for the pig and then get the ones — the grabbers — and they're the ones that hunt the pig?

RD: Right. Most hunters they get about maybe five or six dogs they hunt with. And, maybe most of 'em, maybe five or six or 'em would be looking for the pig and you might just get only one dog stay by your leg. The grabber.

CSH: But, you train 'em from young puppy time to do different things?

RD: Yeah. From puppy time we take 'em walking in the mountain, from like four months old. I just take them, I load them up in my truck just like I going hunting. I walk on the trail. Then, I would go down in the river and then they would be crying — they not used to the river swimming. And, I just would keep taking them until they get use to swimming in the river and then once they can handle on their own, then I start bringing them with the good dogs. And, then they just start following the dogs and that's how they learn. And, most of 'em is all bred, all blood line. Everybody get their own specific line that they like to use.

CSH: Oh, yeah? Tell me about that. I don't know anything about that.

RD: Like me, my dogs get whippet, I get some airedales, and I get some pit bull. And, some, they get like *poi* dog. They get rottweiler, pit bull.

CSH: So, every hunter has a different kind of —

RD: Every hunter has his own breed. Like some, they like to have special dog, like just their own breed. Like some hunters, they like airedale, pit bull, boxer, that's their breed. You cannot even give him one other dog from somebody else. He's like, "Oh, no, no. I gotta have my airedale-pit bull-boxer." Me, I get one funny gift with dogs. I can just look at one dog and I can more or less tell if he going be good. My old bunch I had before, about five years ago, half of those dogs came from people that just got rid of 'em. You know, hunters would take 'em hunting, they see like five, six pigs. They tell me, "Eh, Richard, this dog no grab. You like 'em?" So, I would take 'em. So, most of my dogs came from other hunters. They would just give 'em to me. But, I would look at the dog and I'd say, "You know what, I can train

this dog." So, I just keep taking 'em in the mountain and we'd walk up to the pigs and the dogs would chase 'em. The pig run away and try again next week. Pretty soon I know, two months later, those dogs that they threw away, catching me pig. So, same thing like people, you know. I hunt with a lot of kids. You can more or less tell which one going make it and which one not.

CSH: So, you told me on the phone that sometimes you start hunting over here and you keep going around the Ko`olaus until you get to Kahuku.

RD: Oh, yeah. Before, when we could access from Mililani, we use to start from Mililani and then we would just hunt from like Mililani side, like Waiāhole. Then, we'd come the next week and we'd go to like Francis Brown. Then, we would go to East Range. And, then we would go to Poamoho. And, then we would hunt like *`Ōkolehao*, where they call this place *Hāpai* South Flat, and then we'd hunt Lucky-7 River, then Spring Water Swamp, then we'd move down to like going towards Waialua side, above Hale`iwa. Then, we'd hunt one place like Karate Shack, Takeyama Left-Hand, Takeyama Right-Hand, the lake and then we'd hunt like Guava Flat, Small River, Big River, then we'd come to this place we call Number 8, then we'd hunt Number 8 Left-Hand, Number 8 Right-Hand, then we'd hunt Waimea, where get Waimea Falls in the Ko`olaus. Then, we'd eventually, couple months would go by and we would end up in Kahuku. And, then we'd just start our cycle all over again.

CSH: And, is that something you learned from your father?

RD: Yeah, I learned from my dad and I learned from hunting with Eric Guerrero.

CSH: So, how come they take that route?

RD: You know, I was taught not to hunt one place every week until no more pig. I was taught, you know, you catch one pig, eh, you go home already. If it's a small pig, like 50 pounds, maybe we continue. But, anything like 80 pounds, we go home already and we'd continue next week. That's what I was taught. I was taught that you hunt every week one different place, you know, we can catch every week. And, if you hunt one place and just keep hunting that place over and over, going run out of pig. You know, ain't going get nothing. Pig not going come back. I was taught that, you know, you let the place rest and two months later when you come back, the pigs right back in there again.

CSH: But, you don't think that kind of route from Waipi`o to Kahuku, there was some special thing about that route? How come you never go the other way or how come you never go to a different place other than —

RD: I don't know. That's just that one area that we use to hunt. Sometimes we

no go right back to where we started from. We might skip and go in the middle. But, always we would start from one end and we'd work our way right down 'til we end up in Kahuku.

CSH: So, you told me that the pig basically goes where the food is, which makes sense. So, what kind of things [do] you look for when you go hunting? Other than you look for a sign of pig, pig tracks.

RD: Yeah, like summertime get all the *waiawī*, the red cherry guavas. Then, right after the *waiawī*, the regular guavas start falling. And, in summertime, you get all the mountain apple. So, whenever get mountain apple, you start hunting wherever get mountain apple trees 'cuz that's where the pigs going be. Then, after that, you get the mountain apple and rosy apple almost the same time. So, that's what we try do. We follow the food chain. We pretty much know what mountain, what time of the month that the fruits going be ready and that's where we would go.

CSH: So, like right now — May, get *waiawī*, right?

RD: Oh, *waiawī* falling all over and then rosy apple is starting to fall.

CSH: Rose apples starting to fall? And, June, July get mountain apple?

RD: Mountain apple start falling. So, then from there you start hunting into Waiāhole, you know, 3-Puka, all the places that get all mountain apples, start hunting all those areas.

CSH: So you guys know where the stands of mountain apple get and where the stands of *waiawī* and where the stands of guava?

RD: Oh yeah.

CSH: So, what do they eat in the winter time?

RD: Oh, they start digging up the river bed. They eat the *hāpu`u*. They ruin the *hāpu`u* trees.

CSH: *Hāpu`u*?

RD: Yeah, the *hāpu`u* — the fern.

CSH: Yeah. So, they eat fern and they dig up wherever they can?

RD: They eat fern, yeah. They dig for worms, they eat all the ti leaf plants, too. They chew on the ti leaf plant.

CSH: So, you look for ti leaf, you look for *hāpu`u*, you look for anywhere going get

worms.

RD: Summertime is really good. But, once the food run out, then you get that one section of that so many months, like three months of just dead. So, it's really hard. You just really gotta try your best.

CSH: So, what do they do in that time?

RD: Oh, pigs get real skinny. I mean, we catch 'em where one pig should be hundred pounds and it's only like seventy pounds — skinny!. Just no food. So, they just like scavenging for worms or whatever they can find.

CSH: And, when is that around — like January?

RD: Yeah. Right around January or February.

CSH: That's when they get skinny?

RD: Yeah. 'Cuz right after summer and then we get that one — you know, we just come off that drought. Wintertime is the best hunting, when rain a lot.

CSH: From when to when?

RD: Like October. End of October, November, December. That's all good months for hunt.

CSH: How come it's good?

RD: There's lotta rain. They all fat, get food all over. That's all the fine time for hunt.

CSH: And, then January, February, March they get all skinny 'cuz no more food?

RD: Yeah, no more food. And May, June, July start getting all the rosy apple. Then, they start gaining weight again.

CSH: So, when do they reproduce?

RD: I think twice a year or three times a year.

CSH: Whenever they can?

RD: Yeah. I seen 'em where the babies is only twenty [or] thirty pounds and the sow pregnant again. You know, pig, they develop real fast. If you no hunt one area, in one area, if had like 50 pigs, in one year later, going get like 150. The pig just multiply. Every sow get six to eight babies.

CSH: So, you hunt with the knife, yeah?

RD: Only dog and knife.

CSH: So, what are the other kinds of hunting methods?

RD: Oh, plenty people like to hunt with gun, they block trail or lotta people hunt with bow now.

CSH: If you hunt with bow, you use dogs?

RD: No. No dogs. I guess, they more or less, they go and they sit down. I'm not a bow hunter. I don't have the patience to be sitting down on one trail for one pig walk by. But, there's a lot of hunters that do it.

CSH: And, what about gun? Do they do the same?

RD: Same thing. They go more or less, they find one steady trail the pig using and they watch across the ridges and they just block trail.

CSH: So, would you consider the knife method is more traditional?

RD: I guess so. That's all I knew, knife method. More safe. You know, less chance of accidents happening.

CSH: So, once your dog grab the pig, what you gotta do?

RD: The dog, they grab 'em, they hold 'em down. You know, you run over there and you just kill the pig right away so the pig no suffer.

CSH: You slice their neck?

RD: You just poke them right on the side of their ribs, right behind their front leg. Poke 'em in the heart and they die right away.

CSH: And, from there you carry the whole pig out or you clean 'em?

RD: Yeah, from there we gut the pig and we hang the guts on one tree, away from the river 'cuz we no like the thing falling in the water 'cuz people drink the river water and stuff. Or either we bury 'em. We dig a hole, we bury 'em up and then we carry the pig out.

CSH: And, you eat the meat?

RD: Yeah, we take the meat, we make smoke meat, we make sausage, [we] make boar stew.

CSH: Have you heard of any legends in this gulch?

RD: I don't know. Kīpapa Gulch get plenty legends, but I don't know about Devil's Swamp and Paradise. I never heard of anything.

CSH: What about burials? Have you ever heard of anyone finding a burial in there?

RD: No, not even that.

CSH: How about up on top here – this place? The pineapple fields. Was pineapple all the way to the edge of the gulch?

RD: All the way to the edge. Had one road going right around the gulch. One road going all the way around. That's the pineapple road, separating the pineapple from the gulch.

CSH: How big was that road?

RD: Like one regular standard road, one-lane road where the pineapple trucks would drive up and down or the pickers with the truck would go along the edge.

CSH: So, you said that hunters used to access these places from Mililani. Where you mean Mililani? You mean like Mililani *Mauka*?

RD: Behind Mililani *Mauka*.

CSH: Like up here?

RD: Yeah.

CSH: So, this is like the Francis Brown property. From there they use to access the gulches or from anywhere along –

RD: From anywhere, from more or less from Paradise from the lychee farm, either from the left or to the right of the lychee farm.

CSH: And, these areas are no longer accessible?

RD: Yeah. No longer accessible.

CSH: So, what are hunters doing now?

RD: Lot of 'em is either, they going early in the morning in vans or trucks without dog cages and dropping off or a lot of 'em are going behind the Tech[nological] Park where I took you. And, then they kinda park right next

to the water tank, along the border of Castle & Cooke and East Range property and, then, they access from that side to get back to the Ko`olaus.

CSH: How many hunters would you say actually go up into this area – Paradise?

RD: One handful. Maybe about five or six of us left that hunt back there.

CSH: What happened to the other ones?

RD: Most of 'em got old. Or most of the young generation that hunt just stopped hunting once we lost access.

CSH: So, access is a big problem?

RD: Big problem.

CSH: What have you done to prepare yourself for being a responsible hunter?

RD: Oh, we put collars on the dog with our name tag on 'em. Get my work phone number, my home phone number. And, I hunt with tracking collars. That's one radio device that the thing can pick up the dog three to seven miles. And, then I got me one insurance policy for $2,000,000 [two million dollars]. And, I totally do not hunt with gun to take away all the risk of anybody getting shot or anything happening. And, if I lose one dog, I stay there 'til 8:30 p.m. at night. And, the next morning, I'm back there at 6 a.m. looking for my dog.

CSH: How often does that happen?

RD: Sometimes every week you lose one dog and then take the dog two or three days to come out.

CSH: So, what does the dog do? They just go way too far?

RD: Either the dog just went chase the pig too far or the dog got cut up from the pig and he taking his time coming out. And, usually, if the dog no come out within one to two days, we walk back already. We walk back to where we last seen the dog and then we start using the tracking device. And, then once we beep the dog, then we try work our way to the dog. 'Cuz either the dog hurt or lost. We try for do that.

CSH: How often does the dog get hurt?

RD: I get dogs cut up every so many weeks, but not bad enough where we have to go look for them. They kinda walk themselves out.

CSH: So, almost every time you go, some dog will get cut up?

RD: Oh, yeah. If you catch one boar, some dog going get some nick. But, with those collars that we put on the neck, like six inches wide, eliminate the dog from getting cut in the jugular. I can say I haven't lost one dog hunting in the last couple or three years, I think. You know, my dogs are cut up bad enough but I still – I haven't lost any dog.

CSH: So, you're working with the younger generation now, teaching them how to hunt?

RD: Yeah, the younger kids.

CSH: And, how do they find you? They just heard about you from –

RD: Yeah, they hear about me from other kids that hunt with me. They just come to my house with one of the boys that hunt with me and they tell me, "Eh, my friend like hunt." And, then I tell him, "Eh, I give everybody one benefit of the doubt."

CSH: Even though you can tell if they going be one good hunter or not?

RD: Yeah, I can just look at 'em more or less and I can tell, "Oh man." I get some boys, they hunt with me for six years and everyday he whine. That's the nature of the boy. He just always whining. And, I get some boys, I cannot believe. Like the best boys that hunt with me come from Wai`anae. I always tell them, gotta be the water you drinking 'cuz they never complain. They always carry their pack bag, they always carry the pig.

CSH: Linda Gallano said plenty people from Wai`anae come and hunt over here. How come you think they all come from Wai`anae?

RD: 'Cuz [of] the access issue. Wai`anae get a lot of hunters and there's only so many places you can hunt in Wai`anae. So, they start coming out this side.

CSH: Do you think they do it for food?

RD: Mostly everybody do 'em for food. All the boys that hunt with me, I always taught them, no matter if the pig is 20 pounds, if only one dog went grab 'em, we take meat from 'em. And, if we can save the pig, sometimes we bring 'em home. And, then a lot of times we catch 'em and if the pig not that bad, we release 'em again. Or maybe we catch 'em next time when get bigger.

CSH: You mean if the pig is too small?

RD: Yeah. If the pig is too small and if only one dog grab 'em, more or less, somebody run over there and we pick up the pig. We look at 'em and maybe somebody wants it for raise 'em for food or something. So, we bring 'em out and then they raise 'em for like six months and they make *kalua* pig or

laulau or something. But, I always taught the boys, never waste the pig. Always thirty pounds, we always take meat. Whatever can. 'Cuz I told them, always get somebody that wants the meat, the neighbors, always somebody.

CSH: The thing with being a hunter or a fisherman or grow your own food, you can always give it away. So you remember any good hunting stories your dad told you?

RD: Oh, there's so many. You know, my dad, he used to always tell that when they used to go hunting they would catch like two pigs on Tuesday. They would go back Thursday, the same place and they would go like two bends more up the river and they would catch two more. Then, they would go Saturday and catch two more. He'd be always telling me about that the hunting back when he was young was way better than the hunting now.

CSH: Basically, there was more pigs?

RD: More pigs. Yeah, the pigs was easier to catch.

CSH: Now, do you think there are more hunters or less pigs? Or both?

RD: Now, certain areas starting to get a lot of pig because [of] the access issue. Now, nobody like give any access 'cuz of liability. The land owner no like get sued. And, then there's a lot of hunters now. The younger generation coming up today, they get one kinda attitude problem. Like they think that's their place, their mountain. You know what I mean? You see lot of – you know, I grew up hunting where you eat lunch, you take your rubbish home, your *`ōpala*. The hunters today, I don't know where they get this thing where they hanging bags on the trees and stuff. It's really sad. So, most of the boys hunt with me, I tell them, "Whatever you eat, gum wrappers, candy wrappers, hey, we bring 'em out." 'Cuz, you keep throwing rubbish, in ten years the mountain going look like the roads. Just rubbish all over. It's hard. After the younger generation, when they get older, then they kinda understand, but it's too late. Hunting is really a hard thing to do all in all. If you don't know any land owner or know somebody, it's really hard to hunt.

CSH: So, when your dad was hunting, they never have problem going anywhere?

RD: Oh, my dad use to hunt everywhere. He had no problem getting access. Hunting wasn't a – I mean, nobody would even be thinking about suing somebody. Today, it's like terrible.

CSH: So, would you say that access is the biggest problem, the biggest issue you have now?

RD: Yeah, access. That's the biggest issue. As soon as you approach the land

owner, it's like, "Oh, no. Somebody come on my property, they fall down get hurt, they sue me."

CSH: How often do you go hunting?

RD: Oh, I hunt twice a week, every Tuesday and Saturday.

CSH: Do you ever go alone?

RD: A lot of times I hunt by myself, but I be really careful. I no run to the pig, I walk. I really watch how I walk. And, I always tell my girlfriend or my mom where I going so they can let the boys who hunt with me, in case I no come out, [know] where I'm at.

CSH: Do you have any other stories you like share of hunting up in the mountains, the Ko`olaus.

RD: I don't know. The Ko`olaus is a nice place to be. I really enjoy being up there. When I was young, highschool, hunting was a big thing, like you gotta catch pig, put 'em on the truck, show off. Now, I'm 42 years old, I just enjoy being there. Just walking around in the mountains. Just being up there. It's really nice. I wish everybody could just enjoy the mountain as much as I do. It's just my time alone, no cars, no traffic lights, no noise, just peace and quiet. Just me and my dogs and the guys who I hunt with. Hunting with these kids, I have learned a lot. The kids today is like totally – they get all kine slangs and things. Half of the time, I don't even know what they saying. But, I just get one real good bond with them. I get really close to them where they can tell me things that they cannot even tell their own parents. So long as it's not about drugs or alcohol and things like that, I listen to them. I no even tell their parents. I know about their first girlfriends and things their parents don't know. I just really enjoy hunting with the younger kids.

CSH: What about your son? Do you hunt with your son?

RD: My son, he hunted for awhile, but he really didn't have that interest to hunt so I didn't want to force him. 'Cuz I see a lot of hunters, they force their son for hunt. And, once they come over age, they never hunt again. To me, if one boy wants to hunt, he going hunt. You know, I just thought my son, he 22 now. Maybe one day he going come around. He no like go hunting.

CSH: Thank-you very much Richard for sharing your *mana`o* with us.

RD: Thank-you for having me.

– END OF INTERVIEW –

RD: [addition] Everyone that is a regular hunter with me goes to the hunter education course and holds a legal Hawaii State hunting license.

APPENDIX IX

BOTANICAL SURVEY

BOTANICAL SURVEY
MILILANI MAUKA PHASE III

by

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May 2001

BOTANICAL SURVEY
MILILANI MAUKA PHASE III

INTRODUCTION

The 104.2-acre parcel was originally part of the Mililani Mauka Phase I development, on a site planned for a future university. Since then, the University of Hawai'i has decided to develop its West O'ahu campus at Kapolei. An amendment to the Development Plan Land Use Map is being proposed to allow the development of Mililani Phase III on the 104.2-acre site. Single family residences and apartment and/or townhouse units are proposed for the property.

The Mililani Mauka Phase III project site is bounded by the H-2 Freeway to the south, Waikakalaua Gulch to the west, developed lands to the north and east, and a small, unnamed gulch on the southeastern corner. The land is gently sloping and was formerly in pineapple cultivation, but is now overgrown. The lower end of the property bordering the freeway supports a construction staging area, tree farm, field offices, and warehouses.

Field studies to assess the botanical resources on the project site were conducted on 15 and 16 April 2001 by a team of two botanists. The primary objectives of the field survey were to:

1) provide a general description of the vegetation on the site;
2) inventory the flora;
3) search for threatened and endangered species as well as species of concern; and
4) identify areas of potential environmental problems or concerns and propose appropriate mitigation measures.

SURVEY METHODS

Prior to undertaking the field studies, a search was made of the pertinent literature to familiarize the principal investigator with other studies conducted in the general area. Topographic maps as well as a recent colored aerial photograph were examined to determine vegetation cover patterns, terrain characteristics, access, boundaries, and reference points.

A walk-through survey method was used. Notes were made on plant associations and distribution, disturbances, substrate types, drainage, exposure, topography, etc. Plant identifications were made in the field; plants which could not be positively identified were collected for later determination in the herbarium, and for comparison with the recent taxonomic literature. The survey focused on the undeveloped/unmaintained areas as rare, native plants were more likely to occur in such areas.

The species recorded are indicative of the season ("rainy" vs. "dry") and the environmental conditions at the time of the survey. A survey taken at a different time of the year and under varying environmental conditions would no doubt yield slight variations in the species list, especially of the weedy, annual plants.

DESCRIPTION OF THE VEGETATION

Mixed introduced scrub vegetation covers the undeveloped parts of the property. On the eastern half, the scrub vegetation is open with scattered trees and shrubs of Java plum (Syzygium cumini), koa haole (Leucaena leucocephala), Formosan koa (Acacia confusa), lantana (Lantana camara), albizia (Falcataria moluccana), etc.; most of the trees are 15 to 25 ft. tall. Solid mats of California grass (Brachiaria mutica) and clumps of Guinea grass (Panicum maximum), 3 to 6 ft. tall, form a dense cover between the woody

components. Smaller weedy species found here include Spanish clover (Desmodium incanum), owi (Stachytarpheta dichotoma), partridge pea (Chamaecrista nictitans), 'uhaloa (Waltheria indica), smooth rattlepod (Crotalaria indica), and Bidens alba var. radiata.

On the western half of the property, the woody components increase and provide 50 to 70% cover. Lantana shrubs, 10 to 12 ft. tall, form large thickets making surveying difficult. Java plum, dogtail (Buddleia asiatica), shoe button ardisia (Ardisia elliptica), and clidemia (Clidemia hirta) are locally abundant. Grass cover in some places consists of molasses grass (Melinis minutiflora) or Natal redtop (Melinis repens). Small, remnant patches of pineapple (Ananas comosus) can also be found. Signs of feral pig are frequently observed around the pineapple patches; the plants have been chewed on, the ground disturbed, and there are droppings here and there.

Where the property borders the steep slopes of Waikakalaua Gulch, the scrub vegetation consists of dense strawberry guava (Psidium cattleianum) and Christmas berry (Schinus terebinthifolius) thickets with scattered stands of Java plum and silk oak (Grevillea robusta) trees, 25 to 30 ft. tall. A few native species occur in this area. These include a few trees of koa (Acacia koa) and shrubs of 'a'ali'i (Dodonaea viscosa).

A list of all the plant species found on the undeveloped/unmaintained portion of the project site is found at the end of this report.

The lower end of the parcel, adjacent to the freeway, is largely maintained and landscaped. A tree farm in this area supports rows of ornamental species which include royal palm (Roystonea sp.),

Cook pine (Araucaria columnaris), travellers tree (Ravenala madagascariensis), Plumeria cultivars, orchid tree (Bauhinia hybrid), etc. Around the field offices and warehouses are plantings of Hibiscus cultivars, royal poinciana (Delonix regia), Eucalyptus sp., etc. No inventory of the plants was conducted for this developed section of the property.

DISCUSSION AND RECOMMENDATIONS

The 104.2-acre property is former pineapple land now overgrown with scrub vegetation composed almost exclusively of introduced species such as California grass, Guinea grass, Java plum, koa haole, lantana, etc. A few remnant patches of pineapple still occur on the site. Introduced species are all those plants which were brought to Hawai'i by humans, intentionally or accidentally, after Western contact, that is, Cook's arrival in the islands in 1778. The few native species tend to occur along the steeper slopes adjacent to Waikakalaua Gulch.

A total of 78 plant species were inventoried on the project site. Of these, 69 (89%) are introduced and nine (11%) are native. Of the native species, seven are indigenous, that is, they are native to Hawai'i and elsewhere, and two are endemic. The two endemic species are koa and 'iliahi alo'e (Santalum ellipticum); endemic species are native only to Hawai'i. None of the plants found during the field studies is a threatened and endangered species or a species of concern (U.S. Fish and Wildlife Service 1999; Wagner et al. 1999). All of the plants can be found in similar environmental habitats throughout the Hawaiian Islands.

Given the findings above, the proposed development of the project site is not expected to have a significant negative impact on the botanical resources. Generation of dust during construction may

be a problem because of the nearby residential units. It is recommended that areas cleared of vegetation be revegetated and landscaped as soon as possible to prevent excessive dust and soil loss.

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PLANT SPECIES LIST -- Mililani Mauka Phase III

The following checklist is an inventory of all the plant species observed on the undeveloped portion of the project site. The plant names are arranged alphabetically by families within each of three groups: Ferns and Fern Allies, Dicots, and Monocots. The taxonomy and nomenclature of the Ferns and Fern Allies follow Lamoureux (1988), while the flowering plants are in accordance with Wagner et al.(1990). The few recent name changes for the flowering plants, Dicots and Monocots, follow those reported in the Hawaii Biological Survey series (Evenhuis and Miller, 1995-1998; Evenhuis and Eldredge, 1999-2000).

For each species, the following information is provided:

1. Scientific name with author citation.
2. Common English and/or Hawaiian name(s), when known.
3. Biogeographic status. The following symbols are used:
   - E = endemic = native only to the Hawaiian Islands.
   - I = indigenous = native to the Hawaiian Islands and elsewhere.
   - I? = questionably indigenous = data not clear if dispersal to the islands by natural or human-related mechanisms, but weight of evidence suggests probably indigenous.
   - X = introduced or alien = all those plants brought to the Hawaiian Islands by humans, intentionally or accidentally, after Western contact, that is Cook's arrival in the islands in 1778.

Scientific name	Common name	Status
FERNS & FERN ALLIES		
NEPHROLEPIDACEAE (Swordfern family)		
Nephrolepis multiflora (Roxb.) Jarrett ex Morton	hairy swordfern, 'okupukupu	X
PSILOTACEAE (Whisk fern family)		
Psilotum nudum (L.) Beauv.	moa, moa nahele, pipi	I
FLOWERING PLANTS		
DICOTS		
ACANTHACEAE (Acanthus family)		
Asystasia gangetica (L.) T. Anderson	Chinese violet, coromandel	X
ANACARDIACEAE (Mango family)		
Schinus terebinthifolius Raddi	Christmas berry	X
ARALIACEAE (Ginseng family)		
Schefflera actinophylla (Endl.) Harms	octopus tree	X
ASTERACEAE (Daisy family)		
Ageratum conyzoides L.	maile hohono	X
Bidens alba var. radiata (Schultz-Bip.) Ballard ex Melchert		X
Conyza bonariensis (L.) Cronq.	hairy horseweed, ilioha	X
Crassocephalum crepidioides (Benth.) S. Moore		X
Emilia fosbergii Nicolson	flora's paintbrush, pualele	X
Pluchea carolinensis (Jacq.) G. Don	sourbush, pluchea	X
Pluchea indica (L.) Less.	Indian fleabane	X
Sonchus oleraceus L.	sowthistle, pualele	X
Spagneticola trilobata (L.) Pruski	wedelia	X
BIGNONIACEAE (Bignonia family)		
Spathodea campanulata P. Beauv.	African tulip tree	X
BORAGINACEAE (Borage family)		
Heliotropium procumbens var. depressum (Cham.) Fosb.		X
BUDDLEIACEAE (Butterfly bush family)		
Buddleia asiatica Lour.	dogtail, huelo 'ilio	X

Scientific name	Common name	Status
CARICACEAE (Papaya family)		
Carica papaya L.	papaya, mikana	X
CASUARINACEAE (She-oak family)		
Casuarina equisetifolia L.	ironwood, paina	X
CONVOLVULACEAE (Morning glory family)		
Ipomoea obscura (L.) Ker-Gawl.	field bindweed	X
Ipomoea ochracea (Lindl.) G. Don		X
Ipomoea triloba L.	little bell, pink bindweed	X
CUCURBITACEAE (Gourd family)		
Momordica charantia L.	wild bittermelon	X
EUPHORBIACEAE (Spurge family)		
Chamaesyce hypericifolia (L.) Millsp.	graceful spurge	X
Ricinus communis L.	castor bean, koli	X
FABACEAE (Pea family)		
Acacia confusa Merr.	Fomosan koa	X
Acacia koa A. Gray	koa	E
Chamaecrista nictitans (L.) Moench	partridge pea, lauki	X
Crotalaria pallida Aiton	smooth rattlepod, pikakani	X
Desmanthus pernambucanus (L.) Thellung	slender mimosa	X
Desmodium incanum DC	Spanish clover, ka'imi	X
Desmodium triflorum (L.) DC	three-flowered beggarweed	X
Falcataria moluccana (Miquel) Barneby	albizia	X
Indigofera hendecaphylla Jacq.	creeping indigo	X
Indigofera suffruticosa Mill.	indigo, 'iniko	X
Leucaena leucocephala (Lam.) de Wit	koa haole	X
Macroptilium latyroides (L.) Urb.	wild bean, cow pea	X
Mimosa pudica var. unijuga L.	sensitive plant, sleeping grass, puahilahila	X
Neonotonia wightii (Wight & Arn.) Lackey		X
Pithecellobium dulce (Roxb.) Benth.	'opiuma	X
Prosopis pallida (Humb. & Bonpl. ex Wiild.) Kunth	kiawe	X
MALVACEAE (Mallow family)		
Abutilon grandifolium (Willd.) Sweet	hairy abutilon, ma'o	X
Abutilon incanum (Link) Sweet	ma'o, hoary abutilon	I?
Sida ciliaris L.		X
Sida fallax Walp.	'ilima	I
Sida rhombifolia L.		X
MELASTOMATACEAE (Melastome family)		
Clidemia hirta (L.) D. Don	clidemia, Koster's curse	X

Scientific name	Common name	Status
MORACEAE (Mulberry family)		
Ficus microcarpa L.f.	Chinese banyan	X
MYRSINACEAE (Myrsine family)		
Ardisia elliptica Thunb.	shoe button ardisia	X
MYRTACEAE (Myrtle family)		
Eucalyptus deglupta Blume	kamarere, Mindanao gum	X
Psidium cattleianum Sabine	strawberry guava	X
Psidium guajava L.	common guava, kuawa	X
Syzygium cumini (L.) Skeels	Java plum	X
PITTOSPORACEAE (Pittosporum family)		
Pittosporum undulatum Venten.	Victorian box, orange pittosporum	X
PLANTAGINACEAE (Plantain family)		
Plantago lanceolata L.	narrow-leaved plantain	X
PROTEACEAE (Protea family)		
Grevillea robusta A. Cunn. ex R. Br.	silk oak, 'oka kilika	X
SANTALACEAE (Sandalwood family)		
Santalum ellipticum Gaud.	'iliahi alo'e	E
SAPINDACEAE (Soapberry family)		
Dodonaea viscosa Jacq.	'a'ali'i, 'a'ali'i ku makani	I
SOLANACEAE (Nightshade family)		
Solanum torvum Sw.		X
STERCULIACEAE (Cacao family)		
Waltheria indica L.	'uhaloa, hi'aloa, kanakaloa	I?
TILIACEAE (Linden family)		
Heliocarpus popayanensis Kunth	white moho	X
VERBENACEAE (Verbena family)		
Citharexylum caudatum L.	fiddlewood	X
Lantana camara L.	lantana, lakana	X
Stachytarpheta australis Moldenke	owi, oi	X
Stachytarpheta cayennensis (Rich.) VahT	nettle-leaved vervain, owi	X

Scientific name	Common name	Status
MONOCOTS		
BROMELIACEAE (Pineapple family)		
Ananas comosus (Stickm.) Merr.	pineapple	X
COMMELINACEAE (Spiderwort family)		
Commelina benghalensis L.	hairy honohono	X
POACEAE (Grass family)		
Brachiaria mutica (Forssk.) Stapf	California grass	X
Cenchrus echinatus L.	common sandbur, 'ume'alu	X
Cynodon dactylon (L.) Pers.	Bermuda grass, manienie	X
Digitaria insularis (L.) Mez. ex Ekman	sourgrass	X
Digitaria setigera Roth	kukaepua'a, itchy crabgrass	I?
Melinis minutiflora P. Beauv.	molasses grass	X
Melinis repens (Willd.) Zizka	Natal redtop, Natal grass	X
Panicum maximum Jacq.	Guinea grass	X
Paspalum scrobiculatum L.	ricegrass, mau'u laiki	I?
Pennisetum polystachion (L.) Schult.	feathery pennisetum	X
Themeda villosa (Poir.) A. Camus	Lyon's grass	X

APPENDIX X

AVIFAUNAL AND FERAL MAMMAL SURVEY

AVIFAUNAL AND FERAL MAMMAL SURVEY OF THE PROPOSED MILILANI MAUKA PHASE III PROJECT, OAHU

Prepared for:

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9 May 2001

INTRODUCTION

The purpose of this report is to present the findings of a two day (1,3, May 2001) field survey of TMK 9-5-49: Portion of 27 designated Mililani Mauka Phase III located at Mililani, Oahu (Fig. 1). Published and unpublished resources were also used to supplement the results of the field survey. The purposes of the survey were:

1- Document the species of birds and mammals currently on or near the site.

2- Investigate all habitats on the property.

3- Record any natural resources important to native and migratory birds.

GENERAL SITE DESCRIPTION

Figure One shows the location of the property. Residential lands adjoin the site. Waikakalaua Stream forms the north boundary. The topography is relatively flat except in the ravine formed by Waikakalaua Stream. The majority of the property is covered in grass with scattered trees. The area near the H-2 freeway is more open. Riparian habitat occurs along Waikakalaua Stream. Vegetation throughout the property is almost entirely second growth introduced species.

SURVEY METHODS

The survey was conducted on foot. All habitats were investigated. The area along Waikakalaua Stream was accessed from Wikao Road. Observations were taken in the morning and late afternoon when birds are most active. Tallies of all birds seen or heard were kept in order to obtain the relative abundance estimates given in Table One. Weather during the survey varied from light passing showers to partly cloudy. These conditions did not limit the collection of data. Scientific and common names used in this report follow Pyle (1997) and Honacki et al. (1982).

RESULTS AND DISCUSSION

Native Birds:

No native birds were recorded on the field survey. One native species that might occur in this area is the endangered Short-eared owl or Pueo (*Asio flammeus sandwichensis*). This bird is found on all of the main Hawaiian Islands but is listed by the State of Hawaii as endangered on Oahu. Pueo nest on the ground and forage over open fields and forests. The Oahu Amakihi (*Hemignathus chloris*) can also be seen foraging in this region (pers. obser.). They are a native forest bird and are not endangered or threatened. The Black-crowned Night Heron (*Nycticorax nycticorax)* can

often be found foraging along streams. This is the only native waterbird that is not listed as endangered. None were tallied on this survey but they probably do use Waikakalaua Stream.

Migratory Birds:

Two species of migrants were found on the survey: the Pacific Golden-Plover (*Pluvialis fulva*) and the Wandering Tattler (*Heteroscelus incanus*). Two plover were observed in the cleared area near H-2 Freeway. One tattler was seen foraging along Waikakalaua Stream. These birds are not endangered or threatened. The majority of the shorebirds have departed Hawaii for the breeding grounds in the arctic by the end of April. The two plover seen on this survey were not in breeding plumage and were probably young birds that will remain in Hawaii this summer and will not go to the arctic until next summer (Johnson et al. 1989, 2001). Plover prefer open habitat with bare ground or short grass. Tattler forage on the shoreline and along streams.

Introduced Birds:

Fifteen species of introduced birds were tallied on the survey. Table One lists these species and gives an estimate of their relative abundance in this area. None of these birds are threatened or endangered. The typical array of introduced birds known from central Oahu were found on this survey (Bruner 1992, Hawaii Audubon Society 1993).

Mammals:

Feral cats (*Felis catus*) and Small Indian Mongoose (*Herpestes auropunctatus*) were seen on the survey. Rats and mice were not encountered but likely are found at this site. The endangered Hawaiian Hoary Bat (*Lasiurus cinereus semotus*) was not observed. This species is rare on Oahu but fairly common on Kauai and the Big Island (Tomich 1986, Kepler and Scott 1990). The Hawaiian Hoary Bat forages in a wide variety of native and non-native habitats including urban areas. They generally roost solitarily in trees.

CONCLUSIONS

This survey found the typical array of introduced and migratory birds that normally occur in this region of the island. While no native birds were recorded there are potentially three species that could on occasion be found foraging in this area. Pueo prefer to nest in high grass and could breed at this location. Feral cats and mongoose are abundant on Oahu and were expected to occur on the survey.

The forested area adjoining Waikakalaua Stream had the highest concentrations of birds. The steep areas along the stream have experienced less disturbance than the rest of the property. This riparian habitat and stream could be used by Black-crowned Night Herons and Oahu Amakihi, both are native birds.

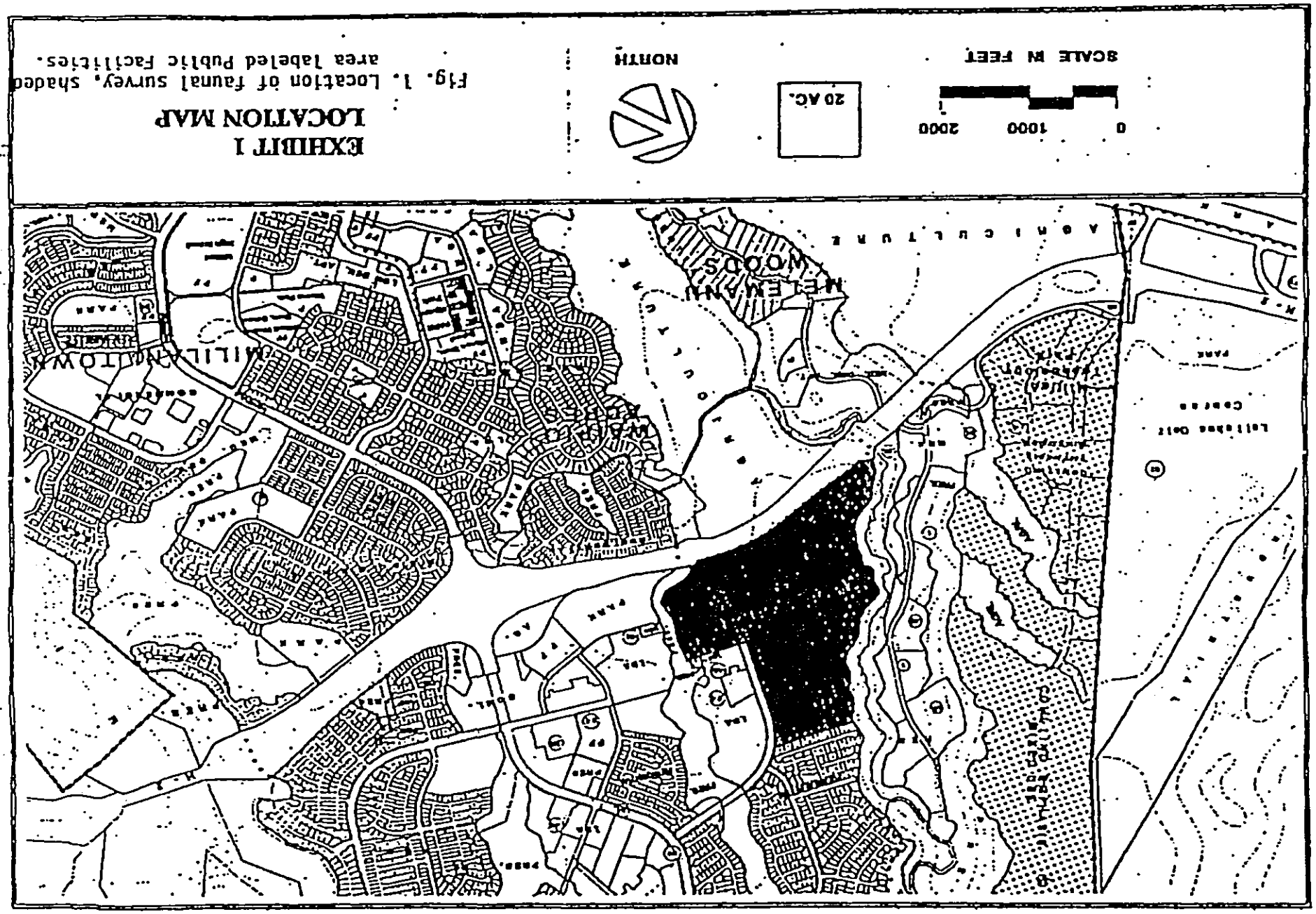

EXHIBIT 1
LOCATION MAP

Fig. 1. Location of faunal survey, shaded area labeled Public Facilities.

Introduced birds recorded at the Mililani Mauka Phase III project site. Relative Abundance estimates are based on the following scale: Abundant = 25+; Common =15-24; Uncommon = 5-14; Rare = less than 5 tallied for the entire survey period. Data from both days of the survey were averaged to obtain the relative abundance estimate number.

Common Name	Scientific Name	Relative Abundance
Cattle egret	*Bubulcus ibis*	R
Spotted Dove	*Streptopelia chinensis*	A
Zebra Dove	*Geopelia striata*	A
Sky Lark	*Alauda arvensis*	U
Red-vented Bulbul	*Pycnonotus cafer*	A
Japanese Bush-warbler	*Cettia diphone*	U
Northern Mockingbird	*Mimus polyglottos*	R
Common Myna	*Acridotheres tristis*	A
Japanese White-eye	*Zosterops japonicus*	A
Northern Cardinal	*Cardinalis cardinalis*	C
Red-crested Cardinal	*Paroaria coronata*	C
House Finch	*Carpodacus mexicanus*	A
Common Waxbill	*Estrilda astrild*	A
Nutmeg Mannikin	*Lonchura punctulata*	C
Java Sparrow	*Padda oryzivora*	C

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APPENDIX XI

GUIDELINES FOR SUSTAINABLE BUILDING DESIGN

State of Hawaii

OFFICE OF ENVIRONMENTAL QUALITY CONTROL

Guidelines for Sustainable Building Design in Hawai`i

A planner's checklist

(Adopted by the Environmental Council on October 13, 1999)

Introduction

Hawai'i law calls for efforts to conserve natural resources, promote efficient use of water and energy and encourage recycling of waste products. Planning a project from the very beginning to include sustainable design concepts can be a critical step toward meeting these goals.

The purpose of the state's environmental review law (HRS Ch. 343) is to encourage a full, accurate and complete analysis of proposed actions, promote public participation and support enlightened decision making by public officials. The Office of Environmental Quality Control offers the following guidelines for preparers of environmental reviews under the authority of HRS 343 to assist agencies and applicants in meeting these goals.

These guidelines do not constitute rules or law. They have been refined by staff and peer review to provide a checklist of items that will help the design team create projects that will have a minimal impact on Hawai`i's environment and make wise use of our natural resources. In a word, projects that are *sustainable*.

A sustainable building is built to minimize energy use, expense, waste, and impact on the environment. It seeks to improve the region's sustainability by meeting the needs of Hawai`i's residents and visitors today without compromising the needs of future generations. Compared to conventional projects, a resource-efficient building project will:

I. Use less energy for operation and maintenance

II. Contain less *embodied* energy (e.g. locally produced building products often contain less *embodied* energy than imported products because they require less energy-consuming transportation.)

III. Protect the environment by preserving/conserving water and other natural resources and by minimizing impact on the site and ecosystems

IV. Minimize health risks to those who construct, maintain, and occupy the building

V. Minimize construction waste

VI. Recycle and reuse generated construction wastes

VII. Use resource-efficient building materials (e.g. materials with recycled content and low embodied energy, and materials that are recyclable, renewable, environmentally benign, non-toxic, low VOC (Volatile Organic Compound) emitting, durable, and that give high life cycle value for the cost.)

VIII. Provide the highest quality product practical at competitive (affordable) first and life cycle costs.

In order to avoid excessive overlapping of items, the checklist is designed to be read in totality, not just as individual sections. This checklist tries to address a range of project types, large scale as well as small scale. Please use items that are appropriate to the type and scale of the project.

Although this list will help promote careful and sensitive planning, mere compliance with this checklist does not confirm sustainability. Compliance with and knowledge of current building codes by users of this checklist is also required.

TABLE OF CONTENTS

LEGEND

Y = YES

N = NO

NA = NOT APPLICABLE

I. Pre Design

_N_ 1. Hold programming team meeting with client representative, Project Manager, planning consultant, architectural consultant, civil engineer, mechanical, electrical, plumbing (MEP) engineer, structural engineer, landscape architect, interior designer, sustainability consultant and other consultants as required by the project. Identify project and sustainability goals. Client representatives and consultants need to work together to ensure that project and environmental goals are met.

_N_ 2. Develop sustainable guideline goals to insert into outline specifications as part of the Schematic Design documents. Select goals from the following sections that are appropriate for the project.

_N_ 3. Use Cost-Benefit Method for economic analysis of the sustainability measures chosen. (Cost-Benefit Method is a method of evaluating project choices and investments by comparing the present and life cycle value of expected benefits to the present and life cycle value of expected costs.)

NA 4. Include "Commissioning" in the project budget and schedule. (Building "Commissioning" is the process of ensuring that systems are designed, installed, functionally tested, and capable of being operated and maintained in accordance with specifications that meet the owner's needs, and recognize the owner's financial and operational capacity. It improves the performance of the building systems, resulting in energy efficiency and conservation, improved air quality and lower operation costs. *Refer to Section IX.*)

II. Site Selection & Site Design

A. Site Selection

_Y_ 1. Analyze and assess site characteristics such as vegetation, topography, geology, climate, natural access, solar orientation patterns, water and drainage, and existing utility and transportation infrastructure to determine the appropriate use of the site.

_Y_ 2. Whenever possible, select a site in a neighborhood where the project can have a positive social, economic and/or environmental impact.

_Y_ 3. Select a site with short connections to existing municipal infrastructure (sewer lines, water, waste water treatment plant, roads, gas, electricity, telephone, data communication lines and services). Select a site close to mass transportation, bicycle routes and pedestrian access.

B. Site Preparation and Design

_Y_ 1. Prepare a thorough existing conditions topographic site plan depicting

topography, natural and built features, vegetation, location of site utilities and include solar information, rainfall data and direction of prevailing winds. Preserve existing resources and natural features to enhance the design and add aesthetic, economic and practical value. Design to minimize the environmental impact of the development on vegetation and topography.

_Y_ 2. Site building(s) to take advantage of natural features and maximize their beneficial effects. Provide for solar access, daylighting and natural cooling. Design ways to integrate the building(s) with the site that maximizes and preserves positive site characteristics, enhances human comfort, safety and health, and achieves operational efficiencies.

_N_ 3. Locate building(s) to encourage bicycle and pedestrian access and pedestrian oriented uses. Provide bicycle and pedestrian paths, bicycle racks, etc. Racks should be visible and accessible to promote and encourage bicycle commuting.

_Y_ 4. Retain existing topsoil and maintain soil health by clearing only the areas reserved for the construction of streets, driveways, parking areas, and building foundations. Replant exposed soil areas as soon as possible. Reuse excavated soils for fill and cut vegetation for mulch.

_Y_ 5. Grade slopes to a ratio of less than 2 : 1 (run to rise). Balance cut and fill to eliminate hauling. Check grading frequently to prevent accidental over excavation.

_Y_ 6. Minimize the disruption of site drainage patterns. Provide erosion and dust controls, positive site drainage, and siltation basins as required to protect the site during and after construction, especially, in the event of a major storm.

_Y_ 7. Minimize the area required for the building footprint. Consolidate utility and infrastructure in common corridors to minimize site degradation, and cost, improve efficiency, and reduce impermeable surfaces.

_Y_ 8. For termite protection, use non toxic alternatives to pesticides and herbicides, such as Borate treated lumber, Basaltic Termite Barrier, stainless steel termite barrier mesh, and termite resistant materials. *Builder uses primarily steel framing for structural members.*

III. Building Design

NA 1. Consider adaptive re-use of existing structures instead of demolishing and/or constructing a new building. Consult the State Historic Preservation Officer for possible existing historic sites that may meet the project needs.

_Y_ 2. Plan for high flexibility while designing building shell and interior spaces to accommodate changing needs of the occupants, and thereby extend the life span of the building. *Builder offers bonus room options on numerous plans. Hallways/circulation areas are kept to a minimum, and wherever possible, multi-use*

spaces are added to these areas.

_N_ 3. Design for re-use and/or disassembly. (For recyclable and reusable building products, see Section VII).

_N_ 4. Design space for recycling and waste diversion opportunities during occupancy.

NA 5. Provide facilities for bicycle and pedestrian commuters (showers, lockers, bike racks, etc.) in commercial areas and other suitable locations.

NA 6. Plan for a comfortable and healthy work environment. Include inviting outdoor spaces, wherever possible. *(Refer to Section VIII.)*

_Y_ 7. Provide an Integrated Pest Management approach. The use of products such as Termi-mesh, Basaltic Termite Barrier and the Sentricon "bait" system can provide long term protection from termite damage and reduce environmental pollution.

_N_ 8. Design a building that is energy efficient and resource efficient. *(See Sections IV, V, VII.)* Determine building operation by-products such as heat gain and build up, waste/gray-water and energy consumption, and plan to minimize them or find alternate uses for them.

_N_ 9. For natural cooling, use:

- Reflective or light colored roofing, radiant barrier and/or insulation, roof vents
- Light colored paving (concrete) and building surfaces
- Tree Planting to shade buildings and paved areas
- Building orientation and design that captures trade winds and/or provides for convective cooling of interior spaces when there is no wind.

IV. Energy Use

_N_ 1. Obtain a copy of the State of Hawai'i Model Energy Code (available through the Hawai'i State Energy Division, at Tel. 587-3811). Exceed its requirements. (Contact local utility companies for information on tax credits and utility-sponsored programs offering rebates and incentives to businesses for installing qualifying energy efficient technologies.)

_N_ 2. Use site sensitive orientation to:

a. Minimize cooling loads through site shading and carefully planned east-west orientation.

b. Incorporate natural ventilation by channeling trade winds.

c. Maximize daylighting.

_N_ 3. Design south, east and west shading devices to minimize solar heat gain.

_N_ 4. Use spectrally selective tints or spectrally selective low-e glazing with a Solar Heat Gain Coefficient (SHGC) of 0.4 or less.

_N_ 5. Minimize effects of thermal bridging in walls, roofs and window systems.

_N_ 6. Maximize efficiencies for lighting, Heating, Ventilation, Air Conditioning (HVAC) systems and other equipment. Use insulation and/or radiant barriers, natural ventilation, ceiling fans and shading to avoid the use of air conditioning whenever appropriate.

NA 7. Eliminate hot water in restrooms when possible.

NA 8. Provide tenant sub-metering to encourage utility use accountability.

_N_ 9. Use renewable energy. Use solar water heaters and consider the use of photovoltaics and Building Integrated Photovoltaics (BIPV).

_N_ 10. Use available energy resources such as waste heat recovery, when feasible.

A. Lighting

_N_ 1. Design for at least 15% lower interior lighting power allowance than the Energy Code.

_N_ 2. Select lamps and ballasts with the highest efficiency, compatible with the desired level of illumination and color rendering specifications. Examples that combine improved color rendering with efficient energy use include compact flourescents and T8 flourescents that use tri-phosphor gases.

_N_ 3. Select lighting fixtures which maximize system efficacy and which have heat removal capabilities

_N_ 4. Reduce light absorption on surfaces by selecting colors and finishes that provide high reflectance values without glare.

_N_ 5. Use task lighting with low ambient light levels.

_N_ 6. Maximize daylighting through the use of vertical fenestration, light shelves, skylights, clerestories, building form and orientation as well as through translucent or transparent interior partitions. Coordinate daylighting with electrical lighting for maximum electrical efficiency.

_N_ 7. Incorporate daylighting controls and/or motion activated light controls in low or intermittent use areas.

NA 8. Avoid light spillage in exterior lighting by using directional fixtures.

NA 9. Minimize light overlap in exterior lighting schemes.

_N_ 10. Use lumen maintenance procedures and controls.

B. Mechanical Systems

_N_ 1. Design to comply with the Energy Code and to exceed its efficiency requirements.

_N_ 2. Use "Smart Building" monitor/control systems when appropriate.

_Y_ 3. Utilize thermal storage for reduction of peak energy usage.

NA 4. Use Variable air volume systems to save fan power.

_N_ 5. Use variable speed drives on pumping systems and fans for cooling towers and air handlers.

_N_ 6. Use air-cooled refrigeration equipment or use cooling towers designed to reduce drift.

_N_ 7. Specify premium efficiency motors.

NA 8. Reduce the need for mechanical ventilation by reducing sources of indoor air pollution. Use high efficiency air filters and ultraviolet lamps in air handling units. Provide for regular maintenance of filtration systems. Use ASHRAE standards as minimum.

NA 9. Locate fresh air intakes away from polluted or overheated areas. Locate on roof where possible. Separate air intake from air exhausts by at least 40 ft.

NA 10. Use separate HVAC systems to serve areas that operate on widely differing schedules and/or design conditions.

NA 11. Use shut off or set back controls on HVAC system when areas are not occupied.

_N_ 12. Use condenser heat, waste heat or solar energy. (Contact local utility companies for information on the utility-sponsored Commercial and Industrial Energy Efficiency Programs which offer incentives to businesses for installing qualifying energy efficient technologies.)

_N_ 13. Evaluate plug-in loads for energy efficiency and power saving features.

_N_ 14. Improve comfort and save energy by reducing the relative humidity by waste reheat, heat pipes or solar heat.

_N_ 15. Minimize heat gain from equipment and appliances by using:

"

a. Environmental Protection Agency (EPA) Energy Star rated appliances.

b. Hoods and exhaust fans to remove heat from concentrated sources.

c. High performance water heating that exceeds the Energy Code requirements.

_N_ 16. Specify HVAC system "commissioning" period to reduce occupant exposure to Indoor Air Quality (IAQ) contaminants and to maximize system efficiency.

V. Water Use

A. Building Water

_Y_ 1. Install water conserving, low flow fixtures as required by the Uniform Plumbing Code.

NA 2. If practical, eliminate hot water in restrooms.

_N_ 3. Use self closing faucets (infrared sensors or spring loaded faucets) for lavatories and sinks.

B. Landscaping and Irrigation

(See Section VI.)

VI. Landscape and Irrigation

_Y_ 1. Incorporate water efficient landscaping (xeriscaping) using the following principles:

a. Planning, Efficient irrigation: Create watering zones for different conditions. Separate vegetation types by watering requirements. Install moisture sensors to prevent operation of the irrigation system in the rain or if the soil has adequate moisture. Use appropriate sprinkler heads.

b. Soil analysis/improvement: Use (locally made) soil amendments and compost for plant nourishment, improved water absorption and holding capacity.

c. Appropriate plant selection: Use drought tolerant and/or slow growing hardy grasses, native and indigenous plants, shrubs, ground covers,

trees, appropriate for local conditions, to minimize the need for irrigation.

d. Practical turf areas: Turf only in areas where it provides functional benefits.

e. Mulches: Use mulches to minimize evaporation, reduce weed growth and retard erosion.

Contact the local Board of Water Supply for additional information on xeriscaping such as efficient irrigation, soil improvements, mulching, lists of low water-demand plants, tours of xeriscaped facilities, and xeriscape classes.

_Y_ 2. Protect existing beneficial site features and save trees to prevent erosion. Establish and carefully mark tree protection areas well before construction.

_Y_ 3. Limit staging areas and prevent unnecessary grading of the site to protect existing, especially native, vegetation.

_Y_ 4. Use top soil from the graded areas, stockpiled on the site and protected with a silt fence to reduce the need for imported top soil.

_N_ 5. Irrigate with non-potable water or reclaimed water when feasible. Collect rainwater from the roof for irrigation.

_N_ 6. Sub-meter the irrigation system to reduce water consumption and consequently water and sewer fees. Contact the local county agency to obtain irrigation sub-metering requirements and procedures. Locate irrigation controls within sight of the irrigated areas to verify that the system is operating properly.

_Y_ 7. Use pervious paving instead of concrete or asphalt paving. Use natural and man-made berms, hills and swales to control water runoff.

_Y_ 8. Avoid the use of solvents that contain or leach out pollutants that can contaminate the water resources and runoff. Contact the State of Hawai`i Clean Water Branch at 586-4309 to determine whether a NPDES (National Pollutant Discharge Elimination System) permit is required.

_N_ 9. Use Integrated Pest Management (IPM) techniques. IPM involves a carefully managed use of biological and chemical pest control tactics. It emphasizes minimizing the use of pesticides and maximizing the use of natural process

_Y_ 10. Use trees and bushes that are felled at the building site (i.e. mulch, fence posts). Leave grass trimmings on the lawn to reduce green waste and enhance the natural health of lawns.

_Y_ 11. Use recycled content, decay and weather resistant landscape materials such as plastic lumber for planters, benches and decks.

VII. Building Materials & Solid Waste Management

A. Material Selection and Design

_Y_1. Use durable products.

_Y_2. Specify and use natural products or products with low embodied energy and/or high recycled content. Products with recycled content include steel, concrete with glass, drywall, carpet, etc. Use ground recycled concrete, graded glass cullet or asphalt as base or fill material.

_N_3. Specify low toxic or non-toxic materials whenever possible, such as low VOC (Volatile Organic Compounds) paints, sealers and adhesives and low or formaldehyde-free materials. Do not use products with CFCs (Chloro-fluoro-carbons).

_N_4. Use locally produced products such as plastic lumber, insulation, hydro-mulch, glass tiles, compost.

_Y_5. Use advanced framing systems that reduce waste, two stud corners, engineered structural products and prefabricated panel systems.

_N_6. Use materials which require limited or no application of finishing or surface preparation. (i.e. finished concrete floor surface, glass block and glazing materials, concrete block masonry, etc.).

_N_7. Use re-milled salvaged lumber where appropriate and as available. Avoid the use of old growth timber.

_N_8. Use sustainably harvested timber.

_N_9. Commit to a material selection program that emphasizes efficient and environmentally sensitive use of building materials, and that uses locally available building materials. (A list of Earth friendly products and materials is available through the Green House Hawai`i Project. Call Clean Hawai`i Center, Tel. 587-3802 for the list.)

B. Solid Waste Management, Recycling and Diversion Plan

_N_1. Prepare a job-site recycling plan and post it at the job-site office.

_N_2. Conduct pre-construction waste minimization and recycling training for employees and sub-contractors.

_N_3. Use a central area for all cutting.

_N_4. Establish a dedicated waste separation/diversion area. Include Waste/Compost/Recycling collection areas and systems for use during construction

process and during the operational life cycle of the building.

_N_ 5. Separate and divert all unused or waste cardboard, ferrous scrap, construction materials and fixtures for recycling and/or forwarding to a salvage exchange facility. Information on "Minimizing C&D (construction and demolition) waste in Hawai`i" is available through Department of Health, Office of Solid Waste Management, Tel. 586-4240.

_N_ 6. Use all green waste, untreated wood and clean drywall on site as soil amendments or divert to offsite recycling facilities.

NA 7. Use concrete and asphalt rubble on-site or forward the material for offsite recycling.

_N_ 8. Carefully manage and control waste solvents, paints, sealants, and their used containers. Separate these materials from C&D (construction and demolition) waste and store and dispose them of them carefully.

_N_ 9. Donate unused paint, solvents, sealants to non-profit organizations or list on HIMEX (Hawai`i Materials Exchange). HIMEX is a free service operated by Maui Recycling Group, that offers an alternative to landfill disposal of usable materials, and facilitates no-cost trades. See web site, www.himex.org.

NA10. Use suppliers that re-use or recycle packaging material whenever possible.

VIII. Indoor Air Quality

_NA1. Design an HVAC system with adequate supply of outdoor air, good ventilation rates, even air distribution, sufficient exhaust ventilation and appropriate air cleaners.

_NA2. Develop and specify Indoor Air Quality (IAQ) requirements during design and contract document phases of the project. Monitor compliance in order to minimize or contain IAQ contaminant sources during construction, renovation and remodeling.

_NA3. Notify occupants of any type of construction, renovation and remodeling and the effects on IAQ.

NA 4. Inspect existing buildings to determine if asbestos and lead paint are present and arrange for removal or abatement as needed.

NA5. Supply workers with, and ensure the use of VOC (Volatile Organic Compounds)-safe masks where required.

_N_ 6. Ensure that HVAC systems are installed, operated and maintained in a manner consistent with their design. Use UV lamps in Air Handling Units to eliminate mold and mildew growth. An improperly functioning HVAC system can harbor biological

contaminants such as viruses, bacteria, molds, fungi and pollen, and can cause Sick Building Syndrome (SBS).

NA 7. Install separate exhaust fans in rooms where air polluting office equipment is used, and exhaust directly to the exterior of the building, at sufficient distance from the air intake vents.

NA 8. Place bird guards over air intakes to prevent pollution of shafts and HVAC ducts.

_N_ 9. Control indoor air pollution by selecting products and finishes that are low or non-toxic and low VOC emitting. Common sources of indoor chemical contaminants are adhesives, carpeting, upholstery, manufactured wood products, copy machines, pesticides and cleaning agents.

_Y_10. Schedule finish application work to minimize absorption of VOCs into surrounding materials e.g. allow sufficient time for paint and clear finishes to dry before installing carpet and upholstered furniture. Increase ventilation rates during periods of increased pollution.

NA11. Allow a flush-out period after construction, renovation, remodeling or pesticide application to minimize occupant exposure to chemicals and contaminants.

IX. Commissioning & Construction Project Closeout

_N_ 1. Appoint a Commissioning Authority to develop and implement a commissioning plan and a preventative maintenance plan. Project Manager's responsibilities must include coordination of commissioning activities during project closeout.

_N_ 2. Commissioning team should successfully demonstrate all systems and perform operator training before final acceptance.

_N_ 3. Provide flush-out period to remove air borne contaminants from the building and systems.

_Y_ 4. Provide as-built drawings and documentation for all systems. Provide data on equipment maintenance and their control strategies as well as maintenance and cleaning instructions for finish materials. *Builder provides homeowner with a Homeowner's Guide.*

X. Occupancy and Operation

A. General Objectives

_Y_ 1. Develop a User's Manual for building occupants that emphasizes the need for Owner/Management commitment to efficient sustainable operations.

NA_ 2. Management's responsibilities must include ensuring that sustainability policies are carried out.

B. Energy

_N_ 1. Purchase EPA rated, Energy Star, energy-efficient office equipment, appliances, computers, and copiers. (Energy Star is a program sponsored by U.S. Dep. Of Energy. Use of these products will contribute to reduced energy costs for buildings and reduce air pollution.)

NA_ 2. Institute an employee education program about the efficient use of building systems and appliances, occupants impact on and responsibility for water use, energy use, waste generation, waste recycling programs, etc.

NA_ 3. Re-commission systems and update performance documentation periodically per recommendations of the Commissioning Authority, or whenever modifications are made to the systems.

C. Water

NA_ 1. Start the watering cycle in the early morning in order to minimize evaporation.

NA_ 2. Manage the chemical treatment of cooling tower water to reduce water consumption.

D. Air

_Y_ 1. Provide incentives which encourage building occupants to use alternatives to and to reduce the use of single occupancy vehicles.

NA_ 2. Provide a location map of services within walking distance of the place of employment (child care, restaurants, gyms, shopping).

NA 3. Periodically monitor or check for indoor pollutants in building.

NA 4. Provide an IAQ plan for tenants, staff and management that establishes policies and documentation procedures for controlling and reporting indoor air pollution. This helps tenants and staff understand their responsibility to protect the air quality of the facility.

E. Materials and Products

NA 1. Purchase business products with recycled content such as paper, toners, etc.

NA 2. Purchase Furniture made with sustainably harvested wood, or with recycled

and recycled content materials, which will not off gas VOC's.

NA 3. Remodeling and painting should comply with or improve on original sustainable design intent.

NA 4. Use low VOC, non-toxic, phosphate and chlorine free, biodegradable cleaning products.

F. Solid Waste

NA 1. Collect recyclable business waste such as paper, cardboard boxes, and soda cans.

NA 2. Avoid single use items such as paper or Styrofoam cups and plates, and plastic utensils.

XI. Resources

Financing: Energy Efficiency in Buildings. U.S. Department of Energy, DOE/EE-0152, May, 1998 (Call Tel.1-800-DOE-EREC or visit local office)

Building Commissioning: The Key to Quality Assurance. U.S. Department of Energy, DOE/EE-0153, May, 1998 (Call Tel.1-800-DOE-EREC or visit local office)

Guide to Resource-Efficient Building in Hawaii. University of Hawai`i at Manoa, School of Architecture and Energy, Resources and Technology Division, Department of Business, Economic Development and Tourism, October 1998. (Call Tel. 587-3804 for publication)

Hawaii Model Energy Code. Energy, Resources and Technology Division, Department of Business, Economic Development and Tourism, November 1997 (Call Tel. 587-3810 for publication)

Photovoltaics in the Built Environment: A Design Guide for Architects and Engineers. NREL Publications, DOE/GO #10097-436, September 1997 (Call Tel.1-800-DOE-EREC or visit local office)

Building Integrated Photovoltaics: A Case Study. NREL Publications #TP-472-7574, March 1995 (Call Tel.1-800-DOE-EREC or visit local office)

Solar Electric Applications: An overview of Today's Applications. NREL Publications, DOE/GO #10097-357, Revised February, 1997 (Call Tel.1-800-DOE-EREC or visit local office)

Green Lights: An Enlightened Approach to Energy Efficiency and Pollution Prevention. U.S. Environmental Protection Agency, Pacific Island Contact Office (Call Tel. 541-2710 for publication.)

Healthy Lawn, Healthy Environment. U.S. Environmental Protection Agency, Pacific Island Contact Office. (Call Tel. 541-2710 for this and related publications)

How to Plant a Native Hawaiian Garden. Office of Environmental Quality Control (OEQC), Department of Health, State of Hawai'i (Call Tel. 586-4185 for publication)

Buy Recycled in Hawai'i. Clean Hawai'i Center, Energy, Resources and Technology Division, Department of Business, Economic Development and Tourism, November 1997. (Call Tel. 587-3802 for publication)

Hawai'i Recycling Industry Guide and other recycling and reuse related fact sheets. Clean Hawai'i Center, Energy, Resources and Technology Division, Department of Business, Economic Development and Tourism, July 1999. (Call Tel. 587-3802 for publication)

Minimizing Construction and Demolition Waste. Office of Solid Waste Management, Department of Health and Clean Hawai'i Center, Energy, Resources and Technology Division, Department of Business, Economic Development and Tourism, February 1998. (Call Tel. 586-4240 for publication)

Contractor's Waste Management Guide and Construction and demolition Waste Management Facilities Directory. Clean Hawai'i Center, Energy, Resources and Technology Division, Department of Business, Economic Development and Tourism, 1999. (Call Tel. 587-3802 for publication)

Waste Management and Action: Construction Industry. Department of Health, Solid and Hazardous Waste Branch (Call Tel. 586-7496 for publication)

Business Guide For reducing Solid Waste. U.S. Environmental Protection Agency. Pacific Island Contact Office, Tel. 541-2710 (Call for publication.)

The Inside Story: A Guide to Indoor Air Quality. U.S. Environmental Protection Agency, Pacific Island Contact Office, Tel. 541-2710 (Call for this and related publications.) Additional information is available from the American Lung Association, Hawai'i, Tel. 537-5966

Selecting Healthier Flooring Materials. American Lung Association and Clean Hawai'i Center, February 1999. (Call Tel. 537-5966 x307)

Office Paper Recycling: An Implementation Manual. U.S. Environmental Protection Agency, Pacific Island Contact Office, Tel. 541-2710 (Call for publication.)

Acknowledgments

OEQC and the Environmental Council would like to thank Allison Beale, Gary Gill, Nick H. Huddleston, Gail Suzuki-Jones, Purnima McCutcheon, Virginia B. MacDonald, Steve Meder, Ramona Mullahey, Thomas P. Papandrew, Victor Olgay, Howard Tanaka, and Howard Wiig for their assistance with this project.

APPENDIX XII

AGENCY AND PUBLIC COMMENTS

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4414 • FAX: (808) 527-6743 • INTERNET: www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

RANDALL K. FUJIKI, AIA
DIRECTOR

LORETTA K.C CHEE
DEPUTY DIRECTOR

2001/CO-1(ET)

March 22, 2001

Mr. Keith Kurahashi
Kusao & Kurahashi, Inc.
Manoa Market Place
2752 Woodlawn Drive, Suite 5-202
Honolulu, Hawaii 96822

Dear Mr. Kurahashi:

Draft Environmental Assessment for Mililani Mauka Phase III,
Tax Map Key: 9-5-49: Portion of parcel 27, 2001/CO-1, Mililani, Oahu, Hawaii

We have reviewed the Draft Environmental Assessment for Mililani Mauka Phase III and offer the following comments:

- Section I and V of the DEA states that the site is currently in the AG-1 Restricted Agricultural District. However, Appendix IV, Summary Sheet, states that the present zoning is AG-2 General Agricultural District. Our records indicate that the site is in the AG-1 District. Therefore, the summary sheet should be corrected.

- The applicant mentions that, although the project involves 826 new dwellings, only 143 additional dwellings above the 6,600 already approved under prior Mililani Mauka zone changes will be realized. This is confusing since it is not thoroughly explained by the applicant. If there is "unused housing capacity" from prior zone changes, the applicant should clearly describe it (where is the unused housing from, and why was, so called, approved housing capacity underutilized).

- Section V D. 2. should be expanded to include discussion on how the proposal is consistent with the policies, principals, and guidelines of the proposed Central Oahu Sustainable Communities Plan.

- Section VI D. 1. uses estimated traffic counts from the January 1989 Roadway Master Plan. The Final Environmental Assessment (FEA) should clarify how the 1989 Roadway estimates would still be applicable today.

This section should be expanded to include a discussion of potential regional impacts and mitigative measures, including; for key screenlines:

- The existing and proposed highway, transit, and high occupancy vehicle (HOV) capacity for peak hour commuting;
- The existing and projected level of demand in person trips and vehicle trips; and
- The existing and projected level of service for vehicles traveling on the highway, for high occupancy vehicles, and for transit vehicle.

- Section VI D. 4. should be expanded to provided a discussion on flood plain management. A statement of on the adequacy of the existing gullies to sustain a 100-year frequency discharge should be provided.
- Section VI D. 6. states that three (2-elementary and 1-middle) schools in Mililani Mauka provide more than enough capacity for all of Mililani Mauka. But, yet in the last paragraph of the section a statement is made that the DOE is trying to resolve a potential overcrowding problem at the Mililani Middle School. The FEA should clarify these statements.
- Revised sewer master plan reflecting the proposed residential use will be required by the department.

Attached are copies of comments the department received as of March 16, 2001. A list of commentators is attached. Any additional comments received after the transmittal of this letter will be transmitted at a later date.

Should you have any questions, you may contact Eugene Takahashi of our staff at 527-6022.

Sincerely yours,

RANDALL K. FUJIKI, AIA
Director of Planning & Permitting

RKF:mo
g:dlu/general/ipd/dplum/01co1dea.wpd
Attachements

Draft Environmental Comments

AGENCY	DATE
United States Department of the Army	March 9, 2001
State Department of Business, Economic Development & Tourism	
• Land Use Commission	March 14, 2001
State Department of Land and Natural Resources	
• Commission on Water Resource Management	February 22, 2001
• Historic Preservation Division	February 8, 2001
State Office of Environmental Quality Control	February 7, 2001
State Department of Transportation	March 8, 2001
University of Hawaii	
• Environmental Center	March 10, 2001
• Senior Vice President for Administration	March 7, 2001
Honolulu Fire Department	February 20, 2001
Honolulu Police Department	March 5, 2001
Board of Water Supply	February 21, 2001
PUBLIC	
Mililani Mauka/Launani Valley Neighborhood Board	March 7, 2001
Sierra Club, Hawaii Chapter	March 8, 2001
Laura Brown	March 8, 2001
Jeanette Nekota	March 7, 2001
Maryanne Selander	March 11, 2001

KUSAO & KURAHASHI, INC.
Planning and Zoning Consultants
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FAX. (808) 988-1140
E-Mail: kurahashi1@cs.com

June 8, 2001

Mr. Randall K. Fujiki, Director
Department of Planning and Permitting
City and County of Honolulu
650 So. King Street, 7th Floor
Honolulu, Hawaii 96813

Attention: Mr. Eugene Takahashi

Dear Mr. Fujiki:

Subject: Draft Environmental Assessment, DPP File No. 2001/CO-1 Mililani Mauka Phase III Development Plan Land Use Map Amendment form Public Facilities to Residential and Low-Density Apartment, Mililani Mauka, TMK 9-5-49: Por. 27

Thank you for your response, dated March 22, 2001, on our Draft Environmental Assessment (Draft EA) and the proposed Development Plan Land Use Map Amendment for Mililani Mauka Phase III.

In response to your comments:

1. Appendix IV of the Draft EA, Summary Sheet, will be revised to reflect that the zoning for the project site is the AG-1 Restricted Agricultural District.

2. The "unused housing capacity" occurred for the following reasons:

   a. The multi-family sites of MF-108, 109, 110, 111, 112, 113, and 114 were originally planned for townhouse units at about 15 units per acre. Due to the decrease in market demand for attached units, these sites were developed as affordable single-family detached units that

are typically at about 8 units per acre. However, these sites remained A-1 Low Density Apartment District zoned.

b. As we build further up in Mililani Mauka, our densities have decreased due to the steeper site conditions.

Thus, our actual build out is less than the original preliminary estimate of 6,600 units.

3. Section V, D.2. will be expanded to include discussion on how the proposal is consistent with the policies, principals and guidelines of the proposed Central Oahu Sustainable Communities Plan.

4. Section VI, D.1. of the Final EA will be revised to explain the applicability of using estimated traffic counts from the January 1989 Roadway Master Plan.

This section will be expanded to include a discussion on:

a. The existing and proposed highway, transit, and high occupancy vehicle (HOV) capacity for peak hour commuting;

b. The existing and projected level of demand in person trips and vehicle trips; and

c. The existing and projected level of service for vehicles traveling on the highway, for high occupancy vehicles, and for transit vehicles.

5. Section VI, D.4. will be expanded to provide a discussion of the drainage master plan that was approved for Mililani Mauka Development by the City and County of Honolulu in 1989.

6. Based on the applicant's discussion with staff at the Department of Education (DOE) and DOE's presentation at the March 20, 2001 meeting of the Mililani Mauka/Launani Valley No. 35 Neighborhood Board, the

schools in the area will be able to handle the increase in enrollment projected from the proposed Mililani Mauka Phase III development (based on current projections). Section VI, D.6. will be revised to reflect these latest statements from the Department of Education.

7. A revised sewer master plan reflecting the proposed residential use will be submitted to your department for review and approval.

We will respond to the comments on the Draft EA that you have transmitted to us. We will also respond to other comments on the Draft EA received prior to our completion of the Final EA.

Your letter dated March 22, 2001 and this response will be included in the Final EA for the project.

Very truly yours,

Keith Kurahashi

cc: Castle & Cooke Homes Hawaii, Inc.

DEPARTMENT OF THE ARMY
HEADQUARTERS, UNITED STATES ARMY GARRISON, HAWAII
SCHOFIELD BARRACKS, HAWAII 96857-5000

March 9, 2001

REPLY TO
ATTENTION OF:

Office of the Garrison Commander

'01 MAR 13 PM 1 02
DEPT OF PLANNING
and PERMITTING
CITY & COUNTY OF HONOLULU

Mr. Randall Fujiki, AIA, Director
Department of Planning and Permitting
City & County of Honolulu
650 S. King Street, 7th Floor
Honolulu, Hawaii 96813
(ATTN: *Mr. Eugene Takahashi*)

Dear Mr. Fujiki:

Please accept this letter as a partial comment on the environmental assessment of the proposal to build over eight hundred (800) residential homes in Mililani Mauka entitled "Development Plan Land Use Map Amendment and Environmental Assessment from Public Facilities to Residential and Low Density Apartment for Mililani Mauka, Phase III." The Army has continually supported the growth of our neighboring community in Mililani. However, we are concerned about this proposal as it purports to build new residential housing units within close proximity to our East Range Training Area and Wheeler Army Airfield.

Building houses close to a Military Training Area and Army Airfield has consequences, most notably that those houses will be affected by noise that comes from both the training area and airfield. Naturally there could be a disruption to homeowners. Consequently, we advise that each and all respective transfers of any form of interest in these respective properties in this area include a disclosure statement that this property is in close proximity to a military training area and army airfield and homeowners or lease holders should expect noise to come from the Military Training Area and Army Airfield. We also request that the appropriate city and state agencies ensure that Castle & Cooke addresses the impacts of building these homes in the vicinity of the East Range Training Area and Wheeler Army Airfield.

We look forward to the continued growth of our neighboring community in Mililani.

Sincerely,

Wm R. Buttmann Jr.

William R. Buttmann
Colonel, U.S. Army
Commanding Officer

KUSAO & KURAHASHI, INC.
Planning and Zoning Consultants
MANOA MARKET PLACE
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BUS. (808) 988-2231
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E-Mail: kurahashi1@cs.com

June 8, 2001

Colonel William R. Puttmann
U.S. Army Commanding Officer
Headquarters, United States Army Garrison, Hawaii
Schofield Barracks, Hawaii 96857-5000

Dear Colonel Puttmann:

Subject: Draft Environmental Assessment, DPP File No. 2001/CO-1 Mililani Mauka Phase III Development Plan Land Use Map Amendment form Public Facilities to Residential and Low-Density Apartment, Mililani Mauka, TMK 9-5-49: Por. 27

Thank you for your response, dated March 9, 2001, to the Department of Planning and Permitting on our Draft Environmental Assessment (Draft EA) and the proposed Development Plan Land Use Map Amendment for Mililani Mauka Phase III.

We appreciate your continued support of the Mililani Community. The proposed Mililani Mauka Phase III development is situated about 4,000 feet from the East Range Training area and we do not expect a significant impact on the residents of Phase III from East Range activities. However, as we have in the past, we will continue to provide a disclosure statement that this property is in close proximity to a military training area and army airfield and that homeowners or lease holders should expect noise to come from the Military Training Area and Army Airfield.

Your letter dated March 9, 2001 and this response will be included in the Final EA for the project.

Very truly yours,

Keith Kurahashi

Keith Kurahashi

cc: Castle & Cooke Homes Hawaii, Inc.

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM
LAND USE COMMISSION
P.O. Box 2359
Honolulu, HI 96804-2359
Telephone: 808-587-3822
Fax: 808-587-3827

'01 MAR 16 AM 7 54
DEPT OF PLANNING and PERMITTING
CITY & COUNTY OF HONOLULU

March 14, 2001

Mr. Randall K. Fujiki, AIA
Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Attn: Mr. Eugene Takahashi

Dear Mr. Fujiki:

Subject: DRAFT ENVIRONMENT ASSESSMENT REVIEW
Development Plan Land Use Map Amendment (2001/CO-1)
Applicant: Castle and Cooke Homes, Inc.
TMK No.: 9-5-049: portion of 027

We have reviewed the Draft Environmental Assessment ("DEA") for the Development Plan Land Use Map Amendment from public facilities to residential and low density apartment for Mililani Mauka Phase III at Mililani, Oahu, Hawaii.

Upon review of the DEA for the subject amendment, we have the following comments:

1. The subject area appears to be located in the State Land Use Urban District as described in the DEA.

2. We would like to point out that the subject area was reclassified under LUC Docket No. A87-609/Mililani Town, Inc. (Increment I) from the Agricultural to Urban District pursuant to the Commission's Decision and Order issued on May 17, 1988. The proposed uses were for residential, commercial, school, church, park, recreational, and open space uses.

   The Decision and Order required the appointment and funding for a transportation manager whose function shall be the formation, use and continuation or alternative transportation opportunities that would maximize the use of existing and proposed

transportation systems. It is our understanding that the Leeward Oahu Transportation Management Association ("LOTMA") had been formed to this end and that Castle and Cooke Homes Hawaii, Inc. is a participating member of LOTMA. We recommend that the Final Environmental Assessment ("FEA") include this requirement and identify the impact that LOTMA may have on the proposed project's traffic impact analysis.

3. We recommend that the FEA include a discussion of impacts to cultural resources in regard to native Hawaiian and traditional gathering and/or access rights and practices.

We have no further comments to offer at this time. We appreciate the opportunity to review and comment on the DEA for the subject amendment.

If you have questions regarding this matter, please contact me or Russell Kumabe of our office at 587-3822.

Sincerely,

BERT SARUWATARI
Acting Executive Officer

c: Office of Planning

KUSAO & KURAHASHI, INC.
Planning and Zoning Consultants
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E-Mail: kurahashi1@cs.com

June 8, 2001

Mr. Bert Saruwatari
Acting Executive Director
Land Use Commission
Department of Business, Economic Development & Tourism
State of Hawaii
P.O. Box 2359
Honolulu, Hawaii 96804-2359

Attention: Mr. Russell Kumabe

Dear Mr. Saruwatari:

Subject: Draft Environmental Assessment, DPP File No. 2001/CO-1 Mililani Mauka Phase III Development Plan Land Use Map Amendment form Public Facilities to Residential and Low-Density Apartment, Mililani Mauka, TMK 9-5-49: Por. 27

Thank you for your response, dated March 14, 2001, to the Department of Planning and Permitting on our Draft Environmental Assessment (Draft EA) and the proposed Development Plan Land Use Map Amendment for Mililani Mauka Phase III.

In response to your comments:

1. We appreciate your concurrence that the project site is in the State Land Use Urban District.

2. The Final EA will include a discussion of Castle and Cooke Homes Hawaii, Inc. involvement as a member of the Leeward Oahu Transportation Management Association (LOTMA) and the impact that LOTMA may have on the project's traffic assessment.

3. We have contracted with Cultural Surveys Hawaii to do a cultural impact analysis which will include a discussion of native Hawaiian and traditional gathering practices in the area and will be included in the Final EA.

Your letter dated March 14, 2001 and this response will be included in the Final EA for the project.

Very truly yours,

Keith Kurahashi

Keith Kurahashi

cc: Castle & Cooke Homes Hawaii, Inc.

2001/CWOG-859

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

'01 FEB 28 AM 10 24
DEPT OF PLANNING
and PERMITTING
CITY & COUNTY OF HONOLULU

GILBERT S. COLOMA-AGARAN
CHAIRPERSON

BRUCE S. ANDERSON
ROBERT G. GIRALD
BRIAN C. NISHIDA
DAVID A. NOBRIGA
HERBERT M. RICHARDS, JR.

LINNEL T. NISHIOKA
DEPUTY DIRECTOR

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

February 22, 2001

Ref:Mililani mauka iii.dr

TO: Mr. Randall Fujiki, AIA Director
Attn: Mr. Eugene Takahashi

FROM: Linnel T. Nishioka, Deputy Director
Commission on Water Resource Management

SUBJECT: Draft Environmental Assessment for the Proposed Mililani Mauka Phase III Development Plan Land Use Map Amendment from Public Facilities to Residential and Low Density Apartment

Thank you for the opportunity to review the subject document. Our comments related to water resources are marked below.

In general, the CWRM strongly promotes the efficient use of our water resources through conservation measures and use of alternative non-potable water resources whenever available, feasible, and there are no harmful effects to the ecosystem. Also, the CWRM encourages the protection of water recharge areas, which are important for the maintenance of streams and the replenishment of aquifers.

[X] We recommend coordination with the county government to incorporate this project.into the county's Water Use and Development Plan.

[ ] We recommend coordination with the Land Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.

[ ] We are concerned about the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

[X] A Well Construction Permit and/or a Pump Installation Permit from the Commission would be required before ground water is developed as a source of supply for the project.

[X] The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit from the Commission would be required prior to use of this source.

[ ] Groundwater withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.

[ ] We are concerned about the potential for degradation of instream uses from development on highly erodible slopes adjacent to streams within or near the project. We recommend that approvals for this project be conditioned upon a review by the corresponding county's Building Department and the developer's acceptance of any resulting requirements related to erosion control.

[ ] If the proposed project includes construction of a stream diversion, the project may require a stream diversion works permit and amend the instream flow standard for the affected stream(s).

[X] If the proposed project alters the bed and banks of a stream channel, the project may require a stream channel alteration permit.

[X] OTHER:

The report indicates that water will be supplied through the Board of Water Supply (BWS) system. Should additional allocation from the Commission be necessary, the BWS has a bulk allocation in the Waipahu-Waiawa Aquifer that may be assigned to municipal wells.

If there are any questions, please contact Lenore Nakama at 587-0218.

c. Office of Environmental Quality Control
Kusao & Kurahashi

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E-Mail: kurahashi1@cs.com

February 2, 2001

01 FEB 15 P2:54

To Whom It May Concern:

Subject: Draft Environmental Assessment for the Proposed Mililani Mauka Phase III Development Plan Land Use Map Amendment from Public Facilities to Residential and Low Density Apartment - Tax Map Key: 9-5-49: Portion of 27 - DPP File No. 2001/CO-1

As agent for the applicant, Castle and Cooke Homes Hawaii, Inc., we are requesting your review and comment on the enclosed Development Plan Land Use Map Amendment and Draft Environmental Assessment application currently being processed by the Department of Planning and Permitting (DPP).

Castle & Cooke Homes Hawaii, Inc. proposes to redesignate approximately 104.2 acres of land in Mililani Mauka from Public Facilities to Residential and Low Density Apartment. The 104.2 acre Phase III development site was originally part of the Mililani Mauka Phase I development, on a site previously planned for a future university (University of Hawaii, West Oahu Campus). The applicant has been informed by the University of Hawaii (UH) that they plan to develop the UH West Oahu Campus at Kapolei and therefore, would no longer need the Mililani site.

Notice of the Draft Environmental Assessment for the proposed Mililani Mauka Phase III Development Plan Land Use Map Amendment will be published in the February 8, 2001 OEQC Bulletin and the public comment deadline will be March 10, 2001.

Please send your comments by March 10, 2001 to:

Mr. Randall Fujiki, AIA, Director
Department of Planning and Permitting
City and County of Honolulu
650 S. King Street, 7th Floor
Honolulu, Hawaii 96813
Attn: Mr. Eugene Takahashi

A copy of your comments to the Office of Environmental Quality Control (OEQC) at 235 S. Beretania Street, Suite 702, Honolulu 96813, and also to Kusao & Kurahashi, Inc. at the above address would be most appreciated.

In the meantime, should you have questions, please do not hesitate to call us at 988-2231.

Very truly yours,

Keith Kurahashi

Keith Kurahashi

cc: Castle & Cooke Homes Hawaii, Inc.
Department of Planning and Permitting

KUSAO & KURAHASHI, INC.
Planning and Zoning Consultants
MANOA MARKET PLACE
2752 WOODLAWN DRIVE, SUITE 5-202
HONOLULU, HAWAII 96822

BUS. (808) 988-2231
FAX. (808) 988-1140
E-Mail: kurahashi1@cs.com

June 8, 2001

Mr. Lionel T. Nishioka, Deputy Director
Commission on Water Resource Management
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Attention: Ms. Lenore Nakama

Dear Mr. Nishioka:

Subject: Draft Environmental Assessment, DPP File No. 2001/CO-1
Mililani Mauka Phase III Development Plan Land Use Map Amendment form Public Facilities to Residential and Low-Density Apartment, Mililani Mauka, TMK 9-5-49: Por. 27

Thank you for your response, dated February 22, 2001, to the Department of Planning and Permitting on our Draft Environmental Assessment (Draft EA) and the proposed Development Plan Land Use Map Amendment for Mililani Mauka Phase III.

In response to your comments:

1. The applicant will coordinate with the Board of Water Supply to incorporate the project into the County Water Use and Development Plan.

2. An application for a Well Construction Permit and Pump Installation Permit will be submitted to the Commission on Water Resource Management, if required.

3. An application for Water Use Permit will be submitted by the Board of Water Supply on behalf of the applicant.

4. Preliminary review indicate no alteration of the bed and banks of the stream is anticipated.

5. The applicant will coordinate with the Board of Water Supply for an allocation from the "Bulk Allocation" in the Waipahu-Waiawa Aquifer System.

Your letter dated February 22, 2001 and this response will be included in the Final EA for the project.

Very truly yours,

Keith Kurahashi

Keith Kurahashi

cc: Castle & Cooke Homes Hawaii, Inc.

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

GILBERT S. COLOMA-AGARAN, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES
JANET E. KAWELO
LINNEL NISHIOKA

'01 FEB 15 PM 1 47

DEPT OF PLANNING and PERMITTING
CITY & COUNTY OF HONOLULU

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
HISTORIC PRESERVATION DIVISION
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND
STATE PARKS

February 8, 2001

Randall K. Fujiki, Director
Department of Planning and Permitting
City & County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

LOG NO: 26949
DOC NO: 0102EJ02

Dear Mr. Fujiki:

SUBJECT: Chapter 6E-42 Historic Preservation Review – Draft Environmental Assessment for the Proposed Mililani Mauka Phase III Development Plan Land Use Map Amendment from Public Facilities to Residential and Low Density Apartment (DPP File No. 2001/CO-1
Waipio, `Ewa, O`ahu
TMK: 9-5-049: por. 27

Thank you for the opportunity to comment on the DEA for the Proposed Mililani Mauka Phase III development. 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 project areas.

A review of our records shows that there are no known historic sites at this location. This action is located in an area that was commercially cultivated with pineapple, which altered the land for many years. The depth of cultivation exceeds the expected depth of historic sites in the area, based on site patterns in similar environmental contexts. Because it is unlikely that any other significant historic sites will be found in the area, we believe that this action will have "no effect' on any historic sites.

Should you have any questions, please feel free to call Sara Collins at 692-8026 or Elaine Jourdane at 692-8027.

Aloha,

Don Hibbard, Administrator
State Historic Preservation Division

EJ:jk

c: OEQC 235 S. Beretania Street, Suite 702, Honolulu, HI 96813
Keith Kurahashi, Kusao & Kurahashi, Inc. 2752 Woodlawn Drive, Suite 5-202, Honolulu, HI 96822

KUSAO & KURAHASHI, INC.
Planning and Zoning Consultants
MANOA MARKET PLACE
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June 8, 2001

Mr. Don Hibbard, Administrator
State Historic Preservation Division
Department of Land and Natural Resources
State of Hawaii
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

Attention: Ms. Sara Collins and Elaine Jourdane

Dear Mr. Hibbard:

Subject: **Draft Environmental Assessment, DPP File No. 2001/CO-1 Mililani Mauka Phase III Development Plan Land Use Map Amendment form Public Facilities to Residential and Low-Density Apartment, Mililani Mauka, TMK 9-5-49: Por. 27**

Thank you for your response, dated February 8, 2001, to the Department of Planning and Permitting on our Draft Environmental Assessment (Draft EA) and the proposed Development Plan Land Use Map Amendment for Mililani Mauka Phase III.

We appreciate your review of our Draft EA and determination that it is unlikely that any other significant historic sites will be found in the area, and your belief that this action will have "no effect" on any historic sites.

Your letter dated February 8, 2001 and this response will be included in the Final EA for the project.

Very truly yours,

Keith Kurahashi

Keith Kurahashi

cc: Castle & Cooke Homes Hawaii, Inc.

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
FACSIMILE (808) 586-4186

February 7, 2001

Randall Fujiki, Acting Director
Department of Planning and Permitting
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

Attn: Eugene Takahashi

Dear Mr. Fujiki:

Subject: Draft Environmental Assessment (EA) for **Mililani Mauka Phase III**

We have the following comments to offer:

Impacts: Section VII, *Environmental Impacts*, is summarized from the 1987 final EIS on Mililani Mauka. Fourteen years have passed since this description and analysis. In the final EA provide updated analyses for the various factors. In particular provide a full description of the following:

A. Water: Potable water wells in Mililani have been known to harbor contaminants. What is the current status and what are the projected uses for potable water sources in this area? Consult the Commission on Water Resources Management of DLNR, the Safe Drinking Water Branch of DOH and the Board of Water Supply on this issue.

B. Traffic: Although the traffic impact assessment report (TIAR) in the draft EA concludes that impacts would be less than previously expected, anecdotal information indicates very bad traffic congestion during peak periods. What mitigation measures do you propose to alleviate additional congestion during these periods. Consult with the CCH Department of Transportation Services and the state Department of Transportation on this issue.

C. Historic and archeological resources: Although the State Historic Preservation Division concurred with the "no effect" determination of the 1985 archeological consultation report, this concurrence needs to be reconfirmed with the State Historic Preservation Officer. Be sure to include this documentation in the final EA.

In addition to the above provide an updated analysis for the factors of cultural impacts (see below), noise, air quality, water resources, drainage, and flora and fauna.

Cumulative Impacts:

The environmental impact statement law requires that full disclosure of cumulative impacts be made on all geographically-related projects. Section IIIB of the draft EA, *Surrounding Uses*, mentions area development that has occurred in the interim, including: Laulani Valley, Pacific Islanders, I'i Vistas and MF 107 A/B, Olaloa and a 6-acre park & ride facility.

A proposed 1248-acre development is currently before the Land Use Commission for a change in zoning, Koa Ridge Makai & Mauka, also by Castle & Cooke Homes. Up to 7500 residential units and a medical park are planned at full build-out.

A discussion and analysis of the cumulative impacts of these projects should include the factors of drainage, traffic, population shifts, visual elements, and potable water use.

Contacts: A. EA Distribution: To your draft EA distribution list please add: 2 copies to the Department of Health (1 to EPO, 1 to SDWB); and 1 copy to the Commission on Water Resources Management of DLNR.

B. Correspondence: In the final EA enclose copies of all correspondence with those consulted during both the pre-consultation phase and during the comment period for this project. Also in Appendix V, *Notice Requirements*, indicate the effective date of the "Certification of Compliance with Notice Requirements" and enclose a list of adjacent property owners notified.

Significance criteria:

Include a discussion of findings and reasons, according to the significance criteria listed in HAR 11-200-12, that supports your forthcoming determination, either Finding of No Significant Impact (FONSI) or EIS preparation notice.

Sustainable Building Design:

Please consider applying sustainable building techniques presented in the "Guidelines for Sustainable Building Design in Hawaii." In the final EA include a description of any of the techniques you will implement. Contact our office for a paper copy or go to our homepage at http://www.state.hi.us/health/oeqc/guidance/sustainable.htm

Cultural impacts assessment:

Act 50 was passed by the Legislature in April of 2000. This mandates an assessment of impacts to local cultural practices by the proposed project. In the final EA include such an assessment. For assistance in the preparation refer to our *Guidelines for Assessing Cultural Impacts*. Contact our office for a paper copy or go to our homepage at *http://www.state.hi.us/health/oeqc/index.html.* You will also find the text of Act 50 linked to this section of our homepage.

Visual impacts:

Include drawings or renderings of the proposed buildings and any proposed landscaping that show the final appearance of the project.

Figures: In the final EA, Appendix III, enclose a clear copy of the Water Distribution System Map. In Appendix VI indicate the date the aerial photo was taken.

If you have any questions call Nancy Heinrich at 586-4185.

Sincerely,

GENEVIEVE SALMONSON
Director

c: Keith Kurahashi
Allan Arakawa, Castle & Cooke Homes

KUSAO & KURAHASHI, INC.
Planning and Zoning Consultants
MANOA MARKET PLACE
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June 8, 2001

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

Attention: Ms. Nancy Heinrich

Dear Ms. Salmonson:

Subject: Draft Environmental Assessment, DPP File No. 2001/CO-1 Mililani Mauka Phase III Development Plan Land Use Map Amendment form Public Facilities to Residential and Low-Density Apartment, Mililani Mauka, TMK 9-5-49: Por. 27

Thank you for your response, dated February 7, 2001, to the Department of Planning and Permitting on our Draft Environmental Assessment (Draft EA) and the proposed Development Plan Land Use Map Amendment for Mililani Mauka Phase III.

In response to your comments:

1. Potable Water to the project site will be provided from existing Mililani Wells 1, 2, 3, 4, 5, 6, 9, 10, and 11. Water from Mililani Wells 1, 2, 3, 4, 5, and 6 is treated by the granular activated carbon system to remove volatile organic chemicals prior to distribution. The presence of volatile organic chemicals has not been reported in water from Mililani Wells 9, 10, and 11. With regard to the availability of water in the Waipahu-Wahiawa Aquifer System, the Commission on Water Resource Management adopted a sustainable yield of 104 mgd for this system. The present water use permit allocation totals 82.501 mgd, resulting in a balance of 21.499 mgd. Mililani Mauka Phase III will have a demand of 0.383 mgd which would require just a small fraction the available balance.

The Commission on Water Resource Management of the Department of Land and Natural Resources, the Safe Drinking Water Branch of the Department of Health, and the Board of Water Supply have all been contacted with a request for comments on the Draft EA and all have responded. Their comments will be included in the Final EA.

2. The applicant has contributed $5,643,665 to the following regional transportation improvements, that have been implemented:

   a. H-2 Beautification
   b. H-2 Traffic Signals
   c. H-2 HOV (high occupancy vehicle) Lanes
   d. H-2 Southbound Signals
   e. H-2 Northbound Ramps

   The applicant projects a contribution of about $8,222,440 to the following regional transportation improvements:

   a. Park & Ride Design
   b. H-2 Southbound Ramps
   c. Express Bus Subsidy
   d. Circular Bus Subsidy

   The applicant's share of all regional transportation improvements, funded in conjunction with the development of Mililani Mauka will total about $13,866,105.

   The City's Department of Transportation Services and the State's Department of Transportation have both been contacted with a request for comments on the Draft EA and both have responded. Their comments will be included in the Final EA.

3. The State Historic Preservation Division has provided comments on this current Draft EA, confirming their belief that this action will have "no effect" on any historic sites. This response will be included in the Final EA.

4. An updated analysis and report for the factors of cultural impacts, noise, air quality, flora and fauna will be included in the Final EA. Our civil engineering consultant has provided additional information with respect to water resources and drainage that will be included in the Final EA.

5. A discussion and analysis of the cumulative impacts on drainage, traffic, population shifts, visual elements, and potable water use of the undeveloped portions of Laulani Valley, Pacific Islanders, I'i Vistas, MF 107 A/B, Olaloa, and the 6-acre park and ride facility and the proposed 1248-acre Koa Ridge Makai and Mauka will be discussed in the Final EA.

6. The Draft EA has been sent to the Department of Health EPO and SDWB and the Commission on Water Resources Management of the Department of Land and Natural Resources.

7. During the pre-consultation phase prior to development of the Draft EA meetings were held with both the Department of Planning and Permitting and the Department of Education. In addition, the civil engineering consultant spoke with various City agencies, including the Board of Water Supply, Environmental Services and the Department of Planning and Permitting. Copies of correspondence during both the pre-consultation phase and during Draft EA comment period will be included in the Final EA. The effective date of January 16, 2001 and a list of adjacent property owners notified in conjunctions with the "Notice Requirements" will be provided.

8. The Final EA will include a discussion of the findings and reasons, according to the significance criteria listed in HAR 11-200-12, that support our determination of a Finding of No Significant Impact (FONSI).

9. Your "Guidelines for Assessing Cultural Impacts" will be followed by the consultant drafting our Cultural Impact Assessment for Mililani Mauka Phase III, for inclusion in the Final EA.

10. We will provide photographs of existing projects in Mililani Mauka that represent the building design and landscaping projected for Mililani Mauka Phase III.

11. In the Final EA, Appendix III, we will enclose a clear copy of the Water Distribution System Map. In Appendix VI the date of the aerial photo will be included in the Final EA.

Your letter dated February 7, 2001 and this response will be included in the Final EA for the project.

Very truly yours,

Keith Kurahashi

Keith Kurahashi

cc: Castle & Cooke Homes Hawaii, Inc.

BENJAMIN J. CAYETANO
GOVERNOR

BRIAN K. MINAAI
DIRECTOR

DEPUTY DIRECTORS
GLENN M. OKIMOTO
JADINE Y. URASAKI

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DEPT OF PLANNING
and PERMITTING
CITY & COUNTY OF HONOLULU

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:

HWY-PS
2.1929

MAR 8 2001

Mr. Randall K. Fujiki
Director
Department of Planning and Permitting
City and County of Honolulu
650 south King Street, 7th Floor
Honolulu, Hawaii 96813

Attention: Mr. Eugene Takahashi

Dear Mr. Fujiki:

Subject: Draft Environmental Assessment, DPP File No. 2001/CO-1, Mililani Mauka Phase III Development Plan Land Use Amendment from Public Facilities to Residential and Low-Density Apartment, Mililani Mauka, TMK: 9-5-49: por. 27

We have reviewed the draft environmental assessment and traffic assessment and we have the following comments:

1. Any additional increase in the number of dwellings (above the proposed 6,743 units) and/or density of land use will require similar documentation of the traffic effects resulting from the increases. Traffic counts used in evaluating traffic effects should be as current as possible.

2. Direct diversion of surface water run-off into our rights-of-way is not permitted.

If there are any questions regarding our comments, please contact Ronald Tsuzuki, Head Planning Engineer, Highways Division, at 587-1830.

Very truly yours,

BRIAN K. MINAAI
Director of Transportation

c: Office of Environmental Quality Control
Kusao & Kurahashi, Inc.

KUSAO & KURAHASHI, INC.
Planning and Zoning Consultants
MANOA MARKET PLACE
2752 WOODLAWN DRIVE, SUITE 5-202
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E-Mail: kurahashi1@cs.com

June 8, 2001

Mr. Brian K. Minaai, Director
Department of Transportation Services
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Attention: Mr. Ronald Tsuzuki
Head Planning Engineer, Highways Division

Dear Mr. Minaai:

Subject: Draft Environmental Assessment, DPP File No. 2001/CO-1 Mililani Mauka Phase III Development Plan Land Use Map Amendment form Public Facilities to Residential and Low-Density Apartment, Mililani Mauka, TMK 9-5-49: Por. 27

Thank you for your response, dated March 8, 2001, to the Department of Planning and Permitting on our Draft Environmental Assessment (Draft EA) and the proposed Development Plan Land Use Map Amendment for Mililani Mauka Phase III.

In response to your comments:

1. We understand that any additional increase in the number of dwelling units over the proposed 6,743 units (which includes the planned Mililani Mauka Phase III development) and/or density of land use will require documentation, similar to that provided in the Draft EA, for traffic resulting from such increases. Future studies will utilize traffic counts as current as possible.

2. No direct diversion of surface water run-off into your (State) right-of-ways is anticipated. Storm run-off from residential lots will be directed to the local streets.

Your letter dated March 8, 2001 and this response will be included in the Final EA for the project.

Very truly yours,

Keith Kurahashi

Keith Kurahashi

cc: Castle & Cooke Homes Hawaii, Inc.

FAX TRANSMITTAL SHEET

University of Hawaii, Environmental Center
2500 Dole St., Kruass Annex 19
Honolulu, Hawaii 96822
FAX: (808) 956-3980
TELEPHONE: (808) 956-7361

DATE: March 19, 2001

FROM: Peter Rappa

TO: Allan Arakawa Cooke and Castle Homes Hawaii Inc. 548-6690

CC: OEQC 586-4186

Department of Planning and Permitting 527-6743

Eugene Takahashi

SUBJECT: Draft Environmental Assessment

Millilani Mauka Phase III

COMMENTS:

NUMBER OF PAGES including this cover sheet: 4

University of Hawai'i at Mānoa

Environmental Center
A Unit of Water Resources Research Center
Krauss Annex 19 • 2500 Dole Street • Honolulu, Hawai'i 96822
Telephone: (808) 956-7361 • Facsimile: (808) 956-3980

March 10, 2001

Mr. Allan Arakawa
Castle & Cooke Homes Hawaii Inc.
P.O. Box 898900
Mililani, Hawaii 96789-8900

Dear Mr. Arakawa:

Draft Environmental Assessment
Mililani Mauka Phase III
Ewa, Oahu

The applicant Castle & Cooke Homes Hawaii Inc. proposes to construct Residential and Low Density Apartments on approximately 104.2 acres of land located in the northwest portion of Mililani Mauka, adjacent to the H-2 freeway. This site was originally intended for the proposed construction and development of the University of Hawaii, West Oahu Campus and is currently designated for public facilities. The development would consist of 522 single-family units and 304 multi-family units, and would be developed in a series of 5 phases, with the first starting in 2002 and the fifth completing in 2008. This would consist of an increase of 143 dwelling units previously approved in applications for Mililani Mauka Phases I and II. The total estimated cost of this project would be about $188 million.

This review was conducted with the assistance of Peter Flachsbart, Urban and Regional Planning; and Niyati Ni, Environmental Center.

General Comments

The proposed project seems to conform to federal, state, and city plans and programs and is compatible with the surrounding land use. The infrastructure (sewer, drainage etc...) appears to be adequate to accommodate the project, because the infrastructure was designed to fit a previously permitted land use, specifically a campus of the University of Hawaii for

approximately 5000 students. However, there is inadequate evidence for potential impact in several areas including traffic, school enrollment and water supply.

Socio-Economic Impacts

This section is somewhat confusing. Sometimes the socio-economic impacts of the proposed residential development are compared to the potential impacts of a once planned new campus of the University of Hawaii, while at other times, the impacts are listed as those generated by the additional 143 units above the previously approved master plan. An example of the dual standards can be found on page 45 in the discussion on wastewater, which compares the average flow of the residential use, versus the use as a new campus. Also, the discussion on the impacts on schools on page 47 estimates the number of new students based on 143 new units. The action being proposed is a 826 units residential development. It would be lot clearer to discuss the impacts which will be caused by the proposed action.

Transportation

In terms of traffic flow to and from the Mililani Mauka Phase III project, why are there are no current estimates of projected peak traffic flows with current or projected roadway capacities? There should be more information pertaining to the effects that the proposed residential subdivision will have on traffic. There is an assumption that if roadway capacities were adequate for the university campus than they must also be adequate for the residential project. For example, the table on p.44 shows a significant reduction from the peak hour traffic levels projected in January 1989 when the project was proposed with 6,640 dwelling units and a university, but does not mention the harmful effects that a rise in traffic would bring to the area, including the traffic which would be generated during construction.

Schools

The amount of school enrollment generating from the additional 143 residential dwelling units seems inconsistent with only an additional 36 elementary school, students, 14 middle school students, and 14 high school students mentioned on page 47 as the projected enrollment. How was this projection of enrollment reached? What is the potential for the overcrowding of the Mililani public school system? There is a great need for a comparison of DOE projections of school enrollments with classroom capacities when the project is completed in 2008.

Environmental Impacts

The EA often states that the residential project will have fewer impacts on the environment than a campus of the University of Hawaii in several areas. Besides transportation, the EA concludes that the impacts of the proposed project are less than those of the university campus in the following areas: water demand, wastewater generation, drainage, police, fire, air quality, visual, and water resources. In some cases, the EA provides quantitative evidence of this

conclusion; for other areas it merely speculates that the impacts will be less. It would be better if there was sufficient evidence in each area to conclude whether the impact on the environment would be significant.

Water

In terms of water supply, are there provisions made by the Board of Water Supply to ensure that there will be enough water to fill the demand of the additional 143 residential dwelling units? Also, in light of the recent news of contamination of the Mililani wells is the quality of the water passable? Will there be hazardous chemicals present in the water?

List of Agencies Consulted

We note that only two agencies and no community groups are listed as being consulted. Were other groups contacted by the developers or are these the only ones? It is considered normal practice to contact at least the local Neighborhood Board for these types of development.

Miscellany

We found several typos that should be corrected. On page 38 change "we result" to "will result" in the middle of the page. Change $470,00 to $470,000 on the top of page 42. Change "carbon dioxide" to "carbon monoxide" on the fifth line down from the top of page 53. The word "the" is misspelled on the third line up from the bottom of page 57.

Conclusion

While the proposed project may have less impact than what was previously proposed, we believe the DEA should have discussed the impact of what is being proposed.

Sincerely,

Peter Rappa,
Environmental Review Coordinator

cc: OEQC
James Moncur WRRC
Keith Kurahashi
Peter Flachsbart, Urban and Regional Planning

KUSAO & KURAHASHI, INC.
Planning and Zoning Consultants
MANOA MARKET PLACE
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June 8, 2001

Mr. Peter Rappa, Environmental Review Coordinator
Environmental Center
University of Hawaii at Manoa
Krauss Annex 19
2500 Dole Street
Honolulu, Hawaii 96822

Dear Mr. Rappa:

Subject: Draft Environmental Assessment, DPP File No. 2001/CO-1
Mililani Mauka Phase III Development Plan Land Use Map Amendment form Public Facilities to Residential and Low-Density Apartment, Mililani Mauka, TMK 9-5-49: Por. 27

Thank you for your response, dated March 10, 2001, to the Department of Planning and Permitting on our Draft Environmental Assessment (Draft EA) and the proposed Development Plan Land Use Map Amendment for Mililani Mauka Phase III.

In response to your comments:

1. We will provide further discussion on the projected impact on traffic, school enrollment, and the water supply to confirm that the existing or planned improvements will be able to adequately accommodate the planned Mililani Mauka Phase III development.

2. As you have recommended, we will provide a discussion on the impact from the total number of units proposed for Mililani Mauka Phase III (826), but where appropriate, we will continue to compare this impact with the previously planned university use and the 6,600 units originally planned for Mililani Mauka Phases I and II. It is helpful to understand the demand that infrastructure was planned or designed to handle with the demand expected with the change in use.

3. We will expand the discussion on traffic impacts to include a comparison of existing traffic volumes and level of service on H-2 freeway with the future traffic volumes and level of service without the project and with the project.

This project has been in the planning stages since 1999 and the first study contracted to determine whether the project impacts would be acceptable was the traffic assessment, the traffic assessment counts were taken in May of 1999 and a rough determination of projected traffic impact was done. The traffic impact assessment has been revised and finalized in January 2001. In order to address traffic generated by the original Mililani Mauka Development, the applicant has contributed $5,643,665 to the following regional transportation improvements, that have been implemented:

a. H-2 Beautification
b. H-2 Traffic Signals
c. H-2 HOV (high occupancy vehicle) Lanes
d. H-2 Southbound Signals
e. H-2 Northbound Ramps

The applicant projects a contribution of about $8,222,440 to the following regional transportation improvements:

a. Park & Ride Design
b. H-2 Southbound Ramps
c. Express Bus Subsidy
d. Circular Bus Subsidy

The applicant's share of all regional transportation improvements, funded in conjunction with the development of Mililani Mauka will total about $13,866,105.

The latest traffic assessment for the project indicates that the traffic generated by the original plan with 6,600 dwelling units and a university development is greater than the traffic that will be generated by the proposed 6,743 dwelling units. This is true for both the AM and PM peak

hours for traffic either entering or exiting Mililani Mauka on Meheula Parkway. The reduction in traffic varies between 17% to 46% depending on the peak hour and direction of traffic. Since the traffic generated by Mililani Mauka is now projected to be substantially less than originally projected, we do not expect to be required to fund further regional traffic improvements, for the planned Mililani Mauka Phase III development. The State Department of Transportation has commented that any additional increase in the number of dwelling units (above the proposed 6,743 units, which includes Phase III) and/or density of land use will require similar documentation of traffic effects (to that provided in our Draft EA) resulting from the increases.

4. The projected school enrollment was based on Department of Education standards for projecting school enrollment. The standard projects the number of elementary age children that will attend a public school is equal to 25% of the new residential units. For middle and high school 10% of the new units results in the number of children attending each of those schools. Based on discussions with the Department of Education (DOE) and DOE's presentation at the March 20, 2001 meeting of the Mililani Mauka/Launani Valley No. 35 Neighborhood Board, the schools in the area will be able to handle the increase in enrollment projected from the proposed Mililani Mauka Phase III development (based on current projections).

5. We will attempt to provide additional quantitative and/or qualitative evidence to help in determining if the impact on the environment will be significant. Consultant reports on the impact on air quality, noise, flora, and fauna will be included in the Final EA.

6. Potable Water to the project site will be provided from existing Mililani Wells 1, 2, 3, 4, 5, 6, 9, 10, and 11. Water from Mililani Wells 1, 2, 3, 4, 5, and 6 is treated by the granular activated carbon system to remove volatile organic chemicals prior to distribution. The presence of volatile organic chemicals has not been reported in water from Mililani Wells 9, 10, and 11. With regard to the availability of water in the Waipahu-Wahiawa Aquifer System, the Commission on Water Resource

Management adopted a sustainable yield of 104 mgd for this system. The present water use permit allocation totals 82.501 mgd, resulting in a balance of 21.499 mgd. Mililani Mauka Phase III will have a demand of 0.383 mgd which would require just a small fraction the available balance.

7. During the pre-consultation phase prior to development of the Draft EA meetings were held with both the Department of Planning and Permitting and the Department of Education. In addition, the civil engineering consultant spoke with various City agencies, including the Board of Water Supply, Environmental Services and the Department of Planning and Permitting. The review phase of the Draft EA encompasses a much larger group, including the local Neighborhood Board. In addition, a presentation was made to the Mililani/Waipio/Melemanu Neighborhood Board on the proposed Development Plan Amendment and Zone Change. Comments on the Draft EA have been received by both neighborhood boards.

8. An updated analysis and report for the factors of cultural impacts, noise, air quality, flora and fauna will be included in the Final EA. Our civil engineering consultant has provided additional information with respect to water resources and drainage that will be included in the Final EA.

9. We appreciate your careful review of the Draft EA and the typos that you have mentioned will be corrected.

10. As mentioned in this earlier in this letter, the Final EA will provide further discussion on the impacts of the proposed 826 units in the Mililani Mauka Phase III development.

Your letter dated March 10, 2001 and this response will be included in the Final EA for the project.

Very truly yours,

Keith Kurahashi

Keith Kurahashi

cc: Castle & Cooke Homes Hawaii, Inc.

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DEPT OF PLANNING
and PERMITTING
CITY & COUNTY OF HONOLULU

UNIVERSITY OF HAWAI'I

SENIOR VICE PRESIDENT FOR ADMINISTRATION

March 7, 2001

Mr. Randall Fujiki
Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawai'i 96813

Attention: Eugene Takahashi

Subject: Draft Environmental Assessment for the Proposed Mililani Mauka Phase III Development Plan Land Use Map Amendment from Public Facilities to Residential and Low Density Apartment – Tax Map Key: 9-5-49: Portion of 27-DPP File No. 2001/CO-1

Dear Mr. Fujiki:

Thank you for giving us the opportunity to review this draft environmental assessment. We have reviewed the document and have no comments at this time.

Sincerely,

Allan Ah San
Associate Vice President for Administration

c: Clyde Akita

2444 DOLE STREET • BACHMAN HALL • HONOLULU, HAWAI'I 96822 • TEL (808) 956-8903 • FAX (808) 956-9212

KUSAO & KURAHASHI, INC.
Planning and Zoning Consultants
MANOA MARKET PLACE
2752 WOODLAWN DRIVE, SUITE 5-202
HONOLULU, HAWAII 96822

BUS. (808) 988-2231
FAX. (808) 988-1140
E-Mail: kurahashi1@cs.com

June 8, 2001

Mr. Allan Ah San
Associate Vice President for Administration
University of Hawaii at Manoa
Bachman Hall
2444 Dole Street
Honolulu, Hawaii 96822

Dear Mr. Ah San:

Subject: Draft Environmental Assessment, DPP File No. 2001/CO-1 Mililani Mauka Phase III Development Plan Land Use Map Amendment form Public Facilities to Residential and Low-Density Apartment, Mililani Mauka, TMK 9-5-49: Por. 27

Thank you for your response, dated March 7, 2001, to the Department of Planning and Permitting on our Draft Environmental Assessment (Draft EA) and the proposed Development Plan Land Use Map Amendment for Mililani Mauka Phase III.

Your letter dated March 7, 2001 and this response will be included in the Final EA for the project.

Very truly yours,

Keith Kurahashi

Keith Kurahashi

cc: Castle & Cooke Homes Hawaii, Inc.

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
3375 KOAPAKA STREET, SUITE H425
HONOLULU, HAWAII 96819-1869

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DEPT OF PLANNING
and PERMITTING
CITY & COUNTY OF HONOLULU

JEREMY HARRIS
MAYOR

ATTILIO K. LEONARDI
FIRE CHIEF

JOHN CLARK
DEPUTY FIRE CHIEF

February 20, 2001

TO: RANDALL K. FUJIKI, AIA, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

ATTENTION: EUGENE TAKAHASHI

FROM: ATTILIO K. LEONARDI, FIRE CHIEF

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED MILILANI MAUKA PHASE III DEVELOPMENT PLAN LAND USE MAP AMENDMENT FROM PUBLIC FACILITIES TO RESIDENTIAL AND LOW DENSITY APARTMENT
TAX MAP KEY: 9-5-049: PORTION OF 027
DPP FILE NO. 2001/CO-1

We received a letter from Mr. Keith Kurahashi dated February 2, 2001, regarding the above-mentioned Draft Environmental Assessment (DEA).

We have no objections to the DEA for the proposed Mililani Mauka Phase III Development Plan to redesignate land in Mililani Mauka from Public Facilities to Residential and Low Density Apartment.

Should you have any questions, please call Battalion Chief Kenneth Silva of our Fire Prevention Bureau at 831-7778.

Attilio K. Leonardi

ATTILIO K. LEONARDI
Fire Chief

AKL/KS:jo

cc: Office of Environmental Quality Control
Kusao & Kurahashi, Inc.

KUSAO & KURAHASHI, INC.
Planning and Zoning Consultants
MANOA MARKET PLACE
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BUS. (808) 988-2231
FAX. (808) 988-1140
E-Mail: kurahashi1@cs.com

June 8, 2001

Attilio K. Leonardi, Fire Chief
Fire Department
City and County of Honolulu
3375 Koapaka Street,Suite H425
Honolulu, Hawaii 96819-1869

Attention: Battalion Chief Kenneth Silva
Fire Prevention Bureau

Dear Chief Leonardi:

Subject: Draft Environmental Assessment, DPP File No. 2001/CO-1 Mililani Mauka Phase III Development Plan Land Use Map Amendment form Public Facilities to Residential and Low-Density Apartment, Mililani Mauka, TMK 9-5-49: Por. 27

Thank you for your response, dated March 5, 2001, to the Department of Planning and Permitting on our Draft Environmental Assessment (Draft EA) and the proposed Development Plan Land Use Map Amendment for Mililani Mauka Phase III.

Your letter dated March 5, 2001 and this response will be included in the Final EA for the project.

Very truly yours,

Keith Kurahashi

Keith Kurahashi

cc: Castle & Cooke Homes Hawaii, Inc.

POLICE DEPARTMENT

CITY AND COUNTY OF HONOLULU

801 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813 - AREA CODE (808) 529-3111
http://www.honolulupd.org
www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

LEE D. DONOHUE
CHIEF

MICHAEL CARVALHO
ROBERT AU
DEPUTY CHIEFS

OUR REFERENCE CS-LS

March 5, 2001

TO: RANDALL K. FUJIKI, AIA, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

ATTENTION: EUGENE TAKAHASHI

FROM: LEE D. DONOHUE, CHIEF OF POLICE
HONOLULU POLICE DEPARTMENT

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED MILILANI MAUKA PHASE III DEVELOPMENT PLAN LAND USE MAP AMENDMENT FROM PUBLIC FACILITIES TO RESIDENTIAL AND LOW DENSITY APARTMENT - TAX MAP KEY: 9-5-49: PORTION OF 27 - DPP FILE NO. 2001/CO-1

Thank you for the opportunity to review and comment on the subject document.

This project area is serviced by officers from the District 2 (Wahiawa) Police Station. The addition of 826 dwelling units will have an impact on the services and facilities of the Honolulu Police Department. This proposal, along with other completed and proposed projects in the area, may require an increase in personnel to service the area and related increases in our facilities.

Calls for service to the area for construction-related dust, noise, and traffic will be inevitable while the proposed project is under construction. Therefore, we would like to recommend that the contractor work with District 2 to try to minimize any foreseeable problems. Please call Lieutenant Michael Thomas of District 2 at 621-8442.

Further, we would like to recommend that District 2 be contacted for assistance in applying the principles in Crime Prevention Through Environmental Design as a means of minimizing criminal activity in the area.

We may have further comments to offer as more information on the proposed project becomes available.

If there are any questions, please call Carol Sodetani of the Support Services Bureau at 529-3658.

Sincerely,

LEE D. DONOHUE
Chief of Police

By _____
EUGENE UEMURA, Assistant Chief
Support Services Bureau

KUSAO & KURAHASHI, INC.
Planning and Zoning Consultants
MANOA MARKET PLACE
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E-Mail: kurahashi1@cs.com

June 8, 2001

Lee D. Donohue, Chief of Police
Honolulu Police Department
City and County of Honolulu
801 South Beretania Street
Honolulu, Hawaii 96813

Attention: Ms. Carol Sodetani
Support Services Bureau

Dear Chief Donohue:

Subject: Draft Environmental Assessment, DPP File No. 2001/CO-1 Mililani Mauka Phase III Development Plan Land Use Map Amendment form Public Facilities to Residential and Low-Density Apartment, Mililani Mauka, TMK 9-5-49: Por. 27

Thank you for your response, dated March 5, 2001, to the Department of Planning and Permitting on our Draft Environmental Assessment (Draft EA) and the proposed Development Plan Land Use Map Amendment for Mililani Mauka Phase III.

The applicant has contacted Lieutenant Michael Thomas of District 2 to discuss ways to minimize foreseeable problems that may arise from construction related dust, noise, and traffic during construction.

The applicant has contacted District 2 to discuss assistance in applying principles in Crime Prevention Through Environmental Design as a means of minimizing criminal activity in the area.

We appreciate your willingness to work with us and your pro-active approach to minimizing construction impacts and criminal activity in the area through design of development.

Your letter dated March 5, 2001 and this response will be included in the Final EA for the project.

Very truly yours,

Keith Kurahashi

Keith Kurahashi

cc: Castle & Cooke Homes Hawaii, Inc.

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

'01 FEB 26 PM 2 20

DEPT OF PLANNING
and PERMITTING
CITY & COUNTY OF HONOLULU

February 21, 2001

TO: MR. RANDALL K. FUJIKI, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

FROM: FOR CLIFFORD S. JAMILE

SUBJECT: YOUR TRANSMITTAL OF FEBRUARY 2, 2001 OF THE DRAFT ENVIRONMENTAL ASSESSMENT FOR THE DEVELOPMENT PLAN LAND USE MAP AMENDMENT FOR MILILANI MAUKA PHASE III, MILILANI, OAHU, TMK: 9-5-49: PORTION 27

Thank you for the opportunity to review the document for the proposed housing development. We have the following comments to offer:

1. We have no objections to the proposed project.

2. The developer will be required to install the necessary on-site water system facilities to serve the development.

3. The document should be revised to reflect the sustainable yield for the Waipahu-Waiawa aquifer which was reduced from 119 million gallons per day (gpd) to 104 mgd. The State Water Commission approved the reduction effective March 15, 2000. Please note also that the permitted use as of December 2000 is 82.501 mgd.

4. Measures for residential water conservation for the development should be discussed in the document.

If you have any questions, please contact Scot Muraoka at 527-5221.

cc: Office of Environmental Quality Control
Kusao and Kurahashi, Inc.

KUSAO & KURAHASHI, INC.
Planning and Zoning Consultants
MANOA MARKET PLACE
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E-Mail: kurahashi1@cs.com

June 8, 2001

Mr. Clifford S. Jamille, Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96813

Attention: Mr. Scot Muraoka

Dear Mr. Jamille:

Subject: Draft Environmental Assessment, DPP File No. 2001/CO-1 Mililani Mauka Phase III Development Plan Land Use Map Amendment form Public Facilities to Residential and Low-Density Apartment, Mililani Mauka, TMK 9-5-49: Por. 27

Thank you for your response, dated February 21, 2001, to the Department of Planning and Permitting on our Draft Environmental Assessment (Draft EA) and the proposed Development Plan Land Use Map Amendment for Mililani Mauka Phase III.

In response to your comments:

1. The applicant understands their responsibility to install the necessary on-site water system facilities to serve the development.

2. The Final EA will be revised to reflect the sustainable yield for the Waipahu-Wahiawa aquifer and the existing permitted use.

3. We will add a discussion on residential water conservation for the development.

Mr. Clifford S. Jamille

Your letter dated February 21, 2001 and this response will be included in the Final EA for the project.

Very truly yours,

Keith Kurahashi

Keith Kurahashi

cc: Castle & Cooke Homes Hawaii, Inc.

MILILANI MAUKA/LAUNANI VALLEY NEIGHBORHOOD BOARD NO. 35

c/o NEIGHBORHOOD COMMISSION • CITY HALL, ROOM 400 • HONOLULU, HAWAII 96813

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DEPT OF PLANNING
and PERMITTING
CITY & COUNTY OF HONOLULU

March 7, 2001

Mr. Randall Fujiki, AIA, Director
Department of Planning and Permitting
City and County of Honolulu
650 S. King Street, 7th Floor
Honolulu, Hawaii 96813

ATTN.: Mr. Eugene Takahashi

RE: Environmental Assessment for the Proposed Mililani Mauka Phase III Development Plan Land Use Map Amendment from Public Facilities to Residential and Low Density Apartment - Tax Map Key : 9-5-49: Portion of 27 - DPP File No. 2001/CO-1

At the February Neighborhood Board meeting on February 20, 2001, the Mililani Mauka/Launani Valley Neighborhood Board #35, reviewed the Development Plan Land Use Map Amendment and Draft Environmental Assessment application of Castle Cooke Homes Hawaii, Inc. for comment only. The following are the comments from our discussion:

1. General - The application should be looked as a request to build 826 dwelling units. Various sections indicate that the application is an increase on previous approved units of 143 units. It should be looked at as what the impact of 826 units will be on the area. Our rational was that if the applicant does not build the 826 units there would be no impact from the 826 units not the 683 units that were not previously approved.

2. Schools - Question on whether there is adequate educational facilities to provide for increase in demand that will be generated by the 843 units. Concern was especially in the areas of the middle and high schools. The current middle school is currently on multi track and plans are for increasing portables on campus to the maximum permitted, and this is without considering the increase in enrollment that would be caused by the 843 units. The Assessment indicates several alternatives that may be used to relieve the problem.

   Redistricting - about 3 years ago when the new Millilani Middle school was brought on line as a multi track school, the Department of Education touted the idea of keeping the community of Mililani together. This was one of the major reasons that multi track was being used in order to accommodate the entire community.

   Changing the students in the middle school from 6th, 7th and 8th to 7th and 8th graders - again when multi track was being touted, the benefits of having the 6th graders moved up was presented.

3. Parks - requirement for a park should be based on 843 units

4. Transportation - congestion is expected with the smallest of the two exits from the project into the rest of the community. There are to be two roads exiting the project, the largest being Ko'olani Drive, a four lane divided road. Ko'olani Drive has no parking on either sides and no individual residences abutting the road. The second is Ukuwai Street a two lane road. Currently Ukuwai has a church, a large townhouse complex, a park and ride for The Bus and a proposed shopping center abutting it. Residents from the townhouse park along one side of the road opposite the proposed shopping center site. Exiting Mililani Mauka is about 1 mile less if Ukuwai Street is used. If Ukuwai Street is selected by most of the residents of the project as a means for exiting and entering, congestion is anticipated on that street.

   Original roads were planned for a university campus with the project only expecting a little increase - traffic usage from the surrounding community is opposite in the part of the day that heavy traffic was expected from a University. Current residential project will have traffic usage be the same as the rest of the community..

   Once people realize that Ukuwai Street is congested they will use Ko'Olani Drive (the concept of similar to water, drivers will flow to the road with least resistance) - this only supports the idea that Ukuwai Street will get congested to a point that it is preferable to drive a mile more than face the congestion, but the congestion on Ukuwai Street will remain.

These comments are being submitted not as support or disapproval of the proposed project. These comments were made to bring up some concerns of the Assessment report.

Sincerely yours,

Roy H. Doi
Chair
Mililani Mauka/Launani Valley Neighborhood #35

KUSAO & KURAHASHI, INC.
Planning and Zoning Consultants
MANOA MARKET PLACE
2752 WOODLAWN DRIVE, SUITE 5-202
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June 8, 2001

Mr. Roy H. Doi, Chair
Mililani Mauka/Launani Valley Neighborhood Board No. 35
c/o Neighborhood Commission
City Hall, Room 400
530 South King Street
Honolulu, Hawaii 96813

Dear Mr. Doi:

Subject: Draft Environmental Assessment, DPP File No. 2001/CO-1 Mililani Mauka Phase III Development Plan Land Use Map Amendment form Public Facilities to Residential and Low-Density Apartment, Mililani Mauka, TMK 9-5-49: Por. 27

Thank you for your response, dated February 21, 2001, to the Department of Planning and Permitting on our Draft Environmental Assessment (Draft EA) and the proposed Development Plan Land Use Map Amendment for Mililani Mauka Phase III.

In response to your comments:

1. As you have recommended, we will provide a discussion on the impact from the total number of units proposed for Mililani Mauka Phase III (826), but where appropriate, we will continue to compare this impact with the previously planned university use and the 6,600 units originally planned for Mililani Mauka Phases I and II. It is helpful to understand the demand that infrastructure was planned or designed to handle with the demand expected with the change in use.

2. Based on discussions with the Department of Education (DOE) and DOE's presentation at the March 20, 2001 meeting of the Mililani Mauka/Launani Valley No. 35 Neighborhood Board, the schools in the area will be able to handle the increase in enrollment projected from the proposed Mililani

Mauka Phase III development (based on current projections). We understand that based on DOE's projections, redistricting will not be required.

3. The Department of Planning and Permitting in a response to a resident of Mililani responded to the issue of park requirements associated with Mililani Mauka by stating that "As of November 2000, the park dedication requirements for 3,849 units developed under Ordinances 89-123, 93-23, and 95-55 had been met by these four projects. An additional 614,870 sf land credits were still available to meet the requirements for additional units to be built in Mililani Mauka." The four projects mentioned included: land for a 16-acre City District Park; Mililani Mauka Private Recreation Center 5; Mililani Mauka Private Recreation Center 6; and land for a 12-acre City Community Park.

We have provided or will be providing park land well in excess of park dedication requirements, even with the additional units planned in Phase III.

4. The estimated service volume for acceptable conditions (maximum volume at LOS D) on Ukuwai Street, which has one travel lane in each direction and potentially two approach lanes at intersections, is 600 vehicles per hour one direction (or on average, one vehicle every 6 seconds). Traffic due to other uses that will remain upon completion of the Phase 3 project (other than construction vehicles) is estimated to be about 50 vehicles per hour. The highest hourly generation in one direction from all of Phase 3 has been estimated at 460 vehicles per hour entering Phase 3 in the PM (afternoon) Peak Hour (from Table 5 of the Phase 3 Traffic Assessment report). Even if all of this traffic were to use Ukuwai Street, the volume in one direction (510 vehicles per hour) would be less than the maximum service volume. At least one-third of the the traffic, however, could reasonably be expected to enter Phase 3 using Koolani Drive. Peak traffic in one direction, therefore, is estimated to be 290 vehicles per hour, or about half of the "capacity".

A similar roadway (56-foot right-of-way, 40 feet curb-to-curb width) is Makaikai Street on the Kipapa side of Meheula Parkway. This roadway directly serves traffic generated by 423 dwellings in Unit 109, MF-102, and MF-104. An alternative access is provided by Kaapeha Street, which connects to Meheula Parkway farther mauka; Kaapeha Street also serves an additional 415 dwelling units in Unit 111 and MF-105.

Wikao Street between Akamainui Street (Oceanic Cable office at Mililani Technology Park) and Waikalani Drive in Waikakalaua Gulch is 44 feet wide between curbs within a 60-foot right-of-way. It is the only road serving an existing 1,000 ± dwelling units, with approvals for up to 1,500 ± units. Peak hour volume on this segment of Wikao Street was counted in April 2000 at 139 southbound and 309 northbound between 7:00 and 8:00 AM, and 273 northbound and 154 southbound between 4:00 and 5:00 PM.

Additional traffic may be present between the commercial driveway and Ainamakua Drive if the commercial site is developed and the only exit from that site is onto Ukuwai Street. Parking in front of the commercial site may need to be restricted to ensure that two lanes are available between the driveway and Ainamakua Drive. A possible mitigation of lost parking could be the permitting of on-street parking on the makai side of Ainamakua Drive between Makaikai Street and Ukuwai Street.

Your letter dated March 7, 2001 and this response will be included in the Final EA for the project.

Very truly yours,

Keith Kurahashi

Keith Kurahashi

cc: Castle & Cooke Homes Hawaii, Inc.

SIERRA CLUB
HAWAI'I CHAPTER
P.O. Box 2577, Honolulu, HI 96803
tel: 808.538.6616 fax: 808.537.9019

8 March 2001

Castle & Cooke Homes Hawaii Inc.
Attn: Allan Arakawa
PO Box 898900
Mililani, HI 96789-8900

RE: **Development Plan Land Use Map Amendment and Environmental Assessment for Residential and Low Density Apartment For Mililani Mauka, Phase III**

The Sierra Club, Hawai'i Chapter, is concerned with the proposed development of 836 dwelling units on 104 acres in the Mililani Mauka area (Phase III). First, we are troubled that central O`ahu is rapidly being developing residential communities when Kapolei has been slated the "second city." Mililani—including the proposed Phase III development—lacks the features that make a city self-sufficient: employment opportunities, shopping, schools, etc. It is likely that most of the new residents in the Phase III development will be employed outside of the Mililani area and rely on personal automobiles to commute to these jobs, exacerbating the traffic problems that currently exist along the H1/H2 corridor. Smart development creates walkable communities that are centered around and intertwined with economic activity—not blocks and blocks of residential homes that are separated from meaningful work opportunities, schools, and recreation. Second, the Hawai`i Chapter is very concerned with the current overdevelopment of central O`ahu given the uncertainty of water supply for the area. Reallocation of existing agricultural permitted uses, diverted water from Waiahole Ditch, and desalination of brackish or sea water should not be relied on to speculate availability of future water. Third, the cumulative impacts of Phase III and the proposed Koa Ridge development by the same applicant/developer must be considered to achieve and accurate disclosure of impacts to the area, especially in regards to traffic, schools, and visual impacts. Our specific comments relating to the DP Land Use Plan Amendment DEA are below.

1. SOIL CONTAMINATION. It appears that the land was previously used for agriculture, such as pineapple cultivation. Has the soil been tested for pesticide or herbicide contamination?

2. SOIL STABILITY. Although the majority of the project is to be built on Leilehua silty clay, some will be constructed on Wahiawa silty clay and Manana silty clay—with moderate erosion hazards. In the event of a heavy rainfall event, what measures will be in place to prevent heavy runoff or structural damage to the homes.

3. WATER USAGE. Although applicant states that the previously proposed project was included in the year 2020 water use, significant events have occurred that may call into question available water for residential development. The Waiahole decision may greatly impact the amount of water available for new developments. Reallocation of existing agricultural permitted uses and desalination of brackish or sea water should not be relied on to speculate availability of future water. The applicant should explain in greater detail the current sustainable yield for the aquifer that the project will draw upon and how potential outcomes of the Waiahole case may play into future water availability for residential uses.

4. PUBLIC FACITIES. The potential for overcrowding at the middle and high school in Mililani is mentioned in the DEA, but no numbers or analysis is undertaken. Projections of the numbers of students produced by this development should be presented and the current capacities of the middle and high school analyzed.

5. VISUAL IMPACTS. The H2 corridor is a popular route for tourists to take when visiting the North Shore, Dole Plantation, or circling the island. Visual representations of the proposed development at full build-out should be presented to ensure that the visual impacts do not impair on the important aesthetic qualities tourists come to experience.

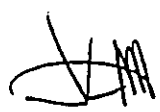
6. TRAFFIC ASSESSMENT. The traffic analysis presented in the DEA only compares the currently proposed project with the previously proposed university project. Considering the likelihood that most of the residents of the Phase III project will be commuting to and from employment outside of Mililani, impacts to the H2 traffic corridor should be analyzed. Level of service and time delays should be the metrics used.

7. ALTERNATIVES. The "no-build" alternative was not considered in the alternatives section. Considering the soil type in the area, a "diversified agriculture" alternative should also be analyzed. Why were these possibilities ignored?

8. CUMULATIVE IMPACTS. Castle & Cooke is currently petitioning the State Land Use Commission to rezone 1250 acres south of the proposed Phase III project. The cumulative impacts of these two projects—including traffic, schools, and visual impacts—must be considered to achieve and accurate disclosure of impacts to the area

We appreciate the opportunity to offer these comments and look forward to your response.

Sincerely,



Jeff Mikulina
Director, Sierra Club, Hawai`i Chapter

KUSAO & KURAHASHI, INC.
Planning and Zoning Consultants
MANOA MARKET PLACE
2752 WOODLAWN DRIVE, SUITE 5-202
HONOLULU, HAWAII 96822

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FAX. (808) 988-1140
E-Mail: kurahashi1@cs.com

June 8, 2001

Mr. Jeff Mikulina, Director
Sierra Club, Hawai'i Chapter
P.O. Box 2577
Honolulu, Hawaii 96803

Dear Mr. Mikulina:

Subject: Draft Environmental Assessment, DPP File No. 2001/CO-1 Mililani Mauka Phase III Development Plan Land Use Map Amendment form Public Facilities to Residential and Low-Density Apartment, Mililani Mauka, TMK 9-5-49: Por. 27

Thank you for your response, dated March 8, 2001, on our Draft Environmental Assessment (Draft EA) and the proposed Development Plan Land Use Map Amendment for Mililani Mauka Phase III.

In response to your comments:

1. The soils for Mililani Mauka Phase III has undergone a Phase I Environmental Assessment and it has been determined that Phase II is not necessary. Soil contamination is not a problem at this site.

2. In order to minimize potential for soil erosion during a heavy rainfall event, storm water runoff will be directed away from the homes and onto the paved streets where runoff enters an underground pipe network of the storm drain system. This will mitigate concerns over erosion and structural damage to the homes.

3. With regard to the availability of water in the Waipahu-Wahiawa Aquifer System, the Commission on Water Resource Management adopted a sustainable yield of 104 mgd for this system. The present water use permit allocation totals 82.501 mgd, resulting in a balance of 21.499 mgd.

Mililani Mauka Phase III will have a demand of 0.383 mgd which would require just a small fraction the available balance.

We understand that the potential outcome of the Waihole case could have a significant impact on future water availability in the Central Oahu area. With our rather modest requirements and relatively near term development schedule we would hope that our project will be able to proceed provided a reasonable amount of usage is granted over and above existing withdrawals. The decision on Waihole, however, could adversely affect larger, long term development projects, unless alternate sources of water are developed.

4. Based on discussions with the Department of Education (DOE) and DOE's presentation at the March 20, 2001 meeting of the Mililani Mauka/Launani Valley No. 35 Neighborhood Board, the schools in the area will be able to handle the increase in enrollment projected from the proposed Mililani Mauka Phase III development (based on current projections). The projection of the number of students to be generated for this project will be included in the Final EA, along with the current capacities of the middle and high school.

5. The views afforded from H-2 Freeway between Waiawa Interchange and the project site tend to be represented by moderate to heavy screening by existing landscaping and terrain (in areas where the freeway is at a lower elevation than the surrounding urban developments). Through the landscaping and above the earthen walls where the freeway is sunken are glimpses of urban developments, including residences, apartments and commercial and industrial developments. Mililani Mauka Phase III will be developed and screened in similar fashion. The most impressive views are the unobstructed views of valley walls that occur at Kipapa Gulch and Waikakalaua Gulch.

We will provide photographs of existing views from the H-2 Freeway that we feel will be similar to the views of Mililani Mauka Phase III.

6. We will expand the discussion on traffic impacts to include a comparison of existing traffic volumes and level of service on H-2 freeway with the future traffic volumes and level of service without the project and with the project.

7. The "no build" alternative and "diversified agriculture" alternatives will be discussed in the Final EA.

8. The cumulative impacts of the Mililani Mauka Phase III and the Koa Ridge developments will be discussed in the Final EA.

Your letter dated March 7, 2001 and this response will be included in the Final EA for the project.

Very truly yours,

Keith Kurahashi

cc: Castle & Cooke Homes Hawaii, Inc.

Mrs. Laura Brown
94-1060 Anania Cr. 116
Mililani, HI 96789

March 8, 2001

Mr. Randall Fujiki, Director
Department of Planning and Permitting
City and County of Honolulu
650 S. King Street, 7th Floor
Honolulu, Hawaii 96813
Attn: Mr. Eugene Takahashi

Subject: Castle & Cooke's "Development Plan Use Map Amendment and Environmental Assessment from Public Facilities to Residential and Low Density Apartment for Mililani Mauka, Phase III," dated January 2001.

Dear Mr. Fujiki:

Attached are my comments on the subject assessment and amendment in accordance with the OEQC Bulletin of February 8, 2001.

My phone number is 625-1332 if you have any questions.

Sincerely,

Laura Brown
Mililani Resident

cc: State office of Environmental Quality Control
State Office of Planning
Castle & Cooke Homes Hawaii, Inc.
Kusao & Kurahashi
Mililani Town Association
Neighborhood Board #35

Comments

Development Plan Land Use Map Amendment and Environmental Assessment for
Mililani Mauka, Phase III
TMK 9-5-49: Portion of 27

Page 8, Para. B: SURROUNDING USES

No mention is made of surrounding uses for military training

Page 17, Para. D: PROJECT NEED

Stated "Market Study of A Master Planned Community at Koa Ridge Makai and Waiawa" addresses need for 826 additional housing units; however, these areas combined are projected to add an additional 14,000 units, far surpassing any current need (figures given 1,952 + 1,500 Gentry Waiawa by 2009) for additional housing.

Projected Shortfall: Central Oahu Sustainable Communities Plan shows an actual decreasing of population in Central District if no additional houses added.

Page 21, Para. C: STATE; Hawaii State Plan
State Plan serves as a guide for priorities of State, which includes development of the "Second City" as the focus of growth vs. Central District; Other educational uses for land, as outlined in LUC zoning agreements, have not been considered

226-5 (b)(7) Develop availability of land and water resources in coordinated manner. Water resources found to be overstated. New, adequate water resources not yet developed. Central Oahu Sustainable Communities Plan shows a shortfall by many millions of gpd.

Page 22, 226-6(b)(6): Stated demand for Central Oahu is 963 units. However, Mililani homes sold in 2000 reported at 280, projected to be 300 sold in 2001. Waiawa, Kunia, and Koa Ridge will provide excessive units without adding this project. (See "Market Study" above referencing the need for approx. 340 units/yr in Waiawa/Koa Ridge)

Page 23, (b)(7) "Encourage urban developments in close proximity to existing services and facilities." Existing services and facilities are already stretched to capacity. Educational facilities in the original plan could alleviate this strain.

226-14 (b)(1) "Accommodate the needs of Hawaii's people through coordination of facility systems and capital improvement priorities established through the planning process." Mayor Harris's Infrastructure Task Force was set up to discuss the deficiencies of infrastructure in Central District and ways to promote concurrency. Development of Mauka as a part of a **Master Planned Community** was 'reviewed and approved' through

the City Planning process, with the stipulation that adequate educational facilities would be provided, including on these 100 acres. This provision has not been met under original master plan agreements in either Mililani Town or Mililani Mauka, as evidenced by overcrowding, and emergency measures, such as multi-tracking, and portables at all school sites throughout Mililani. Further development will only stretch these facilities to the breaking point.

7. 226-19 Objective and policies for socio-cultural advancement—
Page 24 (a)(1): .....livable homes in suitable environment that satisfactorily accommodate the needs and desires of families and individuals.....
Further development in an already planned community only adds stress to the existing support services, parks, day care, rec centers, schools, parking, roadways, etc. Also, the addition of "tinker toy" homes on 3,500 sq. ft. lots only serves to lessen property values of existing homes and detracts from privacy and aesthetic value.

8. (a)(2) "The orderly development of residential areas sensitive to community needs and other land uses." How will **infilling** (development of homes) "insure that the uses planned for the project site will be compatible with the surrounding development"? Uses planned for the project site were for educational purposes only, a true community need vs. just more houses/profit. (It is my understanding that the Land Use Commission was initially formed to provide for better planning and to avoid "**pocket zoning**" or "infilling").

9. (b)(1) "Effectively accommodate housing needs of Hawaii's people". Mililani Town Master Plan, Land Use and Zoning Agreements provided for a set amount of affordable housing, which was not provided by the developer to date.

10. Page 26 (a)(6) "The project site is vacant and underutilized..." The project site is needed to fill the need for inadequate educational facilities in Mililani. Has any attempt been made to develop partnership with private schools to fill community's educational needs?

11. Page 27 (c)(2) "...existing urban areas where adequate public facilities are already available and away from areas where other important benefits are present, such as the protection of AG land or preservation of lifestyles"

Mililani was marketed as a "family-friendly" community, with schools that were "second to none". Public facilities currently are not adequate to serve the community's needs and we cannot maintain the same lifestyle we bought into if our rec centers, parks, parking spaces, schools and roadways are packed to overflowing and still growing.

12. (b)(6) "Seek participation from the private sector for cost of building infrastructure"

The DOE is not planning any other middle school or high school in Mililani, even though we have the largest school population in the state (middle school) and second largest statewide at the high school. The developer has not offered to assist with the cost of building needed schools nor successfully solicited private schools for the area,

although at least one organization has expressed interest in building a private high school on this 100 acre site. According to the DOE Facilities Director's testimony at the Central Oahu Sustainable Communities Plan meeting with Councilmember Rene Mansho, impact fees have been collected, but are spent on "portables" for schools, not adequate facilities.

(3) Page 28, State Functional Plans; Housing Plan.
Primary guide is for development of Ewa Plain vs. Central District

"The proposed project site is designated urban." It is designated for public facilities in the master planned community, not residential.

Objective a, Policy A(1) "..enable more lower income families to become homeowners." The requirements for affordable housing have not been fulfilled in Mililani.
A(3), A(3)(a): "City Council will place requirement....." "...proposing smaller lot sizes for lower home prices" In other words, compromising standards, aesthetics, and quality of life to fit in as many homes as possible, allowing greater profit for the developer, causing overcrowding of an already inadequate lack of infrastructure and loss of value for existing homes.

Page 30, D. CITY, General Plan
....long-range aspirations of Oahu's residents and strategies of actions to achieve them.
Long-range aspirations include quality of life in a suburban vs. urban atmosphere

Population, Objective C, Policy 2 ..development on urban-fringe....
This is not the "urban-fringe". Mililani is next door to Wahiawa, i.e. country/suburban.

Page 30-31, Objective 2, Policy 3 (a) "....An undesirable spreading of development is prevented...."
That is exactly what is being proposed. (b) "character of development and environmental qualities desired for such areas" In other words, a place for children to run and play, with enough water, schools, daycare, safe streets, etc. "....a master planned community" Yes, **master planned** to have adequate educational facilities, including this 100 acres. "...uses planned for project site will be compatible." Compatible means more than "looks the same".

Objective C, Policy 4 Distribution Chart
Growth in Ewa at 12-13% and Central Oahu at 15-16% does not reflect current regional plans for development.

Housing, Objective A, Policy 3 "...lower costs, added convenience and privacy and more efficient use of streets and utilities...." The argument that additional density of use is somehow more efficient is far from rational. The argument that by stacking houses nearly on top of one another will add privacy and convenience is ridiculous. The only costs which will be lower will be for the developer. How will that benefit homeowners?

Housing, Objective C, Policy 1, Page 33 "master planned community". It is a master planned community, which included the 100-acre site for educational purposes. Due to extreme underestimation of students, the need for educational purposes is greater than ever, and the plan should be adhered to. Plans are being made to bus students to other towns.
Objective C, Policy 3, "Encourage residential development near employment centers." The Mililani Tech Park is an inconsequential employment center. Rents are too high and too far from Honolulu and other business, airport, etc. to be considered by most businesses. With the downscaling of the military, and the addition of base houses on Schofield, Wheeler abandoned by Air Force, the need for housing outside of the bases has been greatly lessened over the last 7 years. Schofield is also being considered for closure. The Town Center provides minimal low paying wages in fast food and retail and Waikele has plenty of its own housing for it's workers. Kapolei also has its own superior, inexpensive housing for people who would like to work in that area.

2. Development Plan, Page 35, a. Common and Special Provisions "...New development in existing communities shall generally be limited to that which is compatible with or enhances the desired physical and social character and lifestyle..." Cramming more houses into an area with inadequate schools, roads, parks, and other infrastructure does nothing to enhance the "social character and lifestyle.".

3. Oahu Water Management Plan, Page 36, "water availability...has been overstated...available sustainable yield between 52 mgd and 156 mgd" Water sources have not yet been developed. There are already legal challenges to Ewa development with regard to Waiahole Ditch water. There is a lawsuit regarding the contamination of water with DCBPs in Central District. Desalinization is many years away. Lake Wilson is extremely polluted.

VI. Socio-Economic Impacts, Page 39

3. Character of Neighborhood. The addition of 823 unplanned houses on this 100 acre site planned for educational uses WILL affect the character of the neighborhood. There is NO more room for children in the Mauka Elementary 1 and Mililani Middle School. Portables are already spilling over onto the playground. Residents must use the existing stores, restaurants, parking, roads, parks, schools, in Mililani Town, since Mauka does not have its own sufficient infrastructure.

C. Housing, 1. Intended Market. Page 41 "....Based on a profile of previous purchases, we project that 42.6% of the purchasers will be from Mililani ..25.5% from Leeward." The market has changed drastically since the inception of Mililani Mauka. At that time, property values had increased about $100,000 per home. Owners in Mililani Town then used this inflated market to upgrade to new homes in Mauka. With property values currently at pre-1989 values, most current owners do not have the equity to upgrade to newer homes. Also, most of the homes on the Mililani Town are larger with larger lot sizes than the lots projected for this site, making them a poor bargain for current owners.

Leeward owners have a far greater selection of superior quality, inexpensive homes closer by in Kapolei than they did in 1994.

4. Provision of Affordable Housing "...we expect City Council to place an affordable housing requirement on the project..." In spite of affordable housing in Mililani Phase I and II, these requirements were constantly lessened as the town was developed at the request of the developer. Adding more low cost housing, attracting young families with children, will only further strain our schools and facilities.

D. Public Facilities, Page 42 "...683 units can be considered replacement units" This further illustrates how faulty and underestimated original planning was, because, even without those 683 planned units, our facilities are stretched beyond capacity.

1. Transportation, Page 43

The "Traffic Assessment for Mililani Mauka Phase 3" 2001 compared the addition of 823 residential units vs. traffic on a university site, but does not include a comparison of traffic for a needed high school. On the chart, the Phase 1, 2 and 3, with residential vs. university, shows less AM Peak Exit from Mililani. With the addition of 823 homes, this would be impossible (unless this were an old folks home). AM University traffic would have been coming into the area, not exiting! PM peak enter is less for residential vs. university, which is also highly unlikely, as 823 X 2 adults return from work. The University would not have had 1,600 students attending night classes! PM peak exit is inconsequential, as the traffic would be contra flow to the current traffic jam coming into Mililani.

2. Water

Again, water for a private or public high school would be far less than residential water use for 823 homes.

5. Schools, Page 47

"....The Mililani Mauka Development provided land for two elementary schools and an intermediate school (middle school)...." Land provided for the first elementary school was far below the required DOE edspecs of 12 acres. The LUC zoning document required adjoining 4-acre community parks, which have not been provided. (A fire station and portables sit on the playground at Mauka Elementary 1.) The school is already more than 200 children over capacity with 6 portables. The Intermediate was originally planned for two grades, which would have required 18 acres under current DOE edspecs. (The intermediate school on 20 acres in Mililani Town was never built as planned, and condos were built there instead.) The current middle school (1800 children on a multi-track schedule) is on no more than 12 useable acres of land instead of the required 18 acres. The school is more than maxed out and only ½ of Mauka is developed. Adding 823 more homes would mean that new children would have to go toWahiawa to go to school.

The new elementary school is only being planned for 650 students. Three hundred will be moved from Mauka I to open the school, leaving only enough room for 350 more students. Since the second half of the development, even without the 823 additional homes, will produce about the same amount of children (1,100), a new elementary school will be needed—but there will be no more land left for development if the 100 acres is used for homes. The environmental impact statement erroneously states there will only be 143 units additional. There will be 823 homes over current numbers, and the DOE formula of 25% has consistently underestimated number of incoming children by about 20%. It does not matter how the DOE is looking at resolving overcrowding. The fact is that there is overcrowding, disproving the earlier statement that facilities are "more than adequate" (Page 47). The state zoning ordinance requires "adequate educational facilities". Although a City & County condition under unilateral agreements, a certification of adequate facilities from DOE has never been submitted. The high school will also be impacted by the new development. The site already contains dozens of portables and enrolls over 2,000 students.

6. Parks

The proposed district park is less than the 20 acres required in zoning documents. (only 70 stalls will be provided), the 12 acre passive park has no parking lot, and, as mentioned before, two four acre community parks have not been provided as required. The community park was built as a running trail through the ravine and has no parking.

A. Noise

1. Impacts

Complaints from residents regarding noise from the Army's East Range activities have been well documented in the news and at community meetings.

B. Air Quality

Where is the current study to show compliance with current requirements for maximum carbon dioxide emissions (requirement to have ½ the 1987 levels)? What are current levels?

2. Mitigating Measures

Limiting the number of vehicles on the road can reduce vehicle emissions. This project will actually increase the number of vehicles on the road, making compliance with air quality standards questionable. Buses add pollution too.

D. Historic and Archaeological

A "brief walk though" in 1985 would not seem adequate to address historical events attached to this area.

7. Open Space (page 59)

"...The existing open space has long been planned for urban development, first as a university site and now as a residential development in keeping with the existing residential development that occurs in Miliani Mauka Phase I and II." Developing this area as residential would not keep with the existing land use zoning agreement to provide "adequate educational facilities". Keeping with the master plan of Mililani would require this land to be used as educational facilities, as we do not have the infrastructure to support more residents. 823 houses on this land does nothing to provide "open space".

VIII. Alternatives Considered

A. Less Intense Alternative
The less intense alternative would not be to add more expensive homes it would be to add a much needed school, due to Mililani's current infrastructure crisis.

B. More Intense Alternative
Just as we cannot sustain 823 more homes, we certainly cannot sustain 1,440 miniature condominiums. I agree that 1,440 more homes would have "***significant impact*** to the water, sewer and road infrastructures", equal to adding 823 larger, single-family homes with higher occupancy rates than in 500 sq. ft. condos.

KUSAO & KURAHASHI, INC.
Planning and Zoning Consultants
MANOA MARKET PLACE
2752 WOODLAWN DRIVE, SUITE 5-202
HONOLULU, HAWAII 96822

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E-Mail: kurahashi1@cs.com

June 8, 2001

Ms. Laura Brown
94-1060 Anania Circle, #116
Mililani, Hawaii 96789

Dear Ms. Brown:

Subject: **Draft Environmental Assessment, DPP File No. 2001/CO-1 Mililani Mauka Phase III Development Plan Land Use Map Amendment form Public Facilities to Residential and Low-Density Apartment, Mililani Mauka, TMK 9-5-49: Por. 27**

Thank you for your response, dated March 8, 2001, to the Department of Planning and Permitting on our Draft Environmental Assessment (Draft EA) and the proposed Development Plan Land Use Map Amendment for Mililani Mauka Phase III.

In response to your comments:

1. Page 8, Para. B. SURROUNDING USES. Our discussion of surrounding use was focused on the uses that are immediately surrounding the project site as indicated in the Development Plan Land Use Map, Exhibit 6. We will, however, include the following additional information in the Final EA:

   "Beyond these surrounding uses, there are the Department of the Army East Range Training Area (east of the Laulani Valley development), the existing and proposed Mililani Technology Park (north of the Laulani Valley development), agricultural designated lands (west of the H-2 Freeway) and schools, parks, commercial and residential developments of Mililani Mauka (south of the District Park and Olaloa Senior Living development)."

2. Page 17, Para. D. PROJECT NEED. The project need section was based on a "Market Study of A Master Planned Community at Koa Ridge Makai and Waiawa" (Market Study) prepared for Castle & Cooke Homes Hawaii by Prudential Locations Real Estate Sales & Research, on file at the Department of Planning and Permitting. The Market Study considered the housing units approved but not yet developed; the demand for housing units; and the supply of housing units based on projected development of the major projects in Central Oahu. These three criteria in combination resulted in a determination that there will be a shortfall in supply versus the projected demand.

   The Market Study demand was developed based on the projected buildout of the major projects in the area. It was determined that, over the buildout period of Mililani Mauka Phase III (Phase III), there will be a shortfall in supply based on the projected demand.

3. Page 21, Para. C. Condition No. 10 in the State Land Use Commission Findings of Fact, Conclusions of Law and Decision and Order for Docket No. A87-609, related to Phase III reads as follows:

   "Areas designated by Petitioner for the university shall not be used for other purposes without prior Land Use Commission review and approval of the proposed alternative use or uses, unless the University of Hawaii notifies Petitioner not to locate at Mililani at the designated site."

   Since the University of Hawaii has notified the Petitioner that the University will not be locating a campus at the Phase III site, the Petitioner (applicant) can consider other uses for the site without further review by the Land Use Commission. There is no requirement to find other educational uses for the Phase III site in the Land Use Commission condition.

4. Page 21, 226-5(b)(7). In the Waipahu-Wahiawa Aquifer System, the Commission on Water Resource Management adopted a sustainable yield of 104 mgd for this system. The present water use permit allocation totals 82.501 mgd, resulting in a balance of 21.499 mgd. Mililani Mauka Phase

III will have a demand of 0.383 mgd which would require just a small fraction of the available balance.

The Board of Water Supply (BWS)commented that they have no objections to the proposed project. Our Draft EA indicates that we will be drawing our water from existing BWS wells.

5. Page 22, 226-6(b)(6). The Koa Ridge development is expected to provide units between 2006 and 2018, while Phase III will provide units between 2003 and 2006. Most of the Phase III units will be completed and absorbed by the market place before the Koa Ridge development delivers units. The Market Study indicates that there will be a shortfall of 1,463 units between 2000 and 2004 and about 390 units per year between 2005 and 2009.

6. Page 23, (b)(7). The Phase III site is designated urban and represents an infilling of the master planned community of Mililani Mauka. All major utility transmission lines have been constructed and sized to accommodate the full development of Mililani Mauka (including the former University planned at Phase III) and are adequate to service the planned development. Since the University site involved a relatively intense urban use, the facility requirements with the proposed change to residential and apartment development has resulted in a reduction in the projected demand for sewer, water, wastewater and traffic. It is expected to either be equal or slightly less for other services, except parks and education, based on the increase from 6,600 units and a university (original plan) to 6,643 with no university (current plan). We have provided or will be providing park land well in excess of park dedication requirements, even with the additional units planned in Phase III. Based on discussions with the Department of Education (DOE) and DOE's presentation at the March 20, 2001 meeting of the Mililani Mauka/Launani Valley No. 35 Neighborhood Board, the schools in the area will be able to handle the increase in enrollment projected from the proposed Mililani Mauka Phase III development (based on current projections).

Based on comments received through the review of the Draft EA from various State and City agencies, public facilities necessary to support the development of Phase III are adequate, planned or will be funded by the applicant.

Based on discussions with staff at the Department of Education (DOE), we understand that the use of multi-tracking and portables, has been necessary to accommodate peak enrollment periods that may occur at certain schools. These have been tools that are used to accommodate spikes in enrollment when the increases are not significant enough to warrant construction of a new school. The DOE recognizes that in many cases a peak enrollment period eventually subsides and the school will return to a period of below capacity enrollment. In certain areas when enrollment dips too low for an extended period of time attempts at school closure becomes another possibility, although extremely rare.

7. Page 24, 226-19(a)(1). Phase III in Mililani Mauka is expected to provide a mix of home types similar to the rest of Mililani Mauka with multi-family and single family units. The homes will also represent a mix of prices including affordable, entry, middle and upper market. We do not consider homes on 3,500 square foot lots to be "tinker toy" homes, but feel that they provide an important function in providing affordability for first time home buyers or upgrade buyers that want to move from a multi-family unit to a single family unit for the greater privacy and independence afforded. With appropriate landscaping, the aesthetics of the community will be enhanced.

8. Page 24, 226-19(a)(2). The existing Development Plan calls for a university development on the project site in recognition of its urban designation. However, with the University of Hawaii committed to an Ewa site for the future West Oahu Campus, the reality is that a university will not be developed on the site. In looking at the surrounding development, residential use appears to be the most appropriate use and one that is compatible with the surrounding residences. The most compatible use that you can have is a use that is similar to or exactly like the one next door. Next door or in the surrounding area, we have residential and apartment uses similar to the ones planned on Phase III.

The Land Use Commission was formed to establish appropriate lands for Urban use and to set aside lands needed for Agricultural use and Conservation. The Phase III site is designated for Urban use by the State Land Use Commission and as mentioned in item No. 3 earlier, the change to residential and apartment use does not require further review by the Land Use Commission since the University of Hawaii has notified the applicant that the Phase III site is not needed for a university campus.

9. Page 24, 226-19(b)(1). The applicant has provided the affordable housing required by the City to date. The affordable housing is provided according to a schedule approved by the City and is provided in conjunction with the provision of market housing.

10. Page 26, 226-19(a)(6). The applicant has had discussions with private schools in the past about the possibility of developing a campus in Mililani Mauka. However, due to lack of interest on the part of the private schools, discussions did not progress beyond preliminary meetings.

11. Page 27, 226-104(c)(2). As mentioned earlier, based on comments received through the review of the Draft EA from various State and City agencies, public facilities necessary to support the development of Phase III are adequate, planned (including schools) or will be funded by the applicant.

12. Page 27, 226-104(b)(6). As mentioned in a comment letter on the Draft EA from the Department of Education the applicant's previous fair share requirement for Mililani Mauka covers the number of units proposed in this (Phase III) application. As mentioned earlier, the applicant has had discussions with private schools in the past about the possibility of developing a campus in Mililani Mauka. However, due to lack of interest on the part of the private schools, discussions did not progress beyond preliminary discussions.

13. Page 28, State Functional Plans; Housing Plan. The State designates the site for urban use. The City through its Development Plan designates the site for public facility use, however, this designation was placed on the site

based on the University of Hawaii's earlier plan for a campus at Phase III. With elimination of the campus plan it is appropriate to consider some other urban use, as was provided for in the State Land Use Commission condition related to this site. We feel that residential and apartment development is the most compatible use based on surrounding uses.

14. Page 28, Objective A, Policy A(1). As mentioned earlier, the applicant has met the City's affordable housing requirement to date.

15. Page 29, Objective A, Policy A(3)(a). The standards, aesthetics and quality of life in Mililani Mauka will not be compromised. The development will be similar to other developments in Mililani Mauka with similar landscaping and workmanship. We are not trying to fit in as many homes as we can on the site. We are asking for R-3.5 Residential and A-1 Low Density Apartment zoning. To maximize the units on the site we would have asked for an A-2 Medium Density or A-3 High Density Apartment District zoning designation which would have allowed substantially more units on the site than we are proposing. As mentioned earlier, the infrastructure is adequate to support the proposed development. We do not foresee a reduction in home values on surrounding properties, since the proposed units will be similar to the mix of units in the surrounding area.

16. Page 30, Population Objective C, Policy 2. The Phase III site is in Central Oahu, an area considered "urban-fringe" by the General Plan.

17. Page 30, Population Objective C, Policy 3. As mentioned earlier, facilities and services are adequate to service the proposed development. This is a Master Planned Community and as the demand or desire changes the Master Plan changes to recognize the shift. The university is not coming to this site and the most compatible use in terms of appearance, use and density is the mix of dwellings that we are proposing. It would have been out of character to propose large half acre to one acre gentlemen estates or medium to high density apartment units. The Mililani Mauka development is characterized by residential and low density apartment development, as is proposed here.

18. Page 31, Population Objective C, Policy 4. The Distribution Chart does not reflect existing regional development, but it does reflect the current regional plans for development, as established in the General Plan. This is the distribution that the City should be moving towards to implement the General Plan.

19. Page 32, Housing Objective A, Policy 3. We are proposing to provide some of our affordable product as single family dwellings to meet the market demand for affordable single family units. We will not be stacking houses nearly one on top of the other, as we will meet the same minimum set back requirement as on other residential zoned properties. A two story unit on a 3,500 square foot lot can be designed to provide as much open space and landscaping as a one story unit of similar size on a 5,000 square foot lot.

20. Page 33, Housing Objective C, Policy 1. The 104-acre Phase III site was planned for a university, not for more general educational purposes. The State Land Use Commission and the Development Plan recognizes that. Since the university is not coming, an alternative use needed to be found. The Department of Education, has indicated that the schools in the area will be able to handle the increase in enrollment projected from the proposed Mililani Mauka Phase III development (based on current projections).

21. Page 33, Housing Objective C, Policy 3. The Mililani Tech Park provides approximately 900 jobs and we do not consider it inconsequential. The various employment centers all have contributed to the demand for housing in both the Ewa and Central Oahu Development Plan areas, two of the fastest growing areas on the island. All the people that work in Waikele will not live in Waikele and all the people that work in Kapolei will not live in Kapolei. The workers in the employment centers will come from various parts of the island. The convenience of Central Oahu to Ewa and vice versa makes both communities attractive in terms of quality, price and commute time to the Leeward area employment centers. Just as the Primary Urban Center has provided jobs for residents throughout the island, it's hopeful that Secondary Urban Center, which continues to grow,

will provide jobs for residents in the Leeward area and beyond, with an emphasis on the Leeward area. We believe that the Town Center provides a variety of jobs from minimum wage to managerial levels (including professionals, such as doctors and attorneys) and whether you earn minimum wage or a six figure salary, you still need a place to live, the demand for housing is still there.

22. Page 35, Development Plan. The proposed development has adequate facilities and services to support it. The social character and lifestyle will not undergo a significant change. The overall density of Mililani Mauka has tended to be spread out a little more than originally envisioned and that is why the difference in unit count with the addition of this 104-acre site is just 143 units over the originally proposed 6,600 units. In looking at the surrounding development, residential use appears to be the most appropriate use and one that is compatible with the surrounding residences.

23. Page 36, Oahu Water Management Plan. In the Waipahu-Wahiawa Aquifer System, the Commission on Water Resource Management adopted a sustainable yield of 104 mgd for this system. The present water use permit allocation totals 82.501 mgd, resulting in a balance of 21.499 mgd. Mililani Mauka Phase III will have a demand of 0.383 mgd which would require just a small fraction of the available balance.

    The Board of Water Supply (BWS)commented that they have no objections to the proposed project. Our Draft EA indicates that we will be drawing our water from existing BWS wells.

24. Page 39, VI. Socio-Economic Impacts. Infrastructure and facilities are adequate to support the proposed Phase III development.

25. Page 41, C. Housing, 1. Intended Market. Our purchaser profile utilized sales between May 25, 1988 and March 31, 2000 to determine where our buyers were coming from. We felt that the current nature of this profile was important to ensure that variation due to old data would not be a factor.

26. Page 42, C. Housing, 3. Affordable Housing. As mentioned earlier, the applicant has met the City's affordable housing requirement to date. Facilities are adequate to service Phase III.

27. Page 42, D. Public Facilities. Facilities are adequate to service Phase III.

28. Page 43, 1. Transportation. The Traffic Assessment compared the pre-development estimate for Mililani Mauka with 6,640 units and the university versus the current plan for 6,743 units and no university. If we had compared the proposed 826 dwelling units to the university, you are correct that the number of exiting vehicles during the am peak hour would have been greater with the 826 units. However, for all other peak hour traffic the university would have generated significantly greater traffic. There are no plans for a high school at this location.

29. Page 44, 2. Water. There are no plans for a high school at this location.

30. Page 47, 6. Schools. Land provided for the existing Mililani Mauka Elementary School satisfied requirements imposed by the Department of Education (DOE) at that time. There exists no ordinance or document requiring 4-acre parks next to schools. The Department of Planning and Permitting has indicated that, based on input from DOE, conditions and requirements pertaining to educational facilities have been met.

    The existing Mililani Middle School is built on 15.8 acres contributed by the Applicant. The original master plan and rezoning ordinance included a 12-acre site, based on then current DOE specifications. Subsequent to rezoning, the Applicant came to an agreement with DOE to provide a 15-acre site or an alternative 20-acre site located within the proposed Mililani Mauka Phase III. The DOE elected to utilize the 15 acres at the current location. During the design process, the applicant agreed to provide an additional 0.8 acres to facilitate site planning and design.

    References to 143 additional units are based on a comparison to the original master plan and EIS, which included 6,600 units and a university site (proposed Mililani Mauka Phase III). Educational and other facilities were planned and constructed based on the original plan. Based on current

enrollments and the applicant's current plan including Phase III, the DOE has indicated that existing and planned facilities are adequate and the applicant has made its fair share contribution.

31. Page 48, 7. Parks. We understand that the Department of Planning and Permitting in a response to you dated March 22, 2001 has responded to the issue of park requirements associated with Condition 11 of Ordinance No. 89-123. In summary, the Department stated that: "As of November 2000, the park dedication requirements for 3,849 units developed under Ordinances 89-123, 93-23, and 95-55 had been met by these four projects. An additional 614,870 sf land credits were still available to meet the requirements for additional units to be built in Mililani Mauka." The four projects mentioned included: land for a 16-acre City District Park; Mililani Mauka Private Recreation Center 5; Mililani Mauka Private Recreation Center 6; and land for a 12-acre City Community Park.

32. Page 50, A. Noise. The proposed Mililani Mauka Phase III development is situated about 4,000 feet from the East Range Training area and we do not expect a significant impact on the residents of Phase III from East Range activities. Only a few complaints have been received about activities occurring at the East Range and these complaints have come from residents that live east of Phase III, closer to the East Range.

33. Page 52, B. Air Quality. An air quality study has been completed and will be included in the Final EA. The study has found that compliance with federal and state carbon monoxide standards is demonstrated under worst case conditions of meteorology and peak hour traffic and no special mitigative measures are required.

34. Page 55, D. Historic and Archeological. The State Historic Preservation Division has reconfirmed their belief that this action will have "no effect" on any historic sites. This was supported by their determination that there are no known historic sites at this location and the fact that commercial cultivation of pineapple has altered the land for many years, at depths that exceed the expected depth of historic sites in the area.

35. Page 59, 7. Open Space. The Department of Education has determined that their facilities are adequate to support Phase III. The master plan called for the site to be used as a university campus, which we now know will not happen.

36. Page 60, VIII. Alternatives Considered. The Department of Education has decided that facilities are adequate to support Phase III. A school site is not needed for the Phase III development.

    With a more intense development of 1,440 low-rise apartments versus 823 (single family residences and low-rise apartments), the impact to water, sewer and roadways is significantly greater.

Your letter dated March 8, 2001 and this response will be included in the Final EA for the project.

Very truly yours,

Keith Kurahashi

Keith Kurahashi

cc: Castle & Cooke Homes Hawaii, Inc.

March 7, 2001

'01 MAR 9 PM 4 25

DEPT OF PLANNING
and PERMITTING
CITY & COUNTY OF HONOLULU

Mr. Randall Fujiki, Director
Department of Planning and Permitting
City and County of Honolulu
650 S. King Street, 7th Floor
Honolulu, Hawaii 96813
Attn: Mr. Eugene Takahashi

Dear Mr. Fujiki,

In accordance with the OEQC *Bulletin* of February 8, 2001, attached is my comments of the Castle & Cooke's "Development Plan Use Map Amendment and Environment Assessment from Public Facilities to Residential and Low Density Apartment for Mililani Mauka, Phase III," dated January 2001. I have concerns about three major impacts of this Environment Assessment and they are schools, parks and transportation.

Schools (page 47 #6): This has been a major problem and concern of residents of Mililani Mauka and Mililani Town area. Families buy homes in Mililani Mauka because of the advertisements of new high technology schools. Parents are willing to spend the extra cost of a home because they are not under the pressure of paying for private schools for their children. Yes, another elementary schools is planned for Mililani Mauka (multi-track) but this school will not be adequate for the added population of Phase III (I sit on the design team). This document does not state that the middle school is already at capacity and the high school will be (in two years) the largest high school in the state with over 2,400 students. The middle school and high school are bulging at the seams. The middle school is on a multi track (4-track) system and will be adding 6-8 portables next year (so moving to a multi-track schedule will not solve the problem since they are already on this schedule). The other solution is to change the students at the middle school from 6th, 7th and 8th graders to 7th and 8th graders. The Department of Education spent over a year convincing parents that this was a better grouping even with parent protests. Will this heal the trust between parents and DOE??? Even with a new 8-classroom building (built three years ago), the high school has over 21 portables on its campus. The complex school SCBM councils had a joint meeting last month and the Department of Education. They discussed redistricting students on the down side of Kamehameha Highway to attend Wheeler Middle school. I suggested to Castle and Cooke to redistrict the new homes in Phase III to go to Wheeler Middle school. It is better to be up front with homebuyers and to disclose what schools their children will be attending. Castle and Cooke were stern that Mililani students will stay in Mililani but HOW?? The middle school and high school are dealing with crowd control rather than a nurturing learning environment and our children are suffering.

Parks (page 48 #7): Unlike Mililani Town, Mililani Mauka's lot sizes are small. With limited yard area, parks and recreation centers are needed for the children and youth. Phase III is located in a secluded area of Mililani Mauka. Ukuwai Street will become the main street to enter Phase III. Ukuwai is a two-lane road and this will become dangerous for children and youth walking to and from the District Park. The nearest recreation center #6 is not walking distance and the new #7 will be too far (across from the new elementary school). Recreation #5 does not have a swimming pool or play area (it only contains a large party room). Phase III will have a lot of children playing on the streets and/or in the parking lots. Playing in the parking lots has become the norm for other multi-attached complexes in Mililani Mauka. The playing fields of the schools are off limits to the community and the Community Park is used by the middle school during school hours and for organized sport leagues after school and on weekends. The passive park is a tot park and has limited uses. If you look at Phase III it has no open space, cut off by the freeway, surrounded by a gulch and one gully.

Transportation (page 43 #1): The statement "proposed change to develop Phase III as residential units instead of a university will results in less traffic entering and leaving Mililani Mauka than previously estimated" is a troublesome statement. Less traffic during the day but traffic at the same time trying to get in and out of Mililani Mauka. Mililani Mauka has only one way in and out. The main entrance is Meheula Parkway. This area is back up in the mornings and evenings. With having only one entrance, in a disaster **NO ONE** could enter or leave. We have seen this happen to other communities like Wai'anae and Pacific Palisades and this would happen to Mililani Mauka. If we were to have a major hurricane and the freeway bridge goes down----what will the residents of Mililani Mauka do when the nearest shelter is at the High school and that is on the other side of the freeway?

Nothing is said about the impact of H2 at the interchange at Leeward community college. Other developments are planned for Central Oahu (Koa Ridge)/North Shore and Kapolei/Ko'olina. We all met each morning trying to go to downtown. Kapolei will soon become the second city but there are no plans of expanding the access to Kapolei. Right now there is on single road from H2 to go to Leeward community college and Kapolei. This concern has been brought up repeatedly at the Central Oahu Sustainable Communities Plan and the Trans2K meetings with nothing planned for the future. Residents are leaving their homes at 4-5 am to beat the traffic. They sit in town waiting still they start work at 7-8 am and return home when the sun sets. We need input from these residents but they are unable to attend evening community meetings because they already in bed---is this quality of life?

Above all I am troubled by **XII. Notification Requirements** and it states: "Affected neighborhood and area residents have been notified in accordance with the requirements of Ordinance No. 84-111. A list of the abutting residents and

neighborhood board that have been notified, along with the certifications of compliance with the notification requirements is included in Appendix V." . I sit on the Neighborhood board #35 Mililani Mauka/Launani Valley and we have been trying to get Castle and Cooke to present this new development to the community. They were on the agenda for our January 2001 meeting but canceled and were unavailable for our February 2001 meeting. Castle and Cooke will be presenting to the Neighborhood board after the input date of March 10, 2001. At the February 2001 meeting we were given a copy of the report, I don't know if notification is to be given a copy of the report to Neighborhood board members? The general public has not been given the information and will not have an opportunity for input prior to the input date of March 10, 2001. When will the general public be informed??? I am getting tired of the "done deals" and spending energy after the fact to give input. We the community have to live with the outcomes and are questioning the concept of "Planned community."

If you have any questions or need additional information, please feel free to contact me at 626-0032 home or work 668-2314.

Sincerely,

Jeanette Nekota
Mililani Mauka Resident
95-1008 Kahonua Street
Mililani Hawaii 96789
Telephone number 626-0032 work 668-2314

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June 8, 2001

Ms. Jeanette Nekota
Mililani Mauka Resident
95-1008 Kahonua Street
Mililani, Hawaii 96789

Dear Ms. Nekota:

Subject: **Draft Environmental Assessment, DPP File No. 2001/CO-1 Mililani Mauka Phase III Development Plan Land Use Map Amendment form Public Facilities to Residential and Low-Density Apartment, Mililani Mauka, TMK 9-5-49: Por. 27**

Thank you for your prompt response, dated March 7, 2001, to the Department of Planning and Permitting on our Draft Environmental Assessment (Draft EA) and the proposed Development Plan Land Use Map Amendment for Mililani Mauka Phase III.

In response to your comments:

1. Schools (page 47, 6.). Based on current enrollments and projections, the Department of Education has indicated that existing and planned facilities in Mililani can accommodate the projected enrollment from the proposed project.

2. Parks (page 48, 7.). We have met our park dedication requirements for Mililani Mauka and expect to provide more park land and improvements than would normally be required for a project of this size. The apartment areas planned may have their own private park and/or recreational areas. When the Mililani Mauka Phase III (Phase III) is developed, the streets in the area will be improved with sidewalks and will provide safe access to the District Park. The 16-acre District Park will provide ample opportunities for recreation, in close proximity to the phase III development.

3. Transportation (page 43, 1.). The situation with a single entrance is not an uncommon situation. In the case of Mililani Mauka, should the freeway bridge go down, the access ramp to travel north on H-2 Freeway would provide access to Wahiawa or back to Mililani via Kamehameha Highway. Should the ramp be closed, there may be other opportunities to access the freeway in an emergency, from one of the lots located adjacent to the freeway. Should the City or State determine that an emergency access would be necessary, perhaps an unpaved pathway down to the freeway can be accommodated in the planned low density apartment area adjacent to the freeway with access from one of the project's planned parking areas. Development in this area would improve the accessibility of the area adjacent to the freeway.

   We will expand the discussion on traffic impacts to include a comparison of existing traffic volumes and level of service on H-2 freeway with the future traffic volumes and level of service without the project and with the project.

4. Notification Requirements. In Ordinance No. 84-111, the notification requirement is that the "applicant notifies, by mail, all owners, lessees, sub-lessees, and residents of the affected property and of each abutting parcel." This notification has occurred. In addition, we have also notified the neighborhood board by mail. Since receipt of your letter, Castle & Cooke has presented the project at the March and April, Mililani Mauka/Launani Valley Neighborhood Board meetings. We have received comments from the Board and their comments and our response will be included in the Final EA. We have unilaterally extended the deadline for the comment period to accommodate late comments. There is still to come a public hearing before the Planning Commission on the proposed Development Plan amendment and a public hearing and two additional readings and two Zoning Committee meetings at the City Council. Each of these meetings presents additional opportunities for public input. In addition, Zone Change application is also being processed for the project and the neighborhood board and community will have ample opportunities to comment in that process. Our requested Development Plan amendment and zone change application is not a "done deal" it will be reviewed and

considered by the Department of Planning and Permitting and the Planning Commission, before it is decided upon by the City Council. After that, should the City Council decide to approve the project, the Mayor will have an opportunity to approve or veto the Development Plan amendment ordinance or the zone change ordinance.

Your letter dated March 7, 2001 and this response will be included in the Final EA for the project.

Very truly yours,

Keith Kurahashi

Keith Kurahashi

cc: Castle & Cooke Homes Hawaii, Inc.

MR. RANDALL FUJIKI, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET 7th FLOOR
HONOLULU, HAWAII 96813

ATTN: MR. EUGENE TAKAHASHI

DEAR MR. FUJIKI:

Attached are my four pages of comments of our review comments of Castle & Cooke's Development Plan Use Map Ammendment and Enviromental Assessment from Public Facilities to Residental and Low Density Apartments for Mililani Mauka PhaseIII dated January, 2001.

Please take these serious needs and concerns into your response .

I am asking you to include my response in the review today.

If I can answer any questions, please phone me at 372-5468 cel or623-3288.

CORDIALLY,

MARYANNE SELANDER
Nieghborhood Board #25

Review Comments Regarding Castle & Cooke's Development Plan Land se Map Amendment and Environmental Assessment From Public Facilities To Residential and Low Density Appts FOR MILILANI MAUKA PHASE III

Pg 5-8 Observation "This is REALLY not valuable land. We just have a little old field office & warehouse & our Tree Farm" (Norfolk Pines grow in a minute..cheap up front expensive later)

Reality: This ultra prime land is now surrounded by built out home sites, landscape 6 years mature. The fire station, McDonalds, Elementary School, Dist. Park are all within eye sight. ...Plus a short jump to the Freway..great appeal for road running buyers...and less wet that upper Mauka.

"A MASTER PLANNED COMMUNITY" must give serious thought to reserve to future need. To open space, as a University or other school use would create. Traffic to and from a campus type inity does not create the same traffic as 826 living units...and services and vehicles owned by residents...for personal business etc. 826 units is at minimum 1,652 cars...and this developer is fond of ½ estimates for children and cars...I predict the units will generate 2,100 plus cars.

The proposal for "Mililani Mauka Phase III is a NEW OPPORTUNITY for the developer to re-invent the VALUE of this land to new HIGHEST AND BEST RETURN FOR THE DEVELOPER.

Changing zoning to A-1 is an instant increase in value for this land. A proposal for 304 additional tiny properties these young families will out grow and be penalized by high and uncontrolable maintenance fees.

pg 8 This proposal calls for 304 units...A-1 multi units. The Developer has completed 80 units...states he will begin construction on 280 additional units in 2001....AND THEN ADD THESE 304 ADDITIONAL STACKED UNITS.

304
360
664

Estimates on the number of children these units will generate need to be much higher on the number who will impact the existing elementary school...forcing the re alignment [illegible] farther up and impacting the 2nd elementary school.

DOE AND THE DEVELOPER have eliminated the park...4 ACRES required under the uniladerial agreement...which requires a 4 acre park by each elementary school. There is not sufficent space for children to play, be off streets, and within their immediate neighborhood. THAT IS WHAT DEFINES A PLANNED COMMUNITY.

pg 17 C PROJECT COST Note land value is stated at $5,300,000. ...and a "built out value of $188,800,000.

pg 15-16 Breaking down the proposed units by SOME PROPOSED MARKET PLAN allows great diversity in pricing these units to the possible upward market. HOW DOES THIS FURNISH THE DECLARED MARKET ENTRY AFFORD/ENTRY ETC.

The zoning for a-1 and the vague defination of valued property

prices...into the future has allowed great lee way for WHAT EACH Increment actually becomes.

The 683 units which the Developer states were not built in the Mauka Phase I & II.....Were simply a change in the type of unit built and sold. The demand was for larger homes. For the High Market Time....$500,000....down to $400,000. These units ate up small house sites....however the developer realized more than his orginal anticipated return.

Without regard to profits realized: THE NUMBER OF CHILDREN OF SCHOOL AGE WAS GRAVELY UNDERESTIMATED....AND WE NOW HAVE 2 NEW SCHOOLS.....OVER $65 MILLION DOLLARS AND PORTIBLES AT $130,000. EACH ARE RAPIDLY FILLING UP THE LAND....WHICH WAS TO BE PLAY GROUND FOR OUR CHILDREN.

THE NEWESTED SCHOOL...NOW BEING PLANNED MUST BE EXPANDED TO A FULL SIZE SCHOOL.

OR DOES THE DEVELOPER WANT TO FURNISH ANOTHER SCHOOL SITE AND DEVELOPER ASSIST IN FRONTING MONIES FOR CONSTRUCTION COSTS...AND LATER RETURN BY THE DOE?

pg 21 C 226-5 (b)(7) Because we can <u>now</u> see a serious under estimation of facilities....schools, parks, parking, community use buildings, it is obvious we have a community without sufficent guarantee of water and transportation with the balance of 3,500 homes to be built Mauka.

We cannot permit more living units constructed.

This land needs to be used as orginally planned. For School type use, senior day community services. Special children's day care use. These uses will not tax the already fragile water consumption.

pg 24 (a)(1) This site is not needed or appropriate for more housing units. We have no indication that education or transportation or surrounding use of lands is supporting the needs and lives of Mililani.

(a)(2) We have had considerable evidence the developer and City & County do not support the military activity required at Schofield Barracks and Wheeler Army Air Field to guarantee continued employment and patronage at our retail centers.

Placing more housing in any area that will effect the effort of the military is extremely counter productive to our population.

It is important to remember said developer will have completed building and LEFT THE COMMUNITY in a few short years.

pg 31 Objective C Policy 4

The population for central Oahu is at 16.5% with approved land re-zoning. There is no evidence of any relief in transportation...schools...space...parks...

pg 39 A Demographic

1 Residential population. Again. The approx 685 units the developer states were not built...1) larger units with more profit replaced. 2) Schools are bursting at the seams. WHAT IF WE ALREQDY HAD 1½ MORE CHILDREN IN EACH OF THESE "UNBUILT" LIVING UNITS...WE WOULD HAVE AN ADDITIONAL 1027 CHILDREN ALREADY....WE WOULD NEED ANOTHER FULL SIZE TRADITIONAL SCHOOL RIGHT NOW.

pg 43 1 Transportation. Again...the number of units proposed for this site will bring approx 2100 cars ADDITIONAL TO THE AREA...AND FOR INGRESS AND EGRESS TO THE FREEWAY.

pg 47-48 Public Facilities
6) Schools. Three schools will not accomidate our children for the next 30 plus...maybe 50 years. The middle school which was terribly undersized is overflowing. We will soon find the penalty we are to pay for no time for remedial classrooms when they are already used on 4 cycles.

We will soon have far more serious reports of vandalism and other serious social problems with all of thse very young children scattered free in our town every day.

pg 50-51 NOISE Again. The military have been in the area for more than 100 years. They impact the economy sooo very seriously from potental home buyers to employment to support of our retail malls. THE MAGIC NEW EMPLOYMENT ISN'T GOING TO COME ANYTIME SOON. DO NOT THROW AWAY WHAT IS GOOD AND SUCH GOOD EMPLOYMENT AND SOCIALLY DESIRABLE.

pg 52-54 AIR & WATER.

We have several times through the developing years of Mililani Town & Mililani Mauka experienced very very big droughts. It effects all of our vegetation...which means effects our air for breathing. and the developer will build out and disappear. WILL CITY & COUNTY FIND SOLUTIONS TO BAD DEVELOPMENT...AFTERWARD?

pg 60ALTERNATIVES. This dance in the dark by the preparers of this proposal could also have written we could fill the 104 acres full of hi-rises. OF COURSE NOT.

This narrative fails to defend the costs and benefits of a no build no development solution....and the prices of the properties and the mixes they split on two pages and dance back and forth between mid- upper- entry. That term has been re defined so many times during this development....ie

pg 52-54 continued. If a TRUE survey of all of the development phases and changes of zoning and lot sizes and tight placment of townhomes withoug any ammenties except a piece of concrete for parking....A RE ZONING FOR CASTLE & COOKE OF ALL OF THE LAND MAUKA OF THE TOWN CENTER TO A-1 ALLOWING A MAGIC INCREASE IN VALUE OF $50,000 to $75,000 PER TINY LOT. AND THE PLACMENT OF SINGLE FAMILY HOMES WHICH ARE REALLY STAND FREE TOWN HOMES...

CASTLE & COOKE DEFENDED THIS RE ZONE..." SO THEY COULD GIVE AFFORDABLE HOUSING"

IF THEY WERE REQUIRED TO SET ASIDE THE LAND AS THE DEVELOPMENT PROCEEDED.....AND THEY WERE NOT BUILDING THE LOW COST HOUSENG. ....THE DEVELOPER WAS ABLE TO PLACE AN EVER RISING COST ON THE "LOW COST HOUSEING"....REQUIRED UNDER HIS UNILADERIAL AGREEMENT

WHEN THE MILILANITERRACE UNITS WERE BUILT. THIS DEVELOPER WITH A COMMUNITY OF FEE SIMPLE HOMES WAS PERMITTED TO SELL LEASE HOLD LOTS FOR ALL OF THOSE TINY UNITS....$40,000 FEE INTEREST FOR A 2 Bedroom. 1 Bath.

THE REAL COST OF THE DIFFERENCE BETWEEN FEE AND LEASE WAS ABOUT 10,000 12,000 AND WHEN THE BOTTOM FELL OUT OF THE MARKET. ...THE DEVELOPER CONTINUED TO COLLECT $40,000 FOR THE FEE ON EACH UNIT

THE LAND VALUE HE HAD PUSHED TO A-1 HAS DROPPED $50,000 AT LEAST.

SUMMARY

The highest and best use of these 104 acres in in any and all types of land use that will benefit the community as the University 75 acres and the "Other school use of 25 acres plus would have created for us.

The added impact on our Schools must be resolved first. The impact on water use with an additional 304 small townhouse units...plus the 280 planned to be built NOW.

The traffic....BOB STANFIELD AT THE 15 PLUS MEETINGS I ATTENDED STATED WITH NO APPOLOGY: "WELL WE DO NOT SEE ANY DIFFERENCE IN SERVICE FROM CITY & COUNTY & STATE NOR CAN WE SEE ANY CHANCE OF ADDITIONAL LANES"

I paid my dues. We traveled 1½ to 2 hrs each way each day to live in this community when we had only Kam Hi Way...through Pearl City. We were promised a quality of life by this developer in exchange for moving herrand creating his planned city of 65,000.

MARYANNE SELANDER
Mililani Complex PTSA
Neighborhood Board #25
AdHoc Mililani Town Assc.
a First 100 Family

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June 8, 2001

Ms. Maryanne Selander
95-181 Hilinehu Place
Mililani, Hawaii 96789

Dear Ms. Selander:

Subject: Draft Environmental Assessment, DPP File No. 2001/CO-1 Mililani Mauka Phase III Development Plan Land Use Map Amendment form Public Facilities to Residential and Low-Density Apartment, Mililani Mauka, TMK 9-5-49: Por. 27

Thank you for your response to the Department of Planning and Permitting on our Draft Environmental Assessment (Draft EA) and the proposed Development Plan Land Use Map Amendment for Mililani Mauka Phase III.

In response to your comments:

1. Page 5-8. Our discussion on the existing use of the project site was a statement of fact, as required by the Department of Planning and Permitting. At no time did we state "This is REALLY not valuable land. We just have a little old field office & warehouse & our Tree Farm". Your reality comment hit the nail on the head, the project site, surrounded by existing homes and supporting uses is perfect for residential development.

   Based on discussions with the Department of Education (DOE) and DOE's presentation at the March 20, 2001 meeting of the Mililani Mauka/Launani Valley No. 35 Neighborhood Board, the schools in the area will be able to handle the increase in enrollment projected from the proposed Mililani Mauka Phase III (Phase III) development (based on current projections). The existing Development Plan calls for a university development on the project site in recognition of its urban designation. However, with the University of Hawaii committed to an Ewa site for the future West Oahu Campus, the reality is that a university will not be developed on the site.

If we had compared the proposed 826 dwelling units to the university, the number of exiting vehicles during the am peak hour would have been greater with the 826 units. However, for all other peak hour traffic the university would have generated significantly greater traffic. This master planned community had proposed 6,600 units and a university. Our revised master plan proposes 6,743 units and no university. The traffic under this change in the revised master plan results in a significant reduction in traffic for all peak hour trips.

Young families buying their first homes and empty nesters looking to downsize need homes just as much as established middle and upper income families. The low rise apartment units will offer homes to these buyers. Not many first time home buyers can afford a mortgage on a single-family residence. Maintenance fees for low rise and affordable apartments are relatively low in the Mililani area and do not increase at an uncontrollable rate.

2. Page 8. The DOE has determined that schools in the area will be able to accommodate the students generated by the Phase III Development.

   There exists no ordinance or document requiring 4-acre parks next to schools. The current master plan for Mililani includes 130 acres of parks, not including private recreation centers. This represents a surplus of approximately 40 acres over the required park space.

3. Page 17. So noted.

4. Page 15-16. Affordable units are expected to be required by the City and as such they will be monitored for affordability. Market entry units are found throughout Mililani Mauka Phases I and II, and will be provided in Phase III.

   The reason for not building the 683 units were two fold, one related to slopes and the other related to demand. The demand, however, was not necessarily for larger high end homes, and in fact all the single family residences in the A-1 zone were developed and sold as affordable units.

The DOE has determined that schools in the area will be able to accommodate the students generated by the Phase III Development.

5. Page 21. Based on comments received through the review of the Draft EA from various State and City agencies, public facilities necessary to support the development of Phase III are adequate, planned or will be funded by the applicant.

The project site was originally planned for a university campus, based on the plan by the University of Hawaii to locate a campus here. However, with the University of Hawaii committed to an Ewa site for the future West Oahu Campus, the reality is that a university will not be developed on the site. The original plans never called for other school type use, senior day community services, or special children's day care use.

Condition No. 10 in the State Land Use Commission Findings of Fact, Conclusions of Law and Decision and Order for Docket No. A87-609, related to Phase III reads as follows:

"Areas designated by Petitioner for the university shall not be used for other purposes without prior Land Use Commission review and approval of the proposed alternative use or uses, unless the University of Hawaii notifies Petitioner not to locate at Mililani at the designated site."

Since the University of Hawaii has notified the Petitioner that the University will not be locating a campus at the Phase III site, the Petitioner (applicant) can consider other uses for the site without further review by the Land Use Commission. There is no requirement to find other educational uses for the Phase III site in the Land Use Commission condition.

6. Page 24. In looking at the surrounding development, residential use appears to be the most appropriate use and one that is compatible with the surrounding residences. The most compatible use that you can have is a use that is similar to or exactly like the one next door. Next door or in the

surrounding area, we have residential and apartment uses similar to the ones planned on Phase III.

As mentioned earlier, based on comments received through the review of the Draft EA from various State and City agencies, public facilities necessary to support the development of Phase III are adequate, planned or will be funded by the applicant.

7. The proposed project is located at the northwestern boundary of Mililani Mauka and is not adjacent to military lands used for training. However, the applicant will continue to make appropriate disclosures regarding overflights and training in the area.

8. Page 31. As mentioned earlier, based on comments received through the review of the Draft EA from various State and City agencies, public facilities necessary to support the development of Phase III are adequate, planned or will be funded by the applicant.

9. Page 39. The DOE has indicated that schools will be adequate to support Phase III development.

10. Page 43. As mentioned earlier, this master planned community had proposed 6,600 units and a university. Our revised master plan proposes 6,743 units and no university. The traffic under this change in the revised master plan results in a significant reduction in traffic for all peak hour trips.

11. Page 47-48. As mentioned earlier, the DOE has indicated that schools will be adequate to support Phase III development.

12. Page 50-51. As mentioned earlier, the proposed project is located at the northwestern boundary of Mililani Mauka and is not adjacent to military lands used for training. However, the applicant will continue to make appropriate disclosures regarding overflights and training in the area.

13. Page 52-54. Droughts affect us islandwide. This argument could be used to stop any and all new development since all development would require water, even farming. Our island needs to provide for accommodating growth, as projected by the State. The bigger question is whether or not this is an appropriate location for residential development. We feel it is.

14. Page 60. The alternative of a development with greater density is legitimate. As is the no build/no development alternative which will be discussed in the Final EA.

    The reason that entry, middle and upper market prices vary is one of economics. The average cost of a home in different periods is affected by supply and demand, interest rate, and the state of the economy.

15. Page 52-54 continued. If the entire Mililani area mauka of the Town Center were changed to A-1 Low Density Apartment zone the resultant mix in units would look much as it does now in Mililani Mauka. The zoning in and of itself does not drive the unit mix, the market place does. The demand for single family residences will ensure that some of the lots will be developed in single family. The demand for middle and upper market units will result in larger parcel and home sizes. A master planned community needs the variety in unit and/or lot size, type and price. This concept is validated by the fact that some of our A-1 zoned land was developed in single family residences.

    The applicant continues to meet the affordable housing requirements for Mililani Mauka. The schedule for the provision of affordable housing has been approved by the City and is based on the delivery of market priced units. The market place determines when the market priced units will be delivered and subsequently when the affordable units will be delivered.

    The Mililani Terrace affordable requirements included in past rezoning ordinances were met. The sale of fee interests in leasehold properties was permitted following fulfillment of affordable requirements, were not subject to price restrictions, but rather subject to market conditions. This

concept is validated by the fact that some of our A-1 zoned land was developed as affordable single family residences.

16. Summary. The 25 acres mentioned were not planned for other school use but for university support uses, which could have been dormitories, faculty housing, stadium or other athletic facilities.

As mentioned earlier, based on comments received through the review of the Draft EA from various State and City agencies, public facilities necessary to support the development of Phase III are adequate, planned or will be funded by the applicant.

The Secondary Urban Center is becoming a reality and providing more and more jobs as it develops. Ko Olina has also been jump started by an aggressive and successful developer who in a matter of a few short years has been able to turn a project that has languished for 20 years into one of the premier development projects on the island. The promise of jobs is being fulfilled with the new marina and the planned 750 unit timeshare development by Marriott that is poised to break ground. The City and State have done their part in moving some of their functions to the Second City validating its growth as an urban center. Over time as people decide to move closer to their workplace, the traffic problem may work itself out. With the City's plan for a bus rapid transit system in its early planning stages, in time it may extend to Mililani and Kapolei, two of the islands major population centers, present and future.

The promise of a quality of life and a master planned community has been fulfilled by the applicant, with Mililani continuing to be the development of choice for many of the islands residents. Its popularity over other developments in Central Oahu and Ewa has been recognized by many. It has encountered growing pains as has much of the island, but it continues to outshine many of the alternatives.

Your letter and this response will be included in the Final EA for the project.

Very truly yours,

Keith Kurahashi

Keith Kurahashi

cc: Castle & Cooke Homes Hawaii, Inc.

MILILANI/WAIPIO/MELEMANU NEIGHBORHOOD BOARD NO. 25
c/o NEIGHBORHOOD COMMISSION • CITY HALL, ROOM 400 • HONOLULU, HAWAII 96813

March 1, 2001

Mr. Randall Fujiki, Director
Department of Planning and Permitting
City and County of Honolulu
650 S. King Street, 7th Floor
Honolulu, Hawaii 96813
Attn: Mr. Eugene Takahashi

Subject: Castle & Cooke's "Development Plan Use Map Amendment and Environmental Assessment from Public Facilities to Residential and Low Density Apartment for Mililani Mauka, Phase III," dated January 2001.

Dear Mr. Fujiki:

At our regular Board meeting of February 28, 2001, we voted unanimously to transmit the attached review comments on the subject assessment and amendment in accordance with the *OEQC Bulletin* of February 8, 2001.

If you have any questions or need additional information, please feel free to contact us at 587-2841.

Sincerely,

Richard G. Poirier
Chair

cc: State Office of Environmental Quality Control
State Office of Planning
Castle & Cooke Homes Hawaii, Inc.
Kusao & Kurahashi
Mililani Town Association
Neighborhood Board #35

Review Comments by NB #25 (Mililani/Melemanu/Waipio) Regarding Castle & Cooke's Development Plan Land Use Map Amendment and Environmental Assessment from Public Facilities to Residential and Low Density Apartment for Mililani Mauka, Phase III

Page 8, Paragraph B. SURROUNDING USES

No mention is made of surrounding uses for military training.

Page 15, A. PROPOSED USE

Should some public or quasi-public land be retained for other non-residential uses such as a performing arts center or a senior citizens assisted living facility?

Page 17, Paragraph D. PROJECT NEED

The public policy question here is whether or not there are sufficient lands that are already development planned and zoned for housing. How can there be a short-fall of housing when there are already some 14,000 housing units already approved but not yet developed in Central Oahu? (At a generous absorption rate of 500 units/year there appears to be more than 25 years worth of buildout potential). Even from a marketing perspective, need will be consumer driven and vary as a function of the economy in general, the housing market in particular, and the quality of the product being delivered as opposed to any notion of an absolute short-fall to be met.

Page 23, Paragraph C. STATE, Objectives and policies for facility systems—in general

While provision of housing at this site to accommodate the housing needs of the people of Hawaii is consistent with this guideline, that does not address the issue of whether housing at this site is needed or appropriate. Further, there is no indication that the educational facilities and regional transportation needs of the people of the area and their impacts have been identified and mitigated as part of the planning process.

Page 24, Paragraph C. STATE, Objectives and policies for socio-cultural advancement--housing

Policy (a)(1) While we agree with the response that Mililani in general is affordable, safe, sanitary, with livable homes in a suitable environment, we question whether the proposed development "satisfactorily accommodates the needs and desires of families and individuals," if the schools and roads to and from work are inadequate.

Policy (a)(2) Is the proposed development sensitive to the surrounding military training land uses or to the future residents of the proposed development who will have to live on a day-to-day basis with the impacts of surrounding land uses?

Page 26-27, Paragraph C. STATE, Population growth and land resources priority guidelines

Policy (a)(1) Is the proposed development "consistent with available and planned resource capacities from a regional transportation and school capacity perspective?

Policy (c)(2) Are important agricultural lands being displaced by the proposed development? Will the additional housing adversely impact the lifestyles of existing Mauka residents from a regional transportation and school capacity viewpoint?

Policy (b)(6) How will Castle & Cooke specifically contribute to the costs of mitigating the school capacity problem in Mauka and the regional transportation problem in Central Oahu? As an aside, will the overhead utility lines currntly in place on Ukuwai Street in the vicinity of the proposed project be placed underground?

Pages 30-32, D. CITY, Population

Objective C. Policy 2 Developing the Central Oahu urban-fringe relieves development pressure in what remaining urban-fringe and rural areas?

Objective 2. Policy 3 Would allowing development at Kapolei and the Ewa and Central Oahu urban fringe area necessarily result in an "undesirable spreading of development," commonly known as *urban sprawl*?

Objective C. Policy 4 Is not the 16.5% cap for Central Oahu already exceeded? If so, what is the rationale for adding more?

Objective C. Policy 3 Isn't the proposed development in an area whose infrastructure is already over capacity, rather than under capacity, in terms of schools and the regional transportation system?

Page 40, A. DEMOGRAPHIC

3. Character of Neighborhood What evidence is there that the proposed development will not adversely affect the character of the neighborhood in terms of school capacity and peak hour traffic?

Page 42, C. HOUSING

Provision of Affordable Housing... How will the greater percentage in affordable housing and smaller lot sizes affect the character of the existing neighborhood and impact existing deficiencies in school and transportation infrastructure?

Page 43, PUBLIC FACILITIES

1. Transportation The "Traffic Assessment for Mililani Mauka Phase III" fails to address the impact of the proposed development on peak hour traffic to and from work. In other words, what will be the added travel to the commute of an existing Mililani Mauka resident to and from town or Kapolei as a result of the proposed development in addition to the remaining, scheduled buildout of Mililani Mauka?

Page 47-48, PUBLIC FACILITIES

6. Schools The three schools mentioned do not "provide enough capacity for all of Mililani Mauka". The "potential overcrowding" at the middle school already exists in spite of the fact that Mililani Mauka is only half built. How will or can redistricting or moving to a multi-track schedule resolve the overcrowding? Is the elimination of the 6th grade at the middle school educationally or politically feasible? Who is responsible for the present overcrowding—the developer, the DOE, the Hawaii State Legislature, poor planning?

Page 59, E NATURAL FEATURES

7. Parks Will Castle & Cooke provide an additional recreation center?

Page 50-51, A. NOISE

1. Impacts The noise impacts from the Army's East Range training needs to be better defined given the location of the proposed development, which abuts the gulch. The Army needs to be consulted as to the number, location, and nature of the complaints received from Mauka residents and the results of the consultation extrapolated as to impact on the proposed development. If there are indeed Federal and State guidelines for noise exposure for residential areas resulting from military training exercises as alleged, these too should be stated. Would a landscaped buffer strip between the East Range and the first row of homes be of any help?

Page 52-54, B. AIR QUALITY.

1. Impacts The EA needs to include a statement as to the current levels of carbon monoxide levels at receptor and whether or not these levels are in violation of Federal/State standards. In addition the Federal pollution abatement program needs to be described and its impact or lack of impact on existing levels and standards.

2. Mitigating Measures The EA needs to evaluate the effectiveness of the several methods mentioned to reduce vehicle emissions and their impact on present and projected emissions in relation to Federal standards. Finally, how and by how much has the construction of the two loop ramps at the Mililani Interchange reduced ambient pollution levels in the project vicinity?

7. Open Space The EA needs to acknowledge that there would be a loss of existing open space since Mililani Mauka Phase III will be developed on vacant land.

Page 59, F. HAZARDS

3. Nuisances and Site Safety What is the basis for alleging that the proposed development will not expose future residents to nuisances in light of continuous complaints by Mililani residents regarding past and current U.S. Army military training and overflights? What about the wild pigs known to be in the area that occasionally encroach upon the nearby homes, thereby creating a potentially dangerous situation for new residents and household pets?

Page 60, VIII. ALTERNATIVES CONSIDERED

This section is deficient in that it fails to consider the costs and benefits of a no-build/no-development alternative.

KUSAO & KURAHASHI, INC.
Planning and Zoning Consultants
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June 8, 2001

Mr. Richard G. Poirier, Chair
Mililani/Waipio/Melemanu Neighborhood Board No. 25
c/o Neighborhood Commission
530 South King Street, Suite 400
Honolulu, Hawaii 96813

Dear Mr. Poirier:

Subject: **Draft Environmental Assessment, DPP File No. 2001/CO-1 Mililani Mauka Phase III Development Plan Land Use Map Amendment form Public Facilities to Residential and Low-Density Apartment, Mililani Mauka, TMK 9-5-49: Por. 27**

Thank you for your prompt response, dated March 1, 2001, to the Department of Planning and Permitting on our Draft Environmental Assessment (Draft EA) and the proposed Development Plan Land Use Map Amendment for Mililani Mauka Phase III.

In response to your comments:

1. Page 8, B. SURROUNDING USES. Our discussion of surrounding use was focused on the uses that are immediately surrounding the project site as indicated in the Development Plan Land Use Map, Exhibit 6. We will, however, include the following additional information in the Final EA:

   "Beyond these surrounding uses, there are the Department of the Army East Range Training Area (east of the Laulani Valley development), the existing and proposed Mililani Technology Park (north of the Laulani Valley development), agricultural designated lands (west of the H-2 Freeway) and schools, parks, commercial and residential developments of Mililani Mauka (south of the District Park and Olaloa Senior Living development)."

2. Page 15, A. PROPOSED USE. The proposed development plan land use map amendment and subsequent zone change will not preclude the use of this property for a senior citizens assisted living facility which would be permitted as a conditional use (group living facility) under the planned A-1 Low Density Apartment District and R-3.5 Residential District. This use is not permitted under the existing AG-1 Restricted Agricultural District. The performing arts center would require a commercial zoning and is not in our master plan for the area.

3. Page 17, D. PROJECT NEED. The project need section was based on a "Market Study of A Master Planned Community at Koa Ridge Makai and Waiawa" (Market Study) prepared for Castle & Cooke Homes Hawaii by Prudential Locations Real Estate Sales & Research, on file at the Department of Planning and Permitting. The Market Study considered the housing units approved but not yet developed; the demand for housing units; and the supply of housing units based on projected development of the major projects in Central Oahu. These three criteria in combination resulted in a determination that there will be a shortfall in supply versus the projected demand.

4. Page 23, C. STATE, Objectives and policies for facility systems---in general. The need for housing is discussed in the Project Need section discussed earlier. The appropriateness of residential development at this site is discussed in various sections throughout the Draft EA, specifically, on: pages 21 to 28; pages 30 to 35; and pages 39 and 40. The proposed development represents an infilling of residential development in an area previously planned for a university. The residential development is compatible with the surrounding area which is similarly developed. The infrastructure is adequate and was originally sized and constructed for 683 units over what's currently planned for Mililani Mauka Phases I and II and a university campus.

   Based on discussions with the Department of Education (DOE) and DOE's presentation at the March 20, 2001 meeting of the Mililani Mauka/Launani Valley No. 35 Neighborhood Board, the schools in the area will be able to

handle the increase in enrollment projected from the proposed Mililani Mauka Phase III development (based on current projections).

The regional transportation needs to support the development of Mililani Mauka has been considered and based on projected traffic generated by the project. The latest traffic assessment for the project indicates that the traffic generated by the original plan with 6,600 dwelling units and a university development is greater than the traffic that will be generated by the proposed 6,743 dwelling units. This is true for both the AM and PM peak hours for traffic either entering or exiting Mililani Mauka on Meheula Parkway. The reduction in traffic varies between 17% to 46% depending on the peak hour and direction of traffic. The regional traffic improvements that were required to support the projected increase in traffic under the original plan have been implemented or are under construction and based on past expenditures and projected costs the total monies spent on regional traffic improvements will be $13,866,105. Since the traffic generated by Mililani Mauka is now projected to be substantially less than originally projected, we do not expect to be required to fund further regional traffic improvements, for the planned Mililani Mauka Phase III development. The State Department of Transportation has commented that any additional increase in the number of dwelling units (above the proposed 6,743 units, which includes Phase III) and/or density of land use will require similar documentation of traffic effects (to that provided in our Draft EA) resulting from the increases.

5. Page 24, C. STATE, Objectives and policies for socio-cultural advancement--housing.

Policy (a)(1). The adequacy of schools and the regional traffic impact were discussed in the previous section.

Policy (a)(2). The proposed development is situated about 4,000 feet from the Army's East Range Training Area (east of the Laulani Valley development). There are several housing developments between the project site and the Army's East Range Training Area. We do not feel that

the Army's East Range will have a significant impact on the future residents of Mililani Mauka Phase III.

6. Page 26-27, C. STATE, Population growth and land resources priority guidelines.

Policy (a)(1). As mentioned earlier, the proposed development is consistent with available and planned resource capacities from a regional transportation and school capacity perspective.

Policy (c)(2). The project site is recognized as Urban designated land by the State and not considered important agricultural land. The additional housing will increase enrollment at the different school levels, however, we understand that the schools will be able to handle the additional enrollment, as projected at the present time. From a regional standpoint, the 3% increase in traffic generated by Phase III is not expected to result in a significant increase in travel time.

Policy (b)(6). Castle & Cooke Homes Hawaii, Inc. has provided two elementary school sites and one middle school site to the State and DOE has determined that this prior dedication covers the fair share requirement for the additional units in Phase III. As mentioned earlier, Castle & Cooke Homes Hawaii, Inc. has or will provide regional traffic improvements valued at $13,866,105. There are no plans to underground the existing overhead utility lines currently in place on Ukuwai Street in the vicinity of the proposed project.

7. Pages 30-32, D. CITY, Population

Objective C, Policy 2. Developing the Central Oahu urban-fringe area will reduce development pressure on the remaining urban-fringe areas of East Honolulu and Koolaupoko and the rural areas of Waianae, North Shore and Koolauloa.

Objective C, Policy 3. Within the Kapolei and Ewa areas, the City has approved the Ewa Development Plan which has established an urban growth boundary, to control growth and limit uncontrolled development such as urban sprawl. The City is expected to provide a similar urban growth boundary upon adoption of the Central Oahu Sustainable Communities Plan to control growth and limit uncontrolled development such as urban sprawl. The Phase III development is designated for Residential and Low Density Apartment use on the most recent draft of the Central Oahu Sustainable Communities Plan. The Phase III development would be considered an infilling of the existing urban area (and not urban sprawl) since it is surrounded by similar urban uses.

Objective C, Policy 4. The year 2000 population for Central Oahu exceeds the General Plan's 16.5% upper guideline for the year 2000 (based on the 2000 Census) by only about 0.4%. We find that the Ewa area is at about 7.84% of the islandwide population which is about 5% less than the mid-range (12.65%) of the General Plan's guideline for the Ewa Development Plan area. This 5% of the islandwide population means that Ewa is about 40,000 residents short of it's mid-range population guideline. Central Oahu in exceeding its upper guideline by 3,627 units provides for a modest portion of the shortage in the Ewa area, and other areas make up the balance. As time goes on, we expect that the Ewa area will approach its projected population guideline and the Central Oahu area will continue at about 16.5% of the islandwide population.

Objective C, Policy 3. As mentioned earlier, the DOE has indicated that the school system can accommodate the additional students projected for the Phase III development. The applicant has provided regional transportation system improvements to accommodate the additional development planned for Mililani Mauka and with the reduction in projected traffic with the change from the university development to residential development these improvements were designed for a much greater number of trips than are presently projected.

8. Page 43, PUBLIC FACILITIES

As mentioned earlier, the regional transportation needs to support the development of Mililani Mauka has been considered and based on projected traffic generated by the project. The latest traffic assessment for the project indicates that the traffic generated by the original plan with 6,600 dwelling units and a university development is greater than the traffic that will be generated by the proposed 6,743 dwelling units. This is true for both the AM and PM peak hours for traffic either entering or exiting Mililani Mauka on Meheula Parkway. The reduction in traffic varies between 17% to 46% depending on the peak hour and direction of traffic.

From a regional standpoint, the actual 3% increase in traffic projected to be generated by Phase III is not expected to result in a significant increase in travel time during the peak hours.

9. Page 47-48, PUBLIC FACILITIES

6. Schools. Based on discussions with the Department of Education (DOE) and DOE's presentation at the March 20, 2001 meeting of the Mililani Mauka/Launani Valley No. 35 Neighborhood Board, the schools in the area will be able to handle the increase in enrollment projected from the proposed Mililani Mauka Phase III development (based on current projections).

We understand that redistricting is not considered necessary by DOE to accommodate students generated by the Phase III development. However, redistricting allows the moving of students from schools that are over capacity to schools that are under capacity, as a means for accommodating spikes in enrollment that occur periodically.

We understand that the multi-track schedule allows the spreading of student classes and activities that normally are condensed over a 9-month period, over a 12-month period. This spreading out of classes and activities under a four track schedule results in a 25% reduction in the number of students

on campus at any time during the year. For a student enrollment of 1,000, under the regular school year program (single track) a 1,000 students are in school and on campus during the 9-month school year. With a four track program an enrollment of a 1,000 students results in only 750 students on campus at any one time during the school year.

There are a number of elementary schools that continue to offer 6th grade classes and they have continued to operate well. The idea of whether it is politically feasible is one that will have to be answered by the DOE, should that alternative be selected. Eliminating one grade level from the middle school would increase the schools capacity by about 33%.

The capacity concern at the elementary school will soon be resolved with the planned opening of the second elementary school in Mililani Mauka in 2003.

Most schools experience the ups and downs in enrollments up until the time when the surrounding community ages to a point where many of the students at the school are there under district exemptions due to a lack of student population in the surrounding community.

The DOE in its school planning has taken the fiscally responsible approach of not constructing additional schools in response to spikes in enrollment and instead utilizing other capacity expanding measures, with the knowledge that the enrollment will return to its normal level. They do not want to develop two schools that would operate at one half capacity 80 to 90% of the time and operate at close to capacity at just 10 to 20% of the time. Instead they take advantage of multi-track schedules and in some instances redistricting.

The concept of redistricting although not popular with parents today makes excellent planning sense. The idea of moving school boundary lines to insure optimum use of existing school facilities is fiscally responsible and not a new idea. It occurred 40 years ago, although at that time it was not as vigorously opposed.

Who is responsible for the present overcrowding? In many instances it is the parents who oppose and are able to stop attempts to redistrict students into schools that are under capacity. The DOE, the Legislators and the long range planners cannot justify developing a new school at extraordinary construction cost and long term operating costs when surrounding schools have ample capacity to accommodate projected enrollments. The DOE in looking for other solutions short of building a new school have come up with innovative ideas, such as multi-tracking and returning 6th graders to the elementary schools to avoid the generally unpopular redistricting.

As indicated earlier, the two elementary school sites and middle school site dedicated or planned for dedication to DOE in Mililani Mauka can accommodate projected enrollments, based on discussions with DOE. The DOE also indicated that the Mililani High School can also accommodate projected enrollments.

10. Page 59, E. NATURAL FEATURES

7. Parks. Castle & Cooke does not plan to provide an additional recreation center.

11. Page 50-51, A. NOISE

1. Impacts. As mentioned earlier, the proposed development is situated about 4,000 feet from the Army's East Range Training Area (east of the Laulani Valley development). There are several housing developments between the project site and the Army's East Range Training Area. We do not feel that the Army's East Range will have a significant impact on the future residents of Mililani Mauka Phase III. With this 4,000 foot separation, a landscaped buffer strip is not necessary.

12. Page 52-54, B. AIR QUALITY

1. Impacts. As mentioned in the Air Quality Impact Report prepared for and included in this final environmental assessment, since no Department of Health receptors were available in the vicinity of the project, the consultant conducted air sampling adjacent to the Meheula Parkway and Ainamakua Drive intersection. The sampling indicates that both State and Federal air quality standards for carbon monoxide are met adjacent to the intersection. The report went on to determine that based on the increase in traffic created by the development of Phase III, even under worst case conditions of meteorology and peak hour traffic, State and Federal air quality standards for carbon monoxide will be met in year 2010. Based on the new Air Quality Impact Report, we will not have to rely on Federal pollution abatement programs to insure that State and Federal air quality standards will be met. Any success experienced by these programs will serve to further reduce the projected level of carbon monoxide even lower than the safe levels presently projected.

2. Mitigating Measures. As stated in the Air Quality Impact Report, since compliance with State and Federal carbon monoxide standards is demonstrated under worst case conditions of meteorology and peak hour traffic, no special mitigative measures are required. Based on this new report, the applicant will not have to rely on other methods to reduce vehicle emissions or the two loop ramps at the Mililani Interchange to reduce ambient pollution levels in the vicinity.

13. Page 40, A. DEMOGRAPHIC

3. Character of Neighborhood. Covered in previous discussions about school capacity and traffic impact. The character of a neighborhood is reflected in the existing uses and planned uses for a neighborhood and we feel that in the move from the university to a residential use, we move to a more compatible use that will have less of an impact on the surrounding residents.

14. Page 42, C. HOUSING

Provision of Affordable Housing. We are locating in an area in Mililani Mauka that has a mix of apartment and residential development and our planned mix of smaller affordable lots and larger market lots will be reflective of the current mix of units in this area. Affordable units are interspersed throughout the Mililani Mauka area. The school and transportation infrastructure has been addressed in previous discussions.

15. Page 59, 7. Open Space

The development of Mililani Mauka Phase III will result in the loss of existing open space since it will be developed on vacant land. It is important to note, however, that this area has long been planned for urban use as a university site.

16. Page 59, F. HAZARDS

3. Nuisances and Site Safety. The applicant's experience has been that complaints about the East Range training facility have come from residents situated closer to the East Range. The residents in the developments situated just east and a little further east of the project have not complained about the East Range or overflights. Although wild pigs are an existing problem with the overgrown 103-acre project site, our experience has been that the developed areas along the gulch have not had a problem with wild pigs. We feel that the existing overgrown project site provides a wilderness area that entices the wild pigs to venture out of the mountain and gulch area to forage. Upon development, this wilderness area will not provide an attractive foraging area for the wild pigs. The homeowners along the gulch will have the option of fencing or walling off the gulch area from their properties if a problem arises.

17. Page 60, VIII. ALTERNATIVES CONSIDERED

The no-build/no-development alternative will be discussed in the Final EA.

Your letter dated March 1, 2001 and this response will be included in the Final EA for the project.

Very truly yours,

Keith Kurahashi

Keith Kurahashi

cc: Castle & Cooke Homes Hawaii, Inc.

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

BRUCE S. ANDERSON, Ph.D., M.P.H.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96801

In reply, please refer to:
File:

January 8, 2001

TO: Those Persons Requesting Department of Health Comments on Land Use Documents

FROM: June Harrigan-Lum, Manager
Environmental Planning Office

SUBJECT: Temporary Discontinuance of Coordinated Land Use Reviews

Our land use review coordinator, Mr. Art Bauckham, is retiring on January 31, 2001. We will be filling Mr. Bauckham's position as soon as possible. In the meantime, starting on January 15, 2001, the Environmental Planning Office (EPO) will not be accepting any land use documents for coordinated replies.

If you would like staff in a specific branch or office (for instance, the Wastewater Branch) to comment on your proposal, you are welcome to contact the staff directly. A list of the Branch/Office names is enclosed for your reference. If you have already sent a copy of the document to the Department of Health (EPO), and you wish to have us send it to a specific branch, you may call 586-4337 and ask the clerical staff to send it to the appropriate branch. Please describe the document and the date of your cover letter.

You may call the above number and check with the clerical staff to see when coordinated responses from this office will resume.

Thank you for your cooperation and patience in this matter.

Enclosure

c: DDEH

Branches and Offices in the Environmental Health Administration

Hazard Evaluation and
Emergency Response Office----586-4249

Environmental Planning Office---586-4337

Clean Air Branch----------586-4200

Clean Water Branch----------586-4309

Safe Drinking Water Branch------586-4258

Solid & Hazardous Waste Branch--586-4226

Wastewater Branch----------586-4294

Noise and Radiation Branch------586-4700

Sanitation Branch----------586-8000

Food and Drug Branch----------586-4725

Vector Control Branch----------831-6767

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June 8, 2001

Ms. June Harrigan-Lum
Environmental Planning Office
Department of Health
State of Hawaii
P.O. Box 3378
Honolulu, Hawaii 96801-3378

Dear Ms. Harrigan-Lum:

Subject: **Draft Environmental Assessment, DPP File No. 2001/CO-1 Mililani Mauka Phase III Development Plan Land Use Map Amendment form Public Facilities to Residential and Low-Density Apartment, Mililani Mauka, TMK 9-5-49: Por. 27**

Thank you for your response, dated January 8, 2001, on our Draft Environmental Assessment (Draft EA) and the proposed Development Plan Land Use Map Amendment for Mililani Mauka Phase III. We forwarded a copy of our Draft EA and the proposed Development Plan Land Use Map Amendment for Mililani Mauka Phase III to the Safe Drinking Water Branch and the Environmental Management Division for their review and comment.

Your letter dated January 8, 2001 and this response will be included in the Final EA for the project.

Very truly yours,

Keith Kurahashi

Keith Kurahashi

cc: Castle & Cooke Homes Hawaii, Inc.

BENJAMIN J. CAYETANO
GOVERNOR

PAUL G. LeMAHIEU, Ph.D.
SUPERINTENDENT

STATE OF HAWAI'I
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAI'I 96804

OFFICE OF THE SUPERINTENDENT

February 20, 2001

Mr. Randall K. Fujiki, AIA, Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Fujiki:

Subject: Mililani Mauka Phase III DP Land Use Map Amendment

The proposed project is part of the applicant's Mililani Mauka community. The Department of Education's previous fair-share requirement for Mililani Mauka covers the number of units proposed in this application. Therefore, we are not requesting any further fair-share contribution.

Thank you for the opportunity to respond. If you have any questions, please call Mr. Sanford Beppu at 733-4862.

Very truly yours,

Paul G. LeMahieu, Ph.D.
Superintendent of Education

PLeM:hy(58)

cc: P. Yoshioka, DAS
G. Salmonson, OEQC
K. Kurahashi, Kusao & Kurahashi

KUSAO & KURAHASHI, INC.
Planning and Zoning Consultants
MANOA MARKET PLACE
2752 WOODLAWN DRIVE, SUITE 5-202
HONOLULU, HAWAII 96822

BUS. (808) 988-2231
FAX. (808) 988-1140
E-Mail: kurahashi1@cs.com

June 8, 2001

Mr. Paul G. LeMahieu, Ph.D.
Superintendent of Education
Department of Education
P.O. Box 2360
Honolulu, Hawaii 96804

Attention: Mr. Sanford Beppu

Dear Mr. LeMahieu:

Subject: Draft Environmental Assessment, DPP File No. 2001/CO-1 Mililani Mauka Phase III Development Plan Land Use Map Amendment form Public Facilities to Residential and Low-Density Apartment, Mililani Mauka, TMK 9-5-49: Por. 27

Thank you for your response, dated February 20, 2001, to the Department of Planning and Permitting on our Draft Environmental Assessment (Draft EA) and the proposed Development Plan Land Use Map Amendment for Mililani Mauka Phase III.

We appreciate your comment that the Department of Education's previous fair-share requirement for Mililani Mauka covers the number of units proposed in this application and that you are not requesting any further fair-share contribution.

Your letter dated February 20, 2001 and this response will be included in the Final EA for the project.

Very truly yours,

Keith Kurahashi

Keith Kurahashi

cc: Castle & Cooke Homes Hawaii, Inc.

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4529 • FAX: (808) 523-4730 • INTERNET: www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

April 19, 2001

TPD2/01-00524R

MEMORANDUM

TO: RANDALL K. FUJIKI, AIA, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

ATTN: EUGENE TAKAHASHI

FROM: CHERYL D. SOON, DIRECTOR

SUBJECT: MILILANI MAUKA PHASE III

In response to the February 2, 2001 letter from Kusao & Kurahashi, Inc., the Development Plan Land Use Map Amendment and Draft Environmental Assessment Application for the subject project was reviewed. The following comments are the result of this review:

1. The discussion of the transportation impacts of the project should also address the impacts on transit and bicycling. As related in our April 16, 2001 memorandum regarding the 2001 Development Plans Annual Amendment Review, DTS would like to encourage the layout of the project site to be transit, bicycle and pedestrian friendly.

2. Although the traffic assessment prepared for the subject project concluded that the proposed change to develop residential units instead of a university will result in less traffic entering and leaving Mililani Mauka than previously estimated, it is assumed that any mitigation measures proposed in the previously accepted Environmental Impact Statement filed for the Mililani Mauka development will be implemented. A unilateral agreement should be executed to state that the developer shall provide and fund all of the traffic improvements required at full build-out, including the installation of traffic signals, if and when deemed warranted by the City.

Should you have any questions regarding these comments, please contact Faith Miyamoto of the Transportation Planning Division at Local 6976.

CHERYL D. SOON

cc: Office of Environmental Quality Control
✓Kusao & Kurahashi, Inc.

KUSAO & KURAHASHI, INC.
Planning and Zoning Consultants
MANOA MARKET PLACE
2752 WOODLAWN DRIVE, SUITE 5-202
HONOLULU, HAWAII 96822

BUS. (808) 988-2231
FAX. (808) 988-1140
E-Mail: kurahashi1@cs.com

June 8, 2001

Ms. Cheryl D. Soon, Director
Department of Department of Transportation Services
City and County of Honolulu
Pacific Park Plaza
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

Dear Ms. Soon:

Subject: Draft Environmental Assessment, DPP File No. 2001/CO-1 Mililani Mauka Phase III Development Plan Land Use Map Amendment form Public Facilities to Residential and Low-Density Apartment, Mililani Mauka, TMK 9-5-49: Por. 27

Thank you for your response, dated April 19, 2001, to the Department of Planning and Permitting on our Draft Environmental Assessment (Draft EA) and the proposed Development Plan Land Use Map Amendment for Mililani Mauka Phase III.

In response to your comments:

1. The discussion on transportation impacts will be expanded to address impacts on transit and bicycling.

2. We understand your request to the Department of Planning and Permitting to include a condition in the unilateral agreement to require that the developer provide and fund traffic improvements required at full buildout, including traffic signals, if and when deemed warranted by the City.

Your letter dated April 19, 2001 and this response will be included in the Final EA for the project.

Very truly yours,

Keith Kurahashi

Keith Kurahashi

cc: Castle & Cooke Homes Hawaii, Inc.

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

BRUCE S. ANDERSON, Ph.D., M.P.H.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O.BOX 3378
HONOLULU, HAWAII 96801-3378

In reply, please refer to:
EMD/SDWB

May 14, 2001

Ms. Anne Kusao
Kusao & Kurahashi, Inc.
2752 Woodlawn Drive, Suite 5-202
Honolulu, Hawaii 96822

Dear Ms. Kusao:

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR MILILANI MAUKA, PHASE III - TMK: 9-5-49: Portion of 27

Thank you for submitting the draft environmental assessment (EA) for review. We have reviewed the draft EA and, since the Honolulu Board of Water Supply will be providing potable water to the project, we offer no comments.

Sincerely,

William Wong

WILLLIAM WONG, P.E., CHIEF
Safe Drinking Water Branch
Environmental Management Division

WW:la

KUSAO & KURAHASHI, INC.
Planning and Zoning Consultants
MANOA MARKET PLACE
2752 WOODLAWN DRIVE, SUITE 5-202
HONOLULU, HAWAII 96822

BUS. (808) 988-2231
FAX. (808) 988-1140
E-Mail: kurahashi1@cs.com

June 8, 2001

Mr. William Wong, P.E., Chief
Safe Drinking Water Branch
Environmental Management Division
Department of Health
State of Hawaii
P.O. Box 3378
Honolulu, Hawaii 96801-3378

Dear Mr. Wong:

Subject: Draft Environmental Assessment, DPP File No. 2001/CO-1 Mililani Mauka Phase III Development Plan Land Use Map Amendment form Public Facilities to Residential and Low-Density Apartment, Mililani Mauka, TMK 9-5-49: Por. 27

Thank you for your response, dated May 14, 2001, on our Draft Environmental Assessment (Draft EA) and the proposed Development Plan Land Use Map Amendment for Mililani Mauka Phase III.

Your letter dated May 14, 2001 and this response will be included in the Final EA for the project.

Very truly yours,

Keith Kurahashi

Keith Kurahashi

cc: Castle & Cooke Homes Hawaii, Inc.

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

BRUCE S. ANDERSON, Ph.D., M.P.H.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96801

In reply, please refer to:
File:

EPO

May 23, 2001

Ms. Anne Kusao
Kusao & Kurahashi, Inc.
2752 Woodlawn Drive, Suite 5-202
Honolulu, Hawaii 96822

Dear Ms. Kusao:

Subject: Draft Environmental Assessment for Mililani Mauka, Phase III
TMK: 9-5-49: 27

Thank you for allowing us to review and comment on the subject proposal. We have no comments to offer at this time.

Sincerely,

THOMAS E. ARIZUMI, P.E., CHIEF
Environmental Management Division

KUSAO & KURAHASHI, INC.
Planning and Zoning Consultants
MANOA MARKET PLACE
2752 WOODLAWN DRIVE, SUITE 5-202
HONOLULU, HAWAII 96822

BUS. (808) 988-2231
FAX. (808) 988-1140
E-Mail: kurahashi1@cs.com

June 8, 2001

Mr. Thomas E. Arizumi, P.E., Chief
Environmental Management Division
Department of Health
State of Hawaii
P.O. Box 3378
Honolulu, Hawaii 96801-3378

Dear Mr. Arizumi:

Subject: **Draft Environmental Assessment, DPP File No. 2001/CO-1 Mililani Mauka Phase III Development Plan Land Use Map Amendment form Public Facilities to Residential and Low-Density Apartment, Mililani Mauka, TMK 9-5-49: Por. 27**

Thank you for your response, dated May 23, 2001, on our Draft Environmental Assessment (Draft EA) and the proposed Development Plan Land Use Map Amendment for Mililani Mauka Phase III.

Your letter dated May 23, 2001 and this response will be included in the Final EA for the project.

Very truly yours,

Keith Kurahashi

Keith Kurahashi

cc: Castle & Cooke Homes Hawaii, Inc.

APPENDIX XIII

SUMMARY SHEET

DPP REF. NO.:
MAP REF. NO.:
NB AREA: Mililani Mauka/
Launani Valley No. 35
AREA: 104.2 acres
TMK: 9-5-49: Portion of 27

CENTRAL OAHU
DEVELOPMENT PLAN LAND USE AMENDMENTS
BEING CONSIDERED

Amendment/Project Information

Amendment Request: Public and Quasi-Public to Residential and Low Density Apartment

Location: Mililani Mauka Phase III

Address(s) of Subject Area — where Applicable: Not applicable

Owner/Developer: Castle & Cooke Homes Hawaii, Inc.

Requested by: Castle & Cooke Homes Hawaii, Inc.

Basis for Request: To allow development of homes on a site formerly planned for a University.

Type of Project: Residential (522 single-family lots) and Multi-Family (304 units)

Impact on Provision of Housing: An additional 826 housing units will be provided, 683 of which will replace units approved at zoning for Mililani Mauka but not developed.

Existing Conditions

Land Use: Construction staging area and tree farm.

Structures
Number: 5
Type: 2 field offices, 2 warehouses, & 1 storage
Height: under 25 feet

ALISH: Urban designated land

Present Plan/Zone Designations

State Land Use: Urban

DP Public Facilities Map: College

DP Special Provisions: Height 25 to 30 feet.

Zoning: AG-1 General Agricultural

Soil Features: Majority of site classified as Leilehua silty clay (LeB) and Wahiawa silty clay (WaB). Permeability is moderately rapid; runoff is slow; and erosion hazard is slight.

Possible Constraints: None

APPENDIX XIV

NOTICE REQUIREMENTS

CERTIFICATION OF COMPLIANCE
WITH NOTICE REQUIREMENTS

Ordinance 84-111 states: No application for Development Plan Land Use Map amendment shall be accepted for processing unless the applicant notifies, by mail, all owners, lessees, sub-lessees and residents of the affected property and of each abutting parcel.

I hereby certify that I have complied with the notification requirements of Ordinance 84-111.

P Philip Au

By Philip Au
Project Manager

)-5-63: 27 - 44

Lane and Julie Otsu
)5-1057 Hookowa Street
Mililani, Hawaii 96789

Milagros D. Badua
)5-1047 Hookowa Street
Mililani, hawaii 96789

Perry and Martinna Magpoc
)5-1037 Hookowa Street
Mililani, Hawaii 96789

Occupant
)5-1029 Hookowa Street
Mililani, Hawaii 96789

Dean and Cheryl Hamane
95-1019 Hookowa Street
Mililani, Hawaii 96789

Glenn and Tammy Medeiros
95-1007 Hookowa Street
Mililani, Hawaii 96789

Alan and Katsuko Miyahira
95-1065 Hookowa Street
Mililani, Hawaii 96789

Walter and Sylvia Tanaka
95-1053 Hookowa Street
Mililani, Hawaii 96789

Anthony D. Gaston Trust
95-1043 Hookowa Street
Mililani, Hawaii 96789

Glen and Janice Takahashi
95-1033 Hookowa Street
Mililani, Hawaii 96789

Robert and Lee Anne Domingo
95-1025 Hookowa Street
Mililani, Hawaii 96789

Craig T. Hiyakumoto
95-1015 Hookowa Street
Mililani, Hawaii 96789

Roland and Celia Espinosa
95-1003 Hookowa Street
Mililani, Hawaii 96789

Ms. Colleen M. McCormick
95-1061 Hookowa Street
Mililani, Hawii 96789

Ms. Laurie Makiya
95-1051 Hookowa Street
Honolulu, Hawaii 96789

Douglas and Corinne Kurth
95-1039 Hookawa Street
Mililani, Hawaii 96789

Naret Sihavong
95-1029 Hookowa Street
Mililani, Hawaii 96789

Earl Yamashita
95-1023 Hookowa Street
Mililani, Hawaii 96789

James A. Jamora
95-1011 Hookowa Street
Mililani, Hawaii 96789

9-5-56: 15-31

Gary H.P. Chun
95-1042 Aelike Street
Mililani, Hawaii 96789

Lance T. Matsuda
95-206 Aelike Place
Mililani, Hawaii 96789

Russell K. Yamamoto
95-1046 Aelike Street
Mililani, Hawaii 96789

Jicky C. Ferrer, Trust
95-1040 Aelike Street
Mililani, Hawaii 96789

Han Ing and Susan N.K. Sie
95-1050 Aelike Street
Mililani, Hawaii 96789

rian S. Bocobo
5-1052 Aelike Street
lililani, Hawaii 96789

lelson V. Fiesta
5-1062 Aelike Street
lililani, Hawaii 96789

letod and Luci Lebar
'5-1070 Aelike Street
lililani, Hawaii 96789

Chris S. Ogitani
)5-1056 Hoailona Street
lililani, Hawaii 96789

Francis K. Nakamoto
)5-103 Makaholowaa Place
Mililani, Hawaii 96789

Wayne and Nanette R. Koga
95-1056 Aelike Street
Mililani, Hawaii 96789

Efren and Karen Apuya
95-1064 Aelike Street
Mililani, Hawaii 96789

Alvin and Lois Yoshioka
95-1074 Aelike Street
Mililani, Hawaii 96789

Daniel and Edna Halemano
95-1058 Hoailona Street
Mililani, Hawaii 96789

Occupant
95-1068 Hoailona Street
Mililani, Hawaii 96789

France L. Deaguiar
95-1058 Aelike Street
Mililani, Hawaii 96789

Peter and Debra Manglallan
95-1068 Aelike Street
Mililani, Hawaii 96789

Chris S. Ogitani
95-1050 Makaikai Street
#12C, Mililani, Hawaii 96789

Gary Pascua
95-1062 Hoailona Street
Mililani, Hawaii 96789

)-5-002: 028
Waihuna Joint Venture
P.O. Box 3429
Mililani, Hawii 96789

9-5-049: 026
City & County of Honolulu
Department of Finance
530 S. King Street,
Honolulu, Hawaii 96813

9-5-049: 061
Havens of I'l Vista, Phase II
Certified Management
3179 Koapaka St, Hon. Hi. 96819
Attn: Mr. Gene Yojo

9-5-049: 007
Olaloa - Project I, II, III
95-1050 Makaikai Street
Mililani, Hawaii 96789

9-5-049: 050
Tosei Hawai Inc.
1440 Kapiolani Blvd. #1000
Honolulu, Hawaii 96814

9-5-049: 062
Havens of I'I Vista Ph. 1
Certified Management
3179 Koapaka St. Hon. Hi. 96819
Attn: Mr. Gene Yojo

9-5-049: 020
Castle & Cooke Homes, Hi. Inc.
100 Kahelue Avenue, 2nd Floor
Mililani, Hawaii 96789

9-5-049: 056
Castle & Cooke Homes Hi. Inc.
P.O. Box 898900
Mililani, Hawaii 96789

9-5-049: 063
Mililani Town Association
95-303 Kaloapau Street
Mililani, Hawaii 96789

KUSAO & KURAHASHI, INC.
Planning and Zoning Consultants
MANOA MARKET PLACE
2752 WOODLAWN DRIVE, SUITE 5-202
HONOLULU, HAWAII 96822

BUS. (808) 988-2231
FAX. (808) 988-1140
E-Mail: kurahashi1@cs.com

January 16, 2001

Mr. Roy H. Doi, Chair
Mililani Mauka/Launani Valley
Neighborhood Board No. 35
95-1045 Kuahewa Street
Mililani, Hawaii 96789

Subject: **Notification of Castle & Cooke Homes Hawaii, Inc.'s Intent to Amend the Development Plan Land Use Map for Mililani Mauka Phase III, to Allow Residential and Apartment Development Tax Map Key 9-5-49: Portion of 27**

Dear Chair Doi:

In accordance with the requirements of Ordinance 84-111, we are providing this notice that we intend to amend the Development Plan Land Use Map to allow development of Mililani Mauka Phase III. We have attached a Summary Sheet (describing the proposed amendment), a project location map and proposed development plan land use map.

The development site was originally part of the Mililani Mauka Phase I development, on a site planned for a future university. The amendment is prompted by a decision by the University of Hawaii to focus its efforts to develop a West Oahu Campus at Kapolei. The change in the Development Plan Land Use Map would allow the applicant to develop single family residences and apartment and/or townhouse units that will be compatible with and similar to the existing developments in Mililani Mauka Phases I and II.

The proposed Development Plan amendment and subsequent zone change will allow 826 single family and apartment units to be developed on the project site. However, 683 of these units can be considered replacement units which were approved in the zone changes for Mililani Mauka Phases I and II but have not been developed. This would result in a net increase of only 143 dwelling units over the

6,600 dwelling units approved in the zone changes for Mililani Mauka Phases I and II.

Please forward any comments that you may have on the proposed Development Plan Land Use Map amendment to:

Department of Planning and Permitting
Attn: Community Planning Division
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

We understand that Mr. Alan Arakawa of Castle & Cooke Homes Hawaii, Inc. has spoken to you about appearing before your Neighborhood Board to present the proposed Development Plan Land Use Map amendment.

Should you have questions about the proposed Development Plan Land Use Map amendment, please feel free to call our office.

Very truly yours,

Keith Kurahashi

Keith Kurahashi

attach.
cc: Castle & Cooke Homes Hawaii, Inc.

KUSAO & KURAHASHI, INC.
Planning and Zoning Consultants
MANOA MARKET PLACE
2752 WOODLAWN DRIVE, SUITE 5-202
HONOLULU, HAWAII 96822

BUS. (808) 988-2231
FAX. (808) 988-1140
E-Mail: kurahashi1@cs.com

January 16, 2001

Subject: **Notification of Castle & Cooke Homes Hawaii, Inc.'s Intent to Amend the Development Plan Land Use Map for Mililani Mauka Phase III, to Allow Residential and Apartment Development Tax Map Key 9-5-49: Portion of 27**

Dear Property Owner, Lessee, Sub-Lessee or Resident:

In accordance with the requirements of Ordinance 84-111, we are providing this notice that we intend to amend the Development Plan Land Use Map to allow development of Mililani Mauka Phase III. We have attached a Summary Sheet (describing the proposed amendment), a project location map and proposed development plan land use map.

The development site was originally part of the Mililani Mauka Phase I development, on a site planned for a future university. The amendment is prompted by a decision by the University of Hawaii to focus its efforts to develop a West Oahu Campus at Kapolei. The change in the Development Plan Land Use Map would allow the applicant to develop single family residences and apartment and/or townhouse units that will be compatible with and similar to the existing developments in Mililani Mauka Phases I and II.

The proposed Development Plan amendment and subsequent zone change will allow 826 single family and apartment units to be developed on the project site. However, 683 of these units can be considered replacement units which were approved in the zone changes for Mililani Mauka Phases I and II but have not been developed. This would result in a net increase of only 143 dwelling units over the 6,600 dwelling units approved in the zone changes for Mililani Mauka Phases I and II.

Please forward any comments that you may have on the proposed Development Plan Land Use Map amendment to:

Department of Planning and Permitting
Attn: Community Planning Division
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

Should you have questions about the proposed Development Plan Land Use Map amendment, please feel free to call our office.

Very truly yours,

Keith Kurahashi

Keith Kurahashi

attach.
cc: Castle & Cooke Homes Hawaii, Inc.

DPP REF. NO.:
MAP REF. NO.:
NB AREA: Mililani Mauka/
Launani Valley No. 35
AREA: 104.2 acres
TMK: 9-5-49: Portion of 27

CENTRAL OAHU
DEVELOPMENT PLAN LAND USE AMENDMENTS
BEING CONSIDERED

Amendment/Project Information

Amendment Request: Public and Quasi-Public to Residential and Low Density Apartment

Location: Mililani Mauka Phase III

Address(s) of Subject Area — where Applicable: Not applicable

Owner/Developer: Castle & Cooke Homes Hawaii, Inc.

Requested by: Castle & Cooke Homes Hawaii, Inc.

Basis for Request: To allow development of homes on a site formerly planned for a University.

Type of Project: Residential (522 single-family lots) and Multi-Family (304 units)

Impact on Provision of Housing: An additional 826 housing units will be provided, 683 of which will replace units approved at zoning for Mililani Mauka but not developed.

Existing Conditions

Land Use: Construction staging area and tree farm.

Structures
Number: 4
Type: 2 field offices and 2 warehouses.
Height: under 25 feet

ALISH: Urban designated land

Present Plan/Zone Designations

State Land Use: Urban

DP Public Facilities Map: College

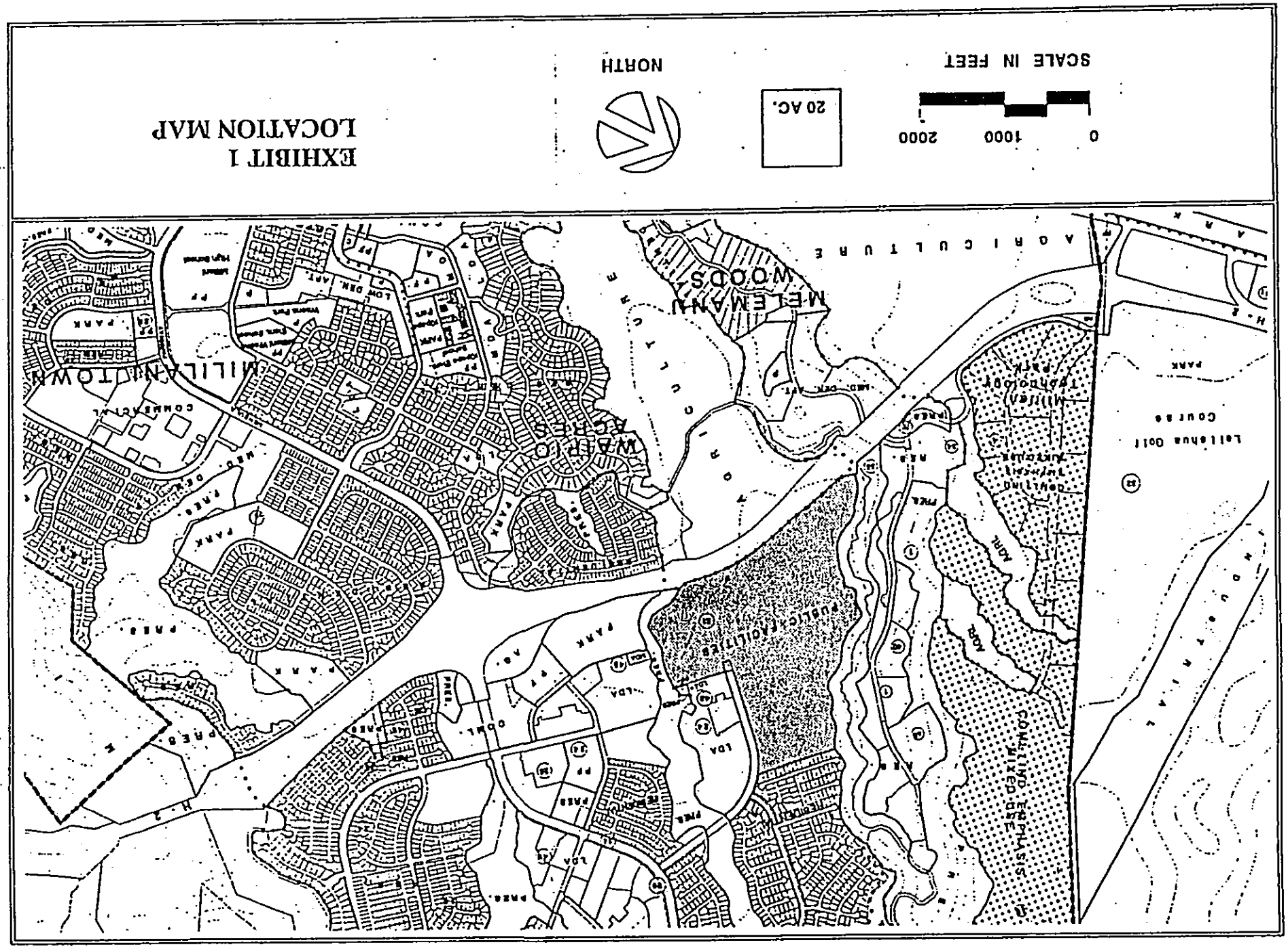
DP Special Provisions: Height 25 to 30 feet.

Zoning: AG-2 General Agricultural

Soil Features: Majority of site classified as Leilehua silty clay (LeB) and Wahiawa silty clay (WaB). Permeability is moderately rapid; runoff is slow; and erosion hazard is slight.

Possible Constraints: None

EXHIBIT 1
LOCATION MAP



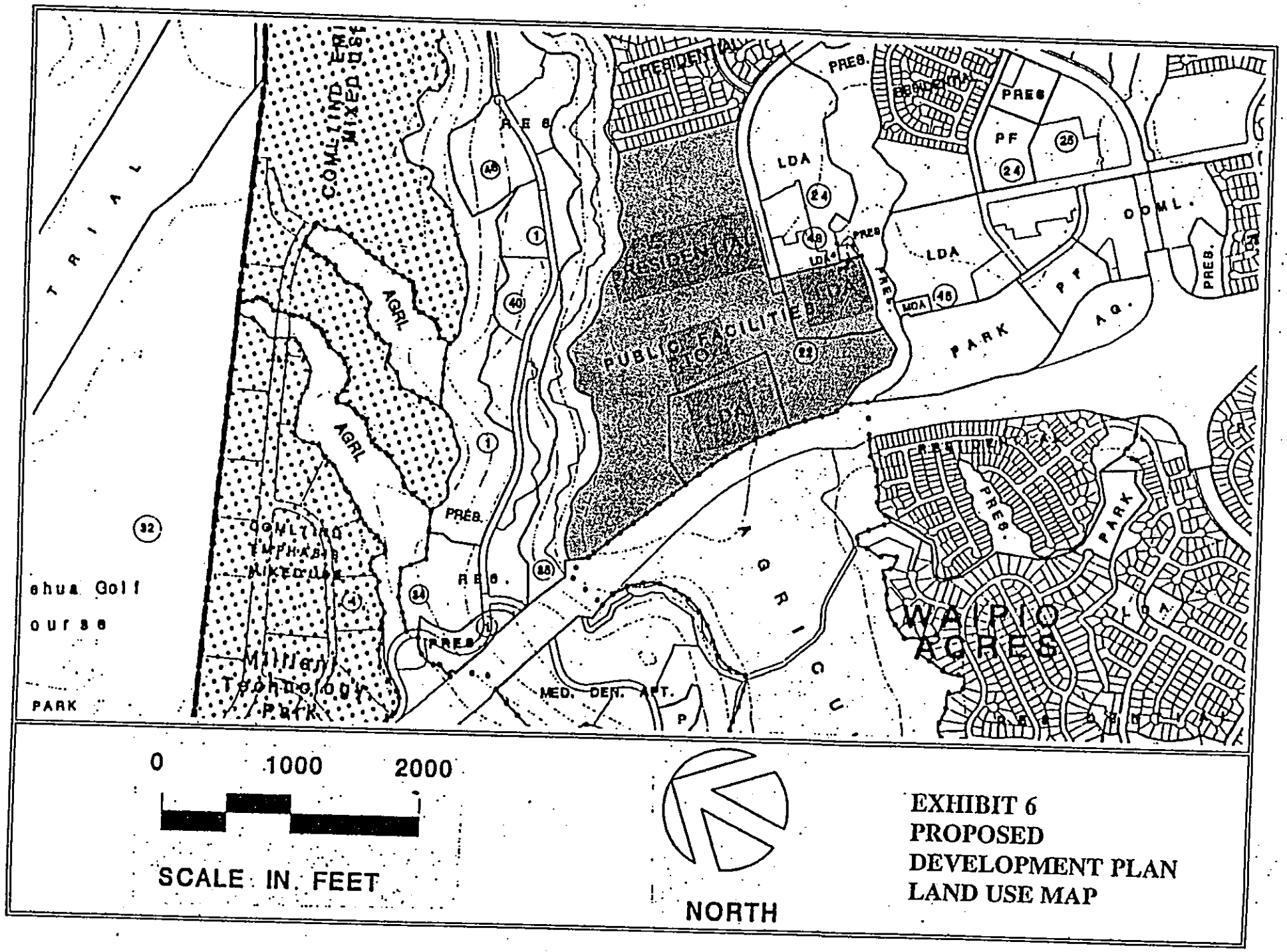
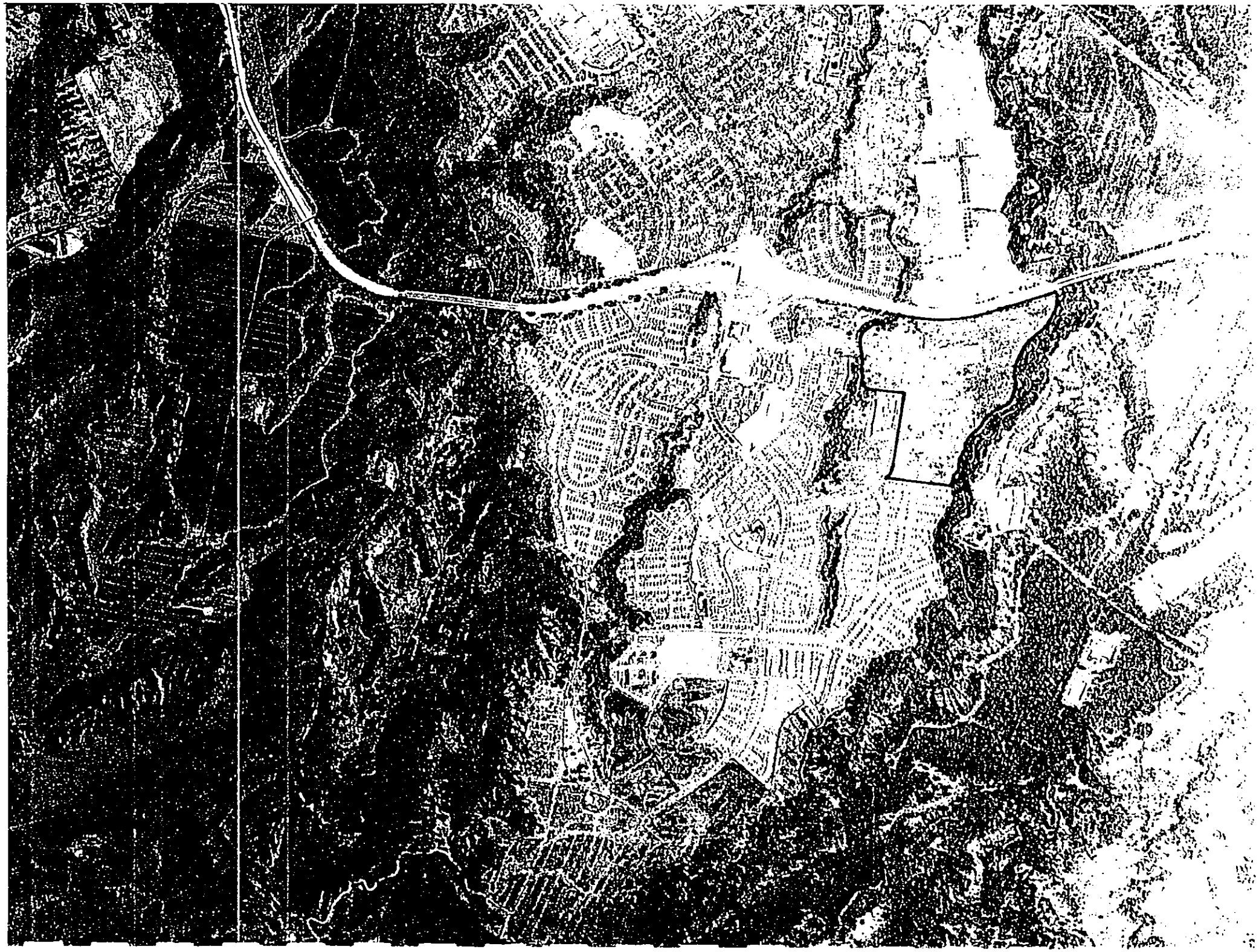


EXHIBIT 6
PROPOSED
DEVELOPMENT PLAN
LAND USE MAP

AERIAL PHOTO

JANUARY 30, 2000



2001-07-23-OA-FEA-

DEVELOPMENT PLAN LAND USE MAP AMENDMENT AND FINAL ENVIRONMENTAL ASSESSMENT FROM PUBLIC FACILITIES TO RESIDENTIAL AND LOW DENSITY APARTMENT FOR MILILANI MAUKA, PHASE III

TAX MAP KEY 9-5-49: Portion of 27

Castle & Cooke Homes Hawaii, Inc.
P.O. Box 898900
Mililani, Hawaii 96789-8900

Applicant

Kusao & Kurahashi, Inc.
Planning and Zoning Consultants
2752 Woodlawn Drive, Suite 5-202
Honolulu, Hawaii 96822

Agent

JUNE 2001

DEVELOPMENT PLAN LAND USE MAP AMENDMENT AND FINAL ENVIRONMENTAL ASSESSMENT FROM PUBLIC FACILITIES TO RESIDENTIAL AND LOW DENSITY APARTMENT FOR MILILANI MAUKA, PHASE III

TAX MAP KEY 9-5-49: Portion of 27

Castle & Cooke Homes Hawaii, Inc.
P.O. Box 898900
Mililani, Hawaii 96789-8900

Applicant

Kusao & Kurahashi, Inc.
Planning and Zoning Consultants
2752 Woodlawn Drive, Suite 5-202
Honolulu, Hawaii 96822

Agent

JUNE 2001

TABLE OF CONTENTS

LIST OF EXHIBITS

LIST OF APPENDICES

DEVELOPMENT PLAN LAND USE MAP AMENDMENT AND FINAL ENVIRONMENTAL ASSESSMENT FROM PUBLIC FACILITIES TO RESIDENTIAL AND LOW DENSITY APARTMENT FOR MILILANI MAUKA, PHASE III

TAX MAP KEY 9-5-49: Portion of 27

INTRODUCTION

This request is for a Development Plan Land Use Map amendment for Mililani Mauka Phase III from Public Facilities to Residential and Low Density Apartment for approximately 104.2 acres of land in Mililani Mauka, City and County of Honolulu, State of Hawaii. This report was prepared in accordance with the applicable requirements and procedures set forth in the Department of Planning and Permitting (DPP) Development Plan Land Use Map Change and Environmental Assessment Application Instructions (5/00).

The 104 acre Phase III development site was originally part of the Mililani Mauka Phase I development, on a site planned for a future university. The change in the Development Plan Land Use Map would allow the applicant to develop 522 single family residences and 304 apartment and/or townhouse units that will be compatible with and similar to the existing developments in Mililani Mauka Phases I and II.

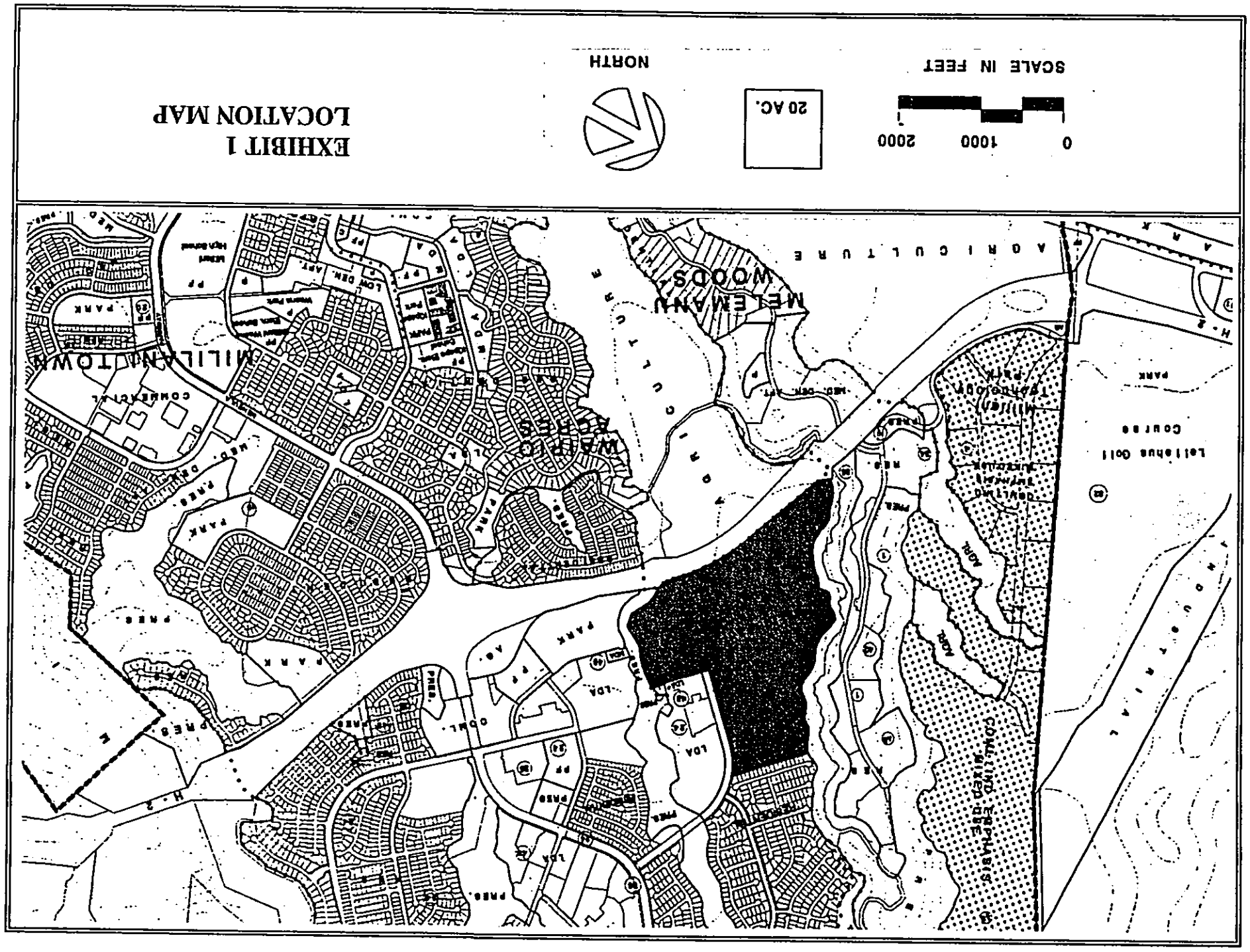
The applicant, Castle & Cooke Homes Hawaii, Inc., submits this application for a Development Plan Land Use Map change as a result of the decision by the University of Hawaii to focus its efforts to develop a West Oahu Campus at Kapolei.

The proposed development plan amendment and subsequent zone change would result in elimination of a proposed university site in Mililani

Mauka Phase III which would be replaced by residential development. The proposed Development Plan amendment and subsequent zone change would result in a net increase of only 103 dwelling units over the 6,640 units approved under a previously accepted Environmental Impact Statement (accepted on February 23, 1987 by the Department of General Planning, now Department of Planning and Permitting) filed for the Mililani Mauka development. The 6,640 unit count is also the number of units planned for the master planned community of Mililani Mauka in the Development Plan amendment application filed with the City and County of Honolulu Department of General Planning in December of 1986. In subsequent rezoning applications for Mililani Mauka Phases I and II, however, the total number of dwelling units approved was 6,600. Our proposal represents a net increase of 143 units over the 6,600 dwelling units approved in the zone changes for Mililani Mauka Phases I and II. The reason that the current projected buildout of Mililani Mauka is 5,917 units versus the originally planned 6,600 units is due to a decrease in market demand for townhouse (attached) units that resulted in certain A-1 Low Density Apartment zoned sites being developed with single family residential units. In all cases, the units developed as single family residential rather than townhouses were sold as affordable units. In addition, as we built further up in Mililani Mauka, the actual densities decreased due to the steeper site conditions. Thus, our actual build out will be substantially less than the originally approved unit count of 6,600.

I. BACKGROUND INFORMATION

A.	PROJECT NAME	:	Mililani Mauka Phase III
B.	AGENT	:	Kusao & Kurahashi, Inc. Planning and Zoning Consultant 2752 Woodlawn Drive Honolulu, Hawaii 96822 (808) 988-2231
C.	APPLICANT	:	Castle & Cooke Homes Hawaii, Inc. P.O. Box 898900 Mililani, Hawaii 96789-8900
D.	LAND OWNER	:	Castle & Cooke Homes Hawaii, Inc. P.O. Box 898900 Mililani, Hawaii 96789-8900
E.	LOCATION	:	The subject parcel is located in the northwest portion of Mililani Mauka, adjacent to the H-2 Freeway
F.	ADDRESS	:	Not available
G.	TAX MAP KEY	:	9-5-49: portion of 27
H.	AREA	:	Approximately 104 acres
I.	REQUIRED MAPS	:	Project Location Map (Exhibit 1)



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II. LAND USE INFORMATION

A.	STATE LAND USE	:	Urban
B.	DP LAND USE MAP	:	Public Facilities
C.	DP PUBLIC FACILITIES MAP	:	College, in the site determined, within six years category
D.	ZONING	:	AG-1 Restricted Agricultural District
E.	REQUEST	:	From Public Facilities to Residential and Low Density Apartment, to allow development of 826 dwelling units, 683 of which replace units approved but not developed in Mililani Mauka.
F.	REQUIRED MAPS	:	State Land Use District (Exhibit 2) Development Plan Land Use (Exhibit 3)

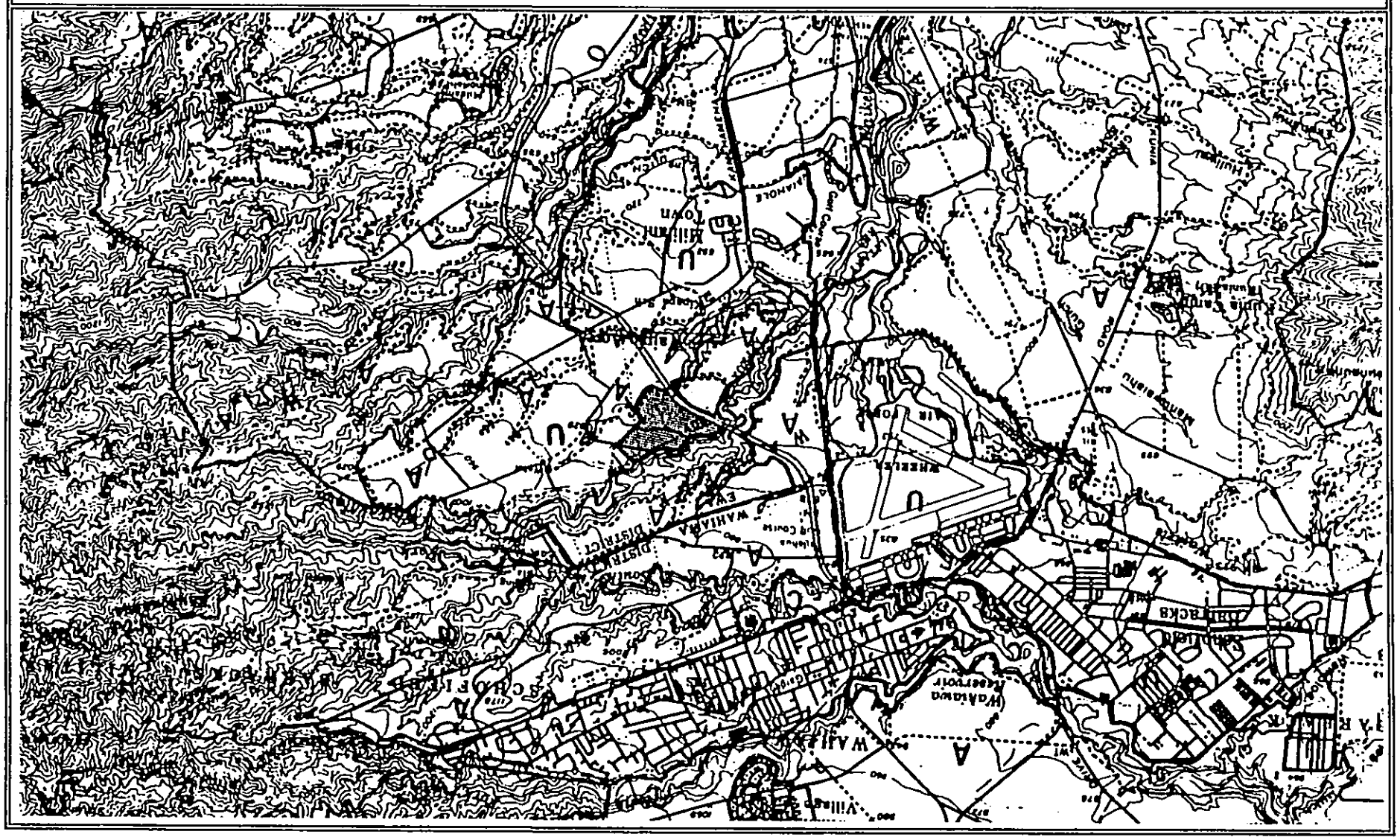
III. DESCRIPTION OF PROPERTY

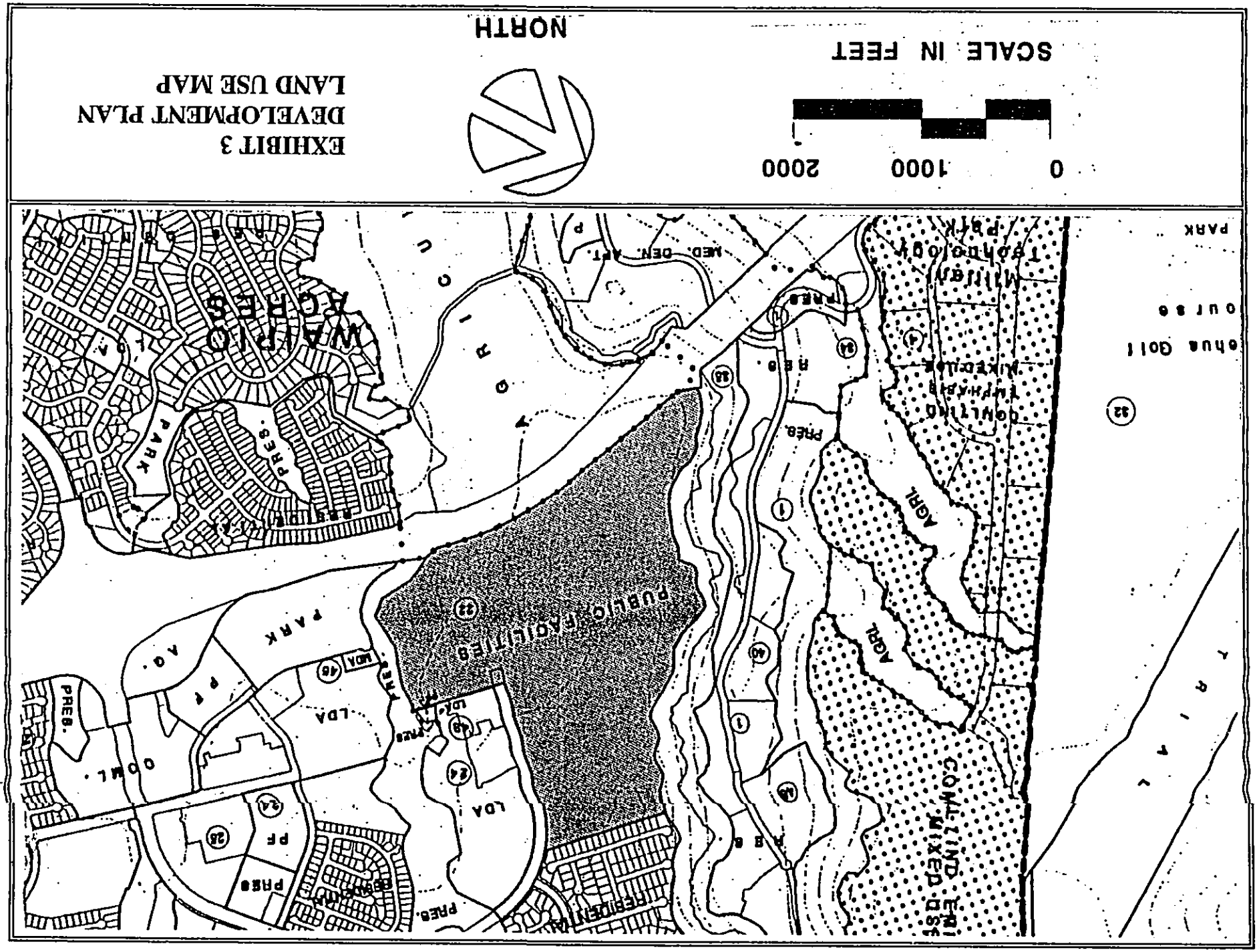
A. EXISTING USE

1. Field Office Area

This area is about 43,300 square feet and accommodates a field office, office trailer, a small storage structure and off street parking for about 40 vehicles. The field office is one-story with an area of about 4,224 square feet. The office trailer has an area of about 1,440 square feet. The storage structure has an area of

EXHIBIT 2
STATE LAND USE MAP





about 384 square feet. Castle & Cooke's construction administration personnel, who manage the ongoing construction activities in Mililani Mauka, occupy these sites.

2. Warehouse Area

Two warehouses, an open storage area, and an off-street parking area occupy about 3.58 acres. Each warehouse is 10,000 square feet with a height of 21 feet. This area is used to store and secure building materials for new residential projects in Mililani Mauka.

3. Contractor Storage Yard

This area is about 2 acres and is used to store building materials and construction equipment.

4. Contractor Fabrication Yard

Wall panels for the new residential units are constructed in this area, which is about 3 acres.

5. Tree Farm

The tree farm supplies trees for new projects in Mililani Mauka and Royal Kunia. The tree farm is about 20 acres.

B. SURROUNDING USES

The Mililani Mauka Phase III project site is bounded by the H-2 Freeway to west. The Waikakalaua Gulch is situated to the north and within the gulch lies the Launani Valley residential development. Land zoned R-5 Residential District is located to the east and includes the

Pacific Islanders development (Unit 116B). The Pacific Islanders development is a single-family R-5 Residential District zoned project with 65 mid-market homes. The project sold out in 1999. South of the project site is Koolani Drive, A-1 Low Density Apartment zoned land, and the North Gully (a drainage gulch) to the south. The A-1 zoned land contains I'i Vistas (MF 106), a multi-family attached product consisting of 80 condominium units within 10 buildings. The project was an 80-120% affordable project and sold out in 2000. The continuation of this project, designated as MF 107A/B, is anticipated to start site construction in late 2001 and will consist of about 280 units. MF 107A/B is projected to sell out in 2005. Beyond the North Gully to the south are the A-1 zoned Olaloa Senior Living development and a District Park. Olaloa is an independent elderly residential community with 360 units. First units were delivered in 1992. This project is sold out. The District Park is about 16 acres and is adjacent to a 6-acre Park and Ride development.

Beyond these surrounding uses, there are the Department of the Army East Range Training Area (east of the Laulani Valley development), the existing and proposed Mililani Technology Park (north of the Laulani Valley development), agricultural designated lands (west of the H-2 Freeway) and schools, parks, commercial and residential developments of Mililani Mauka (south of the District Park and Olaloa Senior Living development).

C. TOPOGRAPHY

The project site is located on a gently sloping plateau, with the Waikakalaua Gulch to the north and the North Gully to the south. The slope of the project site averages approximately four percent with slopes ranging from two percent to close to ten percent. Areas within the project site that exceed ten percent are limited to small areas which border the gulch.

D. SOILS

According to the United States Department of Agriculture, Soil Conservation Service's "Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii" most of the site is classified as Leilehua silty clay (LeB) and Wahiawa silty clay (WaB). Small portions of the site are classified as either Wahiawa silty clay (WaA and WaC), Manana silty clay loam (MoB and MoC), and Helemano silty clay (HMLG).

The Leilehua series consists of well-drained soils on uplands on the island of Oahu. This soil series developed in material weathered from basic igneous rock.

The Leilehua silty clay (LeB) is characterized by 2% to 6% slopes. This soil has the following characteristics: permeability is moderately rapid; runoff is slow; and erosion hazard is slight. In a representative profile the surface layer is dark reddish-brown silty clay about 12 inches thick. It contains concentrations of heavy minerals. The subsoil, about 36 inches thick, is dark reddish-brown and dusky-red

silty clay and clay that has subangular blocky structure. The substratum is dark reddish-brown clay mixed with weathered gravel. The soil is extremely acid throughout the profile.

The Wahiawa series consists of well-drained soils on uplands on the island of Oahu. This soil series developed in residuum and old alluvium derived from basic igneous rock.

The Wahiawa silty clay (WaB) is characterized by 3% to 8% slopes. This soil has the following characteristics: permeability is moderately rapid; runoff is slow; and erosion hazard is slight. In a representative profile the surface layer is very dusky red and dusky red silty clay about 12 inches thick. The subsoil, about 48 inches thick, is dark reddish-brown silty clay that has a subangular blocky structure. The underlying material is weathered basic igneous rock. The soil is medium acid in the surface layer and medium acid to neutral in the subsoil.

The Wahiawa silty clay (WaA) is characterized by 0% to 3% slopes. This soil has the following characteristics: permeability is moderately rapid; runoff is slow; and erosion hazard is no more than slight.

The Wahiawa silty clay (WaC) is characterized by 8% to 15% slopes. This soil has the following characteristics: runoff is medium and erosion hazard is moderate.

The Manana series consists of well-drained soils on uplands on the island of Oahu. These soils developed in material weathered from basic igneous rock.

The Manana silty clay (MoB) is characterized by 2% to 6% slopes. This soil has the following characteristics: runoff is slow and erosion hazard is slight. In a representative profile the surface layer is dark reddish-brown silty clay loam about 8 inches thick. The subsoil, about 42 inches thick, is dusky red, dark reddish-gray, and dark reddish-brown silty clay that has a subangular blocky structure. A nonporous, panlike sheet, 1/8 inch to 1/4 inch thick, occurs in the subsoil at depths ranging from 15 to 50 inches. The substratum is soft, weathered basic igneous rock. The soil is very strongly acid in the surface layer and very strongly acid to extremely acid in the subsoil.

The Manana silty clay (MoC) is characterized by 6% to 12% slopes. This soil has the following characteristics: runoff is slow and erosion hazard is moderate.

The Helemano silty clay loam (HLMG) consists of well-drained soils on alluvial fans and colluvial slopes on the sides of gulches on the island of Oahu. They developed in alluvium and colluvium derived from basic igneous rock. This soil is characterized by 30% to 90% slopes. The soil has the following characteristics: permeability is moderately rapid; runoff is medium to very rapid; and erosion hazard is severe to very severe. In a representative profile the surface layer is dark reddish-brown clay about 10 inches thick. The subsoil, about 50

inches thick, is dark reddish-brown and dark-red silty clay that has a subangular blocky structure. The substratum is soft, highly weathered basic igneous rock. The soil is neutral in the surface layer and neutral to slightly acid in the subsoil. A narrow sliver of the property situated on the south boundary of the property is part of an adjacent gulch.

On this property elevations range from 700 to 900 feet. The annual rainfall amounts to 40 to 80 inches.

E. SLOPE

The slope of the project site averages approximately four percent with slopes ranging from two percent to close to ten percent. Areas within the project site that exceed ten percent are limited to small areas which border the gulch.

F. BOUNDARIES

A legal description of the property boundaries is provided in Appendix I.

G. REQUIRED MAPS

A topography map is provided in Exhibit 4. A soils map is provided in Exhibit 5.

IV. DEVELOPMENT PROPOSAL

A. PROPOSED USE

The applicant proposes to redesignate the site from Public Facilities (104.2 acres) to Residential (84.2 acres) and Low Density

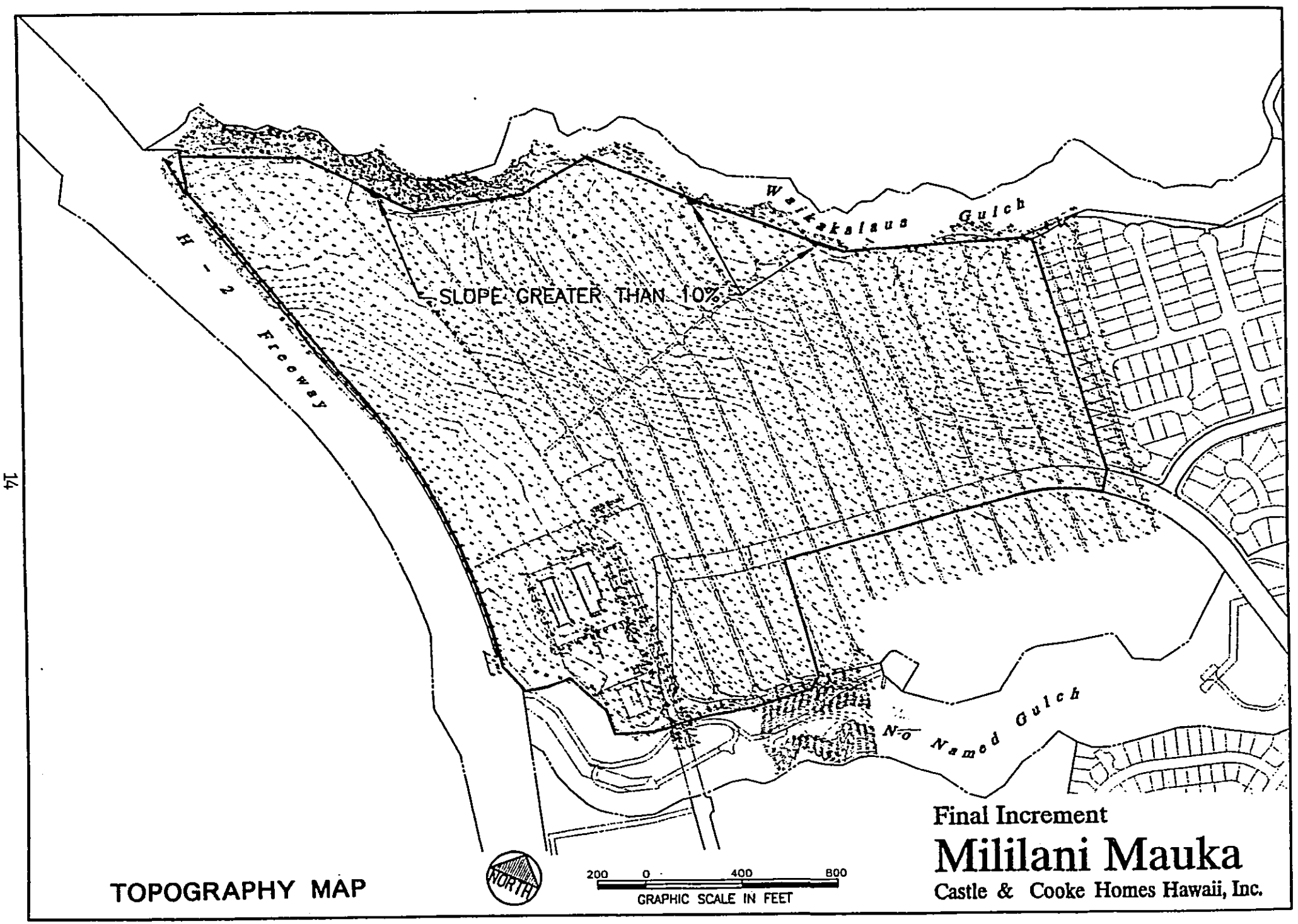
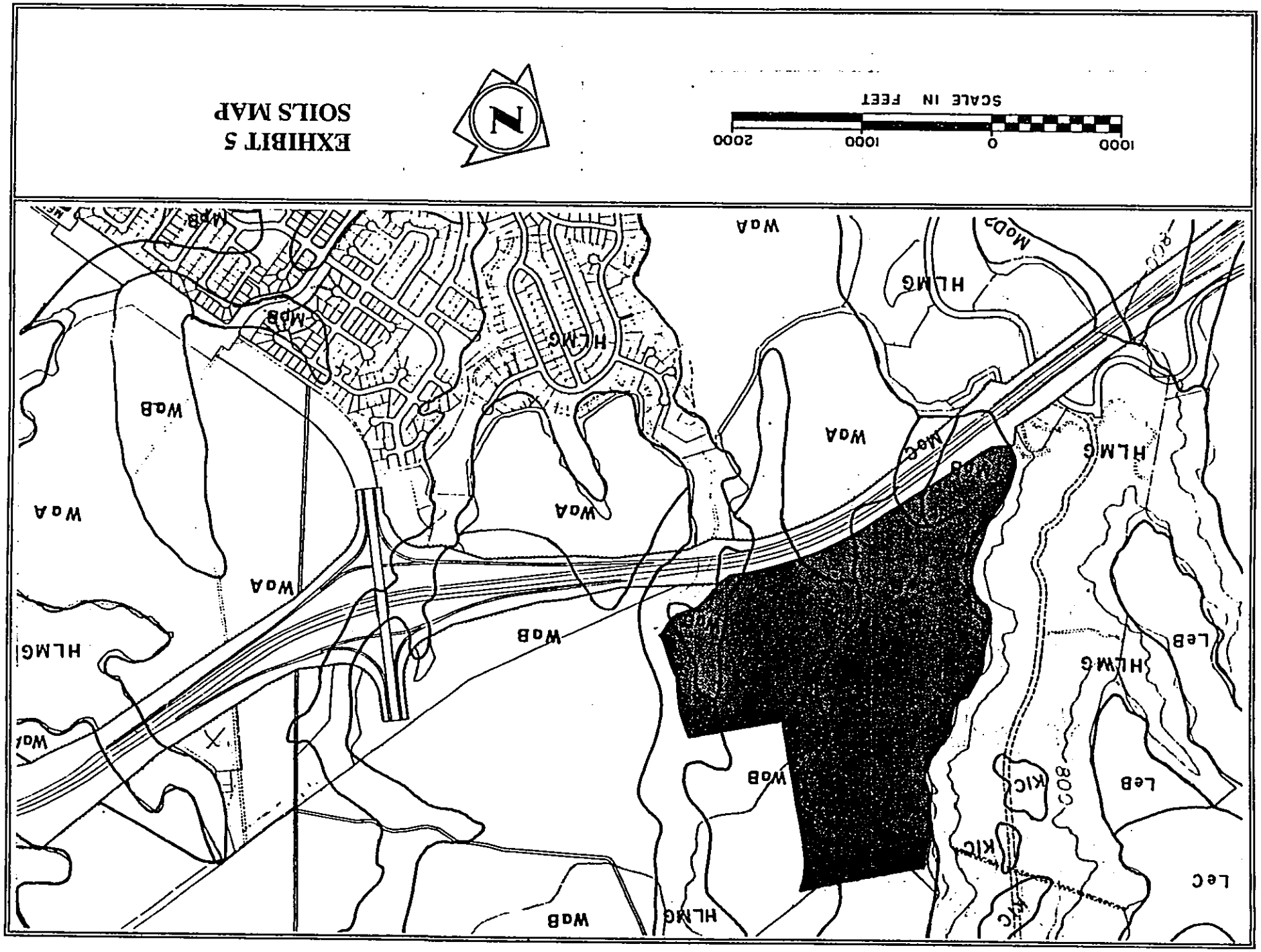


EXHIBIT 4

EXHIBIT 5
SOILS MAP



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Apartment (20 acres). This will allow the applicant to provide 522 single family units and 304 multi-family units. The following table provides a description of the applicant's proposed land uses, including acreage, gross density, and number and type of units:

Phase	DPLUM	Acres	Density	SF Units	MF Units
Phase 1					
Afford Market Lots	Resid	8.3	8.2/ac	68	
Upper/Mid Market Lots	Resid	2.3	6.5/ac	15	
Multi-family attached	LDA	6.0	17.0/ac		100
Major Roads	Resid	0.6			
Phase 2					
Afford/Entry Market Lots	Resid	11.5	7.6/ac	88	
Phase 3					
Afford/Entry Market Lots	Resid	20.3	7.2/ac	146	
Major Roads	Resid	2.2			
Phase 4					
Upper/Mid Market Lots	Resid	16.4	6.4/ac	105	
Major Roads	Resid	2.7			

Phase	DPLUM	Acres	Density	SF Units	MF Units
Phase 5					
Upper/Mid Market Lots	Resid	17.0	5.9/ac	100	
Multi-family attached	LDA	14.0	14.6/ac		204
Total		**104.2**		**522**	**304**

B. TIMETABLE

The Mililani Mauka Phase III project is projected to be developed as follows:

Off-site and On-site
Infrastructure Phase 1 - 2002 (2nd Quarter) to 2003 (3rd Quarter)
Phase 1
Affordable house - 2003 (3rd Quarter) to 2004 (3rd Quarter)
Multi-family units - 2005 (3rd Quarter) to 2006 (4th Quarter)
Phase 2 - 2004 (2nd Quarter) to 2005 (2nd Quarter)
Phase 3 - 2005 (1st Quarter) to 2006 (2nd Quarter)
Phase 4 - 2005 (1st Quarter) to 2006 (3rd Quarter)
Phase 5 - 2006 (2nd Quarter) to 2008 (4th Quarter)

C. PROJECT COST

The proposed development is expected to cost about $188,800,000, with about $5,300,000 of that allocated to the land cost.

D. PROJECT NEED

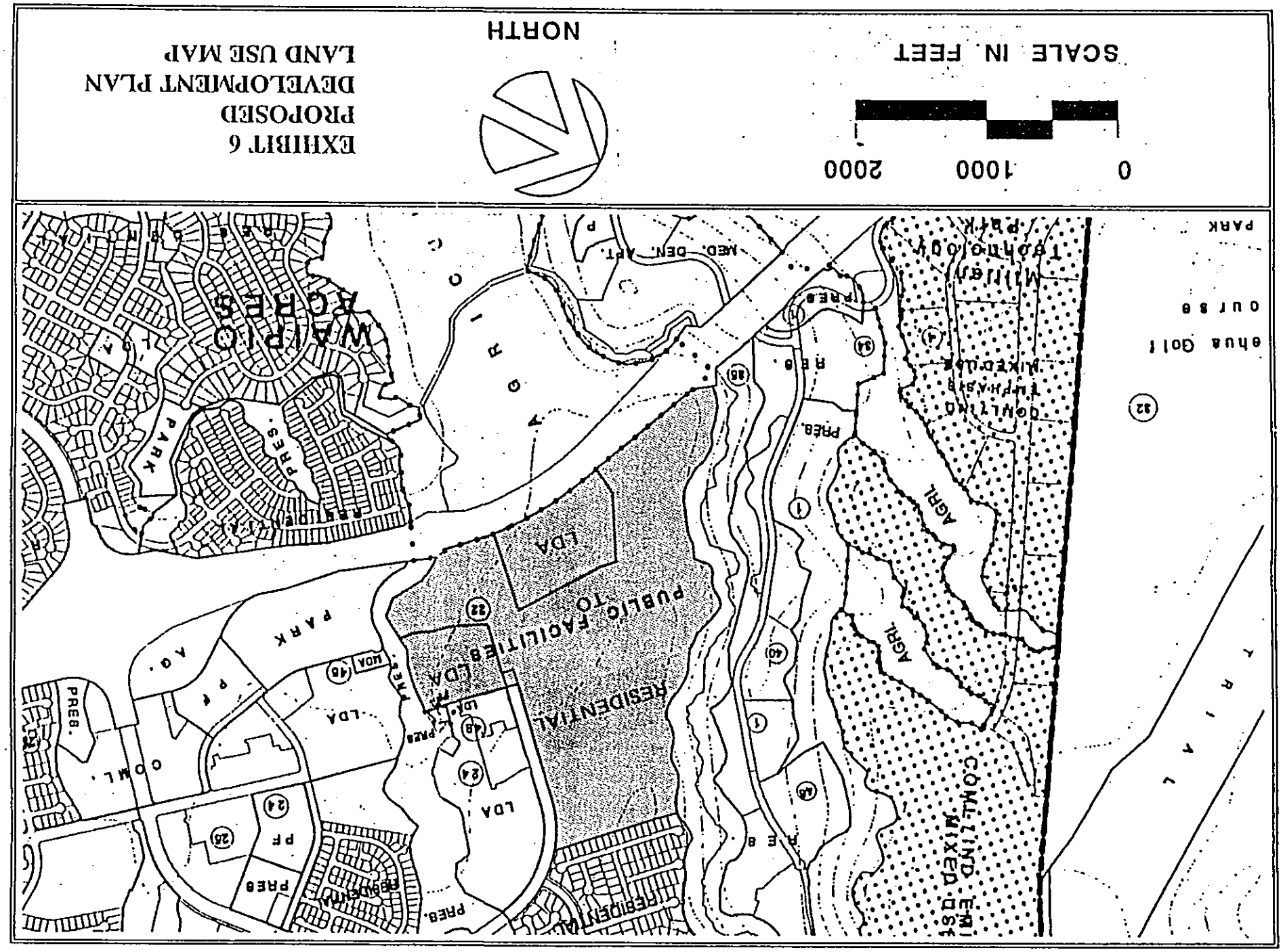
A copy of the "Market Study of A Master Planned Community at Koa Ridge Makai and Waiawa" (Market Study) prepared for Castle & Cooke Homes Hawaii by Prudential Locations Real Estate Sales &

Research, is on file at the Department of Planning and Permitting. We feel that this Market Study addresses the need for the additional 826 housing units that we are proposing at the university site.

The Market Study indicates that Development in Central Oahu in the five year period from year 2000 to 2004 will have a five year supply shortfall of 1,463 units. In the five year period from 2005 to 2009 the shortfall increases to 1,952 units, even with an additional 1,500 units projected from the proposed Gentry Waiawa development. Our proposal to add an additional 826 units to the housing market for Central Oahu that will be developed from 2003 to 2008 will help to reduce the projected shortfall in the supply of housing for this period. The potential addition of the Koa Ridge development to the housing market would also help to alleviate the projected shortfall in the supply of housing over the next 10 years. However, even with both projects moving forward in a timely manner, there will still be a shortfall in the supply of housing for this 10 year period.

E. REQUIRED MAPS

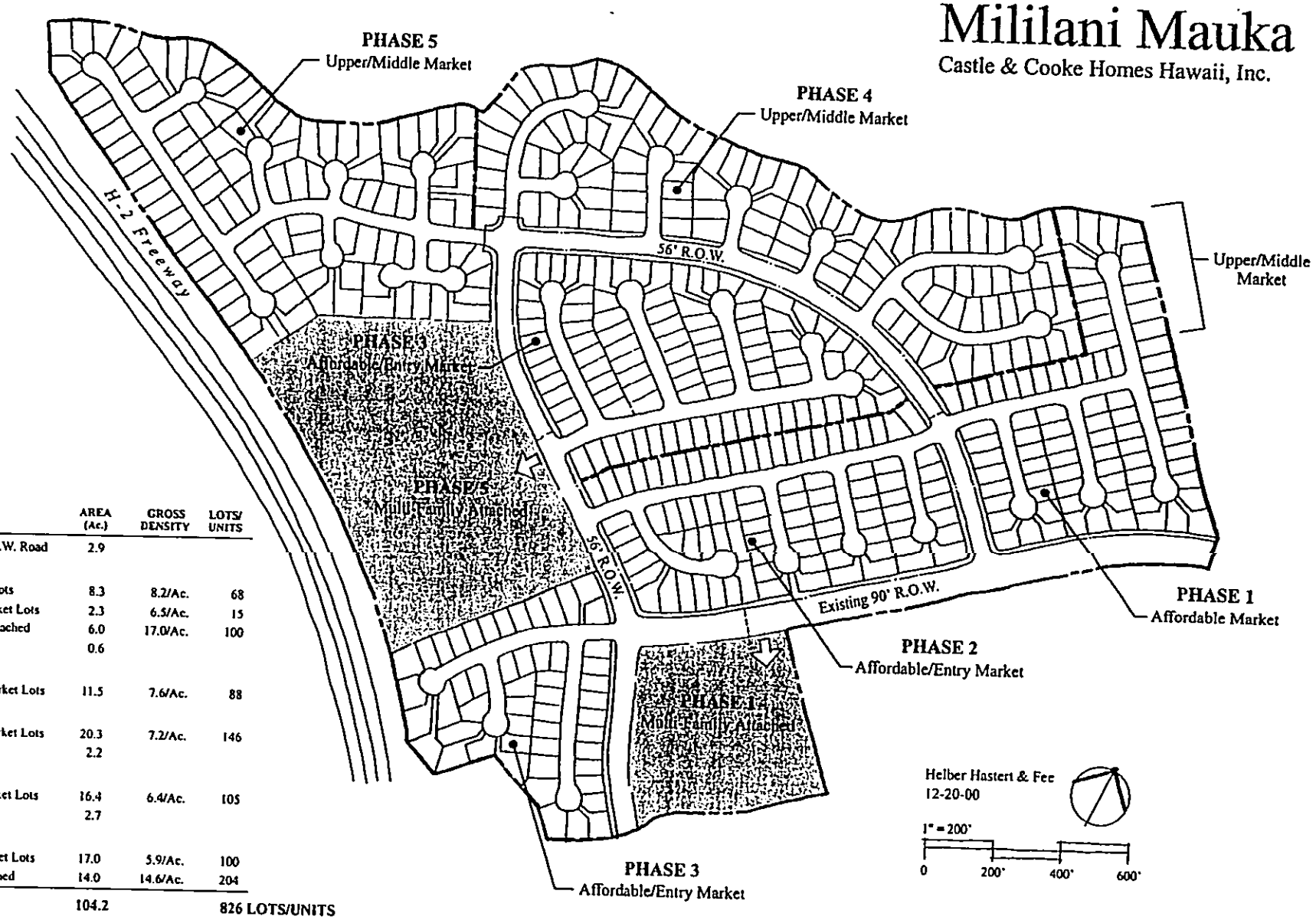
The Proposed Development Plan Land Use Map is provided in Exhibit 6. A Preliminary Site Plan is provided in Exhibit 7.



Final Increment

Mililani Mauka

Castle & Cooke Homes Hawaii, Inc.



	AREA (Ac.)	GROSS DENSITY	LOTS/ UNITS
Existing 90' R.O.W. Road	2.9		
PHASE 1			
Afford Market Lots	8.3	8.2/Ac.	68
Upper/Mid. Market Lots	2.3	6.5/Ac.	15
Multi-Family Attached	6.0	17.0/Ac.	100
Major Roads	0.6		
PHASE 2			
Afford/Entry Market Lots	11.5	7.6/Ac.	88
PHASE 3			
Afford/Entry Market Lots	20.3	7.2/Ac.	146
Major Roads	2.2		
PHASE 4			
Upper. Mid. Market Lots	16.4	6.4/Ac.	105
Major Roads	2.7		
PHASE 5			
Upper/Mid. Market Lots	17.0	5.9/Ac.	100
Multi-Fam. Attached	14.0	14.6/Ac.	204
TOTAL	104.2		826 LOTS/UNITS (522 SF. LOTS)

PHASE III PRELIMINARY SITE PLAN

EXHIBIT 7

V. CONFORMANCE TO FEDERAL, STATE AND CITY PLANS AND PROGRAMS

A. APPROVALS NEEDED

In addition to the Development Plan Land Use Map amendment being requested, the following land use permit approvals will be needed as the project progresses:

1. Zone Change
   a. AG-1 Restricted Agricultural District to R-3.5 Residential District (84 acres).
   b. AG-1 Restricted Agricultural District to A-1 Low Density Apartment District (20 acres).
2. Subdivision

   Subdivision applications will be filed as needed to create the large apartment lots, individual residential lots, and the roadway lots.
3. Building Permits

   Building permits will be filed as needed, by the applicant.

B. FEDERAL

The proposed development will not be utilizing or affecting any federal housing programs, except for possible FHA financing of mortgages.

C. STATE

1. Hawaii State Plan

The Hawaii State Plan serves as a guide for the future development of our State and identifies goals, objectives, policies, and priorities for the State. It provides a basis for determining priorities and allocating limited resources and improves coordination of Federal, State and County plans, policies, programs, projects, and regulatory activities. In addition to the State Plan, twelve functional plans have been developed which set forth more definitive policies, statewide guidelines and priorities within specific fields of activities.

(226-5) Objectives and policies for population.

(b)(7)"Plan the development and availability of land and water resources in a coordinated manner so as to provide for the desired levels of growth in each geographic area."

Response: Development of the Mililani Mauka project has been reviewed and approved through the City's planning process. The proposed Development Plan Land Use Map amendment represents an infilling of a Master Planned Community approved by the City, as being consistent with the General Plan of the City, including population guidelines for Central Oahu. Those population guidelines utilize population projections provided by the State to

determine the range of population prescribed for each of the Development Plan areas.

(226-6) Objectives and policies for the economy--in general.

(b)(6) "Strive to achieve a sustained level of construction activity responsive to and consistent with, State growth objectives."

Response: Construction at Mililani has been continuous for over 30 years, resulting in more than 13,000 units. Island-wide, there is a demand for about 2,750 new units each year to fulfill the housing needs of the population. The Central Oahu demand is for about 963 dwelling units per year. Based on development projections for the major developers in Central Oahu, the additional units planned by this project will help to meet that demand, but will not fully resolve the projected shortfall in the supply of housing. This pace of construction is consistent with the State's growth objectives.

(226-13) Objectives and policies for the physical environment--land, air and water quality.

(b)(7)"Encourage urban developments in close proximity to existing services and facilities."

Response: The proposed residential and apartment development on the university site represents the last increment of the Mililani Mauka development and the

major distribution lines and other infrastructure have been sized to accommodate the full development of the 1,200 acre Mililani Mauka development. As such, the primary service lines can support the planned development of the project site and the applicant will provide the necessary local distribution lines needed for the project.

(226-14) Objectives and policies for facility systems--in general.

(b)(1) "Accommodate the needs of Hawaii's people through coordination of facility systems and capital improvement priorities established through the planning process."

Response: Development of the Mililani Mauka project has been reviewed and approved through the City's planning process. The proposed Development Plan Land Use Map amendment represents an infilling of a Master Planned Community approved by the City. The provision of housing at this site to accommodate the housing needs of the people of Hawaii is consistent with this guideline.

(226-19) Objective and policies for socio-cultural advancement --housing.

(a)(1) "Greater opportunities for Hawaii's people to secure reasonably priced, safe, sanitary, livable homes located in suitable environments that satisfactorily

accommodate the needs and desires of families and individuals."

Response: Mililani Mauka and Mililani Town is a master planned community. Mililani's homes reflect a variety of home prices, including affordable and lower-, middle- and upper-market priced homes. It is a safe, sanitary community that satisfactorily accommodates the needs and desires of families and individuals with support services, including parks, recreation centers, schools, shopping centers, commercial offices, a medical clinic, a park and ride, church sites, and a retirement community.

(a)(2) "The orderly development of residential areas sensitive to community needs and other land uses."

Response: The proposed Development Plan Land Use Map amendment represents an infilling of a Master Planned Community approved by the City. The proposal for additional residential and apartment development abutting lands zoned and planned for similar residential and apartment developments will ensure that the uses planned for the project site will be compatible with the surrounding development.

(b)(1)"Effectively accommodate the housing needs of Hawaii's people."

Response: As mentioned earlier, the Central Oahu demand is for about 963 dwelling units per year. Based on development projections for the major developers in Central Oahu, the additional units planned by this project will help to meet that demand, but will not fully resolve the projected shortfall in the supply of housing.

(a)(2) "Stimulate and promote feasible approaches that increase housing choices for low-income, moderate-income, and gap-group households."

Response: The proposed development will provide additional dwelling units in each of these categories, providing housing choices in the Mililani Mauka development, a community that has been very popular with home buyers of various income levels.

(a)(3) "Increase homeownership and rental opportunities and choices in terms of quality, location, cost, densities, style, and size of housing."

Response: The proposed development provides, even within its own boundaries, a variety of housing options, related to quality, cost, densities, style and size of housing, as indicated in the preliminary site plan. In the context of the larger Mililani Mauka development the options increase to even greater levels.

(a)(6) "Facilitate the use of available vacant, developable, and underutilized urban lands for housing."

Response: The project site is a vacant and underutilized urban designated parcel of land that represents an infilling of the Mililani Mauka master planned community. The land is gently sloped and has soils similar to other parts of Mililani Mauka that have been developed with residential and apartment units. This land is very developable for housing.

(226-104) Population growth and land resources priority guidelines.

(a)(1) "Encourage planning and resource management to insure that population growth rates throughout the State are consistent with available and planned resource capacities and reflect the needs and desires of Hawaii's people."

Response: The proposed project site is designated urban and represents an infilling of the master planned community of Mililani Mauka. All major utility transmission lines have been constructed and sized to accommodate the full development of Mililani Mauka and are adequate to service the planned development. The applicant will provide local infrastructure improvements and no public expenditures will be required. As mentioned earlier, based on development projections for the major developers in Central Oahu, the additional units planned by this project will help to meet that demand by the people of Hawaii for housing, but will not fully resolve the projected shortfall in the supply of housing.

(c)(2) " Encourage urban growth primarily to existing urban areas where adequate public facilities are already available or can be provided with reasonable public expenditures, and away from areas where other important benefits are present, such as the protection of important agricultural land or preservation of lifestyles."

Response: The proposed project site is designated urban and represents an infilling of the master planned community of Mililani Mauka. All major utility transmission lines have been constructed and sized to accommodate the full development of Mililani Mauka and are adequate to service the planned development. The applicant will provide local infrastructure improvements and no public expenditures will be required. The proposed use is compatible with surrounding areas also designated and zoned for Residential and Apartment use.

(b)(6)"Seek participation from the private sector for the cost of building infrastructure, utilities and open spaces."

Response: As mentioned earlier, all major utility transmission lines have been constructed and sized to accommodate the full development of Mililani Mauka and are adequate to service the planned development. The applicant will provide local infrastructure improvements and no public expenditures will be required.

2. State Functional Plans

The State has established 12 Functional Plans that have been established to act in coordination with the County General Plans and Development Plans toward implementing the Hawaii State Plan. The Functional Plans work as the primary guide for implementation of the Hawaii State Plan. The Functional Plan that provide objectives, policies and implementing actions that are applicable to our proposed development is the Housing Plan.

Housing Plan

Objective A, Policy A(1), Implementing Action A(1)(a):

"Develop infill projects on Oahu, Hawaii, Maui, Molokai, Lanai and Kauai. (Generally, infill projects are located within urbanized areas where basic infrastructure (e.g., roads, water, sewer, utilities and drainage) are available.)"

Response: The proposed project site is designated urban and represents an infilling of the master planned community of Mililani Mauka. All major utility transmission lines have been constructed and sized to accommodate the full development of Mililani Mauka and are adequate to service the planned development. The applicant will provide local infrastructure improvements and no public expenditures will be required.

Objective A, Policy A(1), Implementing Action A(1)(c):

"Where appropriate, increase housing densities in

residential developments to enable more lower income families to become homeowners." and;

Objective A, Policy A(3), Implementing Action A(3)(a):

"Impose realistic and fair housing conditions on projects seeking land use redesignations, general or development plan amendments, rezoning, SMA permits and building permits."

Response: Although affordable housing requirements are not established for development plan land use map amendments, we expect that at the time of rezoning the City Council will place an affordable housing requirement on the project. We are planning for a greater percentage of the units to be in the affordable, and lower- and middle-market categories to allow a greater number of our residents, including first time home buyers to become homeowners. We are proposing smaller lot sizes (minimum 3,500 square feet) for many of the lots to allow for the lower home prices. The land planned for multi-family use will also provide for lower cost housing.

D. CITY

1. General Plan

The General Plan for the City and County of Honolulu is a comprehensive statement of objectives and policies, in eleven

areas of concerns, which sets forth the long-range aspirations of Oahu's residents and the strategies of actions to achieve them.

Population

Objective C, Policy 2

"Encourage development within the secondary urban center at Kapolei and the Ewa and Central Oahu urban-fringe areas to relieve developmental pressures in the remaining urban-fringe and rural areas and to meet housing needs not readily provided by the primary urban center."

Response: The proposed development is located in the Central Oahu urban-fringe area and will help to relieve pressures in other urban-fringe and rural areas. The plan will provide a housing alternative with a variety of new housing types at prices generally lower than in the primary urban center for a similar product.

Objective 2, Policy 3

"Manage physical growth and development in the urban-fringe and rural areas so that:

(a) An undesirable spreading of development is prevented; and

(b) Their population densities are consistent with the character of development and environmental qualities desired for such areas."

Response: The proposed Development Plan Land Use Map amendment represents an infilling of Mililani Mauka, a master planned community approved by the City. The proposal for additional residential and apartment development abutting lands zoned and planned for similar residential and apartment developments will insure that the uses planned for the project site will be compatible with the surrounding development.

Objective C, Policy 4

"Seek a year 2010 distribution of Oahu's residential population which would be in accord with the following table:

Distribution of Residential Population

Location	% of Year 2010 Islandwide Population
Primary Urban Center	45.1% - 49.8%
Ewa	12.0% - 13.3%
Central Oahu	14.9% - 16.5%
East Honolulu	5.3% - 5.8%
Koolaupoko	11.0% - 12.2%
Koolauloa	1.3% - 1.4%
North Shore	1.6% - 1.8%
Waianae	3.8% - 4.2% "

Response: The proposed development will provide 826 dwelling units which will provide for additional residential

population for the Central Oahu area. However, 683 of these units can be considered replacement units for the 6,600 dwelling units approved for Mililani Mauka through previous zone change approvals. The additional 143 dwelling units will not have a significant impact on the % of islandwide population for the area.

Housing

Objective A, Policy 3

"Encourage innovative residential development which will result in lower costs, added convenience and privacy, and the more efficient use of streets and utilities."

Response: The proposed development plans to provide smaller lot subdivisions (3,500 square feet) which will result in lower costs, convenience and privacy over multi-family developments and the efficient use of streets and utilities by allowing additional density. It is also an infill project in which surrounding infrastructure has been sized to accommodate development on the lot.

Objective C, Policy 1

"Encourage residential developments that offer a variety of homes to people of different income levels and to families of various sizes."

Response: The proposed development provides, even within its own boundaries, a variety of housing options,

related to quality, cost, densities, style and size of housing, as indicated in the preliminary site plan. In the context of the larger Mililani Mauka development the options increase to even greater levels. It is a master planned community that provides for the needs and desires of families and individuals with support services, including parks, recreation centers, schools, shopping centers, commercial offices, a medical clinic, a park and ride, church sites, and a retirement community.

Objective C, Policy 3

"Encourage residential development near employment centers."

Response: The proposed development is nearby three employment centers: the Mililani Technology Park, a high tech park development; Wheeler Air Force Base; and Schofield Barracks. Employment opportunities are also provided at the Town Center at Mililani and the Waikele Shopping Center.

The proposed development is also situated about 13 miles from Kapolei, the secondary urban center. The Kapolei area is developing into a major employment center with State and City offices, financial institutions, retail and entertainment centers, and a planned auto mall. The adjacent Campbell Industrial Park and Barbers Point

Harbor provide an additional employment generator that is expanding with talks of a data center and theme park. The Ko Olina development has taken major strides and includes a new marina and a planned 750-unit time share development by the Marriott Vacation Club International. The 13-mile drive to Kapolei and the additional drive to the surrounding employment areas is in the non-peak direction The proposed residential and apartment development on the university site represents the last increment of the Mililani Mauka development and the major transmission lines and other infrastructure have been sized to accommodate the full development of the 1,200 acre Mililani Mauka development. As such, the primary service lines can support the planned development of the project site and the applicant will provide the necessary local transmission lines needed for the project.

Objective C, Policy 3

"Encourage residential development in areas where existing roads, utilities, and other community facilities are not being used to capacity."

Response: The proposed residential and apartment development on the university site represents the last increment of the Mililani Mauka development and the major distribution lines and other infrastructure have been

sized to accommodate the full development of the 1,200 acre Mililani Mauka development. As such, the primary service lines can support the planned development of the project site and the applicant will provide the necessary local transmission lines needed for the project.

2. Development Plan

a. Common and Special Provisions

Common Provisions

Section 24-1.4(f)

"...New development in existing communities shall generally be limited to that which is compatible with or enhances the desired physical and social character and lifestyle..."

Response: The proposed use is compatible with surrounding areas also designated and zoned for Residential and Apartment use.

Special Provisions

Section 24-5.2.(3) Height Controls

"... Residential	25 feet ...
Low-Density Apartment	30 feet ..."

b. Land Use Map

The project site is designated Public Facilities on the Central Oahu Development Plan Land Use Map based on the earlier plan for a University site at this location. This

application for a Development Plan Land Use Map change is requested as a result of the decision by the University of Hawaii to focus its efforts to develop a West Oahu Campus at Kapolei. The September 1999 Draft of the Central Oahu Sustainable Communities Plan designates the project site for residential and low-density apartment use on the Urban Land Use Map.

c. Public Facilities Map

The project site is designated as a publicly funded park/college in the site determined, within six years category. The college is no longer being pursued by the University of Hawaii.

3. Draft Central Oahu Sustainable Communities Plan

a. Section 3.8.1.1 Overall Density

The residential zoned portion of the project site will be developed in the density range of 5 to 12 units per acre (including the streets) as recommended by this policy. The project site is consistent with the Draft Central Oahu Sustainable Communities Plan Urban Land Use Map which designates the site for Residential and Low Density Apartment use.

b. Section 3.8.1.3 Physical Definition of Neighborhoods

The boundary of Mililani Mauka will be clearly defined by

the H-2 Freeway to the west, the Waikakalaua Gulch to the north, and the North Gully to the south.

c. 3.8.1.4 Compatible Mix of Building Forms

The Phase III development will include a variety of housing types and densities to avoid visual monotony and accommodate a variety of housing needs, but without sharp contrasts between the exterior appearance of adjacent housing areas. The existing mix of housing types and densities in Mililani Mauka Phases I and II are representative of the proposed housing product in Phase III.

d. 3.8.1.5 Transit-Oriented Streets

The proposed project will extend Ukuwai Street into the site and connect with Koolani Drive. The principal access to Phase II will be Koolani Drive. The extension will provide a direct link between the residential units proposed in the project and the existing Park-and-Ride site. The project will provide new streets. These improvements would allow for flexibility in shuttle or bus routing by allowing for loop routing.

e. 3.8.2.1 Residential

The residential development will meet the density guideline of 5 to 12 units per acre; the building height guideline of two stories; the site design guideline to avoid monotonous rows of garages and driveways on street frontages by

varying setbacks, varying driveway lengths, and providing different model types and elevations.

f. 3.8.2.2 Low Density Apartment

The low density apartment development will be designed to meet the density guideline of 10 to 30 units per acre; the height guideline of three stories above grade with an allowance for a pitched roof form; building form guidelines to maintain a sense of residential scale through form, orientation, location of entries and landscape screening; and compatibility guidelines which support compatible building scale, roof form and materials with adjacent low density residential areas.

g. 4.1.5 General Policies (Transportation Systems)

The proposed project will extend Ukuwai Street into the site and connect with Koolani Drive. The extension will provide a direct link between the residential units proposed in the project and the existing Park-and-Ride site. The project will also provide new streets. These improvements would allow for flexibility in shuttle or bus routing by allowing for loop routing.

h. 4.2.1 General Policies (Water System)

The Board of Water Supply has indicated that adequate potable water is available.

i. 4.3.1 General Policies (Wastewater System)

Phase III will be connected to the municipal system.

j. 4.7.1 General Policies (School Facilities)

The Department of Education (DOE) has determined that school facilities will be adequate to service the Phase III development. The DOE has further determined that the applicant has already paid their fare share costs for schools.

4. Oahu Water Management Plan

The current update to the Oahu Water Master Plan, "Oahu Water Master Plan Initial Revision to the Technical Reference Document", dated January 1998, was prepared for the City and County of Honolulu Planning Department and Board of Water Supply by Wilson Okamoto & Associates, Inc. This update is summarized as follows:

Since adoption of the Oahu Water Management Plan (OWMP) in 1990 two major changes that impact on water use have occurred on Oahu. The sugar industry has been phased out on Oahu and the City has undertaken the Development Plan Revision Program which is reaffirming the focus of Ewa and Central Oahu as areas of future urban development.

The OWMP was enacted in 1990 to guide the City and advise the State Commission on Water Resource Management (CWRM) in the areas of planning, management, water development, and use and allocation of Oahu's water resources.

Major users of water on Oahu include the Board of Water Supply, sugar cane plantations, military, and other private users. Existing water use dropped between 1988 and 1994 by 16% from 408 million gallons per day (mgd) to 341 mgd primarily due to a reduction in water use by the sugar plantations. The BWS use increased from 150 mgd in 1988 to 153 mgd in 1994.

The total sustainable yield for Oahu water sources was reduced by the CWRM from 495 mgd to 465 mgd in 1991. The drop in sustainable yield can be attributed to a reassessment of sustainable yield quantities from the Central Sector - Wahiawa System which was found to be overstated. Additional qualifications were placed on the sustainable yields for Windward Oahu areas which reduced their sustainable yield by 45 mgd due to a determination that excess groundwater withdrawal may have an effect on stream flow.

The May 1996 permitted use is 344 mgd, which results in a 121 mgd surplus when compared with the sustainable yield of 465 mgd established by the CWRM. The total amount of groundwater associated with the sustainable yields that was withdrawn in 1994 for Oahu is estimated at 249 mgd. The sustainable yield relative to existing water usage would result in an available surplus of 216 mgd (465 mgd - 249 mgd). The BWS, however, is concerned that the available supply may be

overstated and has established a likely recoverable yield of 361 mgd.

When the 309 mgd of projected water usage affecting sustainable yield on Oahu for the year 2020 is compared with the sustainable yield of 465 mgd; the adjusted sustainable yield 420 mgd (less amount related to Windward Streams); and the likely recoverable sustainable yield of 361 mgd, would result in a range of available sustainable yield of between 52 mgd and 156 mgd. It's important to note that the proposed Phase III development in Mililani Mauka was included in the list of proposed projects impacting the year 2020 water use, since it was part of the Central Oahu Development Plan Public Review Draft, dated July 1995.

With regard to the availability of water in the Waipahu-Wahiawa Aquifer System, the Commission on Water Resource Management adopted a sustainable yield of 104 mgd for this system. The present water use permit allocation totals 82.501 mgd, resulting in a balance of 21.499 mgd. Mililani Mauka Phase III will have a demand of 0.383 mgd which would require just a small fraction the available balance.

The City plans to continue its efforts to meet future water demand with strategies including: develop ground water wells; maximize Pearl Harbor ground water allocations; seek reallocation of existing unused agricultural permitted uses; retain

sufficient quantities of Waiahole Ditch water for Ewa and Central Oahu; pursue reclaimed water in Ewa; pursue nonpotable brackish sources for irrigation; and consider desalinization of brackish and sea water sources.

VI. SOCIO-ECONOMIC IMPACTS

A. DEMOGRAPHIC

1. Residential Population

The proposed development will provide 826 dwelling units which will provide for additional residential population for the Central Oahu area. However, 683 of these units can be considered replacement units for the 6,600 dwelling units approved at the time the zone changes were approved for Mililani Mauka Phases I and II. The additional 143 dwelling units planned represents a modest increase over that approved for Mililani Mauka and will provide a mix of dwelling units for future residents of the area.

When added to the 6,200 units planned at Koa Ridge, the cumulative impact would be an additional 7,026 units. The latest Draft of the Central Oahu Sustainable Communities Plan supports the development of 25,000 new homes in master planned residential developments at Mililani Mauka (including Phase III), Koa Ridge Makai, Waiawa, and Royal Kunia. The 2,976 units of

Phase III and Koa Ridge Makai are designated as a residential and low density apartment area on the Central Oahu Sustainable Communities Plan Urban Land Use Map.

2. Visitor Population

The proposed residential development will not impact on the number of visitors to the islands or the de facto visitor population.

3. Character of Neighborhood

The proposed Development Plan Land Use Map amendment represents an infilling of Mililani Mauka, a master planned community approved by the City. The proposal for additional residential and apartment development abutting lands zoned and planned for similar residential and apartment developments will insure that the uses planned for the project site will be compatible with the surrounding community. The proposed amendment will not affect the character of the neighborhood.

4. Displacement

The project site is vacant except for its use as a temporary construction staging area with a field office area, warehouse area, contractor storage yard, contractor fabrication yard, and tree farm for trees used in the Mililani Mauka Development. Its development will not result in the displacement of any residents or businesses, except for the eventual termination of the

construction staging area upon completion of the Mililani Mauka Development.

B. ECONOMIC IMPACTS

1. Economic Growth

The project will not affect the rate and pattern of economic growth and development in the islands. It will lend short term but welcome relief to what has been a somewhat slow construction industry.

2. Employment

The proposed development will provide short term employment during the construction phase and a limited number of long term service jobs to support the increase in population.

3. Government Revenues vs Governmental Costs

The City will experience an increase in tax revenues that will more than off-set the costs of providing public services for this site. The existing municipal public facility system is adequate to support the proposed development and property taxes collected will go towards operation and maintenance costs for these facilities which are already in place and presently require operation and maintenance.

The State will also benefit in the short term from income tax collected on construction jobs for the project and on the general excise tax collected on materials for the development.

C. HOUSING

1. Intended Market

Based on a profile of previous purchasers in Mililani Mauka, Phase II, we project that 42.6 % of the purchasers of Phase III will be from Mililani, while an additional 25.5% will be from the Leeward part of Oahu, including Aiea to Waianae and north to Wahiawa. Phase III is well situated in relation to its intended Leeward Oahu market.

The project will provide a mix of unit types including affordable units and Entry, Mid, and Upper market lots.

2. Projected Price Ranges for Units

The units in Mililani Mauka Phase III are expected to range in price from $108,000 to $470,000 in today's dollars.

3. Provision of Affordable Housing in Relation to State and City Housing Policies

Although affordable housing requirements are not established for development plan land use map amendments, we expect that at the time of rezoning the City Council will place an affordable housing requirement on the project. We are planning for a greater percentage of the units to be in the affordable, and lower- and middle-market categories to allow a greater number of our residents, including first time home buyers to become homeowners. We are proposing smaller lot sizes (minimum 3,500 square feet) for many of the lots to allow for the lower

home prices. The land planned for multi-family use will also provide for affordable housing.

D. PUBLIC FACILITIES

It's important to note that although the project site will support 826 dwelling units, 683 of those units can be considered replacement units for units approved but not developed in other areas of Mililani Mauka. Although many of the public facilities are being reviewed on the basis of 826 additional dwelling units, the net increase over the units approved for Mililani Mauka is only 143 units. Public facilities have already been designed and constructed to accommodate the 683 replacement units and the formerly planned university development.

Information on the impact of public services generated by the proposed Koa Ridge development is from the "Koa Ridge A Master Planned Community" Environmental Assessment, dated November 2000, and prepared by Helber Hastert & Fee, Planners for Castle & Cooke Homes Hawaii, Inc. and Pacific Health Community, Inc.

1. Transportation

A "Traffic Assessment for Mililani Mauka Phase 3", dated January 2001, was prepared for Castle & Cooke Homes Hawaii, Inc. by Julian Ng, Inc. and is included in it's entirety in Appendix II. This traffic assessment concluded that the proposed change to develop Phase III as residential units instead of a university will result in less traffic entering and leaving Mililani Mauka than previously estimated. Another factor that may further decrease

traffic at full development is the fact that current estimates included traffic generated by activities which may not continue upon completion of the project, including construction workers arriving and departing, other construction vehicle activity, and school traffic originating outside of Mililani Mauka. The report updated traffic counts and projections for the Mililani Mauka project, based on the current estimate for 6,743 dwelling units and no university and compared the results with the earlier January 1989 Roadway Master Plan, Pre-development estimate (6,640 dwelling units with a university), as indicated in the following table:

Comparison of Peak Hour Traffic Estimates
Meheula Parkway, West of Ainamakua Drive

Development	AM Peak Enter	AM Peak Exit	PM Peak Enter	PM Peak Exit
Pre-development estimate January, 1989 Roadway Master Plan	1,984	2,961	3,497	2,367
Current estimate, Phases 1 and 2	1,110	2,155	2,270	1,130
Current estimate, Phases 1, 2, and 3	1,270	2,455	2,590	1,290
For Phases 1, 2 and 3 % of pre-development estimate	67%	83%	74%	54%

As the table indicates, the current estimate for peak hour traffic for Mililani Mauka Phases I, II and III indicates a

significant reduction from the peak hour traffic projected in January 1989 when the project was proposed with 6,640 dwelling units and a university.

Traffic estimates from the January 1989 Roadway Master Plan report were used to provide a comparison of the current traffic estimates, which are based on actual counts with partial development of the Mililani Mauka project, with the pre-development traffic estimates that were presented in the environmental documents submitted earlier.

The most significant regional transportation impacts of the proposed project would occur during the morning (AM) peak hour. Volumes at three critical locations on the regional highway system have been estimated as follows:

AM Peak Hour, Southbound on H-2 between Mililani and Waipio Interchanges

	Transit	HOV	Other vehicles
Existing Capacity (vehicles)	38	1,891	6,018
Existing Volume (vehicles)	11	600	2,744
Volume/Capacity Ratio	0.29	0.29	0.46
Level of Service	A	A	B
Existing person-trips carried	440	1,320	3,019
Existing Mode Split on highway	9%	28%	63%

Future person-trips without project	549	1,647	3,766
Future Volume (vehicles)	14	749	3,423
Future Capacity (vehicles)	35	1,901	6,018
Volume/Capacity Ratio	0.39	0.39	0.57
Level of Service	B	B	C
Future person-trips with project	585	1,755	4,012
Future Volume (vehicles)	13	798	3,647
Future Capacity (vehicles)	31	1,912	6,018
Volume/Capacity Ratio	0.42	0.42	0.61
Level of Service	B	B	C

AM Peak Hour, Southbound on H-2 between Waipio and Waiawa Interchanges

	Transit	HOV	Other vehicles
Existing Capacity (vehicles)	30	1,916	6,018
Existing Volume (vehicles)	11	700	2,819
Volume/Capacity Ratio	0.37	0.37	0.47
Level of Service	B	B	B
Existing person-trips carried	440	1,540	3,101
Existing Mode Split on highway	9%	30%	61%
Future person-trips without project	542	1,899	3,823
Future Volume (vehicles)	14	863	3,476
Future Capacity (vehicles)	30	1,916	6,018
Volume/Capacity Ratio	0.45	0.45	0.58
Level of Service	B	B	C

Future person-trips with project	576	2,017	4,061
Future Volume (vehicles)	14	917	3,692
Future Capacity (vehicles)	30	1,916	6,018
Volume/Capacity Ratio	0.48	0.48	0.61
Level of Service	B	B	C

`AM Peak Hour, Eastbound on H-1 between Waiawa and Waiau Interchanges

	Transit	HOV	Other vehicles
Existing Capacity (vehicles)	74	3,790	10,030
Existing Volume (vehicles)	42	2,150	8,336
Volume/Capacity Ratio	0.57	0.57	0.83
Level of Service	C	C	D
Existing person-trips carried	1,680	4,945	9,170
Existing Mode Split on highway	11%	31%	58%
Future person-trips without project	1,806	5,315	9,856
Future Volume (vehicles)	45	2,311	8,960
Future Capacity (vehicles)	74	3,790	10,030
Volume/Capacity Ratio	0.61	0.61	0.89
Level of Service	C	C	E
Future person-trips with project	1,847	5,437	10,083
Future Volume (vehicles)	46	2,364	9,166
Future Capacity (vehicles)	74	3,790	10,030
Volume/Capacity Ratio	0.62	0.62	0.91
Level of Service	C	C	E

As indicated on the tables, future conditions without or with the proposed project (826 units) will not be significantly different. Future conditions without the project were evaluated for existing traffic plus traffic due to the completion of an additional 2,000 dwelling units Mililani Mauka Phase II). Other development could have a greater impact on future conditions than shown in the tables.

Construction traffic in Mililani Mauka is not expected to be significantly different from the existing construction traffic. Mililani Mauka has been in a constant state of development and is expected to continue until full buildout. Minor fluctuations in the construction trips are not very noticeable and is accepted as part of the daily traffic. At full buildout, however, construction related traffic will be reduced significantly.

Traffic mitigation measures identified in previously prepared traffic reports will be implemented at the appropriate times, in coordination with the State Department of Transportation and the City and County of Honolulu Department of Transportation Services. Examples of these mitigation measures include the restriping of Meheula Parkway and Ainamakua Drive, modifications to traffic signal operations, and continued support of travel demand measures.

Travel demand management is a mitigation measure that could reduce the deterioration of Levels of Service for "Other

Vehicles"; these measures, which would increase the number of transit and high occupancy vehicle (HOV), were not considered in the comparisons shown in the tables (existing modal choice and vehicular occupancy factors were not changed for future conditions).

The applicant is a charter member of the Leeward Oahu Transportation Management Association (LOTMA) which is an association of developers and/or landowners working toward a program for transportation for the leeward region. Carol Lilley Kwan, Senior Engineering Coordinator for the applicant served as Treasurer of LOTMA in 1998, Vice President in 1999, President in 2000 and Treasurer in 2001. LOTMA has worked to address the formulation, use and continuation of alternative transportation opportunities that would optimize the use of existing and proposed transportation systems. These actions may serve to further reduce the number of single occupant passenger vehicles on the highway and reduce the number of trips during the peak hours.

The proposed project will extend Ukuwai Street into the site and connect with Koolani Drive. Koolani Drive has been sized and constructed as the main entry to Phase III. The extension will provide a direct link between the residential units proposed in the project and the existing Park-and-Ride site. The project will provide new streets. These improvements would

allow for flexibility in shuttle or bus routing by allowing for loop routing. The additional streets will be constructed to City standards, which will provide concrete sidewalks for pedestrians and pavement surfaces that will be shared by motor vehicles and bicycles.

Koa Ridge, Cumulative Impact

Based on the "Koa Ridge Transportation Study" prepared for Castle & Cooke Homes Hawaii, Inc. by Wilbur Smith Associates, dated August 28, 2000, the cumulative impact of our project along with other projects in the area, including Koa Ridge will be as follows:

The cumulative effect on the H-2 Freeway between the Waipio and Waiawa interchanges would be to reduce the level of service (LOS) in the southbound travel direction in the morning peak hour from LOS C (without Koa Ridge) to LOS D (with Koa Ridge) and northbound in the afternoon peak hour from LOS D to LOS E. The estimated afternoon impact would be a reduction in average speeds along the segment from near 55 mph without the Koa Ridge Development to about 52.5 mph.

The Koa Ridge study recommends actions to promote transit use, including a Park and Ride Facility, Transit Transfer Facilities, transit friendly design of the Pacific Health Center, and transit and pedestrian friendly design of the Koa Ridge residential areas.

2. Water

The Phase III project, with 826 units proposed, has an estimated water demand of 383,000 gallons per day based upon the Board of Water Supply Standards, City and County of Honolulu. Originally planned for the University of Hawaii (UH) West Oahu campus, the project site required an estimated 400,000 gallons per day. The water demand for the UH campus is referenced from the "Mililani Town Water Master Plan", prepared by M&E Pacific and dated February 1989. Thus, redesignation of the project site to a residential area from a university site will result in a reduction of 17,000 gallons per day in water demand and is not expected to significantly alter the water demand in the area.

Potable Water to the project site will be provided from existing Mililani Wells 1, 2, 3, 4, 5, 6, 9, 10, and 11. Water from Mililani Wells 1, 2, 3, 4, 5, and 6 is treated by the granular activated carbon system to remove volatile organic chemicals prior to distribution. The presence of volatile organic chemicals has not been reported in water from Mililani Wells 9, 10, and 11.

With regard to the availability of water in the Waipahu-Wahiawa Aquifer System, the Commission on Water Resource Management adopted a sustainable yield of 104 mgd for this system. The present water use permit allocation totals 82.501 mgd, resulting in a balance of 21.499 mgd. Mililani Mauka

Phase III will have a demand of 0.383 mgd which would require just a small fraction the available balance.

The natural rainfall level in Mililani Mauka at 60 to 80 inches per year reduces the amount of watering needed to maintain vibrant healthy lawns. The downside, however, is that drought tolerant plants and xeriscape principles are not practical for the Mililani Mauka environment. One water conservation measure that will work is the installation of moisture sensors to control the irrigation system for more efficient water usage. The areas affected would be the common planting strips adjacent to roadways. Other measures such as low flush toilets and flow restriction valves are City requirements that have helped to conserve water in newer developments in Mililani Mauka.

Koa Ridge Water Requirements and Cumulative Impact

The Koa Ridge development is projected to require approximately 3.8 mgd and will include development of its own water source (wells) and reservoirs. The cumulative requirements for both Phase III and Koa Ridge would be about 4.2 mgd, which is within the balance of 21.499 mgd available in the Waipahu-Wahiawa Aquifer System.

3. Wastewater

The proposed final increment of the Mililani Mauka Development (826 units in Phase III) is expected to generate an average flow of 250,000 gallons per day (gpd). Originally

planned for the future University of Hawaii West Campus, wastewater flow from this area was estimated to be 319,000 gpd. These estimates are supported by information provided in the "Sewer Master Plan", as developed by EPD Hawaii, Inc., in November 1995. Based on the 1995 "Mililani Trunk Sewer Adequacy Study", prepared by M&E Pacific, Inc., dated 1986, the 1995 "Sewer Master Plan" stated that this trunk sewer has adequate capacity to accommodate the wastewater flows estimated for the ultimate Mililani Mauka Development. Thus, the proposed redesignation of this site to residential should have minimal impact on the Mililani Mauka wastewater system due to the reduction of projected wastewater flow into the system and the excess capacity of the infrastructure since 683 units originally planned are not being developed in Mililani Mauka Phases I and II.

Wastewater flow from the proposed residential site will be collected in gravity sewers, which will convey flow to the Waipahu Sewage Pump Station via a 21-inch trunk sewer line running under the H-2 Freeway. From the Waipahu Sewage Pump Station, wastewater will be conveyed to the Honouliuli Wastewater Treatment Plant, which has current capacity of 38 million gpd.

Koa Ridge Wastewater Requirements and Cumulative Impact

The Koa Ridge development is projected to require approximately 2.4 mgd and will include development of a new trunk sewer to convey wastewater from Koa Ridge Makai to the Waipahu WWPS and on-site pump stations for each of its developments. The Waipahu WWPS will have to be expanded and a new force main will be required to accommodate additional flows. The cumulative requirements for both Phase III and Koa Ridge would be about 2.65 mgd. Phase III will not require off-site wastewater improvements.

4. Drainage

Storm runoff from the proposed final increment of Mililani Mauka Development will be collected through a storm drainage system within the residential subdivision and directed to either the North or South Gullies. Runoff emanating from the southern portion of the project site will be conveyed to the North Gully. The North Gully channels storm runoff into an existing 144" drain culvert that crosses the H-2 Freeway and connects into the Waipio Acres drainage system. Due to the limited capacity of the North Gully, runoff from the southern portions of the project site will be diverted into the South Gully and will discharge into two existing 132" drain culverts under the H-2 Freeway. As in the North Gully, the two existing culverts in the South Gully drain into the Waipio Acres drainage system. The Waipio Acres

drainage system empties into the Waikakalaua Gulch and eventually into the Waikele Stream.

The findings of the "Preliminary Drainage Report for Mililani Mauka" dated October 18, 1986 by EDP Hawaii, Inc., which was approved by the City and County of Honolulu, Department of Public Works on October 27, 1986 stated that future developments in Mililani Mauka are not expected to adversely impact drainage in Waikele Stream. As the proposed action is to redesignate the project site from a proposed university to residential, the amount of storm runoff from a residential area is not expected to be significantly different from storm runoff generated from a college campus.

In 1989 the City and County of Honolulu approved a drainage master plan for the Mililani Mauka Development which considered drainage contribution from the entire drainage tributary, including existing developed areas.

Future projects in the drainage tributary of Waikele Stream that do not have an approved master plan will be required by the City and County of Honolulu to provide onsite detention measures to mitigate peak flows in Waikele Stream.

Koa Ridge Drainage

Storm runoff will flow overland and discharge into streams and gulches that are tributaries of Waikele Stream and Waiawa Stream. Waikele Stream travels through developed areas in

Waipahu before discharging into West Loch. Waiawa Stream traverses sections of Pearl City to its outlet into Middle Loch.

In order to comply with the City's no net increase in storm water runoff policy, detention/retention systems within each development area will be provided.

5. Solid Waste

In this proposed area, refuse from single-family units will be collected by the City and County of Honolulu while public or private waste disposal companies collect refuse from multi-family units.

Solid waste from both single and multi-family units will be disposed of at an approved sanitary landfill and/or through incineration at H-Power.

6. Schools

The Mililani Mauka Development provided land for two elementary schools and an intermediate school (middle school). One elementary school and the middle school have been developed by the Department of Education and the second elementary school is expected to open in 2003, prior to the delivery of homes in the Mililani Mauka Phase III development. These three school sites provide more than enough capacity for all of Mililani Mauka, including the 143 units planned in Phase III over and above the 6,600 units approved for Mililani Mauka. The additional 143 units are expected to generate an additional 36

elementary school students, 14 middle school students and 14 high school students.

The total 826 units in the Phase III site is expected to generate an additional 207 elementary school students, 83 middle school students and 83 high school students.

The capacity of Mililani Mauka Elementary School is 1,015 students. The planned capacity of the Second Mililani Mauka Elementary School is 870 students. At full buildout, Mililani Mauka (including Phase III) is expected to generate 1,686 elementary school age children.

The capacity of the Mililani Mauka Middle School is 1,800. At full buildout, Mililani Mauka (including Phase III) is expected to generate 675 middle school age students.

The capacity of Mililani High School is 2,184 students. At full buildout, Mililani Mauka (including Phase III) is expected to generate 675 high school age students.

Based on discussions with the Department of Education (DOE) and DOE's presentation at the March 20, 2001 meeting of the Mililani Mauka/Launani Valley No. 35 Neighborhood Board, the schools in the area will be able to handle the increase in enrollment projected from the proposed Mililani Mauka Phase III development (based on current projections).

We understand in discussions with the Department of Education that they are looking at different ways of resolving the

potential for overcrowding at the middle and high school in Mililani. The DOE is considering a number of different alternatives, including: adding portable classrooms, modifying existing multi-track schedules, moving to a multi-track schedule, and changing the students accommodated in the middle school from 6th, 7th, and 8th graders to 7th and 8th graders.

7. Parks

Mililani Mauka has developed various park sites within its development. The 6,600 units approved for Mililani Mauka will be supported by a district park, a community park, three recreation centers, and a passive park. We feel that even with the 143 additional dwelling units over and above that approved for Mililani Mauka , we have already provided adequate park space for the units planned for all of Mililani Mauka. If additional area is required by the City for park dedication, we will provide additional park space within our proposed development.

8. Police

The Wahiawa Police Station will service the proposed Phase III development. The police services needed for the proposed residential development versus the earlier planned university site are not expected to be significantly greater.

9. Fire

The Mililani Mauka fire station will provide prompt service for the proposed residential development in Phase III. The fire

protection services for the proposed residential development versus the earlier planned university site are not expected to be significantly greater.

10. Utilities

Electrical power to the site will be supplied from the HECO Waiau Power Plant. Electrical distribution equipment will be installed by the applicant as needed and dedicated to HECO.

The applicant will work with the Verizon Hawaii to insure that adequate telephone service will be provided for future residents.

Cable television service will be coordinated with Oceanic Cable to insure that adequate cable service will be provided to residents in Phase III.

E. REQUIRED MAPS

Maps of the Water System, Wastewater System and Drainage System are provided in Appendix III.

SECTION VII. ENVIRONMENTAL IMPACTS

The information for the sections on Historic and Archaeological and Water Resources has been summarized from the "Mililani-Mauka" Final Environmental Impact Statement prepared by Helber, Hastert, van Horn and Kimura, Planners in February 1987.

A. NOISE

1. Impacts

The "Environmental Noise Assessment Study Castle & Cooke Homes Mililani Mauka Phase III Development Honolulu, Hawaii", dated May 9, 2001, was prepared by D.L. Adams Associates Ltd. Acoustical Consultants to assess the noise impacts related to the proposed development and is included in Appendix IV. The noise impacts and recommendations for mitigation are summarized as follows:

Noise Generated by the Project

Short term - Development of the Phase III will involve excavation, grading, and construction of new buildings and infrastructure. The various construction phases may generate significant amounts of noise, which may impact residences and other noise sensitive areas.

Long term - The predicted maximum traffic noise level increase along the assessed roadways due to the project is 2.2 dBA along the H-2 Freeway, 18 feet from the near lane of the northbound traffic. The minimal change in noise levels perceptible to the average listener is generally taken to be 3 dBA, therefore, the increase in traffic noise due to the project will not be significant and should not impact noise sensitive areas.

Noise Impact on the Project

Traffic - The H-2 Freeway may significantly impact the proposed development. A small portion on the western edge of the project site is in close proximity to the northbound lanes on the H-2 Freeway and has a direct line-of-sight to vehicular traffic. The calculated noise levels show that at a location on the site 70 feet from the H-2 Freeway, occupants will experience an estimated L_{eq} of 76 dBA during the afternoon peak hour. The traffic noise would decrease by about 3dB for every doubling of distance, i.e., at 140 feet the L_{eq} would be 73dBA. The housing development is planned at a distance of about 150 feet or less for units along the Freeway.

Aircraft - Portions of the project site are within approximately seven miles of Honolulu International Airport (HIA), including Hickam AFB, and within approximately 2.7 miles of Wheeler Army Airfield (WAAF). Due to the distance from the project site, the L_{dn} due to aircraft operations associated with HIA will be less than 60dBA for all areas of the project site. Even with the close proximity of WAAF, all areas of the project site are located far to the south of the L_{dn} 65dBA contour. However, due to certain arrival and departure flight tracks associated with HIA and WAAF, aircraft flyovers may, at times, be audible at the project site. These flyovers should be

infrequent, and therefore, should not significantly impact the proposed development.

East Range - The proposed development is situated about 4,000 feet from the Army's East Range Training Area (east of the Laulani Valley development). There are several housing developments between the project site and the Army's East Range Training Area. A few complaints about the East Range training facility have come from residents situated closer to the East Range. The residents in the developments situated just east and a little further east of the Phase III project have not complained about the East Range. We do not feel that the Army's East Range will have a significant impact on the future residents of Mililani Mauka Phase III.

2. Mitigation Measures

Noise Generated by Project

In cases where construction noise exceeds or is expected to exceed the DOH's "maximum permissible" property line noise levels, a permit must be obtained from the DOH. Specific permit restrictions will include limitation on hours to Monday to Friday between 7:00 a.m. and 6:00 p.m. and Saturdays between 9:00 a.m. and 6:00 p.m. In addition, construction equipment and on-site vehicles or devices whose operations involve the exhausting of gas or air, excluding pile hammers and pneumatic hand tools weighing less than 15 pounds, must be equipped with mufflers,

and construction vehicles using trafficways must satisfy the DOH's vehicular noise requirements.

Noise Impact on the Project

Traffic - The following noise mitigation measures should be considered for this project and might include: constructing barrier walls and/or earthen berms along roadways; air-conditioning buildings instead of relying on natural ventilation; acoustically soften interior spaces by the addition of thick carpeting with a padding underlayment, an acoustical tile ceiling, louvered closet doors, etc.; and use exterior wall constructions which have high noise reductions.

East Range - We will continue to provide a disclosure statement, as we do for other projects in Mililani Mauka, that this property is in close proximity to a military training area and army airfield and that homeowners or lease holders should expect noise to come from the Military Training Area and Army Airfield.

B. AIR QUALITY

A copy of the "Air Quality Impact Report (AQIR) Mililani Mauka Phase III", dated 14 May 2001, prepared by J.W. Morrow, Environmental Management Consultant, is included in Appendix V. The conclusions and recommendations for mitigation are summarized below:

1. Impacts

Short term - The project area is considered subhumid by Thornwaite's climatic classification system with a P/E (precipitation/evaporation) index slightly higher than that associated with the EPA fugitive dust emission factor, there appears to be a somewhat lesser potential for fugitive dust.

Long term - Compliance with federal and state carbon monoxide standards is demonstrated under worst case conditions of meteorology and peak hour traffic; thus no special mitigative measures are required.

2. Mitigating Measures

Short term - Due to the proximity of existing residential areas, it will be very important to employ adequate dust control measures during the construction period, particularly during the drier summer months. Dust control could be accomplished through frequent watering of unpaved roadways and areas of exposed soil. The EPA estimates that twice daily watering can reduce fugitive dust emissions by as much as 50%. The soonest possible paving of roadways and landscaping of adjacent areas will also help.

C. VISUAL

1. Impacts

The Waikakalaua Gulch forms the north boundary of the project site while the North Gully forms the south boundary.

The views afforded from H-2 Freeway between Waiawa Interchange and the project site tend to be represented by moderate to heavy screening by existing landscaping and terrain (in areas where the freeway is at a lower elevation than the surrounding urban developments). Through the landscaping and above the earthen walls where the freeway is sunken are glimpses of urban developments, including residences, apartments and commercial developments. Mililani Mauka Phase III will be developed and screened in similar fashion.

The most prominent views on the H-2 Freeway occur at bridges over Kipapa Gulch and Waikakalaua Gulch. Looking down into the gulches, views of dense vegetation and mature trees are enjoyed. These views will not be affected by the planned development at Phase III.

Panoramic vistas of the Waianae range and the ocean can be viewed from the mauka slopes of Mililani Mauka. This view is not expected to be significantly affected by the development planned at Phase III.

The Phase III development will change the visual character of the property from open fields to an urban landscape as viewed from outside the property.

Existing views of Mililani Mauka from the H-2 Freeway are provided in Appendix VI, along with typical existing H-2 Freeway views of Mililani Mauka development (with

development below grade and above grade) to illustrate the views expected at Phase III.

2. Mitigating Measures

Buildings and infrastructure will be designed to create an aesthetic residential community. The elevation of structures will be kept low and utility lines will be installed underground. Structures for residences should be lower and smaller in massing than structures that would have accompanied the previously planned university. Landscaping within the development and along its frontage with H-2 Freeway will also be utilized to mitigate visual impacts of the planned development. Typical building design and landscaping of existing developments in Mililani Mauka are provided in Appendix VII to illustrate the probable appearance of the planned Phase III development.

D. HISTORIC AND ARCHAEOLOGICAL

The archaeological consulting firm Chiniago, Inc. conducted a field survey and literature search on the Mililani Mauka site in July 1985. The fieldwork involved a brief walk-through of the area previously planted in pineapple and a more intensive inspection of Waikakalaua and Kipapa Gulches. No historic or archaeological remains were located during this survey.

The literature search identified a legend referring to a battle which took place in Waikakalaua and Kipapa Gulches. Two heiaus and wild taro have been noted to exist in Kipapa Gulch in times past. The

survey report concluded that if any remains of an historical or archaeological nature ever existed on the property, agricultural land uses have erased this evidence.

The State Historic Preservation Division, in a letter dated February 8, 2001, has reconfirmed their belief that this action will have "no effect" on any historic sites. This was supported by their determination that there are no known historic sites at this location and the fact that commercial cultivation of pineapple has altered the land for many years, at depths that exceed the expected depth of historic sites in the area.

E. CULTURAL IMPACT ASSESSMENT

A copy of "A Traditional Practices Assessment for the Proposed Mililani Mauka Phase III Development in Waipi'o Ahupua'a 'Ewa District, Island of O'ahu (TMK 9-05-49: portion of 27)", dated June 2001, prepared by Cultural Surveys Hawaii, is included in Appendix VIII. The summary and recommendations are provided below:

"This assessment has examined the effects the proposed Mililani Mauka Phase III development may have on Hawaiian culture relating to specific practices and traditions. Specific issues addressed were possible burials, Hawaiian trails, hunting and gathering practices for plant and animal resources, and cultural sites in order to identify potential traditional practices which may be affected. Three traditional practices have been indicated in relation to the project area: native

hunting practices, native plant gathering, and practices involved with a cultural site known as O'ahunui."

"Most directly, the development may impact gathering of native plants within the study parcel, or directly outside of the property on the gulch edge. The impact may be not only on the possible destruction of such plants, but the denial of access to gather such plants. The Waikakalaua Gulch and areas along the rim of the gulch, including the project area boundary, have traditionally been used for plant gathering by one of the interviewees and his family. Plants harvested include *'a'ali'i, pukiawe, lehua* and various ferns. Most of the time, these plants were gathered for the purpose of making *lei*, but sometimes they were used for food or medicine. The *lehua* in particular was indicated for medicinal purposes as well as for *lei*. The specific plant species indicated as the focus of traditional cultural practices are common in undisturbed lands in the vicinity of the project area. The area of concern in which traditional gathering practices are operative appears to be quite limited within the present project area to a previously undisturbed area on the northern margin along Waikakalaua Gulch. This native gathering concern is understood to relate to a small portion of the project area."

"Although hunting has not been identified in the project area, the general feeling of the hunters who traditionally have hunted in more *mauka* regions is that access to those traditional hunting grounds is

being blocked off. This is particularly so considering the exponential growth the area has experienced in the last decade."

"There is no consensus at this time regarding possible native Hawaiian rights to traverse privately owned land for purposes of hunting or possible native Hawaiian rights to hunt on privately owned lands. Large land owners have pointed out safety concerns in their opposition to allowing armed groups of Hawaiian hunters with dogs to enter, camp and hunt on their property. Hawaiians involved with native rights issues have tended not to push such controversial issues as hunting. In the present case it is to be emphasized that while our study did identify access for pig hunting and pig hunting as issues in the Mililani Mauka area in general, it did not identify these as issues specifically in the project area. A hunter who was interviewed claimed that most of the hunting grounds, both used traditionally and presently are in the *mauka* regions of Waikakalaua and Kipapa, up the stream valleys. The development of the present study area would not appear to restrict access to these preferred hunting areas."

"Finally, there is evidence that O'ahunui, a cultural site located in the adjacent Waikakalaua Gulch has cultural practitioners. This study has developed a substantial body of information pertaining to O'ahunui which is regarded by some Hawaiians as an area of historic and spiritual significance. This study documents the concern of certain individuals for a buffer zone on the top of the gulch as part of a transition into the cultural site of O'ahunui. It should be made clear that the cultural site

of O'ahunui, while understood variously, is not understood by us to lie within the present project area. There is no consensus at this time regarding the appropriate size and nature of a buffer zone for such cultural sites. It has been suggested that the Wahiawa Hawaiian Civic Club be consulted regarding this matter of a buffer zone for the O'ahunui site."

Gathering of Native Plants

Based on the Botanical Survey and discussions with our botanical consultant, a few shrubs of 'a'ali'i are found along the project boundary that borders the slopes of Waikakalaua Gulch, but are more abundant on the slope of the gulch next to the project boundary. Although ferns are also found along this project boundary, they are also more abundant on the slope of the gulch. The pukiawe and lehua (ohia) were not found on the project site but did occur on the slope of the gulch. Access to the Waikakalaua Gulch area is provided by a public accessway at the end of the Hookowa Street cul-de-sac which abuts Waikakalaua Gulch just east of the project site. This accessway provides access to a pathway adjacent to the gulch slope that is maintained by the Mililani Town Association as common areas and can be used by the family to continue their gathering practices on the slopes of the Waikakalaua Gulch.

Hunting Access

We understand that development of the project area does not appear to restrict access to the preferred hunting areas in the mauka regions of Waikakalaua and Kipapa, up the stream valleys.

O'ahunui

As recommended in the traditional practices assessment, we will consult with the Wahiawa Hawaiian Civic Club to discuss a buffer zone for the O'ahunui site (located in the Waikakalaua Gulch).

F. NATURAL FEATURES

1. Water Resources

There are no perennial streams or other bodies of water on the project site. However, Waikakalaua Stream is situated in Waikakalaua Gulch which is located just north of the project site. As mentioned earlier, the findings of the "Preliminary Drainage Report for Mililani Mauka" dated October 18, 1986 by EDP Hawaii, Inc., which was approved by the City and County of Honolulu, Department of Public Works on October 27, 1986 stated that future developments in Mililani Mauka are not expected to adversely impact drainage in Waikele Stream (Waikakalaua Stream connects with and becomes Waikele Stream south of the project site). As the proposed action is to redesignate the project site from a proposed university to residential, the amount of storm runoff from a residential area is not expected to be significantly different from storm runoff generated from a college campus.

2. Flood Plains Management

According to the Flood Insurance Rate Map (FIRM) of the City and County of Honolulu the project site is in Zone D, areas

in which flood hazards are undetermined. The project site is situated between Waikakalaua Gulch (north) and North Gully (south) which provides adequate storm drainage which minimizes the potential for flooding over the property. Developments east of the project site have been developed with storm drain systems, minimizing runoff onto the project site from the east. The area west of the project site includes the H-2 Freeway and beyond that Mililani Town both of which are at lower elevations than the project site. A drainage master plan was approved for the Mililani Mauka Development in 1989 by the City and County of Honolulu and included the project site. The concepts established in the drainage master plan is the basis for the infrastructure constructed at Mililani Mauka.

3. Wetlands Protection

There are no wetlands on or near the project site.

4. Coastal Zone Management

The project site is not within the Special Management Area and is situated over 5.5 miles from the Middle Loch of Pearl Harbor, the closest coastline.

5. Unique Features: Slope, Erosion, Soils, Sand Dunes, etc.

The project site is fairly level and has no unique topographical features, such as slope, erosion, soils, sand dunes, etc.

6. Vegetation and Animal Life (Flora and Fauna)

a. Flora

A "Botanical Survey Mililani Mauka Phase III", dated May 2001, prepared by Char & Associates Botanical Consultants, is included in Appendix IX. Its findings are summarized below:

The 104.2-acre Phase III site is former pineapple land now overgrown with scrub vegetation composed almost exclusively of introduced species such as California grass, Guinea grass, Java plum, koa haole, lantana, etc. A few remnant patches of pineapple still occur on the site. A total of 78 plant species were inventoried. Of these 69 are introduced and nine are native. Of the native species, seven are indigenous, that is they are native to Hawaii and elsewhere, and two are endemic, native only to Hawaii. The two endemic species are koa and 'iliahi alo'e.

None of the plants found during the field studies is a threatened and endangered species or a species of concern. All of the plants can be found in similar environmental habitats throughout the Hawaiian Islands. The proposed development of the project site is not expected to have a significant negative effect on the botanical resources.

b. Fauna

A "Avifaunal and Feral Mammal Survey of the Proposed Mililani Mauka Phase III Project, Oahu", dated 9 May 2001, prepared by Phil Bruner, Environmental Consultant, is included in Appendix X. Its findings are summarized below:

The survey found the typical array of introduced and migratory birds that normally occur in this region of the island. While no native birds were recorded there are potentially three species that could on occasion be found foraging in this area. Pueo prefer to nest in high grass and could breed at this location. The Pueo is found on all of the main Hawaiian Islands but is listed by the State of Hawaii as endangered on Oahu. Feral cats and mongoose are abundant on Oahu and were expected to occur on the survey.

The forested area adjoining Waikakalaua stream had the highest concentrations of birds. The steep area along the stream have experienced less disturbance than the rest o the property. This riparian habitat and stream could be used by Black-crowned Night Herons and Oahu Amakihi, both are native birds.

7. Open Space

The existing open space has long been planned for urban development, first as a university site and now as a residential development in keeping with the existing residential development that occurs in Mililani Mauka Phases I and II. Development of Mililani Mauka Phase III will result in a loss of this existing open space. However, Mililani Mauka provides significant acreage in open space through the naturally formed gullies and gulches that meander through the project and border the project to the north and south and through the parks and recreational centers interspersed throughout the project.

G. HAZARDS

1. Tsunami

As mentioned earlier the project site is situated over 5.5 miles from the coastline and is not subject to Tsunami inundation.

2. Nuisances and Site Safety

The project site is surrounded by existing urban developments within the existing Mililani Mauka development and the Waikakalaua Gulch. Although wild pigs are an existing problem with the overgrown 103-acre project site, our experience has been that the developed areas along the gulch have not had a problem with wild pigs. We feel that the existing overgrown project site provides a wilderness area that entices the wild pigs to venture out of the mountain and gulch area to forage. Upon

development, this wilderness area will not provide an attractive foraging area for the wild pigs.

Development of this infill area will not expose future residents to nuisances or site safety impacts, but may improve the existing nuisance and site safety problem with wild pigs.

3. Toxic Waste

No toxic waste has been stored on the property.

4. Airport Clear Zone (APZ)

Although the project site is near the Wheeler Air Force Base, the project site is not within an Airport Clear Zone.

5. Other (Chemical, etc.)

No other chemical, man made, or natural hazards exist on the property.

H. GUIDELINES FOR SUSTAINABLE BUILDING DESIGN

The applicant has noted in Appendix XI the Guidelines for Sustainable Building Design that will be considered in development of Phase III.

VIII. ALTERNATIVES CONSIDERED

A. LESS INTENSE ALTERNATIVE

A less intense alternative would be to develop Phase III with all upper end, single-family homes with a price range of about $382,000 to

$471,000, in today's dollars. These homes would range in size from about 1,870 square feet to 2,630 square feet on lots of about 6,500 square feet. Approximately 460 of these units could be developed in Phase III. This alternative is less desirable than the proposed amendment for the following reasons:

- This alternative does not provide any affordable housing
- The target market is very narrow and does not address the broader market demand in Mililani Mauka, including affordable, entry market and mid-market buyers
- Certain lots are better suited for a different project type

B. MORE INTENSE ALTERNATIVE

A more intense alternative would be to build all multi-family, attached homes. These condominiums would sell from about $108,000 to $178,000 and would vary in size from about 500 square feet to 1,000 square feet. Approximately 1,440 of these low density apartment units could be developed in Phase III. This alternative is less desirable than the proposed amendment for the following reasons:

- Significant impact to the water, sewer and road infrastructures, and school facilities
- The target market is very narrow and does not address the broader market demand in Mililani Mauka, including single-family buyers
- Certain lots are better suited for a different product type

- The current market in Mililani Mauka does not support the demand for 1,440 additional multi-family units over the next several years. Buyers in Mililani typically prefer single-family homes.

C. NO BUILD ALTERNATIVE

The no build alternative would result in the project site remaining undeveloped. This alternative is less desirable than the proposed amendment for the following reasons:

- Although wild pigs are an existing problem with the overgrown 103-acre project site, our experience has been that the developed areas along the gulch have not had a problem with wild pigs. We feel that the existing overgrown project site provides a wilderness area that entices the wild pigs to venture out of the mountain and gulch area to forage. Upon development, this wilderness area will not provide an attractive foraging area for the wild pigs and will improve the safety on residents in the surrounding area.
- The last draft of the Central Oahu Sustainable Communities Plan designates the project site for low density residential use. In keeping with this designation, the appropriate use is residential and low density apartment.
- Our master planned community calls for 6,600 units and a university campus and our infrastructure on and off-site have been developed and constructed to support this density. Failure to develop will mean a waste of underutilized infrastructure.

- The Central Oahu demand is for about 963 dwelling units per year. Based on development projections for the major developers in Central Oahu, the additional units planned by this project will help to meet that demand, but will not fully resolve the projected shortfall in the supply of housing. The no build alternative will mean a greater shortfall in the supply of housing in the Central Oahu area.
- The no build alternative will also mean that the supply of affordable housing would be reduced by the number that would have been provided at Phase III.

D. AGRICULTURAL DEVELOPMENT ALTERNATIVE

Development of agricultural use (including diversified agriculture) on the Phase III site was considered, but is less desirable than the proposed amendment for the following reasons:

- The agricultural use would not be a use compatible with the existing and planned abutting residential and low density apartment use. Agricultural uses often times impact neighboring properties with odors, pesticide drift, noise and other impacts.
- The project site is surrounded by urban uses and is designated urban by the State and planned for residential and low density apartment use by the proposed Central Oahu Sustainable Community Plan. An urban type use is most appropriate for the site.

IX. PROPOSED MITIGATION MEASURES

A. NOISE

In cases where construction noise exceeds or is expected to exceed the DOH's "maximum permissible" property line noise levels, a permit must be obtained from the DOH. Specific permit restrictions will include limitation on hours to Monday to Friday between 7:00 a.m. and 6:00 p.m. and Saturdays between 9:00 a.m. and 6:00 p.m. In addition, construction equipment and on-site vehicles or devices whose operations involve the exhausting of gas or air, excluding pile hammers and pneumatic hand tools weighing less than 15 pounds, must be equipped with mufflers, and construction vehicles using trafficways must satisfy the DOH's vehicular noise requirements.

The following noise mitigation measures will be considered for this project and might include: constructing barrier walls and/or earthen berms along roadways; air-conditioning buildings instead of relying on natural ventilation; acoustically soften interior spaces by the addition of thick carpeting with a padding underlayment, an acoustical tile ceiling, louvered closet doors, etc.; and use exterior wall constructions which have high noise reductions.

Although the project site is situated about 4,000 feet from the East Range, we will continue to provide a disclosure statement, as we do for other projects in Mililani Mauka, that this property is in close proximity to a military training area and army airfield and that

homeowners or lease holders should expect noise to come from the Military Training Area and Army Airfield.

B. AIR QUALITY

Due to the proximity of existing residential areas, it will be very important to employ adequate dust control measures during the construction period, particularly during the drier summer months. Dust control could be accomplished through frequent watering of unpaved roadways and areas of exposed soil. The EPA estimates that twice daily watering can reduce fugitive dust emissions by as much as 50%. The soonest possible paving of roadways and landscaping of adjacent areas will also help.

C. VISUAL

Buildings and infrastructure will be designed to create an aesthetic residential community. The elevation of structures will be kept low and utility lines will be installed underground. Structures for residences should be lower and smaller in massing than structures that would have accompanied the previously planned university. Landscaping will also be utilized to mitigate visual impacts from the planned development.

X. SIGNIFICANCE CRITERIA

The following review of the significance criteria indicates that the project will not have a significant impact on the environment.

A. No irrevocable commitment to loss or destruction of any natural or cultural resource would result.

The 104.2-acre Phase III site is former pineapple land now overgrown with scrub vegetation composed almost exclusively of introduced species such as California grass, Guinea grass, Java plum, koa haole, lantana, etc. A few remnant patches of pineapple still occur on the site.

The property is not listed on either the Hawaii or National Registers of Historic Places. With no previous record of historic or archaeological discoveries, the proposed development is not expected to have an impact on archaeological resources.

During the construction of the project, should any previously unidentified archaeological resources such as artifacts, shell, bone, or charcoal deposits, human burial, rock or coral alignments, pavings or walls be encountered, the applicant will stop work and contact the Historic Preservation Office for review and approval of mitigation measures.

B. The action would not curtail the range of beneficial uses of the environment.

The proposed development will not curtail, but will instead enhance the range of beneficial uses of the environment. The present vacant property presently offers no beneficial use of the possible appropriate urban uses (designated urban by the State and residential and low density apartment by the Draft Central Oahu Sustainable

Community Plan) of the property. The proposed development represents an infilling of residential development in an area previously planned for a university. The residential development is compatible with the surrounding area which is similarly developed.

C. The proposed action does not conflict with the state's long-term environmental policies or goals and guidelines.

The State's environmental policies and guidelines are set forth in Chapter 344, Hawaii Revised Statutes, "State Environmental Policy". The broad policies set forth include conservation of natural resources and enhancement of the quality of life. As discussed earlier, the project does not adversely affect significant natural resources. The State has designated the property for urban use and the planned residential use is consistent with this urban designation. The project will enhance the quality of life for the new home buyers that will become a part of the Mililani Mauka master planned community. In addition, the added supply of housing to the housing stock will ensure an adequate supply of housing at affordable prices.

D. The economic or social welfare of the community or state would not be substantially affected.

The project will give a seven to nine year boost to the State's economy with the provision of short-term construction employment and related tax impacts, long-term jobs related to maintenance of the common areas of the development, and will add to the real property tax revenues.

The social welfare of the community would be positively affected by the development of Phase III which will provide homes in a popular master planned community to meet the demand for residential units recognized in the market study. The homes will be similar to and compatible with the surrounding homes, represents an infilling of the master planned community, and will provide efficient utilization of existing infrastructure.

E. The proposed action does not substantially affect public health.

The proposed action will not affect public health. The proposed land use is compatible with the surrounding residential and low density apartment developments.

F. No substantial secondary impacts, such as population changes or effects on public facilities, are anticipated.

As mentioned earlier, the proposed development will provide 826 dwelling units which will provide for additional residential population for the Central Oahu area. However, 683 of these units can be considered replacement units for the 6,600 dwelling units approved at the time the zone changes were approved for Mililani Mauka Phases I and II. The infrastructure for Mililani Mauka was developed and constructed to accommodate the 6,600 dwelling units and proposed university originally planned and has adequate capacity to accommodate the additional 143 dwelling units planned over 6,600. The additional 143 dwelling units planned represents a modest increase over that

approved for Mililani Mauka and will provide a mix of dwelling units for future residents of the area.

Based on comments received through the review of the Draft EA from various State and City agencies, public facilities necessary to support the development of Phase III are adequate, planned or will be funded by the applicant.

G. No substantial degradation of environmental quality is anticipated.

The project will not result in a substantial degradation of the environment. As mentioned under the environmental impacts section, the Phase III development will not have a significant impact on noise (except for short term construction impact), air quality, visual, historic and archaeological, cultural practices, natural features (including flora and fauna) or hazards.

H. The proposed action does not involve a commitment to larger actions, nor would cumulative impacts result in considerable effect on the environment.

The proposed project does not involve a commitment to larger actions nor will it result in cumulative impacts to the environment. The proposed Phase III development will not generate future projects, creating greater cumulative impact.

I. No rare, threatened or endangered species or their habitats would be affected.

No rare, threatened, or endangered species or their habitat would be affected. However, it was noted by our Avifaunal and Feral

Mammal Survey (AFM Survey) that, although the Phase III site contained no evidence of the Pueo, the high grass provide a potential nesting place for the Pueo.

The AFM Survey went on to note that the forested area adjoining Wakakalaua Stream located near the Phase III site could provide a riparian habitat for Black-crowned Night Herons and Oahu Amakihi, both native birds. This area is not part of the project site.

J. Air quality, water quality or ambient noise levels would not be detrimentally affected.

Short term impacts on air quality are expected to be primarily related to dust generated by the construction activity. Dust control measures appropriate to the situation will be employed by the contractor, including where appropriate, the use of water wagons, erection of dust barriers and other methods for minimizing dust.

Short term noise impacts at construction sites are a normal result of construction activity. The State Department of Health administers rules and regulations relating to the hours during which construction is permitted and the noise levels permitted during those hours. The contractor will be required to apply for a permit from the State Department of Health should noise from construction activities exceed regulatory limits. The contractor will abide by the noise regulations incorporated into the permit.

Long term noise impact from H-2 Freeway will be mitigated through one or more of the following noise mitigation measures:

constructing barrier walls and/or earthen berms along roadways; air-conditioning buildings instead of relying on natural ventilation; acoustically soften interior spaces by the addition of thick carpeting with a padding underlayment, an acoustical tile ceiling, louvered closet doors, etc.; and/or use exterior wall constructions which have high noise reductions.

K. The project would not affect environmentally sensitive areas, such as flood plains, tsunami zones, erosion-prone areas, geologically hazardous lands, estuaries, fresh waters or coastal waters.

According to the Flood Insurance Rate Map (FIRM) of the City and County of Honolulu the project site is in Zone D, areas in which flood hazards are undetermined. The project site is situated between Waikakalaua Gulch (north) and North Gully (south) which provides adequate storm drainage which minimizes the potential for flooding over the property. Developments east of the project site have been developed with storm drain systems, minimizing runoff onto the project site from the east. The area west of the project site includes the H-2 Freeway and beyond that Mililani Town both of which are at lower elevations than the project site. A drainage master plan was approved for the Mililani Mauka Development in 1989 by the City and County of Honolulu and included the project site. The concepts established in the drainage master plan is the basis for the infrastructure constructed at Mililani Mauka.

The project will not affect tsunami zones, erosion-prone areas, geologically hazardous land, estuaries, fresh water nor coastal waters.

Although there are no perennial streams or other bodies of water on the project site, Waikakalaua Stream is situated in Waikakalaua Gulch which is located just north of the project site. The findings of the "Preliminary Drainage Report for Mililani Mauka" dated October 18, 1986 by EDP Hawaii, Inc., which was approved by the City and County of Honolulu, Department of Public Works on October 27, 1986 stated that future developments in Mililani Mauka are not expected to adversely impact drainage in Waikele Stream. As the proposed action is to redesignate the project site from a proposed university to residential, the amount of storm runoff from a residential area is not expected to be significantly different from storm runoff generated from a college campus.

L. Substantially affects scenic vistas and view planes identified in county or state plans or studies.

The Waikakalaua Gulch forms the north boundary of the project site while the North Gully forms the south boundary.

The proposed development of Phase III will not affect the important views from public places as described in the Central Oahu Development Plan or the Draft Central Oahu Sustainable Community Plan.

The views afforded from H-2 Freeway between Waiawa Interchange and the project site tend to be represented by moderate to

heavy screening by existing landscaping and terrain (in areas where the freeway is at a lower elevation than the surrounding urban developments). Through the landscaping and above the earthen walls where the freeway is sunken are glimpses of urban developments, including residences, apartments and commercial developments. Mililani Mauka Phase III will be developed and screened in similar fashion.

The most prominent views on the H-2 Freeway occur at bridges over Kipapa Gulch and Waikakalaua Gulch. Looking down into the gulches, views of dense vegetation and mature trees are enjoyed. These views will not be affected by the planned development at Phase III.

Panoramic vistas of the Waianae range and the ocean can be viewed from the mauka slopes of Mililani Mauka. This view is not expected to be significantly affected by the development planned at the lower elevation Phase III development.

The Phase III development will change the visual character of the property from open fields to an urban landscape as viewed from outside the property.

M. Requires substantial energy consumption.

In order to minimize energy use, the applicant plans to consider the following concepts, where appropriate in developing Phase III:

1) Site buildings to take advantage of natural features and maximize their beneficial effect. Provide for solar access, daylighting and natural cooling.

2) Mechanical systems will be designed to utilize thermal storage for reduction of peak energy use.

3) Specify and use natural products or products with low embodied energy and/or high recycled content. Products with recycled content include steel, concrete with glass, drywall, carpet, etc. Use ground recycled concrete, graded glass cullet or asphalt as base or fill material.

4) Provide incentives which encourage building occupants to use alternatives to and to reduce the use of single occupancy vehicles.

XI. LIST OF AGENCIES CONSULTED

The applicant has prepared responses to each of the comments received during the agency and public review period for the Draft Environmental Assessment. Copies of the agency and public comment letters and the applicant's response are included in Appendix XII.

During the pre-consultation phase prior to development of the Draft EA meetings were held with both the Department of Planning and Permitting and the Department of Education. In addition, the civil engineering consultant spoke with various City agencies, including the Board of Water Supply, Environmental Services and the Department of Planning and Permitting.

DRAFT EA DISTRIBUTION LIST:

Federal:

1) United States Army, Support Command Hawaii
2) Department of the Army, Headquarters 25th Infantry Division

State:

3) Mililani Public Library
4) Department of Agriculture
5) Department of Education
6) Department of Health
   a) Environmental Planning Office
   b) Environmental Management Division
   c) Clean Water Branch
7) Department of Land and Natural Resources, Historic Preservation Division
8) Department of Business Economic Development and Tourism
   a) Land Use Commission
   b) Office of Planning
9) Department of Transportation

City:

10) Honolulu Emergency Services
11) Department of Environmental Services
12) Honolulu Fire Department
13) Department of Parks and Recreation
14) Honolulu Police Department
15) Department of Transportation Services
16) Board of Water Supply
17) Department of Planning and Permitting

Other

18) Land Use Research Foundation
19) Mililani Mauka/Launani Valley Neighborhood Board No. 35
20) Mililani/Waipio/Melemanu Neighborhood Board No. 25
21) Mililani Town Association
22) Sierra Club

During the Draft EA review process, we also received comments from the following three individuals:

a) Laura Brown
b) Jeanette Nekota
c) Maryanne Selander

XII. SUMMARY SHEET

The required Summary Sheet is provided in Appendix XIII.

XIII. NOTIFICATION REQUIREMENTS

Owners, lessees, sub-lessees, and residents of the affected property have been notified in accordance with the requirements of Ordinance No. 84-111. A list of the owners, lessees, sub-lessees, and residents of the affected property that have been notified, along with the certification of compliance with the notification requirements is included in Appendix XIV.

XIV. AERIAL PHOTO

An aerial photo of the project site has been provided in Appendix XV.

XV. RECOMMENDATION

Based on this Final Environmental Assessment, we respectfully request a Finding of No Significant Impact (FONSI) for the proposed Mililani Mauka Phase III Development.

APPENDIX I

LEGAL DESCRIPTION

LEGAL DESCRIPTION
TAX MAP KEY 9-5-49: 27

Portion of Lot 15226, as shown on Map 952, filed in the Office of the Assistant Registrar of the Land Court of the State of Hawaii with Land Court Application No. 1000.

APPENDIX II

TRAFFIC ASSESSMENT

Traffic Assessment
for
Mililani Mauka Phase 3

January, 2001

Prepared for:

Castle & Cooke Homes Hawaii, Inc.

Prepared by:

Julian Ng, Inc.
P.O. Box 816
Kaneohe, Hawaii 96744

Table of Contents

Mililani Mauka Phase 3
Traffic Assessment
January, 2001

Summary

Castle & Cooke Homes Hawaii, Inc. has proposed to redesignate approximately 100 acres in Mililani Mauka from a "university site" to residential use, as Phase 3 of the Mililani Mauka project. A traffic assessment was prepared to update traffic estimates for Mililani Mauka, using data collected from the partially developed project. A comparison of these traffic estimates with those from earlier traffic reports for Mililani Mauka was also made.

Traffic counts taken in May, 1999 and occupancy information were used in the comparison, which indicates that peak hour traffic estimates made earlier for the Mililani Mauka development may be higher than the actual traffic generated by Mililani Mauka. The proposed change in use from university to residential is not expected to increase the net peak hour traffic in and out of Mililani Mauka.

The average rates based on the data were used to estimate traffic at completion of Mililani Mauka, including the proposed Phase 3, which would total less than 6,800 dwelling units. These volumes would generally be less than the volumes estimated previously for 6,600 dwelling units and a 5,000-student university. The change to residential use in Phase 3 instead of a university, therefore, should not change the previously identified traffic impacts.

Introduction

This report summarizes an analysis of manual traffic counts that were taken in May, 1999, extrapolates this information to estimate net traffic generated by the Mililani Mauka project, compares these new estimates with the projected volumes from previous traffic studies, and discusses the change to traffic impacts caused by additional residential development in the 100± acres that had once been designated for university use.

Existing Traffic

Manual traffic counts were taken by Parsons Brinckerhoff Quade & Douglas, Inc. on May 11 and 12, 1999 (Tuesday and Wednesday). Peak hour volumes from these counts have been assumed to be representative of normal conditions in Mililani Mauka. Exhibit 1 shows the peak hour volumes at several key locations.

Sales data and other information from Castle & Cooke Homes, Hawaii, Inc. were reviewed and an estimate was made that there were 3,415 occupied dwelling units in Mililani Mauka at the time of the field count. Of these, an estimated 1,732 dwelling units were located beyond

the Mililani Mauka Fire Station (i.e., accessed through the east leg of Meheula Parkway or the south leg of Makaikai Street).

The count data were reviewed and compared with the occupancy information. The counts at several locations were difficult to compare with the residential unit data because school or construction traffic may have been a large portion of the vehicles counted. At two locations, however, the school and construction traffic contributions were a small part of the total traffic counted and the analyses were done.

Table 1 summarizes the traffic volumes entering and exiting Mililani Mauka during the peak hours on Meheula Parkway west of Ainamakua Drive. The table also shows the traffic that enters or exits the portion of Mililani Mauka beyond the Fire Station.

Table 1
Peak Hour Traffic
May, 1999

	AM Peak Hour	PM Peak Hour
Meheula Parkway west of Ainamakua Drive (3,415 dwellings)		
entering Mililani Mauka	646	1,352
exiting Mililani Mauka	1,245	655
total traffic	1,891	2,007
Average rate (vehicles per hour per dwelling)	0.554	0.588
direction distribution (entering)	34%	67%
East of Fire Station (1,732 dwellings)		
entering subarea	452	729
exiting subarea	851	352
total traffic	1,303	1,081
Average rate (vehicles per hour per dwelling)	0.752	0.624
directional distribution (entering)	35%	67%

Comparison of Traffic Estimates

In preparing traffic studies of proposed projects, trip generation analyses are conducted to estimate future traffic volumes. The reference published by the Institute of Transportation Engineers (ITE), *Trip Generation*, contains average trip rates and directional distribution, as well as fitted equations to assist the analyst in estimating traffic volumes. The fitted equations generally would provide lower rates as the size of the development increases, reflecting increased internal trips (since a larger community would be more likely to have neighborhood commercial areas, schools, parks, and other amenities to provide destinations for people residing in the community). Table 2 compares the average trip rates based on the May, 1999 counts with those from *Trip Generation, 6th Edition*.

Table 2
Peak Hour Traffic Generation Rates

	AM Peak Hour		PM Peak Hour	
	rate	% In	rate	% In
Based on May, 1999 counts				
Mililani Mauka (3,415 units)	0.55	34%	0.59	67%
Subarea above fire station (1,732 units)	0.75	35%	0.62	67%
Using *Trip Generation*				
average rates for detached units	0.75	25%	1.01	64%
fitted equation for 1,732 detached units	0.71	25%	0.81	64%
fitted equation for 3,415 detached units	0.70	25%	0.76	64%
average rates for apartment units	0.51	16%	0.62	67%
fitted equation for 1,732 apartments	0.50	16%	0.55	67%
fitted equation for 3,415 apartments	0.50	16%	0.55	67%
Weighted average (60% single family units)	0.65	22%	0.86	65%

The comparison shown in Table 2 indicates that use of the average rates from *Trip Generation* would produce higher traffic estimates than use of the fitted equations. The average rates from *Trip Generation* also produce higher traffic estimates at the entrance to Mililani Mauka than actually counted. Table 3 shows a comparison of trip estimates for Mililani Mauka based on the ITE rates with the net traffic counted in May, 1999. (Traffic generated by schools, parks, and construction activity was assumed to be incidental; inclusion of these trips would account for the higher entering traffic in the AM Peak Hour, but would increase the estimates even higher than the counts in the other instances.)

Table 3
Comparison of Peak Hour Traffic Estimates
Meheula Parkway, west of Ainamakua Drive

for May, 1999	AM Peak Hour		PM Peak Hour	
(vehicles per hour)	enter	exit	enter	exit
2,048 single family dwelling units	385	1,150	1,325	745
1,367 multi-family dwelling units	110	585	570	280
Estimated total using factors	495	1,735	1,895	1,025
Traffic counts	646	1,245	1,322	655
Factor (counts/estimated)	1.30	0.72	0.70	0.64

As indicated in Table 3, use of the ITE rates, which represent total trip ends, produced higher traffic estimates. The factor shown in the last line corrects the estimate to account for internal trips and other conditions which tend to reduce the project's net traffic.

Revised Traffic Estimate for Full Development of Phases 1 and 2

Current plans for the development of Mililani Mauka show a total of less than 6,000 dwelling units within the area already approved for development, for which previous traffic studies had been based on a total of 6,600 dwelling units and a 100-acre site for university use. The developer has not been successful in attracting any university or college.

An estimate of peak hour traffic without the proposed residential use of the 100±-acre site once intended for use by a university was made by assuming it will be vacant. The current plans for Phases 1 and 2 of Mililani Mauka show 5,917 dwelling units, of which 58% would be single family dwellings. Using the ITE trip rates and the factors from Table 3, revised traffic estimates for the entire Mililani Mauka project were made. Table 4 shows these estimates.

Table 4
Revised Peak Hour Traffic Estimates
Meheula Parkway, west of Ainamakua Drive

for full development of Phases 1 and 2	AM Peak Hour		PM Peak Hour	
(vehicles per hour)	enter	exit	enter	exit
3,459 single family dwelling units	650	1,945	2,235	1,260
2,458 multi-family dwelling units	200	1,055	1,020	505
Total trip ends (unfactored)	850	3,000	3,255	1,765
Estimate (factor applied)	1,110	2,155	2,270	1,130

Traffic Estimate for Proposed Project

The 100± acre area originally planned for university use would be developed as the third phase of Mililani Mauka. A land use plan developed for this area includes a mix of single family dwellings and multi-family units. The preliminary layouts show that approximately 830 units could be developed in this area. Table 5 shows the estimate of additional traffic resulting from the proposed Phase 3.

Table 5
Estimate of Additional Traffic, Phase 3
Meheula Parkway, west of Ainamakua Drive

from full development of Phase 1 & 2	AM Peak Hour		PM Peak Hour	
(vehicles per hour)	enter	exit	enter	exit
522 single family dwelling units	100	290	335	190
304 multi-family dwelling units	25	130	125	65
Total trip ends, Phase 3	125	420	460	255
Net increase in traffic (factor applied)	160	300	320	160

Traffic Impact of Proposed Change

The current estimates of peak hour traffic at full development, including the proposed Phase 3, were made using factors from traffic counts taken in 1999. The proposed project will increase traffic entering or leaving Mililani Mauka by 14%, when compared with no development of the 100± acres previously identified as a university site. However, when compared with pre-development estimates of traffic, which included use of the site by a university campus, the current estimates of peak hour traffic are lower, as shown in Table 6.

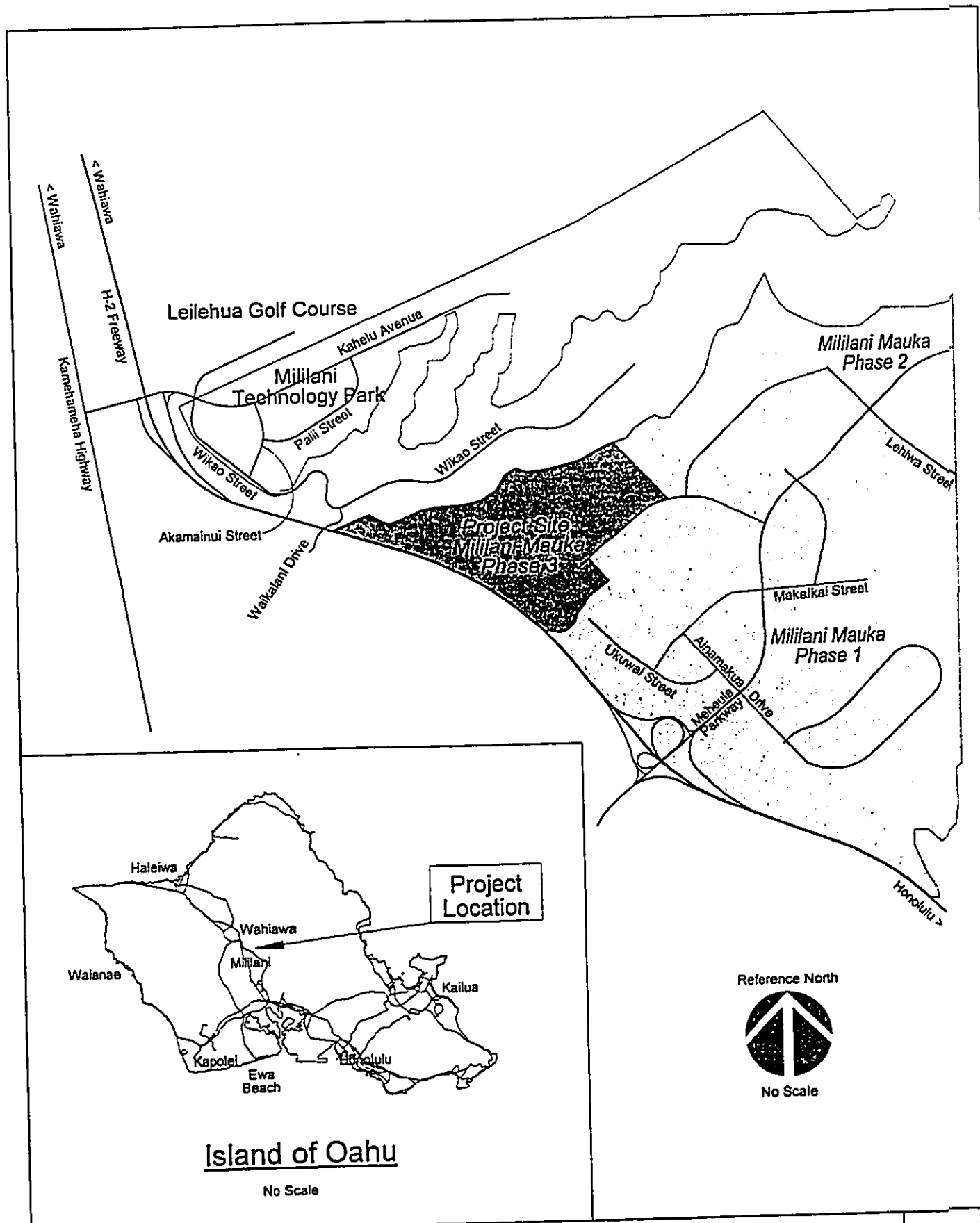
Table 6
Comparison of Peak Hour Traffic Estimates
Meheula Parkway, west of Ainamakua Drive

	AM Peak Hour		PM Peak Hour	
vehicles per hour	enter	exit	enter	exit
Pre-development estimate				
January, 1989 *Roadway Master Plan*	1,894	2,961	3,497	2,367
Current estimate, Phases 1 and 2	1,110	2,155	2,270	1,130
Current estimate for Phases 1, 2, & 3	1,270	2,455	2,590	1,290
% of pre-development estimate	67%	83%	74%	54%

Conclusions

The proposed change to develop Phase 3 as residential units instead of a university will result in less traffic entering and leaving Mililani Mauka than previously estimated. Other factors may further decrease the traffic at full development, since the current estimates are based on a count of existing traffic that included traffic generated by activities which may not continue upon completion of the project (e. g., construction workers arriving/departing and other construction vehicles, school traffic originating outside of Mililani Mauka). Peak hour traffic conditions, therefore, could be expected to be better than those previously identified.

* * *



Traffic Assessment

Mililani Mauka Phase 3

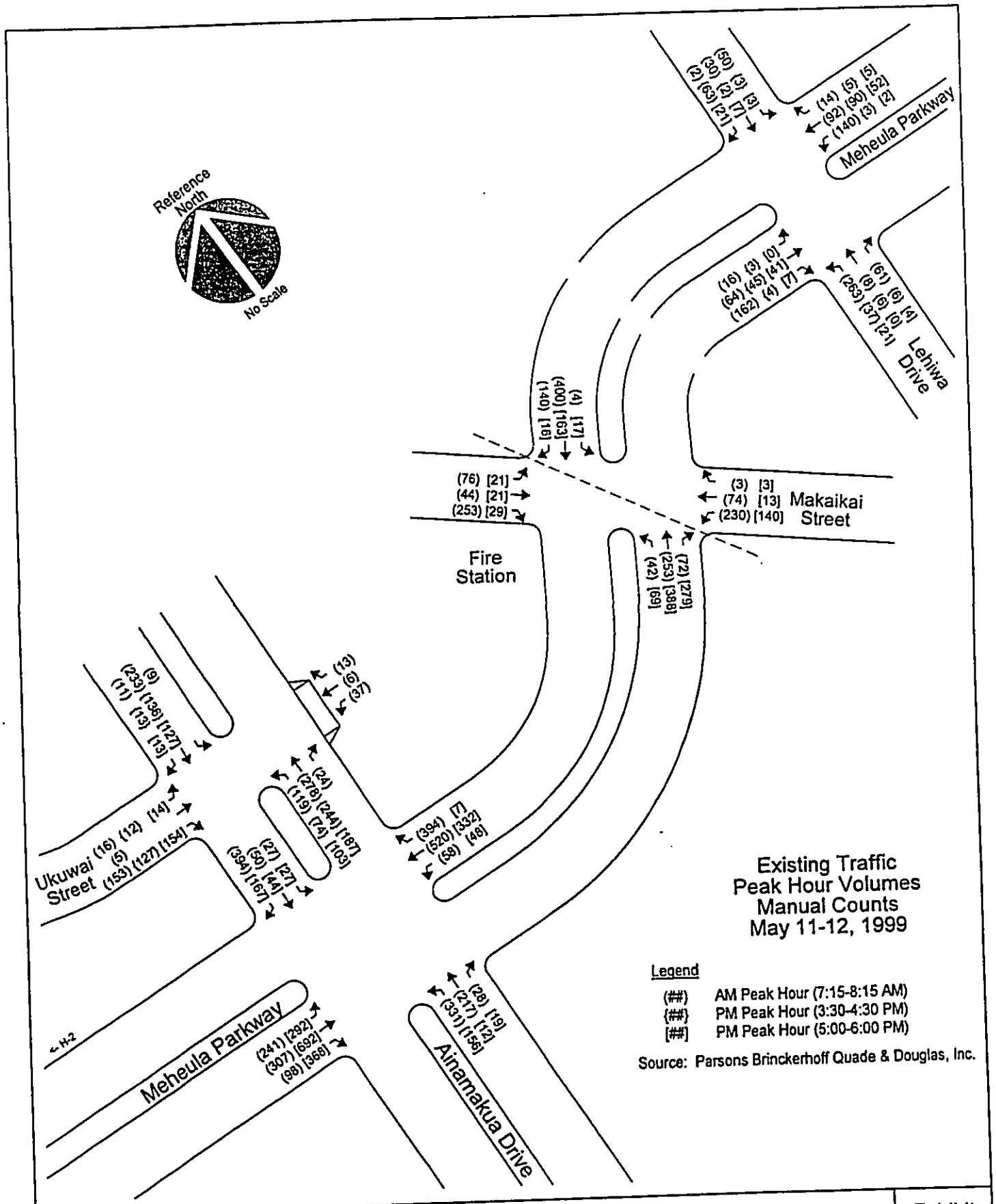
Proposed Residential Development

Project Location

prepared by: Julian Ng, Inc.

January 2001

Exhibit 1



Traffic Assessment

Mililani Mauka Phase 3

Proposed Residential Development

Existing Traffic (1999 Counts)

prepared by: Julian Ng, Inc.

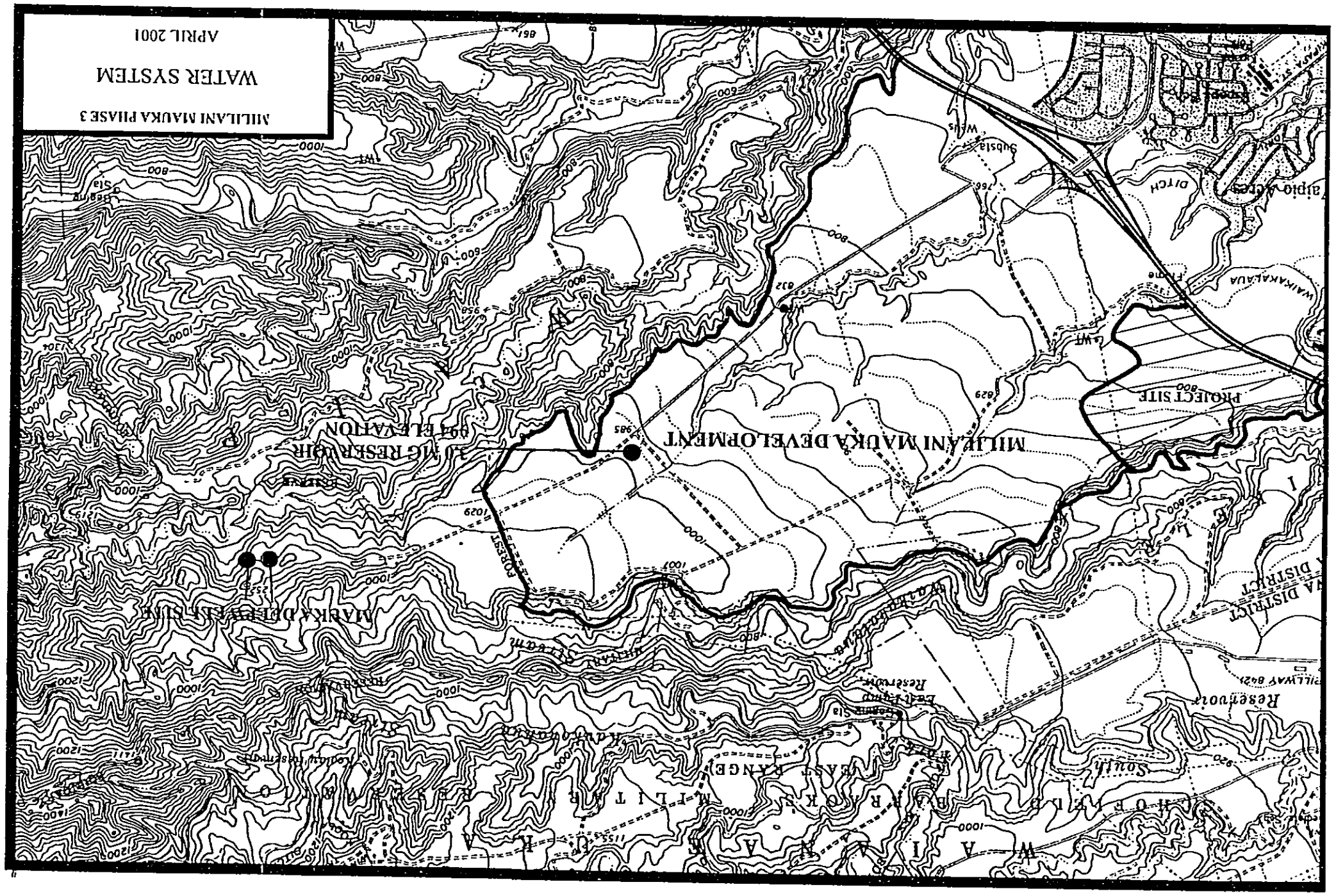
January 2001

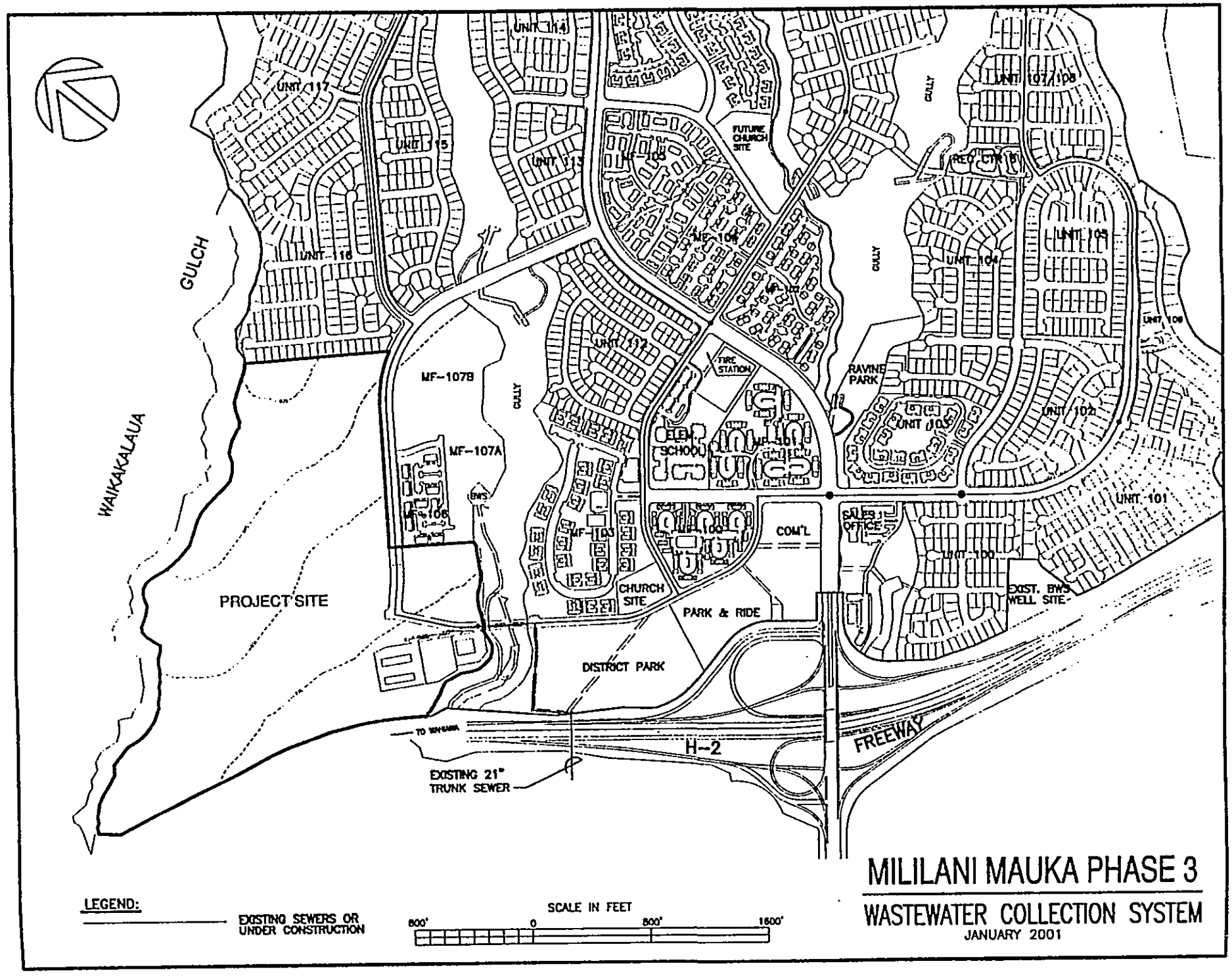
Exhibit

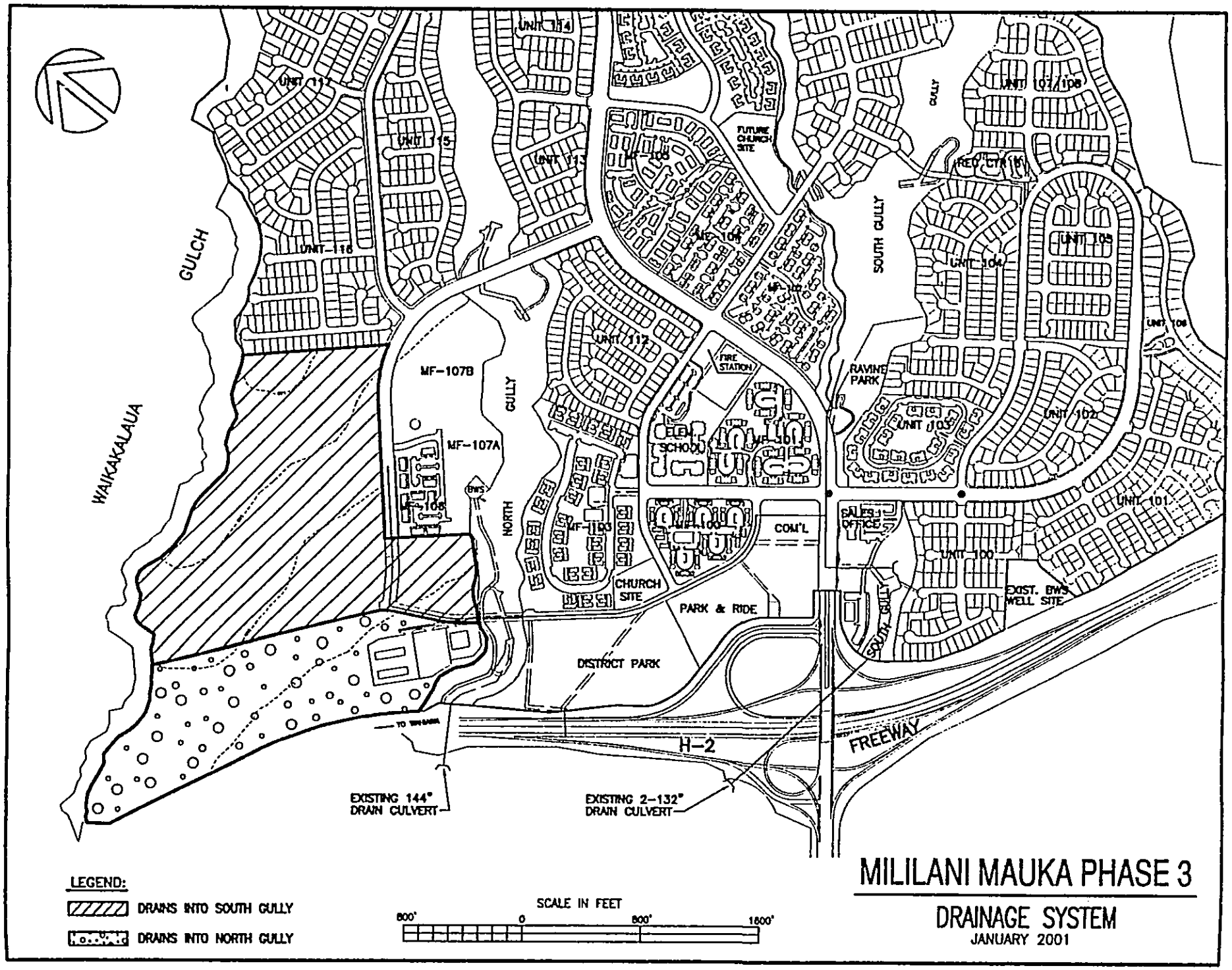
2

APPENDIX III

WATER, WASTEWATER, AND DRAINAGE SYSTEM MAPS




UNIT 114
UNIT 117
UNIT 15
UNIT 113
MF-108
FUTURE CHURCH SITE
REC. CTR. II
GULLY
UNIT 107/108
UNIT 16
GULCH
MF-104
UNIT 105
UNIT 104
UNIT 106
UNIT 112
FIRE STATION
RAVINE PARK
MF-107B
GULLY
UNIT 102
UNIT 103
MF-107A
ELEM. SCHOOL
MF-101
UNIT 101
MF-106
BWS
MF-103
MF-100
COM'L
SALES OFFICE
UNIT 100
WAIKAKALAUA
PROJECT SITE
CHURCH SITE
PARK & RIDE
EXIST. BWS WELL SITE
DISTRICT PARK
TO WAIPAHU
H-2
FREEWAY
EXISTING 21" TRUNK SEWER
LEGEND:
EXISTING SEWERS OR UNDER CONSTRUCTION
SCALE IN FEET
800' 0 800' 1600'
MILILANI MAUKA PHASE 3
WASTEWATER COLLECTION SYSTEM
JANUARY 2001


UNIT 114
UNIT 111
UNIT 115
UNIT 113
UNIT 116
GULCH
WAIKAKALAUA
MF-107B
GULLY
MF-107A
MF-105
FUTURE CHURCH SITE
MF-104
MF-103
MF-102
MF-101
FIRE STATION
SCHOOL
UNIT 112
CHURCH SITE
NORTH
COM'L
SALES OFFICE
PARK & RIDE
DISTRICT PARK
SOUTH GULLY
RAVINE PARK
UNIT 107/108
REC. CTR.
UNIT 105
UNIT 104
UNIT 106
UNIT 103
UNIT 102
UNIT 101
UNIT 100
EXIST. BWS WELL SITE
H-2
FREEWAY
EXISTING 144" DRAIN CULVERT
EXISTING 2-132" DRAIN CULVERT
LEGEND:
DRAINS INTO SOUTH GULLY
DRAINS INTO NORTH GULLY
SCALE IN FEET
800'
0
800'
1600'
MILILANI MAUKA PHASE 3
DRAINAGE SYSTEM
JANUARY 2001

APPENDIX IV

NOISE ASSESSMENT

Project No. 01-18

ENVIRONMENTAL NOISE ASSESSMENT STUDY
CASTLE & COOK HOMES MILILANI MAUKA PHASE III DEVELOPMENT
HONOLULU, HAWAII

May 9, 2001

Prepared for
KUSAO & KURAHASHI, INC
Honolulu, Hawaii

CONTENTS

1.0 SUMMARY

1.1 The Mililani Mauka Phase III project development area is currently exposed to daytime ambient noise levels of 42 to 53 dBA when measured at a distance greater than 700 ft from H-2 Freeway. Noise in areas of the site in close proximity and adjacent to H-2 Freeway (500 feet or less) are projected to be 68 dBA or higher based on calculated values from noise measurements taken on H-2 Freeway. The dominant noise sources are attributed to traffic, wind, nearby field construction, and occasional distant aircraft flybys.

1.2 Increases in peak hour traffic along Meheula Parkway due to the project are projected to be between 1.6 and 2.2 dB. This does not represent a significant or noticeable difference to existing noise levels.

1.3 Some residences within the Phase III parcels could be exposed to noise levels in excess of the HUD recommended limit of L_{dn} of 65 when located close to the H-2 Freeway and if measures are not taken to mitigate the traffic noise, e.g. erecting noise barriers. No barriers, natural or otherwise, exist between the project site and H-2 Freeway at this time. No other existing roadways are expected to significantly impact the proposed development.

1.4 Noise from construction activities will occur on the subject property which could impact nearby residences. The dominant noise sources during project construction will probably be earth moving equipment, such as bulldozers and diesel powered trucks, and portable powered equipment. Noise from construction activities should be short term and must comply with State Department of Health noise regulations and City and County of Honolulu Land Use Ordinances (LUO).

1.5 Aircraft noise due to operations at Honolulu International Airport and Wheeler Army Airfield may be audible at the project site. However, site overflights are infrequent and the resultant L_{dn} is less than 60 dBA.

1.6 Although no excessive noise from nearby Mililani Technology Park exists today, future activities should be monitored as new industries or businesses are introduced to the park.

1.7 Intermittent high noise sources greater than 80 dBA (sirens, large vehicles, noisy vehicles etc.) will exist on H-2 Freeway, consistent with highway traffic and normal for a major thoroughfare.

2.0 PROJECT DESCRIPTION

Due to development changes by the land owner, approximately 100 acres in Mililani

Mauka will need to be re-designated to allow development of Mililani Mauka Phase III, a proposed residential use site. The parcel of land, originally part of Mililani Mauka Phase I development and designated for public facility, will be used to develop single family and apartment units. The project site sits adjacent to and east of H-2 Freeway and south of Mililani Technology Park as shown in Figure 1. This environmental noise assessment, in reconsidering the use of the parcel, has been conducted based on traffic studies performed in May of 1999 and noise measurement taken April 2001. A January 2001 traffic report, which reassesses the impact on traffic after consideration of the land's new use, was submitted by the original author of the 1999 report and used in our analyses. Traffic impact estimates are based on full development of Mililani Mauka Phases I, II, and III.

3.0 NOISE STANDARDS

Various local and federal agencies have established guidelines and standards for assessing environmental noise impacts and set noise limits as a function of land use. A brief description of common acoustic terminology used in these guidelines and standards is presented in Appendix A.

3.1 State Department of Health (DOH)

The State DOH defines three classes of zoning districts and specifies corresponding maximum permissible sound levels due to stationary noise sources such as air-conditioning units, exhaust systems, generators, compressors, pumps, etc., and equipment related agricultural, construction, and industrial activities [Reference 1]. These levels are enforced for any location at or beyond the property line and shall not be exceeded for more than 10% of the time during any 20-minute period. The specified noise limits which apply are a function of the zoning and time of day as shown in Figure 2. With respect to mixed zoning districts, DOH specifies the primary land use designation shall be used to determine the applicable zoning district class and the maximum permissible sound level.

The State Department of Health defines a heavy vehicle as a vehicle which has a manufacturer's gross vehicular weight rating of ten thousand pounds or greater. Such vehicles shall not be operated on any trafficway in such a manner that it emits noise in excess of the limits specified in Reference 2. If these limits will be exceeded a permit from the DOH director is required.

3.2 City and County of Honolulu Land Use Ordinances (LUO)

The City and County of Honolulu LUO [Reference 3] noise regulations differ

from the DOH noise regulations in that maximum permissible octave band sound pressure levels are specified instead of A-weighted sound pressure levels. Also, there is no specified period of time associated with the exceedence of these levels. The LUO noise regulations which are presented in Figure 3, are the LUO noise regulations are theoretically enforced by the Building Department, however, since they do not have noise measurement capabilities, noise complaints are usually handled by the DOH.

3.3 U.S. Environmental Protection Agency (EPA)

The U.S. EPA has identified a range of yearly day-night equivalent sound levels, L_{dn}, sufficient to protect public health and welfare from the effects of environmental noise [Reference 4]. The EPA has established a goal to reduce exterior environmental noise to an L_{dn} not exceeding 65 dBA and a future goal to further reduce exterior environmental noise to an L_{dn} not exceeding 55 dBA. Additionally, the EPA states that these goals are not intended as regulations as it has no authority to regulate noise levels, but rather they are intended to be viewed as levels below which the general population will not be at risk from any of the identified effects of noise.

3.4 U.S. Federal Highway Administration (FHWA)

The FHWA defines four land use categories and assigns corresponding maximum hourly equivalent sound levels, L_{eq}, which are listed in Table 1. For example, Category B, defined as picnic and recreation areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals, has a corresponding maximum exterior L_{eq} of 67dBA and a maximum interior L_{eq} of 52 dBA. These limits are viewed as design goals, and all projects meeting these limits are deemed in conformance with FHWA noise standards.

3.5 Hawaii Department of Transportation (HDOT)

The HDOT has adopted FHWA's design goals for traffic noise exposure in its noise analysis and abatement policy [Reference 6]. According to the policy, a traffic noise impact occurs when the predicted traffic noise levels "approach" or exceed FHWA's design goals or when the predicted traffic noise levels "substantially exceed the existing noise levels." The policy also states that "approach" means at least 1 dB less than FHWA's design goals and "substantially exceed the existing noise levels" means an increase of at least 15dB.

3.6 U.S. Department of Housing and Urban Development (HUD)

HUD's environmental noise criteria and standards in 24 CFR 51 [Reference 7] were established for determining housing project site acceptability. These standards are based on day-night equivalent sound levels, L_{dn}, and are not limited to traffic noise exposure. However, for project sites in the vicinity of highways, the L_{dn} may be estimated to be equal to the design hour $L_{eq(h)}$, provided "heavy trucks (vehicles with three or more axles) do not exceed 10 percent of the total traffic flow in vehicles per 24 hours and the traffic flow between 10:00 p.m. and 7:00 a.m. does not exceed 15 percent of the average daily traffic flow in vehicles per 24 hours." For these same conditions, L_{dn}, may also be estimated as 3 dB less than the design hour L_{10}.

HUD site acceptability criteria rank sites as Acceptable, Normally Unacceptable, or Unacceptable. "Acceptable" sites are those where exterior noise levels do not exceed an L_{dn} of 65 dBA. Proposed housing projects on "Acceptable" sites do not require additional noise attenuation other than that provided by customary building techniques. "Normally Unacceptable" sites are those where the L_{dn} is above 65 dBA, but does not exceed 75 dBA. Housing on "Normally Unacceptable" sites requires some form of noise abatement, either at the property line or in the building construction, to ensure the interior noise levels are acceptable. "Unacceptable" sites are those where the L_{dn} is 75 dBA or higher. The term "Unacceptable" does not necessarily mean that housing cannot be built on those sites. It means that more sophisticated sound attenuation will likely be needed.

3.7 State Department of Transportation (DOT), Airports Division

The State DOT Airports Division local land use compatibility guidelines [Reference 8] are expressed in terms of yearly day-night average sound levels, L_{dn}, due to aircraft operations. A residential land use, which is specified as single-family homes, apartments, and resorts, is compatible with an aircraft generated L_{dn} less than or equal to 60 dBA. However, DOT states,

> "Where the community determines that these uses must be allowed, Noise Level Reduction (NLR) measures to achieve interior levels of 45 L_{dn}, or less should be incorporated into building codes and be considered in individual approvals. Normal local construction employing natural ventilation can be expected to provide an average NLR of approximately 9 dB. Total closure, plus air conditioning, may be required to provide additional outdoor to indoor NLR, and will not eliminate outdoor noise problems."

The DOT guidelines also specify 60 dBA as the maximum allowable L_{dn} level for school, day care center, and church uses without any mitigation measures.

Commercial uses such as retail shops, restaurants, shopping centers, etc. are compatible with L_{dn} levels up to 65 dBA without any mitigation measures. With noise mitigation measures implemented, such commercial uses are allowed in areas exposed to an L_{dn} as high as 75 dBA.

4.0 EXISTING ACOUSTICAL ENVIRONMENT

4.1 General

During the morning and afternoon of April 27, 2001, ambient noise level measurements and traffic noise levels were taken to assess the existing acoustical environment at the project site and in the surrounding areas as illustrated in Figure 4. Noise level measurements were taken using Larson-Davis Laboratories Model 824 Sound Level Meter. The noise measurement results discussed below are expressed in terms of the equivalent Sound Level, L_{eq}, and in units of A-weighted decibels.

4.2 Project Site

The project site is situated near existing residential areas part of the Mililani Mauka development and includes a stretch of property adjacent to the H-2 Freeway with planned development in close proximity to the Freeway. Two field offices and two warehouses occupy an adjacent property west of Phase III land and are used to coordinate construction activity. The existing daytime ambient noise levels (L_{eq}) range from 42 to 53 dBA within most of the subject parcels. Near H-2 Freeway, the ambient noise levels range from 53 to 72 dBA. The dominant noise source is traffic, followed by nearby construction activity, wind, and occasional commercial and military aircraft fly-overs.

4.3 Project Vicinity

Existing noise from nearby H-2 Freeway will have a negative impact on adjacent areas of the property based on preliminary site plans showing continued development of residential homes towards the Freeway. The noise will be primarily traffic related and will be the dominant source. Since Mililani Mauka Phase III is adjacent to an existing residential area, construction noise will have an impact on the surrounding area.

5.0 POTENTIAL NOISE IMPACT DUE TO THE PROJECT AND NOISE MITIGATION

5.1 Project Construction Noise

Development of project areas will involve excavation, grading, and construction

of new buildings and infrastructure. The various construction phases of the project may generate significant amounts of noise, which may impact residences and other noise sensitive areas. The actual noise levels produced will be a function of the methods employed during each stage of the construction process. Typical ranges of construction equipment noise are shown in Figure 5. Earthmoving equipment, e.g., bulldozers and diesel-powered trucks, will probably be the loudest equipment used during construction, assuming that pile driving will not be required.

In cases where construction noise exceeds, or is expected to exceed the DOH's "maximum permissible" property line noise levels [Reference 1], a permit must be obtained from the DOH to allow the operation of vehicles, construction equipment, power tools, etc., which emit noise levels in excess of "maximum permissible" levels. Specific permit restrictions for construction activities are:

> "No permit shall allow any construction activities which emit noise in excess of the maximum permissible sound levels . . . before 7:00 a.m. and after 6:00 p.m. of the same day, Monday through Friday."
>
> "No permit shall allow any construction activities which emit noise in excess of the maximum permissible sound levels . . . before 9:00 a.m. and after 6:00 p.m. on Saturday."
>
> "No permit shall allow any construction activities which emit noise in excess of the maximum permissible sound levels on Sundays and on holidays."

In addition, construction equipment and on-site vehicles or devices whose operations involve the exhausting of gas or air, excluding pile hammers and pneumatic hand tools weighing less than 15 pounds, must be equipped with mufflers, and construction vehicles using trafficways must satisfy the DOH's vehicular noise requirements [Reference 2].

5.2 Project Generated Traffic Noise

Measured traffic noise levels along with the traffic volume and vehicle mix counts were obtained on April 27, 2001. The noise measurement locations are shown in Figure 4 and described below:

1. Along Meheula Parkway, 25 feet from near lane traffic of the eastbound lane.

2. Along the H-2 Freeway, 18 feet from the near lane of the northbound traffic.

The measured noise levels, traffic counts, and traffic data [Reference 11] together with the FHWA's Traffic Noise Model [Reference 10] were used to calculate the peak hour traffic noise levels with and without the project. The results are presented in Table 2.

From the results of Table 2, traffic noise level increases, with and without the project, were calculated and are presented in Table 3. As can be seen, the predicted maximum traffic noise level increase along the assessed roadways due to the project is 2.2 dBA at Location 2. The minimal change in noise levels perceptible to the average listener is generally taken to be 3 dBA, therefore, the increase in traffic noise due to the project will not be significant and should not impact the noise sensitive areas.

6.0 POTENTIAL NOISE IMPACT ON THE PROJECT AND NOISE MITIGATION

6.1 Traffic

The H-2 Freeway traffic may significantly impact the proposed development. A small portion on the western edge of the project site is in close proximity to the northbound lanes of the H-2 Freeway and has a direct line-of-sight to vehicular traffic. The calculated traffic noise levels show that at a location on the site 70 feet from the H-2 Freeway, occupants will experience an estimated L_{eq} of 76 dBA during the afternoon peak traffic hour. The traffic noise will decrease by about 3 dB for every doubling of distance, i.e., at 140 feet the L_{eq} would be 73 dBA. From the provided site plans, housing development is planned within or approaching a distance of 150 ft or less. The 3 dB reduction assumes there are no structures that would interfere with the propagation of the traffic noise. Any buildings, barrier walls, earthen berms, or other structures constructed along the roadways will act to reduce noise levels beyond the structure(s). The reduction in L_{eq} afforded by such an obstruction will depend on the placement and dimensions of the structure. Generally, the closer a structure is placed to a roadway, the greater the reduction in L_{eq} for areas beyond the structure. Day-night equivalent sound levels, L_{dn} may be considered equal to L_{eq} since the monitoring of traffic of heavy trucks (vehicles with three or more axles) does not exceed 10 percent of the total traffic flow in vehicles per 24 hours and the traffic flow between 10:00 p.m. and 7:00 a.m. does not exceed 15 percent of the average daily traffic flow in vehicles per 24 hours. Considering the calculated L_{eq} (equal to L_{dn}) near the H-2 Freeway, HUD guidelines for an "Acceptable" site will be exceeded.

HUD has established Site Acceptability Standards for exterior noise exposure at

housing areas. These standards are based on L_{dn} levels and identify the need for noise abatement. For this analyses, traffic noise from adjacent roadways and the internal roadways within each parcel should be considered in determining the use for lands contiguous to these roadways. Effective noise mitigation measures should be considered for this project and might include:

- Constructing barrier walls and/or earthen berms along roadways.
- Air-conditioning buildings instead of relying on natural ventilation.
- Acoustically soften interior spaces by the addition of thick carpeting with a padding underlayment, an acoustical tile ceiling, louvered closet doors, etc.
- Use exterior wall constructions which have high noise reductions.

In addition to the above measures, other steps can be taken to reduce the traffic noise such as:

- Reducing the speed limit
- Adding signalization
- Reducing the elevation of the roadways relative to adjacent lands.

Typical exterior-to-interior noise reductions for naturally ventilated homes, i.e., with open windows, are approximately 9 dB. Adding absorption to interior spaces, (acoustically softening), can further reduce the noise levels 1 to 5 dB, depending upon the absorption initially present, and the amount of absorption added to the space. Air-conditioned or mechanically ventilated homes will also typically exhibit higher exterior-to-interior noise reductions achieved by several types of building constructions are presented in Table 4 [Reference 12]. Estimating the noise reduction provided by a barrier, however, is more difficult to generalize. Factors such as distances to roadways and setbacks, intervening ground conditions, barrier construction, barrier height, roadway elevations, etc., will determine the noise reduction afforded by a traffic noise barrier. The degree of difficulty in obtaining specific reductions in sound levels, as determined by the Federal Highways Administration [Reference 12], are presented in Table 5.

Reductions in traffic noise due to alterations of the traffic flow or roadway positions are also dependent on very specific conditions. For example, reducing the average speed of automobiles by 5 mph will reduce the traffic $L_{eq(h)}$ by nearly 2 dB for automobiles initially moving at 35 mph. However, a 5 mph reduction in the average

speeds for automobiles initially traveling at 55 mph will only produce a little more than 1 dB reduction in the traffic $L_{eq(h)}$.

6.2 Aircraft

Portions of the project site are within approximately seven miles of Honolulu International Airport (HIA), including Hickam AFB, and within approximately 2.7 miles of Wheeler Army Airfield (WAAF) as shown in Figure 6. Due to the distance from the project site, the L_{dn} due to aircraft operations associated with HIA will be less than 60 dBA for all areas of the project site [Reference 8]. Figure 7 depicts the L_{dn} contours from air traffic associated with the WAAF [Reference 13]. Even with the close proximity of WAAF, all areas of the project site are located far to the south of the L_{dn} 65 dBA contour. However, due to certain arrival and departure flight tracks associated with HIA and WAAF, aircraft flyovers may, at times, be audible at the project site. These flyovers should be infrequent, and therefore, should not significantly impact the proposed development.

REFERENCES:

1. Chapter 46, *Community Noise Control*, Department of Health, State of Hawaii, Administrative Rules, Title 11, September 23, 1996.

2. Chapter 42, *Vehicular Noise Control for Oahu,* Department of Health, State of Hawaii, Administrative Rules, Title 11, November 6, 1981.

3. *Section 3.11 Noise Regulations*, Land Use Ordinance, City and County of Honolulu, Oahu, October 22, 1986.

4. *Toward a National Strategy for Noise Control*, U.S. Environmental Protection Agency, April 1977.

5. *Department of Transportation, Federal highway Administration Procedures for Abatement of Highway traffic Noise,* Title 23, CFR, Chapter 1, Subchapter J, Part 772, 38 FR 15953, June 19, 1973; Revised at 47 FR 29654, July 8, 1982.

6. *Noise Analysis and Abatement Policy,* Department of Transportation, Highways Division, State of Hawaii, June 1977.

7. *Department of Housing and Urban Development Environmental Criteria and Standards*, Title 24, CFR, Part 51, 44 FR 40860, July 12, 1979; Amended by 49 FR 880, January 6, 1984.

8. *Honolulu International Airport Master Plan Update and Noise Compatibility Program*, State of Hawaii Department of Transportation, Airports Division, Vol. 2, December 1989.

9. *Policies and Standards for School Facilities Design*, Board of Education, Policy 6700, Appendix A, Acoustical and Environmental Control, March 1995.

10. *Federal Highway Administration's Traffic Noise Model,* version 1.0b, FHWA-PD-98-047; U.S. Department of Transportation, July 1999.

11. Peak Hour Traffic Data, Wilbur Smith Associates, November 8, 1999, November 29, 1999, December 21, 1999.

12. *Highway Traffic Noise Analysis and Abatement Policy and Guidance*, U.S. Department of Transportation, Federal Highways Administration, June 1995.

13. *Installation Compatible Use Zone Study (ICUZ) for Wheeler Army Airfield*, Oahu, Hawaii, Department of Army, U.S. Army Support Command, Hawaii (USASCH), Fort Shafter, Oahu, Hawaii, November, 1994.

TABLE 4

BUILDING NOISE REDUCTION FACTORS [Reference 12]

Building Type	**Window Condition**	**Noise Reduction Exterior-to-Interior**
All	Open	10 dB
Light Frame	Ordinary Sash (closed)	20 dB
	Storm Windows	25 dB
Masonry	Single Glazed	25 dB
	Double Glazed	35 dB

TABLE 5

ROADWAY BARRIER ATTENUATION [REFERENCE 12]

Reduction in Sound Level	**Degree of difficulty to Obtain Reduction**
5 dBA	Simple
10 dBA	Attainable
15 dBA	Very Difficult
20 dBA	Nearly Impossible

TABLE 1

FEDERAL HIGHWAYS ADMINISTRATION RECOMMENDED EQUIVALENT HOURLY SOUND LEVELS BASED ON LAND USE [REFERENCE 5]

Activity Category	**$L_{eq(h)}$**	**Noise Reduction Exterior-to-Interior**
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	---	Undeveloped Land
E	52 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

TABLE 2

EXISTING AND PROJECTED FUTURE PEAK HOUR
TRAFFIC NOISE LEVELS (L_{eq} in dBA)

	Location 1		Location 2	
(Calculations Based On Traffic Estimates)	AM	PM	AM	PM
Existing Level	67.7	65	79.2	79
Future With Phase III	69.3	67.2	?	?
Future Without Phase III	68.8	66.6	?	?

TABLE 3

PROJECTED FUTURE PEAK HOUR TRAFFIC NOISE
LEVEL INCREASES (L_{eq} in dBA)

	Location 1	
	AM	PM
Future Increase With Phase III Project	1.6	2.2
Future Increase Without Phase III Project	1.1	1.6

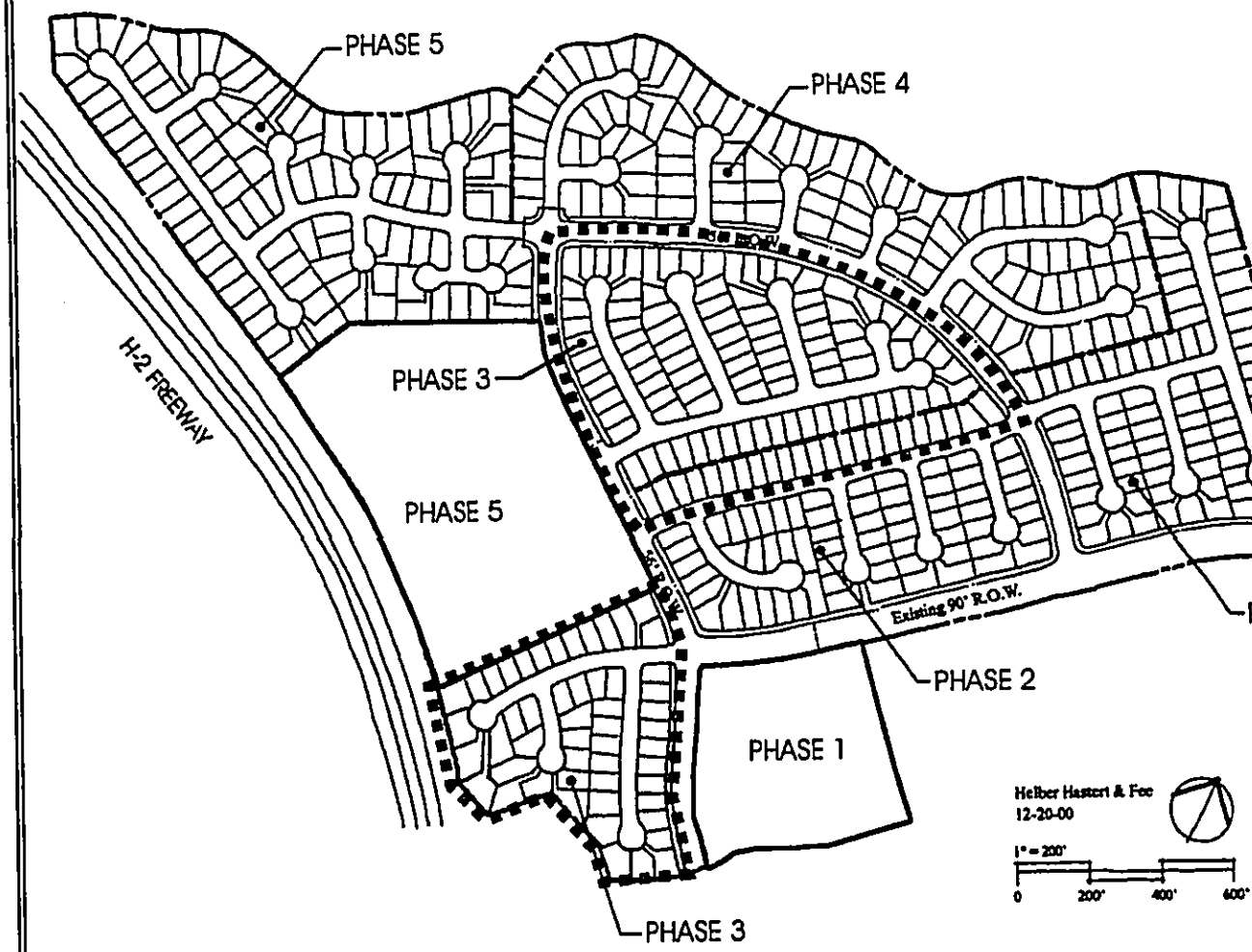


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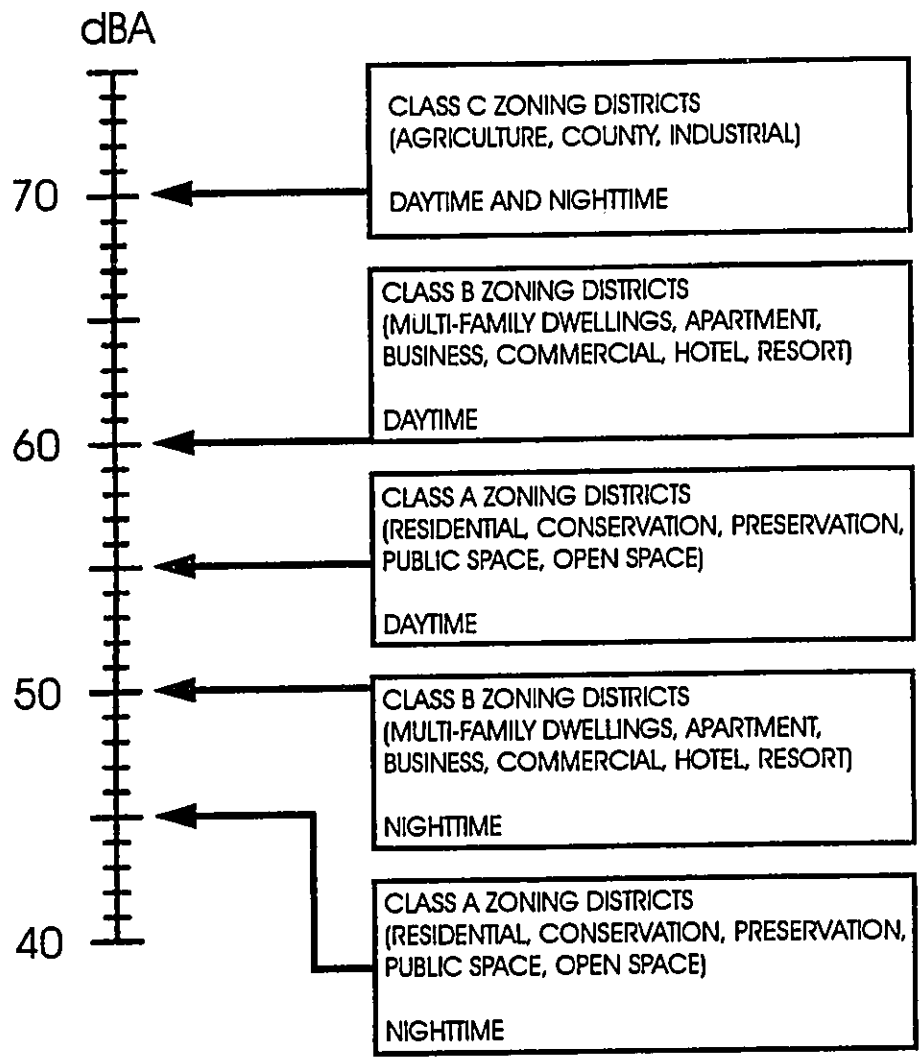
FIGURE 1 - PROJECT LOCATION AND STUDY AREA



NOTE: SOUND LEVELS INDICATED BY ZONING DISTRICT ARE THE "MAXIMUM PERMISSIBLE" SOUND LEVELS DUE TO EXCESSIVE NOISE SOURCES SUCH AS STATIONARY MECHANICAL EQUIPMENT AND EQUIPMENT RELATED TO AGRICULTURAL, CONSTRUCTION AND INDUSTRIAL ACTIVITIES THAT SHALL NOT BE EXCEEDED FOR MORE THAN 10% OF THE TIME WITHIN ANY 20-MINUTE PERIOD DURING THE TIME PERIOD SHOWN.

(DAYTIME: 7:00 A.M. TO 10:00 P.M., NIGHTTIME: 10:00 P.M. TO 7:00 A.M.)

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FIGURE 2 - MAXIMUM PERMISSIBLE SOUND LEVELS FOR VARIOUS ZONING DISTRICTS

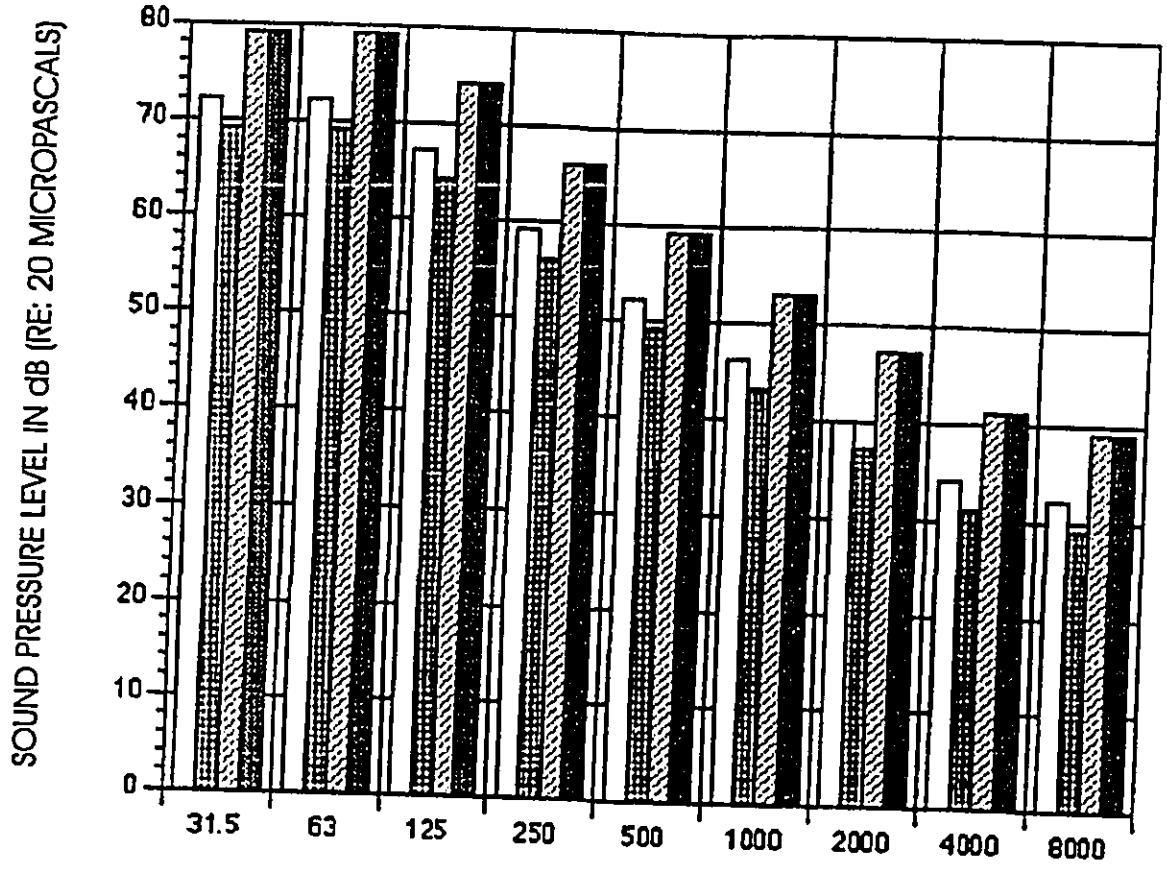

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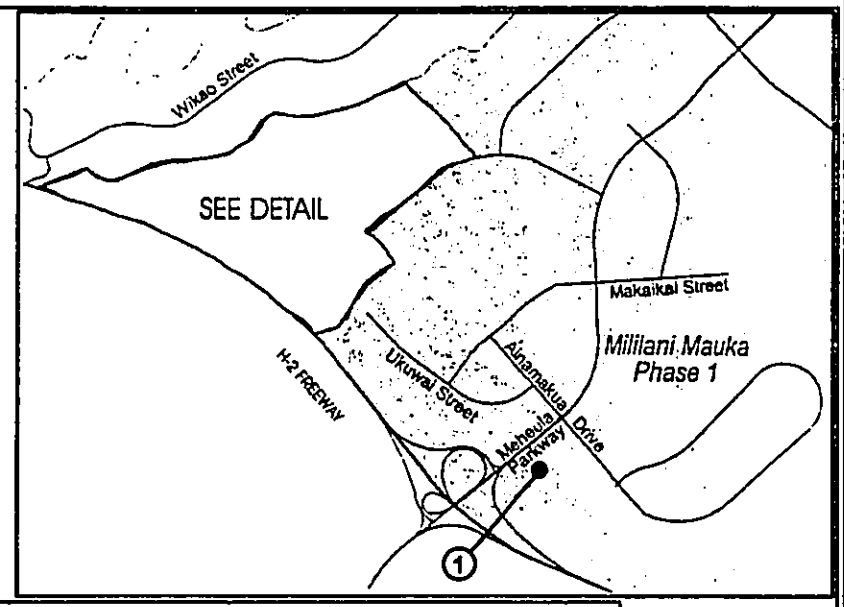
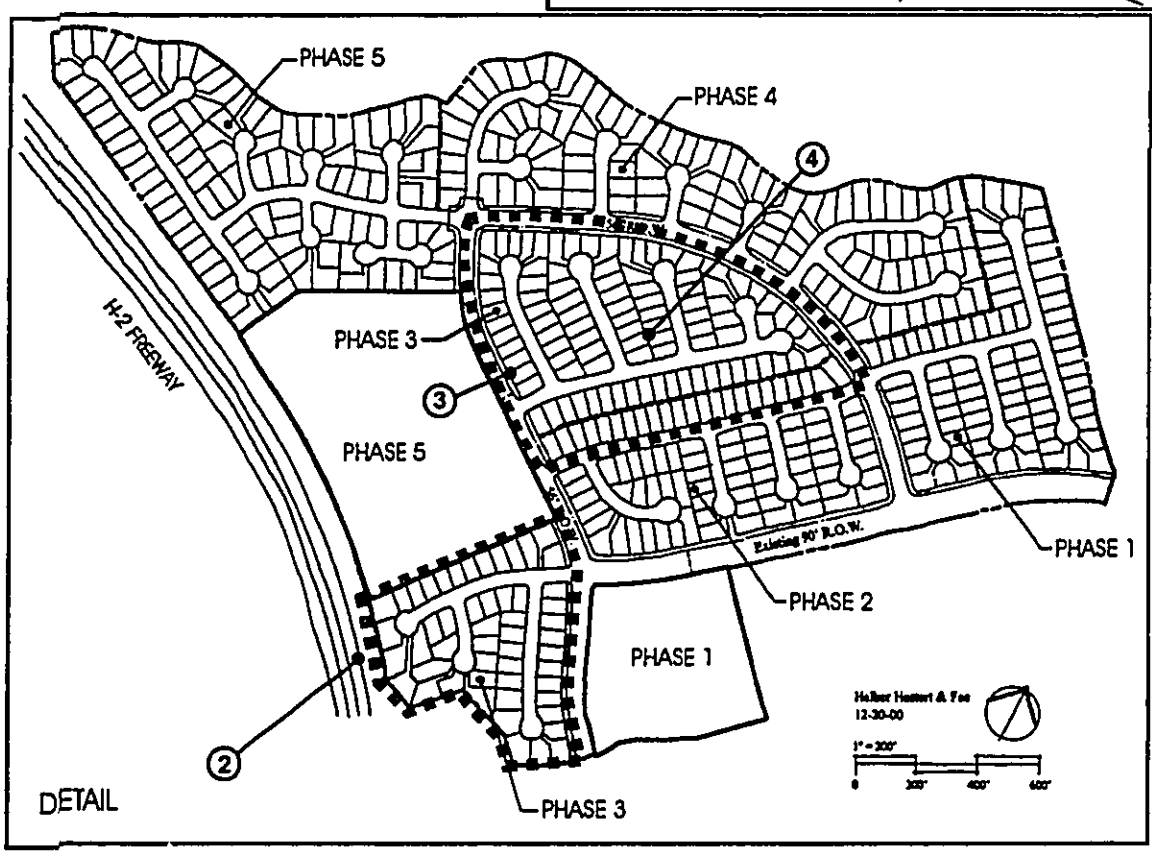
FIGURE 3 - LUO NOISE REGULATION

MILILANI MAUKA
PROJECT LOCATION





① ② TRAFFIC NOISE LEVEL MEASUREMENT LOCATIONS
③ ④ BACKGROUND MEASUREMENT LOCATIONS

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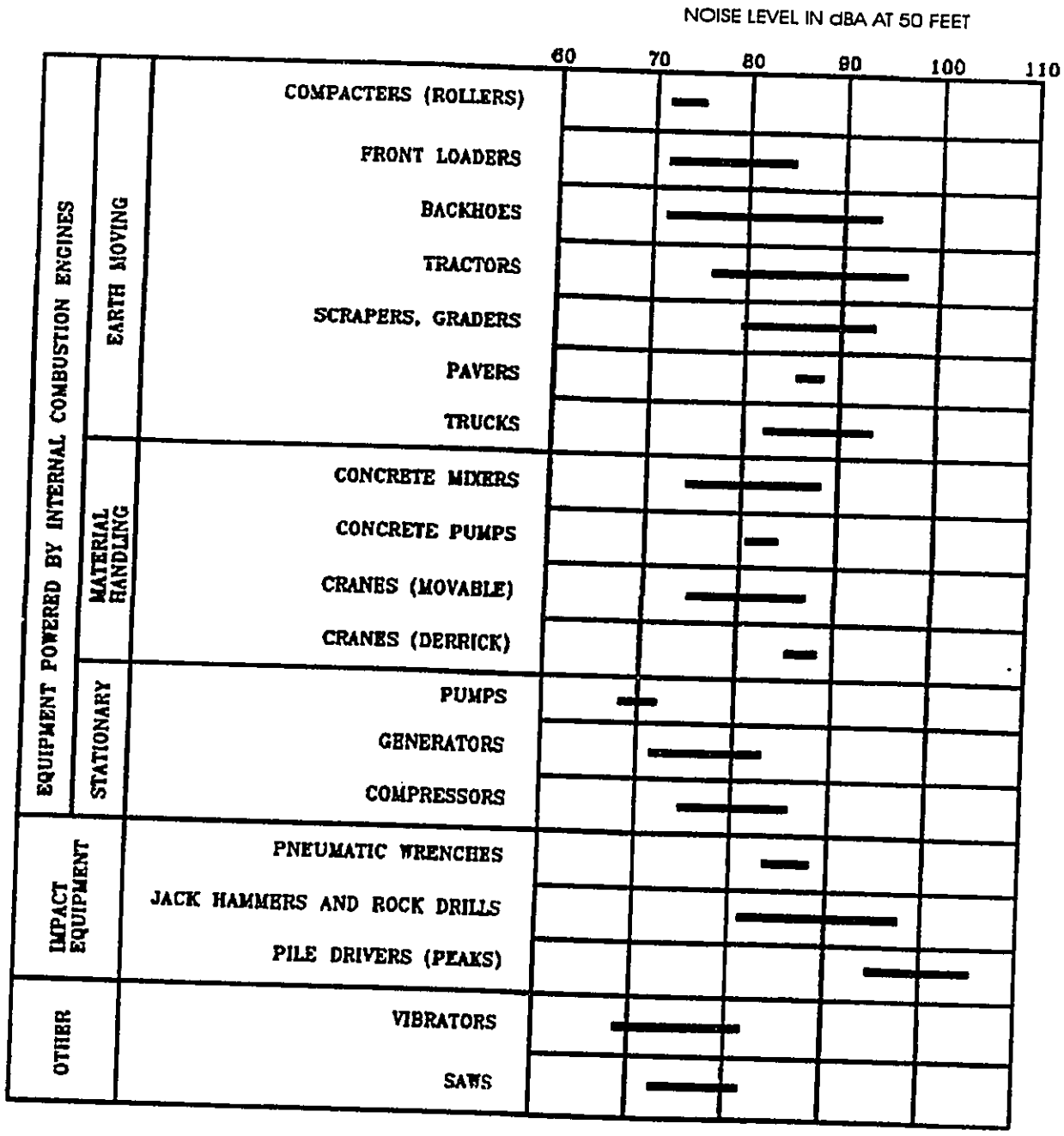
FIGURE 4 - LOCATIONS OF NOISE MEASUREMENTS



NOTE: BASED ON LIMITED AVAILABLE DATA SAMPLES

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FIGURE 5 - TYPICAL SOUND PRESSURE LEVELS FROM CONSTRUCTION EQUIPMENT

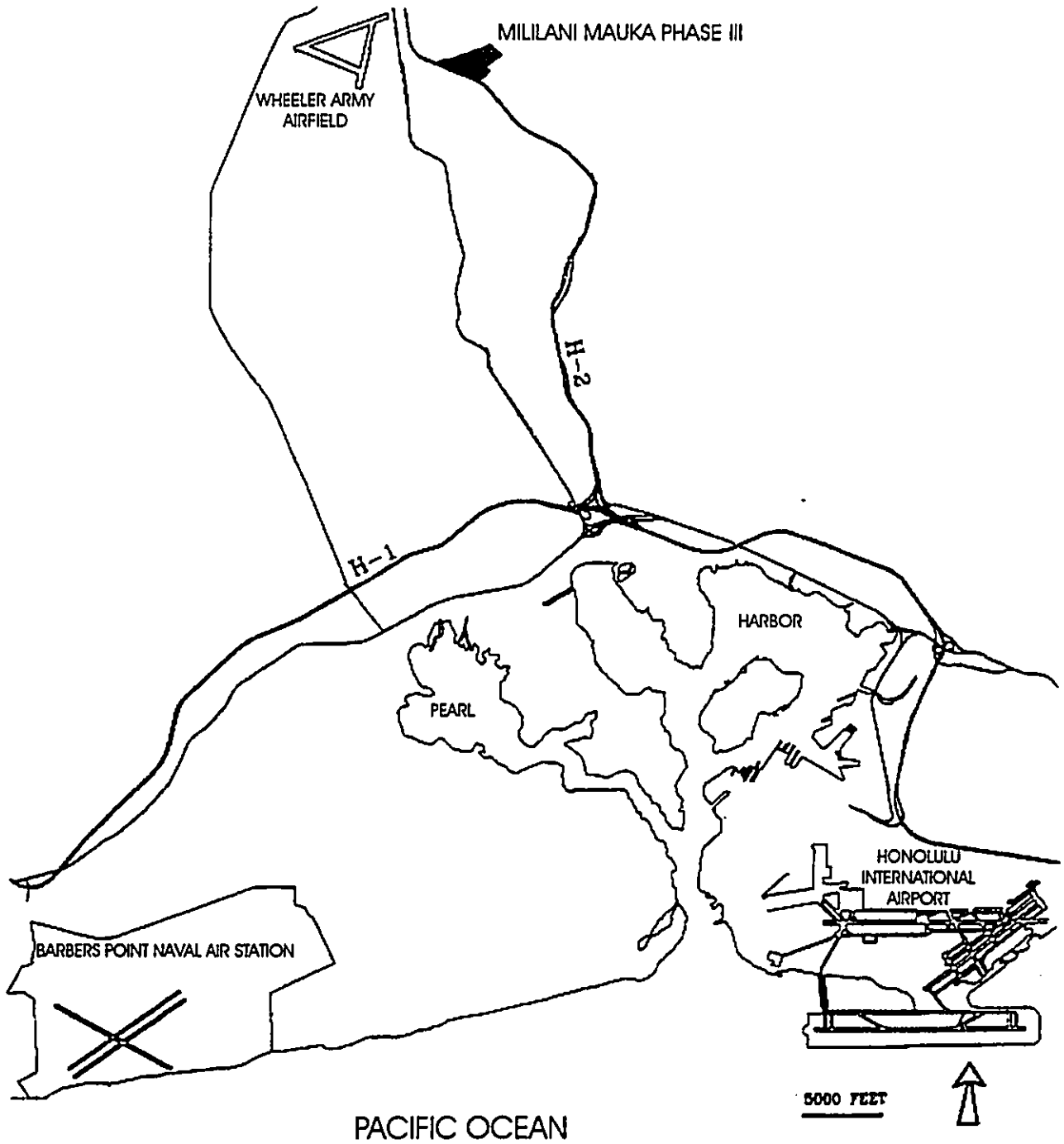

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FIGURE 6 - PROXIMITY TO MAJOR AIRPORTS

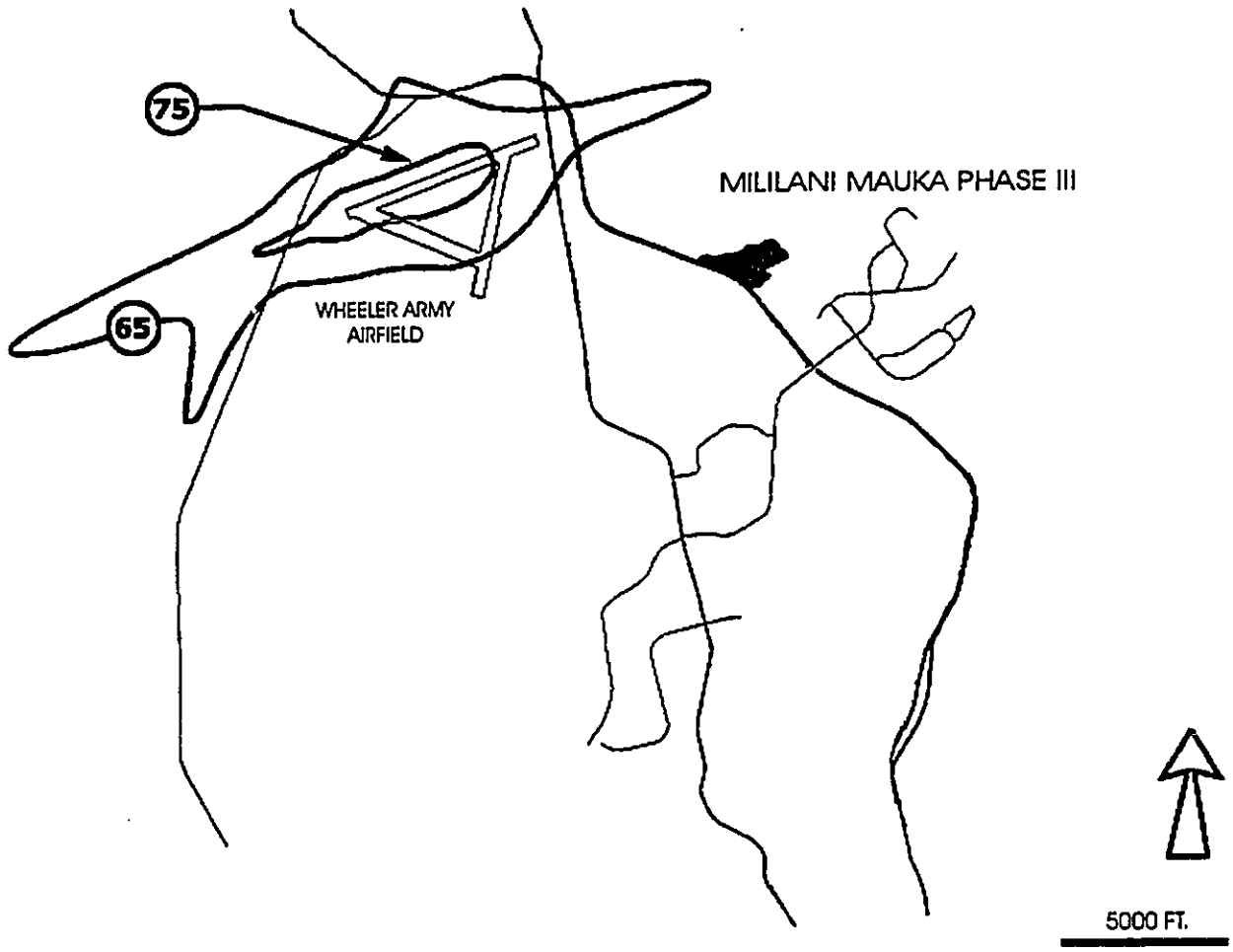

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FIGURE 7 - WHEELER ARMY AIRFIELD L_{DN} CONTOURS

APPENDIX A

ACOUSTICAL TERMINOLOGY

Sound Pressure Level

Sound or noise consists of minute fluctuations in atmospheric pressure capable of evoking the sense of hearing. It is measured in terms of decibels (dB) using precision instruments known as sound level meters. Noise is defined as "unwanted" sound.

Technically, sound pressure level (SPL) is defined as:

$$SPL = 20 \log (P/Pref) \text{ dB}$$

where P is the sound pressure fluctuation (above or below atmospheric pressure) and Pref is the reference pressure, 20 micropascals, which is approximately the lowest sound pressure that can be detected by the human ear. For example, if P is 20 micropascals, then SPL = 0 dB, or if P is 200 micropascals, then SPL = 20 dB. The relation between sound pressure in micropascals and sound pressure level in decibels (dB) is shown in Figure A-1.

The sound pressure level that results from a combination of noise sources is not the arithmetic sum of the individual sound levels, but rather the logarithmic sum. For example, two sound levels of 50 dB produce a combined level of 53 dB, not 100 dB; two sound levels of 40 and 50 dB produce a combined level of 50.4 dB.

Human sensitivity to changes in sound pressure level is highly individualized. Sensitivity to sound depends on frequency content, time of occurrence, duration, and psychological factors such as emotions and expectations. However, in general, a change of 1 or 2 dB in the level of a sound is difficult for most people to detect. A 3 dB change is commonly taken as the smallest perceptible change and a 5 dB change corresponds to a noticeable change in loudness. A 10 dB increase or decrease in sound level corresponds to an approximate doubling or halving of loudness, respectively.

A-Weighted Sound Level

The human ear is more sensitive to sound in the frequency range of 250 Hertz (Hz) and higher, than in frequencies below 250 Hz. Due to this type of frequency response, a frequency weighting system, was developed to emulate the frequency response of the human ear. This system expresses sound levels in units of A-weighted decibels (dBA). A-weighted sound levels de-emphasizes the low frequency portion of the spectrum of a signal. The A-weighted level of a sound is a good measure of the loudness of that sound. Different sounds having the same A-weighted sound level are perceived as being about equally loud. Typical values of the A-weighted sound level of various noise sources are shown in Figure A-1.

Appendix A
Acoustical Terminology (Continued)

Statistical Sound Levels

The sound levels of long-term noise producing activities, such as traffic movement, aircraft operations, etc., can vary considerably with time. In order to obtain a single number rating of such a noise source, a statistically-based method of expressing sound or noise levels developed. It is known as the Exceedence Level, L_n. The Exceedence Level, L_n, represents the sound level which is exceeded for n% of the measurement time period. For example, L_{10} = 60 dBA indicates that for the duration at the measurement period, the sound level exceeded 60 dBA 10% of the time. Commonly used Exceedence Levels include L_1, L_{10}, L_{50}, and L_{90}, which are widely used to assess community and environmental noise. Figure A-2 illustrates the relationship between selected statistical noise levels.

Equivalent Sound Level

The Equivalent Sound Level, L_{eq}, represents a constant level of sound having the same total acoustic energy as that contained in the actual time-varying sound being measured over a specific time period. L_{eq} is commonly used to describe community noise, traffic noise, and hearing damage potential. It has units of dBA and is illustrated in Figure A-2.

Day-Night Equivalent Sound Level

The Day-Night Equivalent Sound Level, L_{dn}, is the Equivalent Sound Level, L_{eq}, measured over a 24-hour period. However, a 10 dB penalty is added to the noise levels recorded between 10 pm and 7 am to account for people's higher sensitivity to noise at night when the background noise level is typically lower. The L_{dn} is a commonly used noise descriptor in assessing land use compatibility, and is widely used by federal and local agencies and standards organizations. Qualitative descriptions, as well as local examples of L_{dn}, are shown in Figure A-3.

APPENDIX V

AIR QUALITY ASSESSMENT REPORT

AIR QUALITY IMPACT REPORT (AQIR)

MILILANI MAUKA PHASE III
HONOLULU, OAHU

14 May 2001

PREPARED FOR:

Kusao & Kurahashi, Inc.

and

Castle & Cooke Homes Hawaii, Inc.

PREPARED BY:

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1. INTRODUCTION

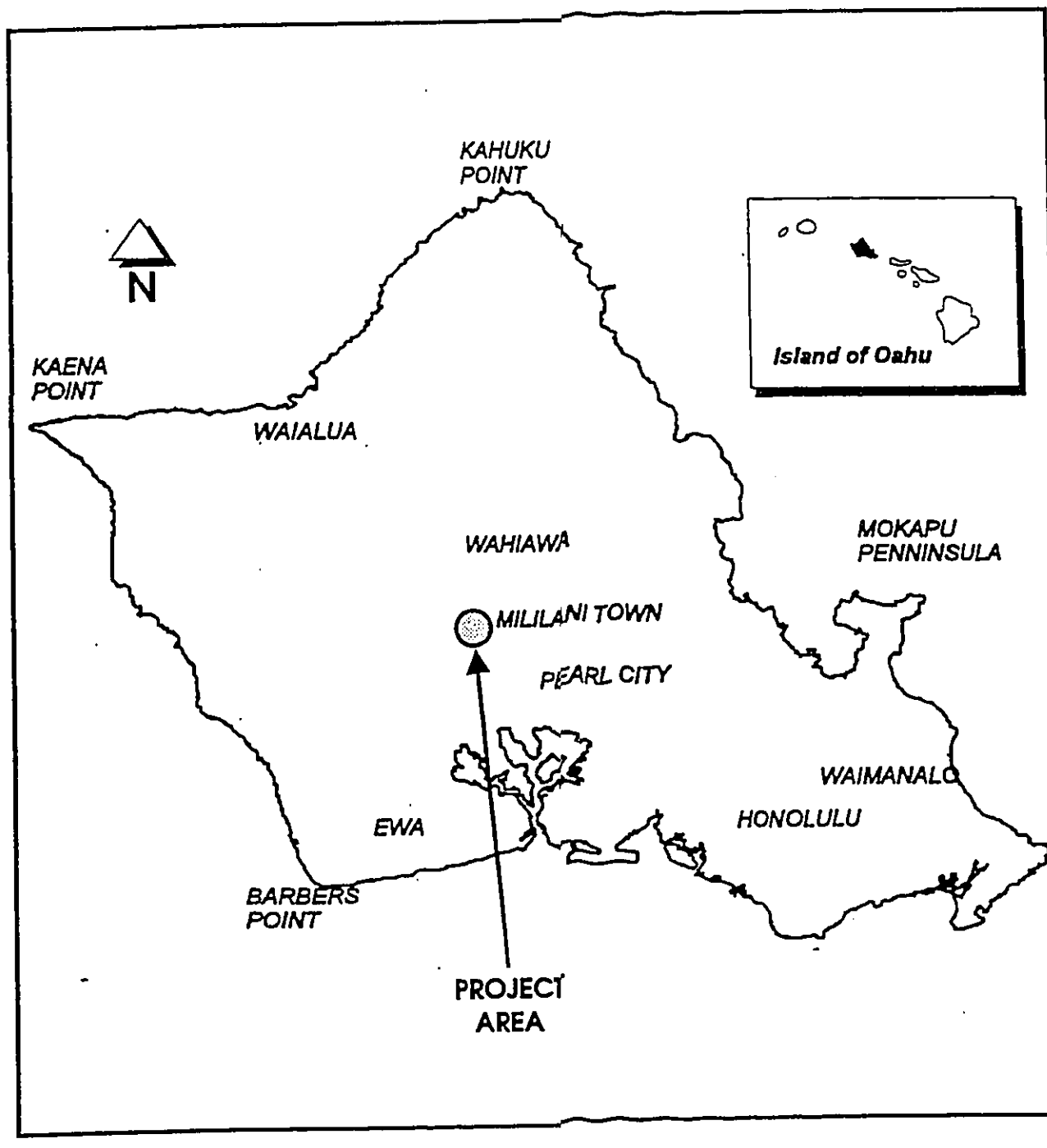
Castle & Cooke Homes Hawaii, Inc. is proposing to amend the Development Plan Land Use Map for Mililani Mauka Phase III to allow residential and apartment development on a 100± acre parcel previously designated for a future university (Figure 1). With the decision by the University of Hawaii to focus its efforts on a West Oahu Campus at Kapolei, the Mililani site is no longer needed for that purpose.

The proposed additional housing will be consistent with the existing residential developments in Mililani Phases I and II. The requested 826 single family and apartment units for the site will in fact represent only a 143-unit increase over the total 6,600 previously approved dwelling units for Phases I and II, 683 of which were never built.

The purpose of this report is to assess the short and long-term impacts of the proposed residential development on air quality. The overall project can be considered an "indirect source" of air pollution as defined in the federal Clean Air Act[1] since its primary association with air quality is its inherent attraction for mobile sources, i.e., motor vehicles. Much of the focus of this analysis, therefore, is on the project's ability to generate traffic and the resultant impact on air quality. Air quality impact was evaluated for existing (2001) and future (2010) conditions with the proposed development.

FIGURE 1

PROJECT LOCATION



A project such as this also has offsite impacts due to increased demand for electrical energy which must be met by the combustion of some type of fuel and the incineration of solid waste generated by project residents. Both these processes result in pollutant emissions to the air which have been addressed in this report.

Finally, during construction of the various buildings and facilities air pollutant emissions will be generated onsite and offsite due to vehicular movement, grading, concrete and asphalt batching, and general dust-generating construction activities. These impacts have also been addressed.

2. AIR QUALITY STANDARDS

A summary of State of Hawaii and national ambient air quality standards (NAAQS) is presented in Table 1.[2,3] Note that Hawaii's standards are not divided into primary and secondary standards as are the federal standards.

Primary standards are intended to protect public health with an adequate margin of safety while secondary standards are intended to protect public welfare through the prevention of damage to soils, water, vegetation, man-made materials, animals, wildlife, visibility, climate, and economic values [4]. Note that in the case of the principal automotive pollutants [CO, NO_2, and O_3], the primary and secondary standards are identical.

TABLE 1

SUMMARY OF STATE OF HAWAII AND FEDERAL
AMBIENT AIR QUALITY STANDARDS

POLLUTANT	AVERAGING PERIOD	NAAQS PRIMARY	NAAQS SECONDARY	STATE STANDARDS
PM_{10}	Annual 24-hr	50 150	50 150	50 150
$PM_{2.5}$	Annual 24-hr	15 65	15 65	--- ---
SO_2	Annual 24-hr 3-hr	80 365 ---	--- --- 1,300	80 365 1,300
NO_2	Annual	100	100	70
CO	8-hr 1-hr	10 40	--- ---	5 10
O_3	1-hr 8-hr	235 156	235 156	100 ---
H_2S	1-hr	---	---	35
Pb	Calendar Quarter	1.5	1.5	1.5

KEY: PM_{10} - particulate matter ≤ 10 microns
$PM_{2.5}$ - particulate matter ≤ 2.5 microns
SO_2 - sulfur dioxide
NO_2 - nitrogen dioxide
CO - carbon monoxide
O_3 - ozone
H_2S - hydrogen sulfide
Pb - lead

All concentrations in micrograms per cubic meter ($\mu g/m^3$) except CO which is in milligrams per cubic meter.

Some of Hawaii's standards (CO, NO_2, and O_3) are clearly more stringent than their federal counterparts and like their federal counterparts in the case of short-term standards, they may be exceeded once per year. Note also that the federal $PM_{2.5}$ and 8-hour O_3 standards, while promulgated in 1997, [5,6] were remanded to EPA by a federal court in 1999 and are currently under appeal.[7]

Finally, the State of Hawaii also has fugitive dust regulations for particulate matter (PM) emanating from construction activities [8]. There simply can be no visible emissions from fugitive dust sources.

3. EXISTING AIR QUALITY

3.1 General. The state Department of Health (DOH) maintains a network of air monitoring stations around the state to gather data on the following regulated pollutants:

- particulate matter ≤ 10 microns (PM_{10})
- sulfur dioxide (SO_2)
- nitrogen dioxide (NO_2)
- carbon monoxide (CO)
- ozone (O_3)

In the case of PM_{10} , measurements are made on a 24-hour basis to correspond with the averaging period specified in state and federal standards. Depending on the sampling equipment and site, samples

are collected either continuously or once every six days in accordance with U. S. Environmental Protection Agency (EPA) guidelines. Carbon monoxide, sulfur dioxide, and ozone, however, are measured on a continuous basis due to their short-term (1- and 3-, and 8-hour) standards. Nitrogen dioxide is also measured with continuous instruments and averaged over a full year to correspond to its annual standards. Lead sampling was discontinued in October 1997 with EPA approval. This was largely due to the elimination of lead in gasoline and the resulting reduction of ambient lead levels in Hawaii to essentially zero.

3.2 Department of Health Monitoring. There are no DOH monitoring stations in the vicinity of the project site. A summary of the most recent published air quality data [9] from the nearest sites at Pearl City and Honolulu, Sand Island, the only ozone monitoring site, and Kapolei, one of two NO_2 monitoring sites, is presented in Table 2. These data are indicative of the generally good air quality in Honolulu County and may be considered reasonably representative of existing air quality in the project area.

3.3 Onsite Carbon Monoxide Sampling. In conjunction with this project, air sampling was conducted in May 2001 at a site adjacent to the northwest side of the Meheula Parkway - Ainamakua Drive intersection. A continuous carbon monoxide (CO) instrument was set up and operated during the a.m. and p.m. peak traffic hours. An anemometer and vane were also installed to record onsite surface

TABLE 2

AIR QUALITY DATA
DEPARTMENT OF HEALTH MONITORING SITES
1999

Pollutant		Concentration ($\mu g/m^3$)
Particulate matter ≤ 10 microns (PM_{10})	24-hr (second highest)	24
	Annual	14
Sulfur dioxide (SO_2)	3-hr (max)	46
	24-hr (max)	8
	Annual	2
Carbon monoxide (CO)	1-hr (second highest)	4.8
	8-hr (second highest)	1.81
	Annual	0.71
Ozone (O_3)	1-hr (second highest)	106
	Annual	40
Nitrogen Dioxide (NO_2)	Annual	7

Notes:
1. SO_2 and CO data are from DOH Building site.
2. PM_{10} data from Pearl City site.
3. O_3 data are from the Sand Island site.
4. NO_2 data are from the Kapolei site.
5. CO data are milligrams per cubic meter (mg/m^3)

Source: Reference 9

winds during the air sampling. A simultaneous manual count of traffic was performed. The variability of each of the parameters measured during the peak hours is clearly seen in Figures 2 and 3.

On Monday, 7 May 2001, sampling equipment was set up on the northwest side of Meheula Parkway approximately 18 meters from the road edge . Weather conditions during the morning peak hour were characterized by partly cloudy skies and light, generally east southeast (ESE) winds averaging 2.5 mph. Carbon monoxide concentrations measured were low, averaging only 2.0 mg/m^3. Traffic on Meheula Parkway entering and leaving the west side of the intersection totalled 2,785 vehicles between 7:15 and 8:15 a.m.

On Monday afternoon at the same location, sky conditions were similar to the morning, but the mean wind speed, while still light, had almost doubled to 4.9 mph. Wind direction had shifted to more easterly, and the mean CO level was reduced to 1.2 mg/m^3 due primarily to the higher wind speed and slightly lower traffic volume of 2,480 vehicles on the west side of the intersection.

4. CLIMATE AND METEOROLOGY

4.1 Climate. Climatic norms, means and extremes for Honolulu [10] are presented in Table 3. Conditions at the Mililani Mauka site would be similar to those listed but vary somewhat due to its higher elevation "mauka" location. For example, temperature is slightly cooler with monthly averages ranging from 68.2 to 75.5° F and precipitation is greater, averaging 40 inches per year.

FIGURE 2

A.M. PEAK-HOUR CONDITIONS
MEHEULA PARKWAY - AINAMAKUA DRIVE INTERSECTION
7 May 2001

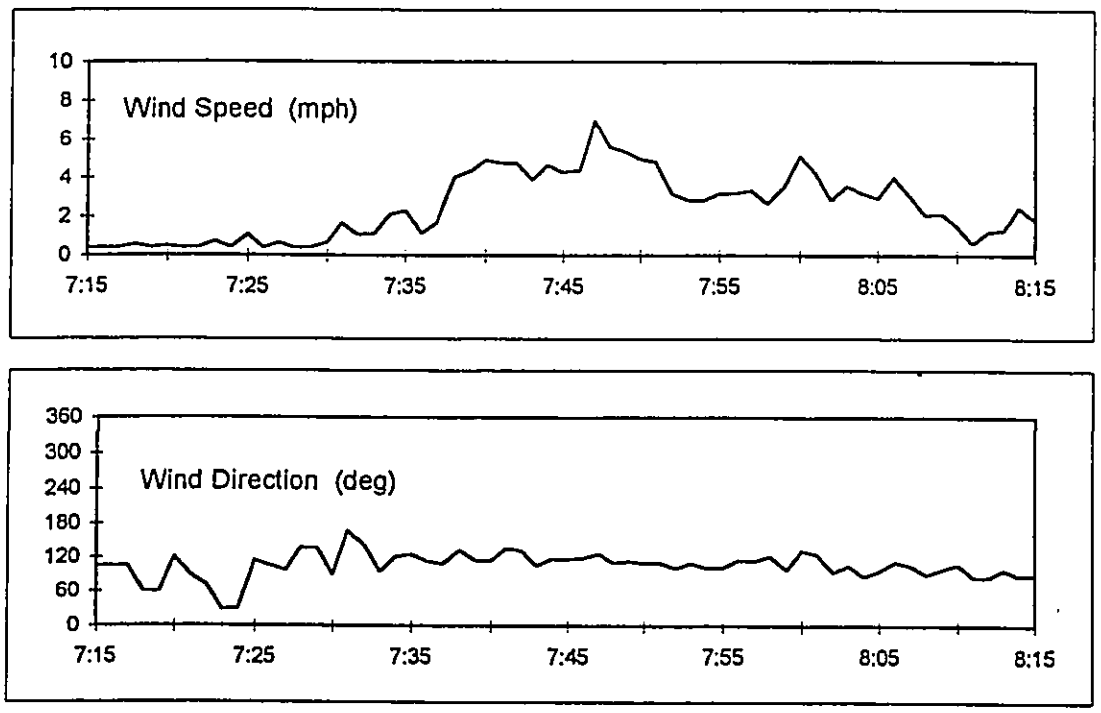
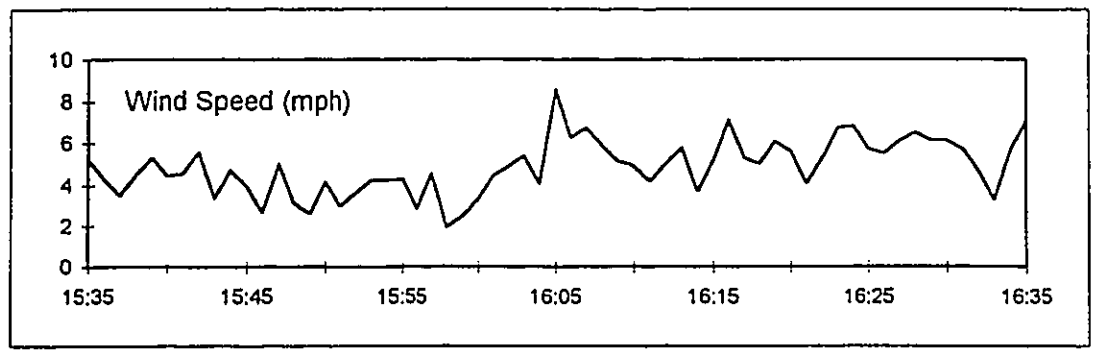
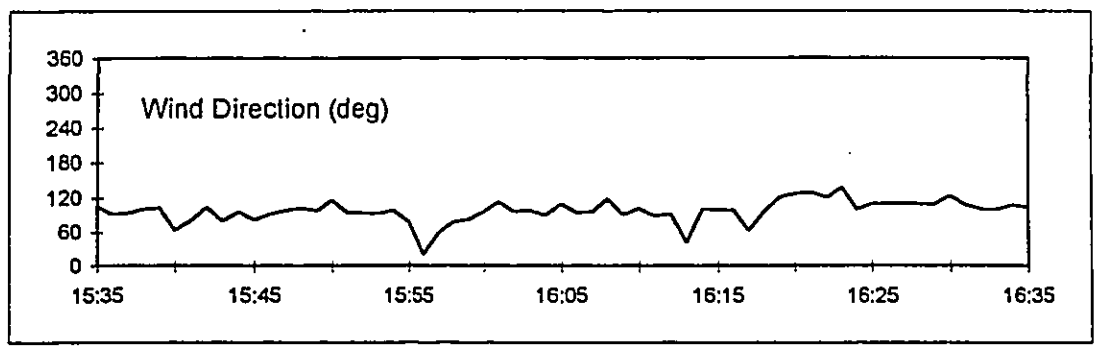
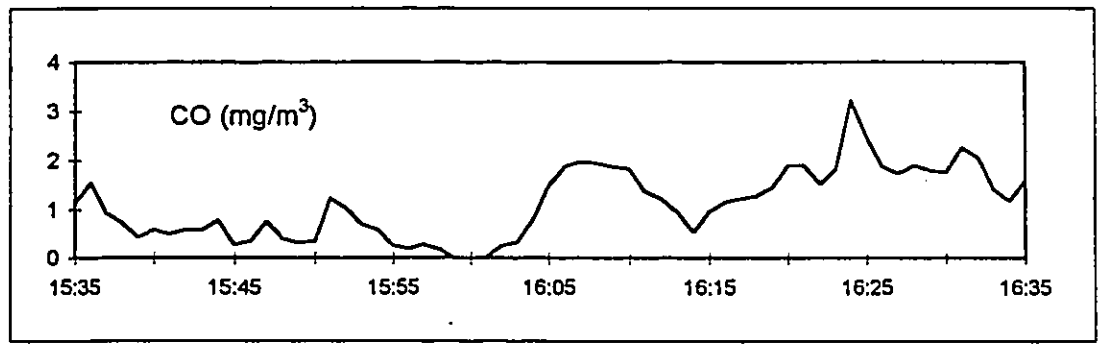


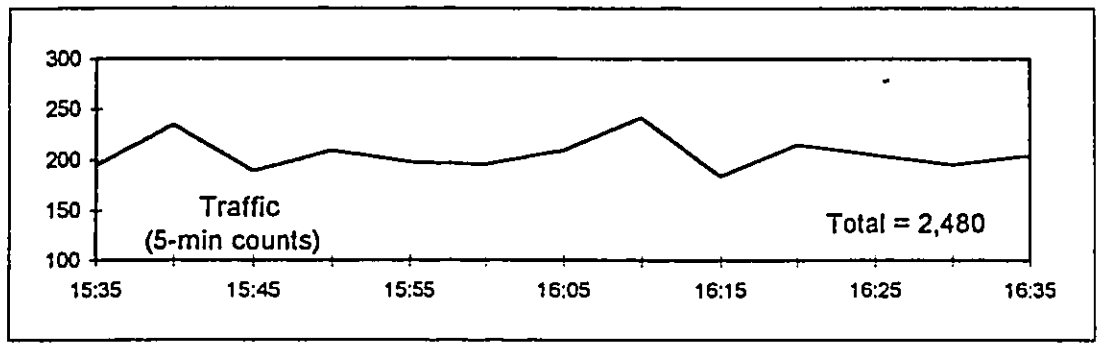
FIGURE 3

P.M. PEAK-HOUR CONDITIONS
MEHEULA PARKWAY - AINAMAKUA DRIVE INTERSECTION
7 May 2001









Time of Day

TABLE 3

CLIMATIC NORMALS, MEANS AND EXTREMES
HONOLULU INTERNATIONAL AIRPORT

Parameter	Descriptor	Value
Temperature (deg F)	Daily maximum	84.4
	Daily minimum	70.0
	Annual mean	77.2
Precipitation (inches)	Maximum monthly	20.91
	Minimum monthly	trace
	Annual mean	22.02
Humidity (%)	Normal	68
Wind Speed (mph)	Mean	11.4
Sunshine	Percent of possible	71
Sky cover (mean # days)	Clear	90.0
	Partly cloudy	179.8
	Cloudy	92.0

Source: National Climatic Data Center (Reference 10)

Analysis of the monthly temperature and rainfall data in accordance with Thornwaite's scheme for climatic classification, yields a precipitation/evaporation (P/E) index of 52.7 which classifies the area as "subhumid grassland". [11]

4.2 Surface Winds. Meteorological data records were reviewed from the Honolulu International Airport and Hickam Air Force Base. The annual prevalence of northeast trade winds is clearly shown in Table 4. A closer examination of the data, however, indicates that low velocities (less than 10 mph) occur frequently and that the normal northeasterly trade winds tend to break down in the Fall giving way to more light, variable wind conditions through the Winter and on into early Spring. It is during these times that Honolulu generally experiences elevated pollutant levels. This seasonal difference in wind conditions can be easily contrasted by comparing August and January wind roses (Figures 4 and 5). Of particular interest from an air pollution standpoint were the stability wind roses prepared for Hickam Air Force Base [12]. These data indicated that stable conditions, i.e., Pasquill-Gifford stability categories E and F [13], occur about 28% of the time on an annual basis and 36% of the time during the peak winter month (January). It is under such conditions that the greatest potential for air pollutant buildup from groundlevel sources, e.g., motor vehicles, exists.

5. SHORT-TERM IMPACTS

5.1 Onsite Impacts. The principal source of short-term air quality impact will be construction activity. Construction vehicle activity can at times increase automotive pollutant concentrations along adjoining existing streets as well as on the project site itself. Construction activity itself as well as additional

TABLE 4

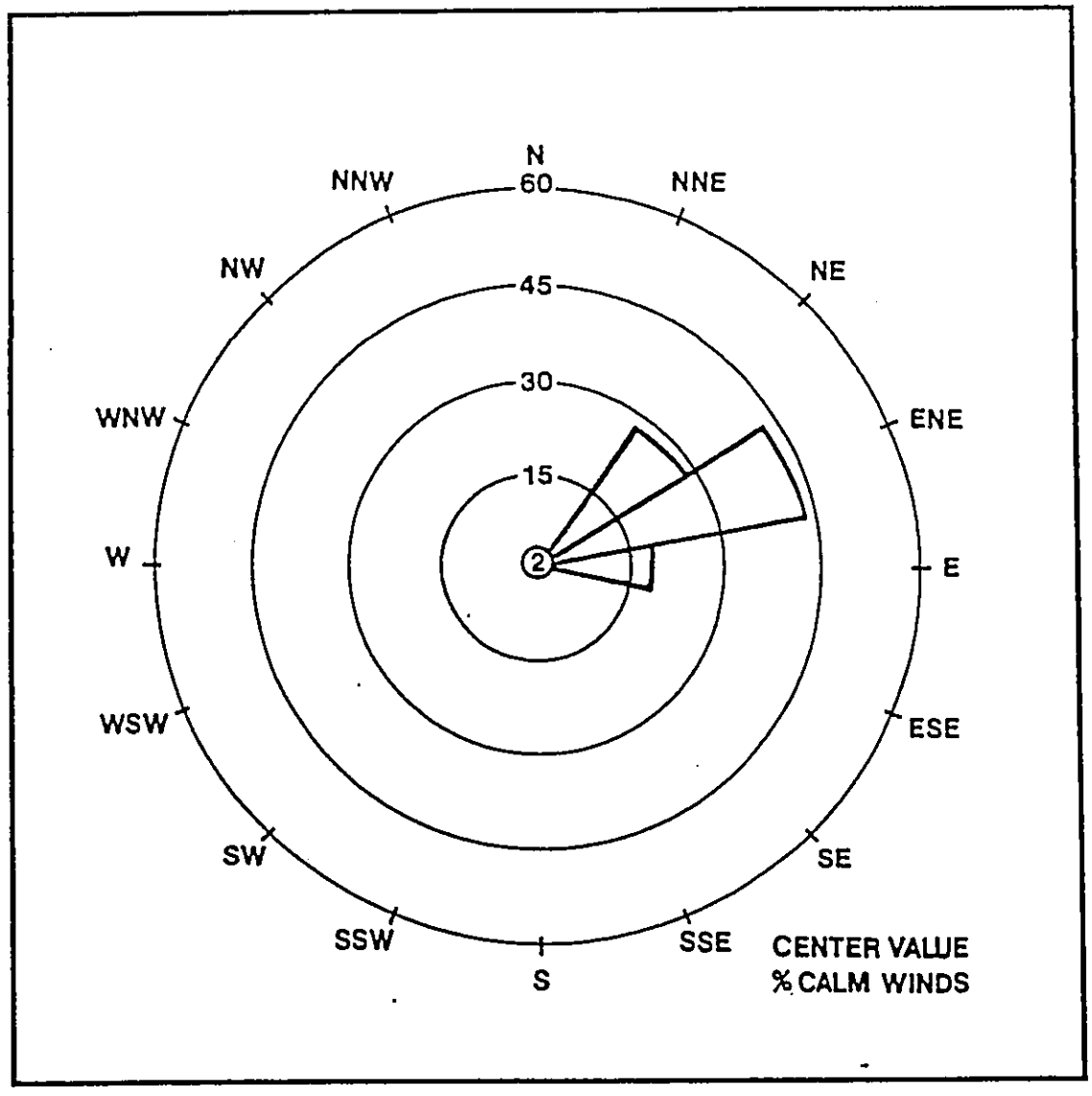
ANNUAL JOINT FREQUENCY DISTRIBUTION
OF WIND SPEED AND DIRECTION
HONOLULU INTERNATIONAL AIRPORT

Dir (deg)	Wind Speed (mph)						
	< 7	< 10	< 13	< 16	< 19	>/= 19	All
10	0.0065	0.0038	0.0023	0.0016	0.0009	0.0001	0.0151
20	0.0082	0.0041	0.0025	0.0023	0.0011	0.0001	0.0183
30	0.0100	0.0061	0.0051	0.0038	0.0028	0.0007	0.0286
40	0.0188	0.0157	0.0258	0.0222	0.0174	0.0040	0.1039
50	0.0268	0.0290	0.0449	0.0385	0.0307	0.0054	0.1752
60	0.0344	0.0289	0.0436	0.0273	0.0238	0.0041	0.1621
70	0.0250	0.0181	0.0197	0.0122	0.0096	0.0009	0.0855
80	0.0113	0.0081	0.0065	0.0039	0.0009	0.0003	0.0310
90	0.0073	0.0049	0.0040	0.0009	0.0008	0.0000	0.0179
100	0.0031	0.0016	0.0014	0.0006	0.0002	0.0000	0.0068
110	0.0027	0.0019	0.0010	0.0007	0.0005	0.0001	0.0069
120	0.0027	0.0013	0.0019	0.0009	0.0003	0.0003	0.0075
130	0.0022	0.0032	0.0018	0.0015	0.0007	0.0002	0.0096
140	0.0034	0.0033	0.0039	0.0018	0.0011	0.0006	0.0141
150	0.0022	0.0030	0.0019	0.0003	0.0002	0.0005	0.0081
160	0.0024	0.0033	0.0023	0.0010	0.0005	0.0000	0.0094
170	0.0031	0.0046	0.0023	0.0007	0.0003	0.0000	0.0109
180	0.0055	0.0042	0.0018	0.0008	0.0005	0.0000	0.0128
190	0.0065	0.0038	0.0013	0.0002	0.0000	0.0000	0.0117
200	0.0057	0.0032	0.0011	0.0001	0.0000	0.0000	0.0101
210	0.0076	0.0038	0.0016	0.0001	0.0000	0.0000	0.0131
220	0.0083	0.0077	0.0016	0.0001	0.0001	0.0000	0.0179
230	0.0076	0.0049	0.0014	0.0001	0.0001	0.0000	0.0141
240	0.0042	0.0016	0.0013	0.0000	0.0000	0.0000	0.0071
250	0.0040	0.0010	0.0003	0.0000	0.0000	0.0000	0.0054
260	0.0064	0.0023	0.0005	0.0000	0.0000	0.0000	0.0091
270	0.0065	0.0010	0.0005	0.0002	0.0000	0.0000	0.0082
280	0.0099	0.0005	0.0002	0.0000	0.0000	0.0000	0.0106
290	0.0123	0.0003	0.0002	0.0001	0.0000	0.0000	0.0130
300	0.0167	0.0018	0.0011	0.0000	0.0000	0.0000	0.0197
310	0.0235	0.0022	0.0015	0.0001	0.0000	0.0000	0.0272
320	0.0200	0.0022	0.0013	0.0006	0.0001	0.0000	0.0241
330	0.0121	0.0023	0.0011	0.0005	0.0000	0.0000	0.0159
340	0.0094	0.0010	0.0003	0.0001	0.0000	0.0000	0.0109
350	0.0082	0.0025	0.0016	0.0002	0.0000	0.0000	0.0125
360	0.0093	0.0027	0.0022	0.0006	0.0005	0.0001	0.0154
All	0.3537	0.1898	0.1917	0.1240	0.0932	0.0174	0.9698
						Calms:	0.0302

SOURCE: National Weather Service, 1992

FIGURE 4

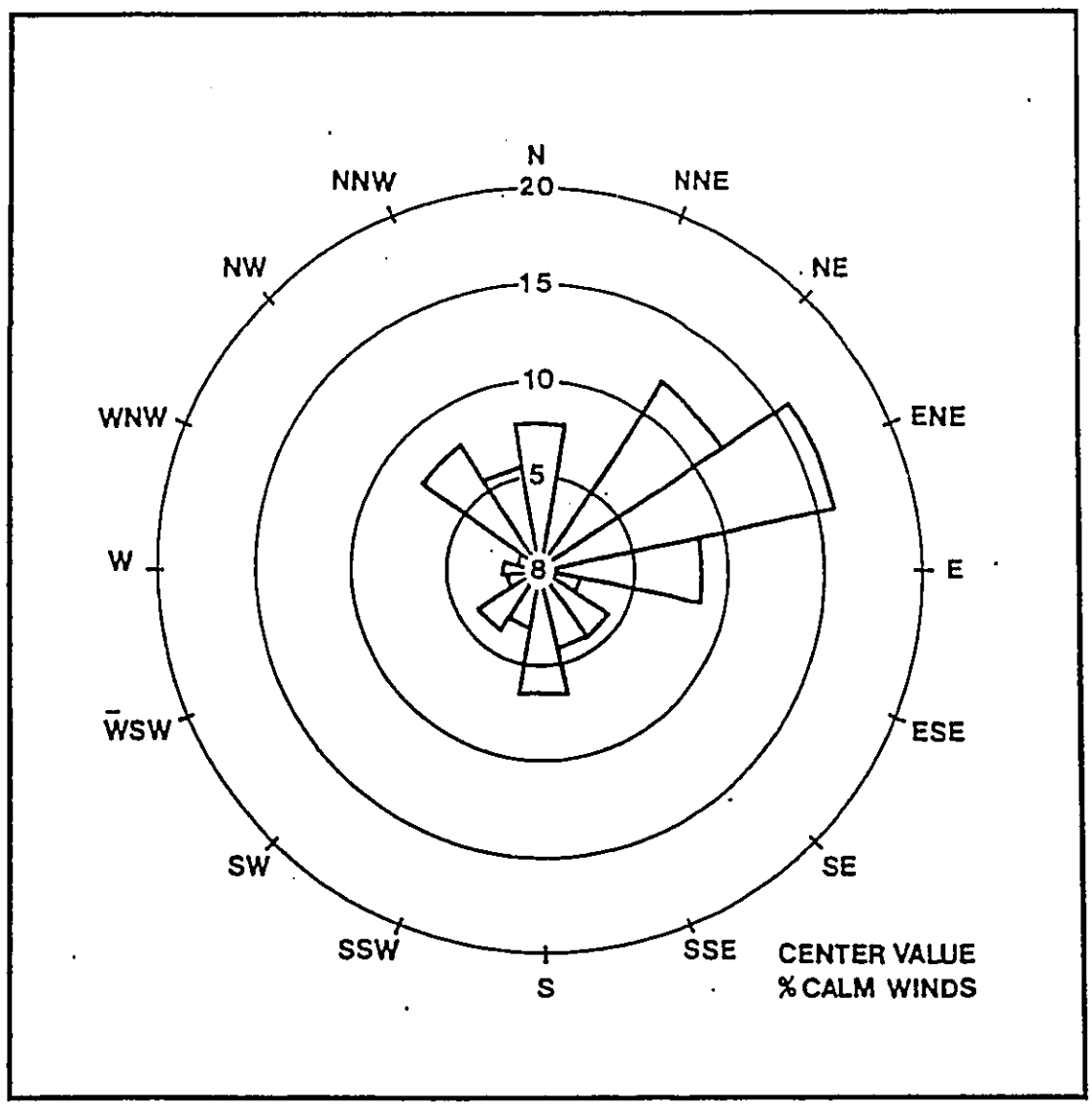
AUGUST WIND ROSE
HONOLULU INTENATIONAL AIRPORT



SOURCE: National Weather Service
Historical Records, 1940-57

FIGURE 5

JANUARY WIND ROSE
HONOLULU INTERNATIONAL AIRPORT



SOURCE: National Weather Service
Historical Records, 1940-57

construction vehicle traffic may at times cause a temporary reduction in average travel speeds with a concomitant increase in vehicle emissions due to the "stop and go" traffic conditions.

The site preparation and earth moving will create particulate matter emissions as will construction of the new roadways themselves. Construction vehicle movement on unpaved on-site areas will also generate particulate emissions. EPA studies on fugitive dust emissions from construction sites indicate that about 1.2 tons/acre per month of activity may be expected under conditions of medium activity, moderate soil silt content (30%), and a precipitation/ evaporation (P/E) index of 50 [11, 14].

5.2 Offsite Impacts. In addition to the onsite impacts attributable to construction activity, there will also be offsite impacts due to the operation of concrete and asphalt batching plants needed for construction of foundation slabs, sidewalks and roadways. Such plants routinely emit particulate matter and other gaseous pollutants; however. it is too early to identify the specific facilities that will be providing these materials and thus the discussion of air quality impacts is necessarily generic. The batch plants which will be producing this concrete and asphalt must be permitted by the Department of Health Clean Air Branch pursuant to state regulations [7]. In order to obtain these permits they must demonstrate their ability to continuously comply with both emission [7] and ambient air quality [3] standards. Under the federal Title V operating permit requirements [15], now incorporated in Hawaii's rules [7], air pollution sources must regularly attest to their compliance with all applicable requirements. A typical concrete batch plant in Hawaii is equipped with fabric filters, i.e., "baghouses" for particulate matter (PM) control. Similarly, a typical asphalt plant is equipped with either a wet venturi scrubber or fabric filters. The efficiency of such controls is normally 95 - 99%. With the approximately 5,000 tons

of asphalt and 17,000 cubic yards of concrete required for the project, we estimate particulate matter emissions at less than one ton from the plants producing those materials.

6. MOBILE SOURCE IMPACTS

6.1 Mobile Source Activity. The traffic impact assessment report [16] prepared for the proposed project served as the basis for this mobile source impact analysis. Existing and projected future peak-hour traffic volumes for the Meheula Parkway - Ainamakua Drive intersection were obtained from that report. This intersection was selected to represent the location of maximum potential impact because of its proximity to the H-2 Freeway on/off ramps which serve as the primary access to the Mililani Mauka development.

6.2 Emission Factors. Automotive emission factors for carbon monoxide (CO) were generated for calendar years 2001 and 2010 using EPA's Mobile Source Emissions Model (MOBILE-5B)[17]. To localize the emission factors as much as possible, an age distribution for registered vehicles in the City & County of Honolulu [18] was used in lieu of national statistics. That same age distribution was the basis for the distribution of vehicle miles traveled as well.

6.3 Modeling Methodology. Mobile source air quality modeling has historically focused on estimating concentrations of non-reactive pollutants, primarily carbon monoxide (CO). This has been the case because CO is relatively stable in the atmosphere having a half-life on the order of about one (1) month,[19] and it comprises the largest fraction of automotive emissions. [17]

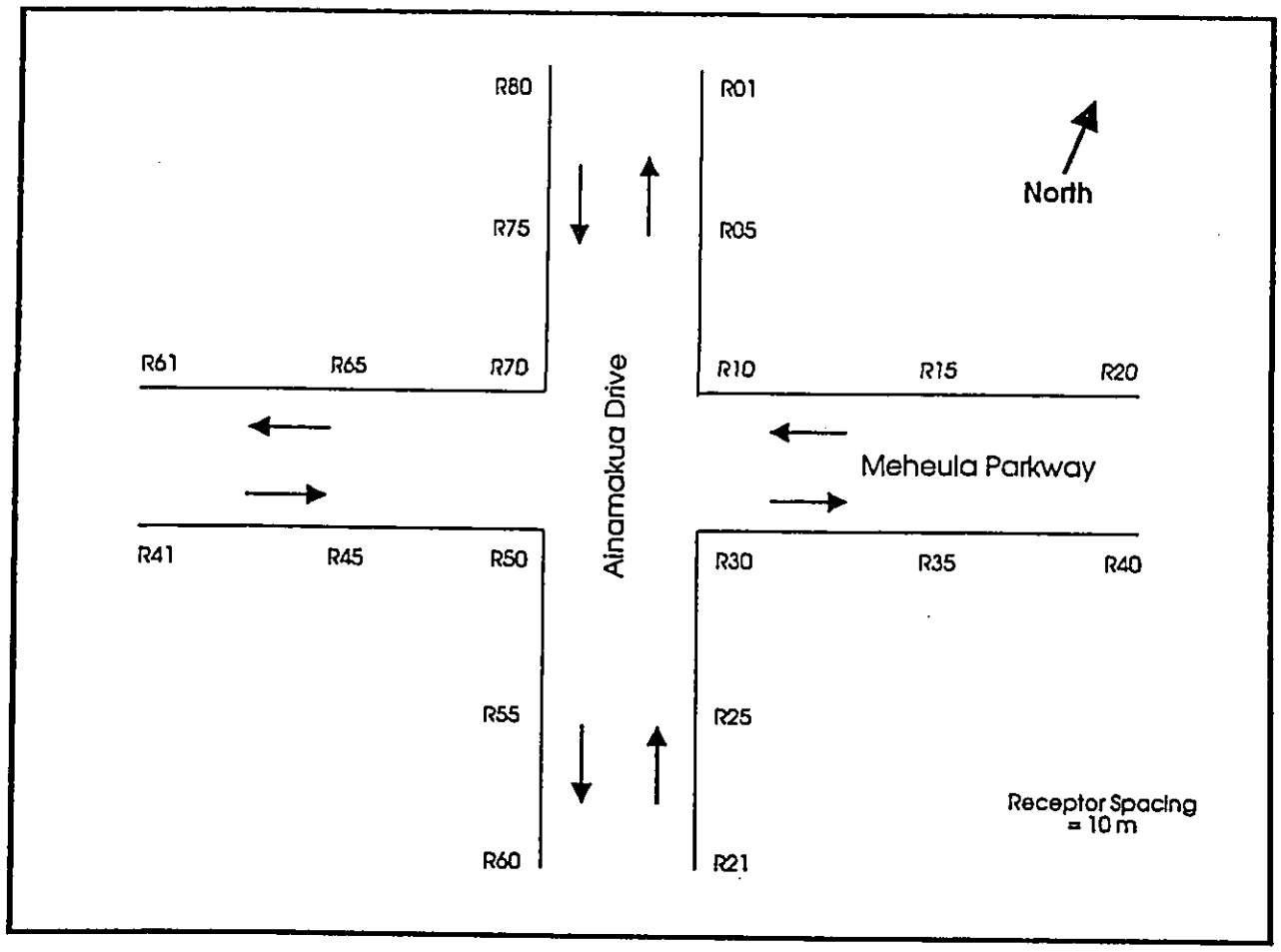
Using the traffic data provided, modeling was performed for the aforementioned intersections for 2001 and 2010 (with and without the project). The EPA guideline model CAL3QHC [20, 21] was employed to estimate near-intersection carbon monoxide concentrations. Arrays of receptor sites were located at a distance of 10 meters from the road edge along each leg of the intersection and entered in the model. A background concentration of 1.5 mg/m^3 from the Department of Health's 1999 monitoring data was used as the background concentration in the modeling. A one (1) meter per second wind speed was used in accordance with EPA guidance,[22] for both a.m. and p.m. peak hour analyses. Stability category 6 ("F") was used for a.m. peak hours and category 4 ("D") for p.m. peak hours due to the suburban nature of the area.

6.4 Results: 1-Hour Concentrations. The results of this modeling are presented in Figure 6. The figure depicts the locations of the 10-meter receptor sites around the intersection. Maximum estimated concentrations in milligrams per cubic meter (mg/m^3) for each of the evaluated scenarios are also presented along with the particular receptor location at which they were predicted.

The results suggest that, under *worst case* conditions of meteorology and traffic, both the federal and state 1-hour CO standards would be met at receptor locations 10 meters and beyond from the studied intersection.

FIGURE 6

ESTIMATES OF MAXIMUM 1- AND 8-HOUR CARBON MONOXIDE CONCENTRATIONS
Meheula Parkway at Ainamakua Drive
Peak Traffic Hours
2001 - 2010



Estimated Maximum CO Concentrations
(mg/m^3)

Period	Existing	2010 w/Project	Receptors
A.M.	7.3	9.8	R21/39/40
P.M.	5.9	8.1	R38/39
8-Hr	3.1	4.1	R21/39/40

6.5 Results: 8-Hour Concentrations. Since 1975, when EPA first published its guideline for indirect source analysis,[23] 8-hour CO concentrations have been estimated from maximum 1-hour values using a "persistence" factor. This factor is based on the relationship between 1-hour and 8-hour traffic as well as variable meteorological conditions over an 8-hour period. In this instance a persistence factor of 0.42 was computed from DOH 1-hour and 8-hour monitoring data (1999).[9] The 8-hour values presented in Figure 6 were generated by applying this value to the higher of the a.m. or p.m. peak 1-hour CO concentration. The results are similar to the 1-hour findings in that compliance with state and federal standards is indicated.

7. OFFSITE STATIONARY SOURCE IMPACTS

7.1 Electrical Generation. The estimated one million kilowatt hours (kwhrs) of annual electrical demand by the project will necessitate the generation of electricity by power plants. Currently, most of Oahu's electrical energy is generated by Hawaiian Electric Company's oil-fired plants at Kahe Point and Waiau. These units fire low sulfur (0.5%) fuel oil. The estimated emissions resulting from fuel burned to provide the power needed by the project are presented in Table 5.

7.2 Solid Waste Disposal. The refuse generated by the residents of the proposed residential units will also require disposal. Historically, about 80% of Oahu's refuse was being landfilled with the remaining 20% being burned at the former Waipahu Incinerator. With the opening of the City's resource recovery facility (HPOWER) at Campbell Industrial Park some years ago, most refuse is now being

pre-processed and burned leaving less mass to be landfilled. Estimates of annual emissions attributable to the combustion of refuse from the proposed development are included in Table 5.

TABLE 5

ESTIMATES OF ANNUAL EMISSIONS
FROM OFFSITE STATIONARY SOURCES

Pollutant	Emissions (T/yr)	
	Electrical Generation	Solid Waste Disposal
Sulfur dioxide (SO_2)	2.8	0.18
Nitrogen oxides (NOx)	1.7	0.87
Particulate matter (PM)	0.20	0.073
Carbon monoxide (CO)	0.18	0.76
Volatile organic compounds (VOC)	0.027	0.045

8. CONCLUSIONS AND MITIGATION

8.1 Short-Term Impacts. Since, as noted above, the project area is considered subhumid by Thornwaite's climatic classification system with a P/E index slightly higher than that associated with the EPA fugitive dust emission factor, there appears to be a somewhat lesser potential for fugitive dust. Nevertheless, because of the proximity of existing residential areas, it will be very important to employ

adequate dust control measures during the construction period, particularly during the drier summer months. Dust control could be accomplished through frequent watering of unpaved roadways and areas of exposed soil. The EPA estimates that twice daily watering can reduce fugitive dust emissions by as much as 50% [14]. The soonest possible paving of roadways and landscaping of adjacent areas will also help.

Short-term air quality impacts due to offsite activities supporting the proposed development, i.e., concrete and asphalt production, appear to be *de minimus* due to the limited materiel requirements and the small quantity of emissions associated with the materiel production. Furthermore, any emissions will be strictly regulated by the Department of Health permit which each batch plant must have in order to operate.

8.2 Mobile Source Impacts. As reported in Section 6, compliance with federal and state carbon monoxide standards is demonstrated under *worst case* conditions of meteorology and peak hour traffic; thus, no special mitigative measures are required.

8.3 Offsite Stationary Source Impacts. The increased offsite emissions associated with the new homes in Phase III represent small additional increments relative to island-wide emissions. Assuming that these residential units are necessary to accommodate a growing population, those emissions would occur regardless of where the new homes were built on Oahu.

Besides the federal and state air pollution control requirements which will mitigate emissions at the offsite sources themselves, additional mitigation can be accomplished by both the homebuilder and homeowner. Installation and use of energy efficient appliances and solar water heaters can sharply reduce electrical demand and its associated emissions. Use of recyclable materials and composting of organic wastes can reduce the quantities of solid waste going to the HPOWER facility and thus its emissions.

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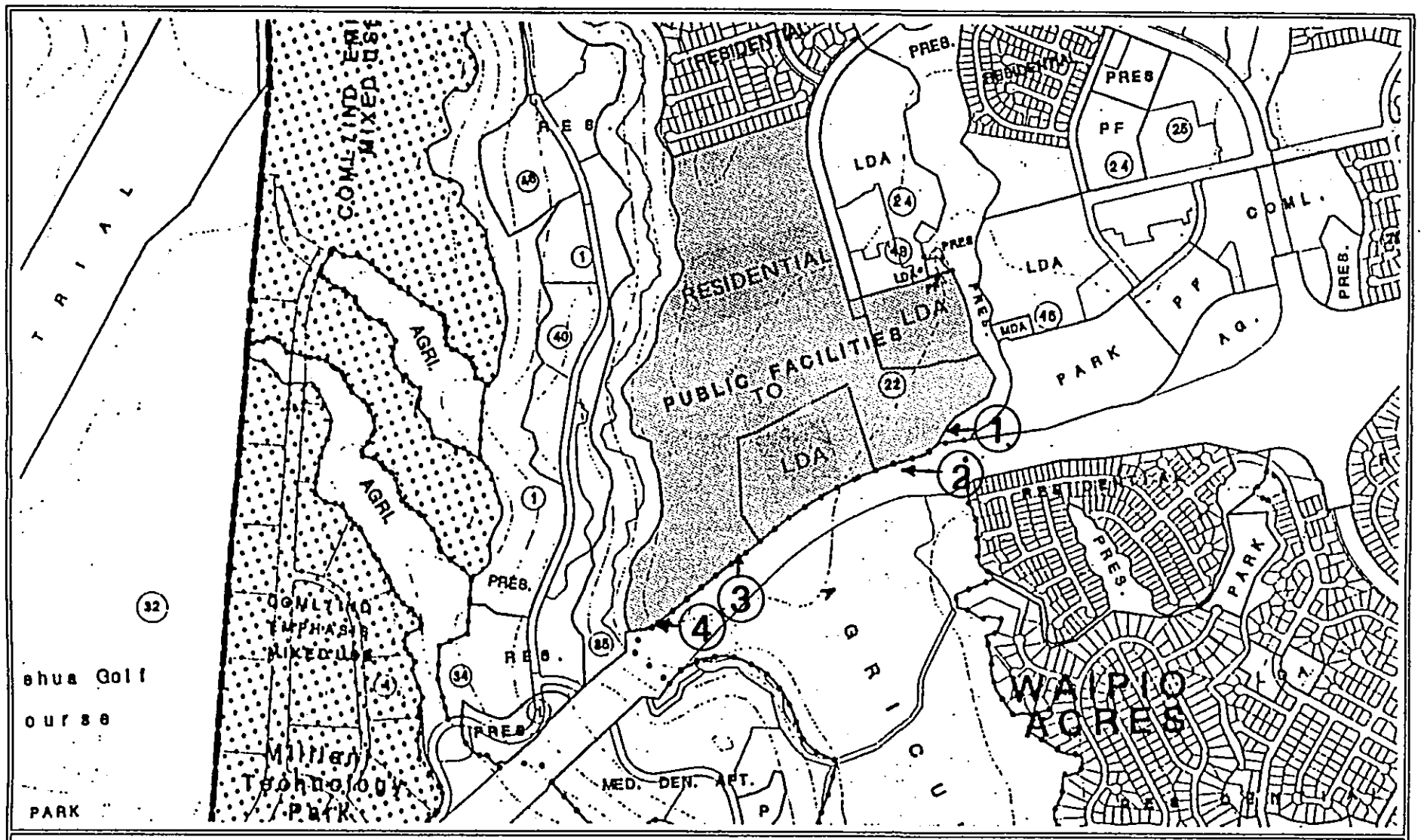
22. U. S. Environmental Protection Agency. *Guideline for Modeling Carbon Monoxide from Roadway Intersections*, EPA-454/R-92-005, November 1992.

23. U. S. Environmental Protection Agency. *Guidelines for Air Quality Maintenance Planning and Analysis, Volume 9: Evaluating Indirect Sources*, EPA-450/4-75-001, January 1975.

APPENDIX VI

PHOTOS - H-2 FREEWAY



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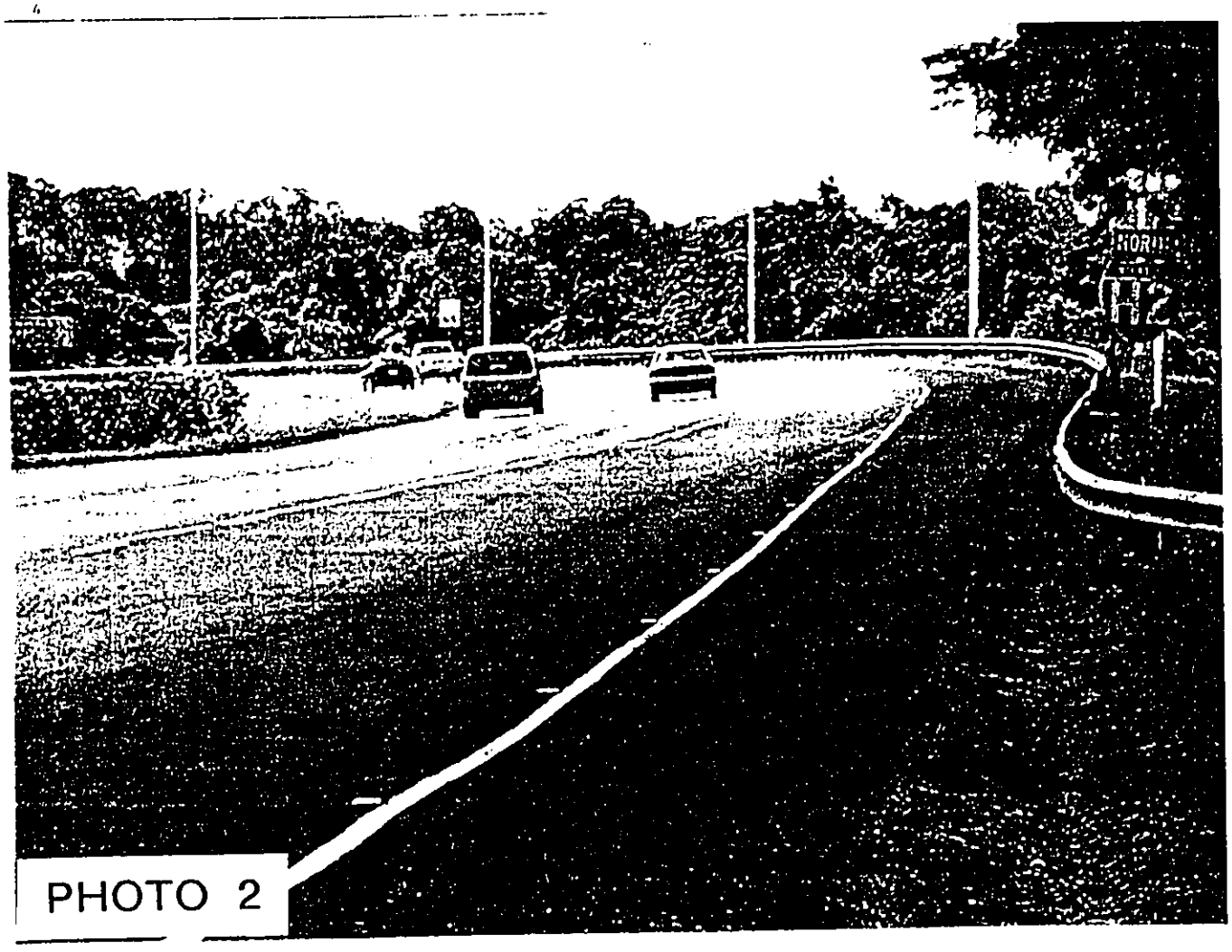
SCALE IN. FEET

NORTH

PHOTO LEGEND

PROPOSED
DEVELOPMENT PLAN
LAND USE MAP

PHOTO 1



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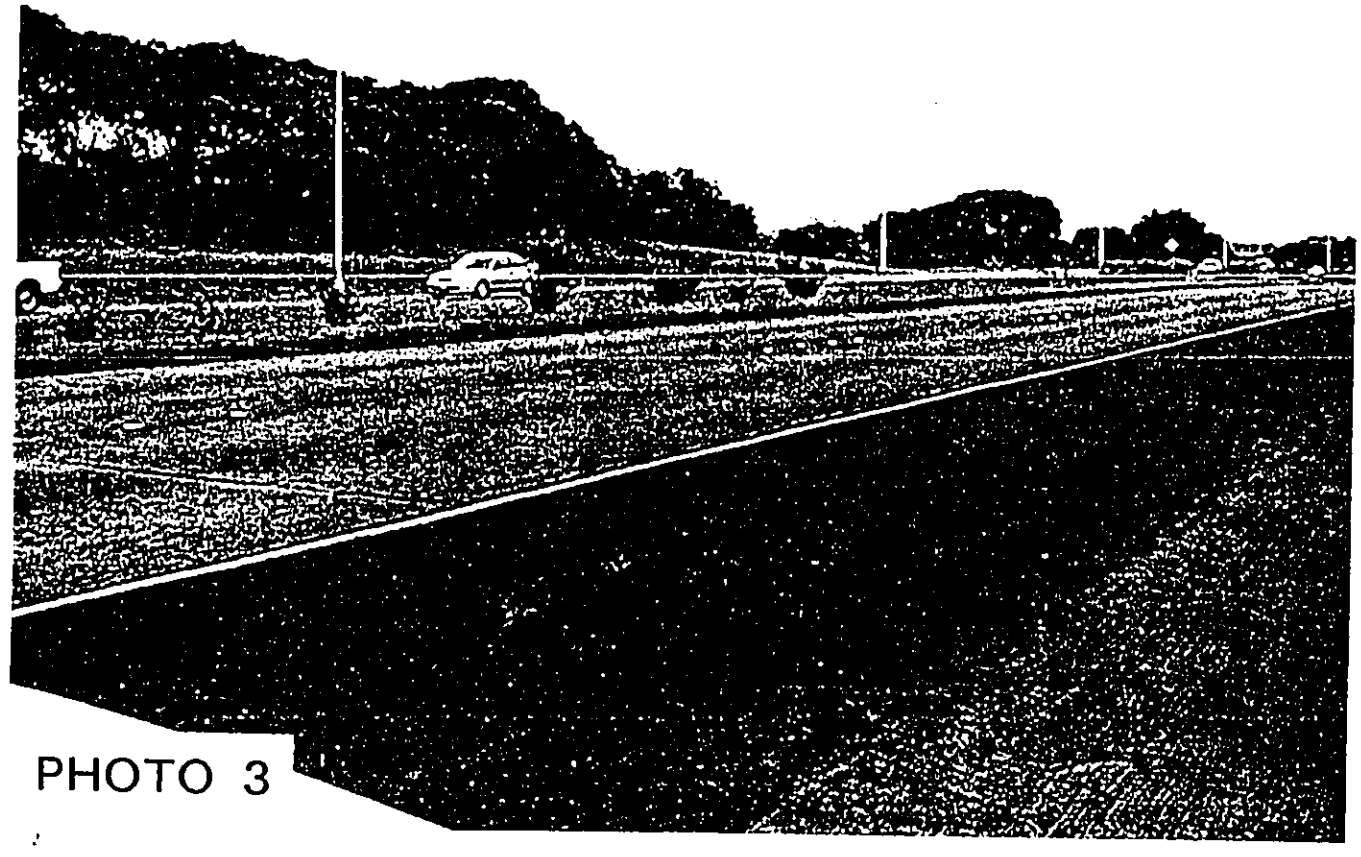

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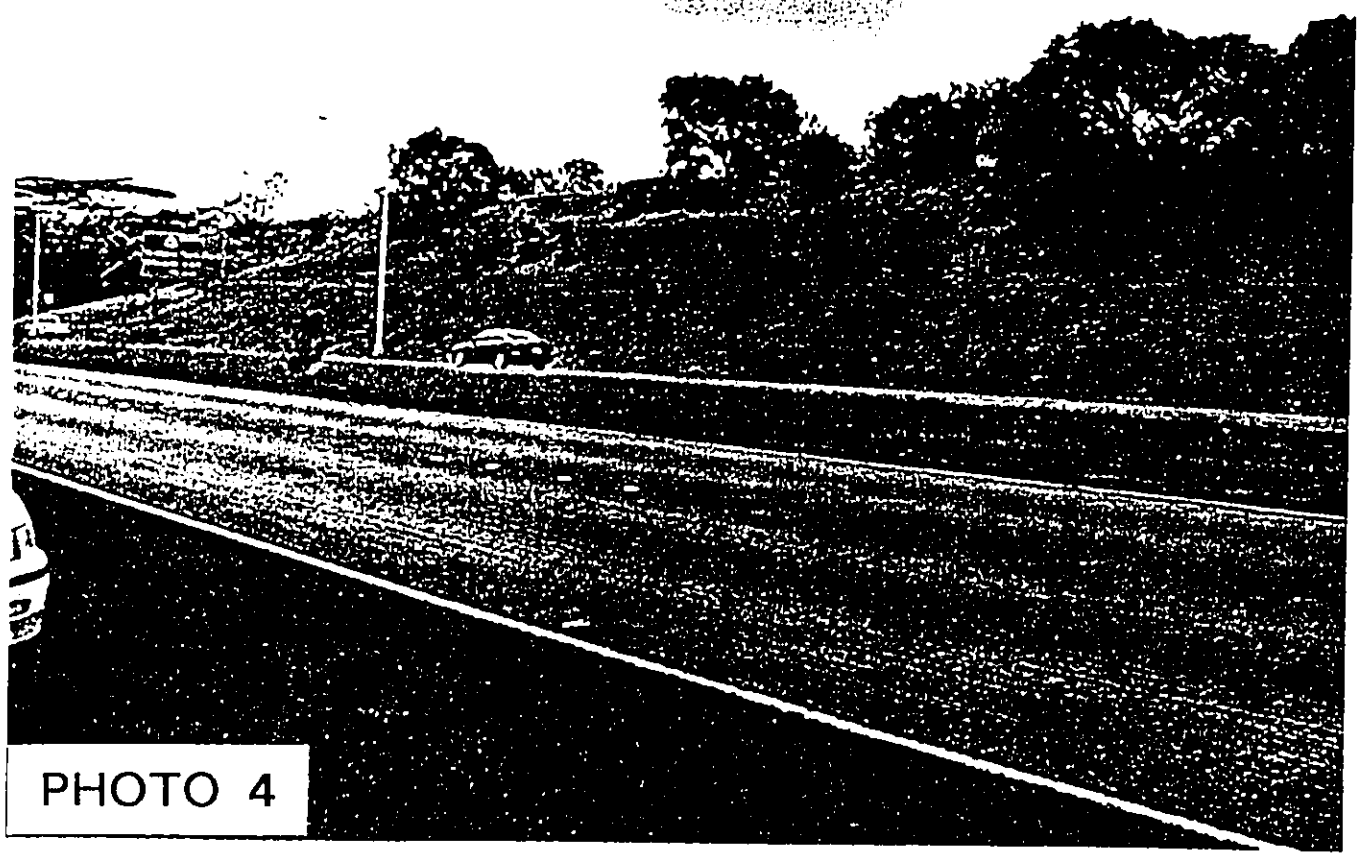
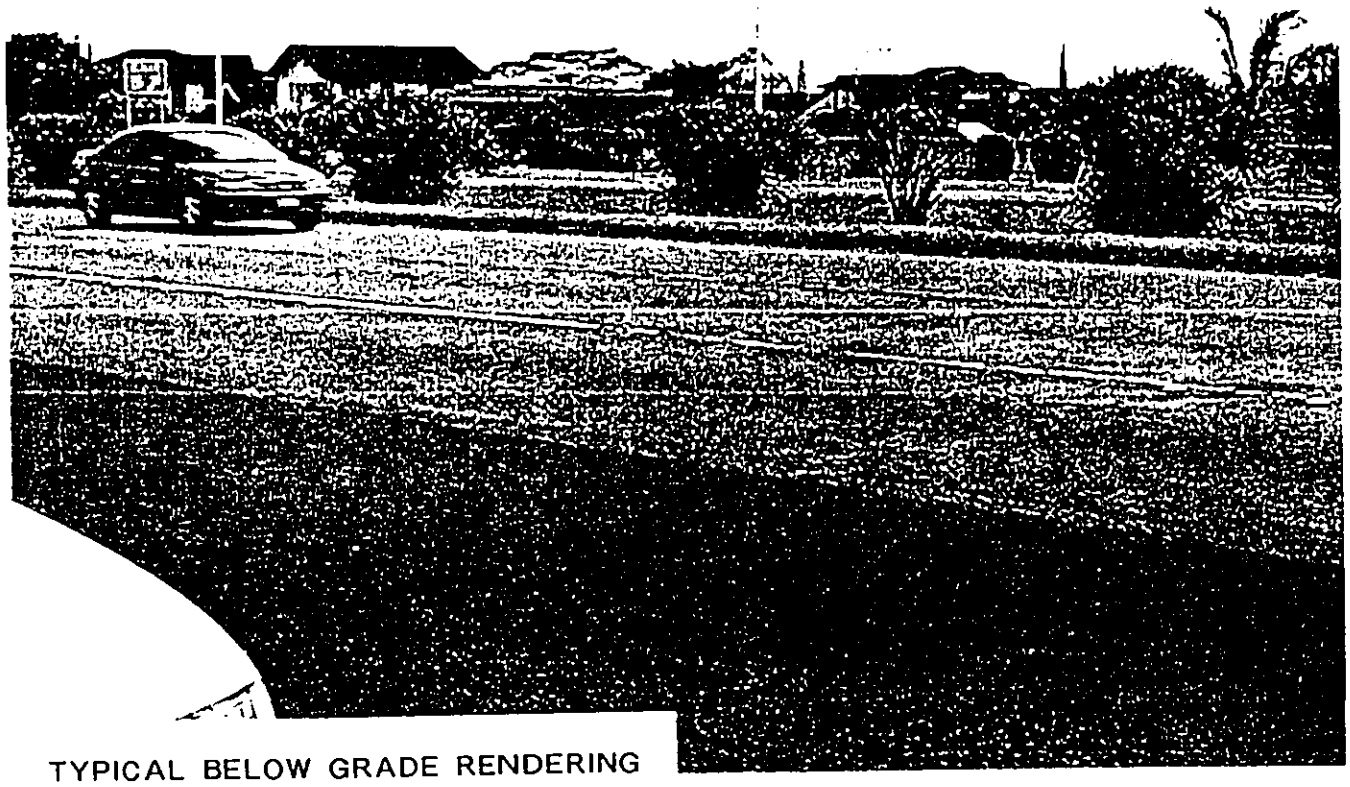
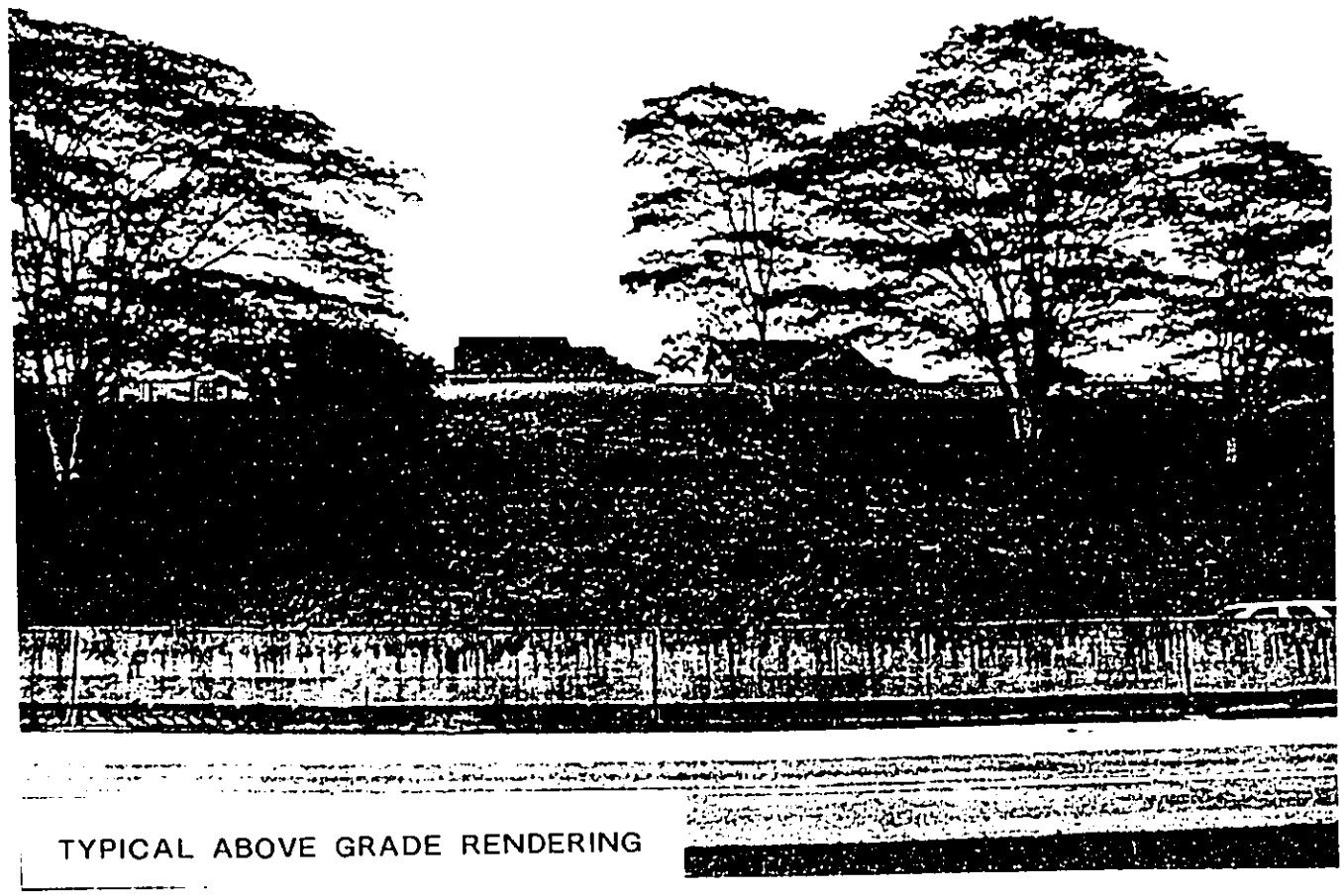


PHOTO 4



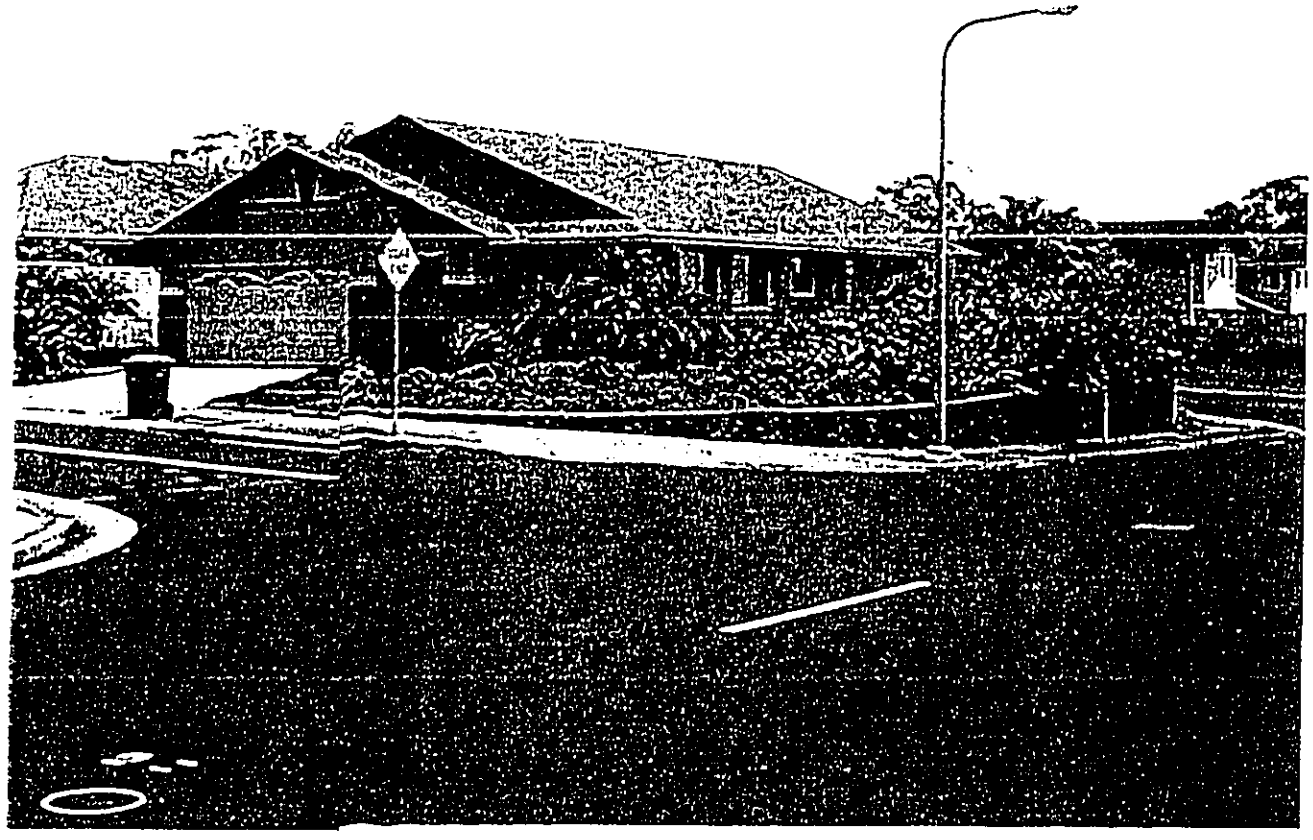
TYPICAL BELOW GRADE RENDERING

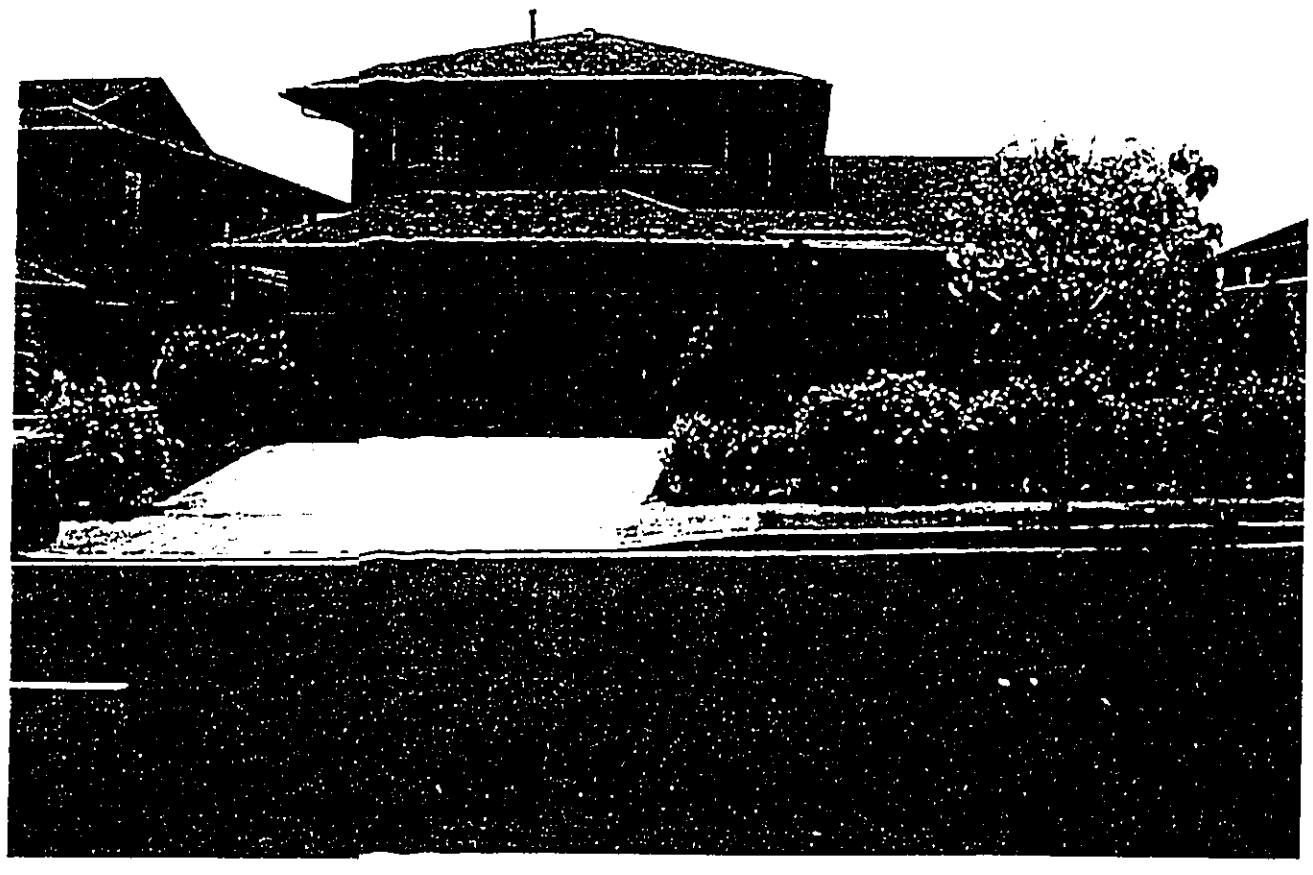


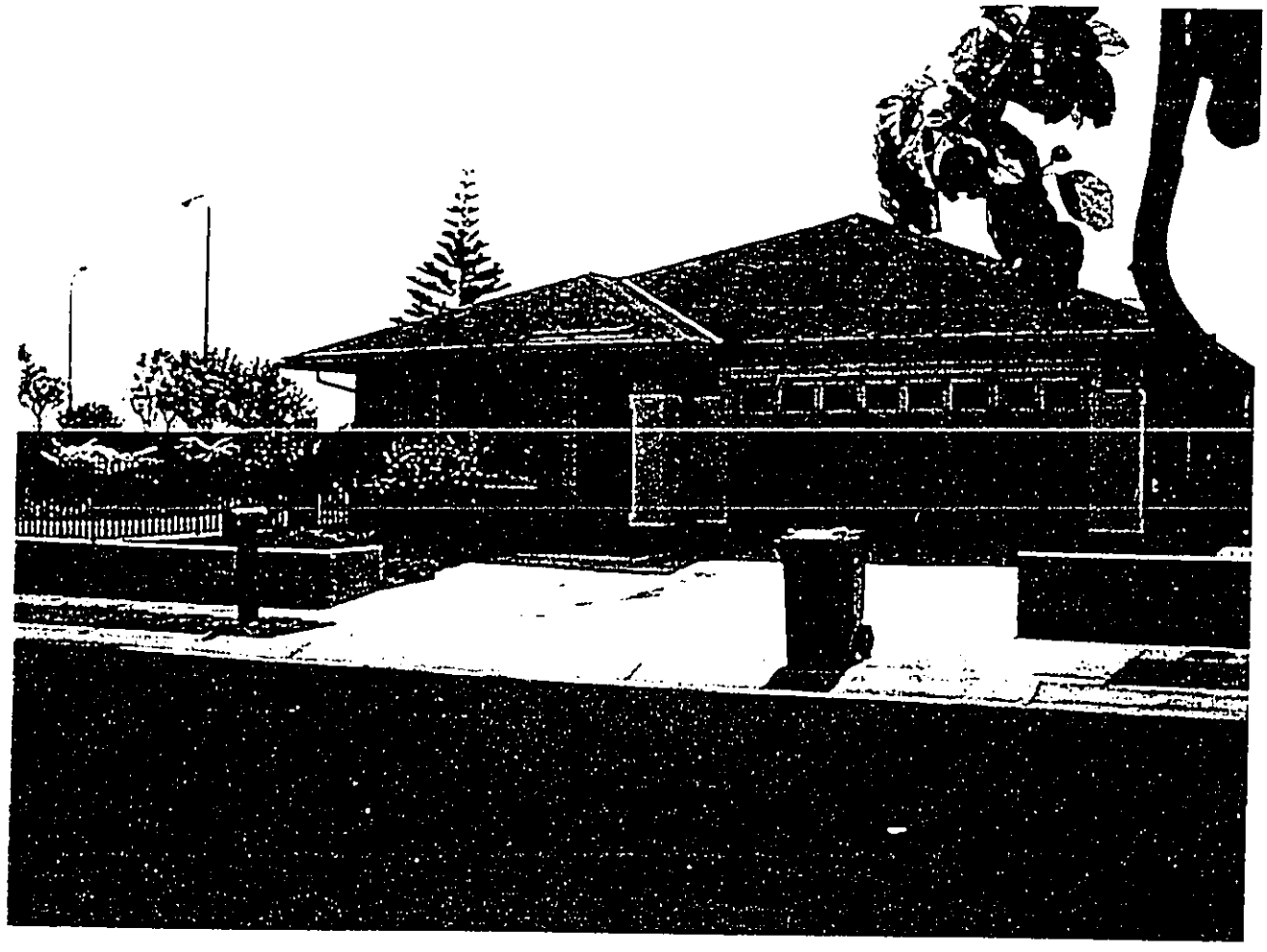
TYPICAL ABOVE GRADE RENDERING

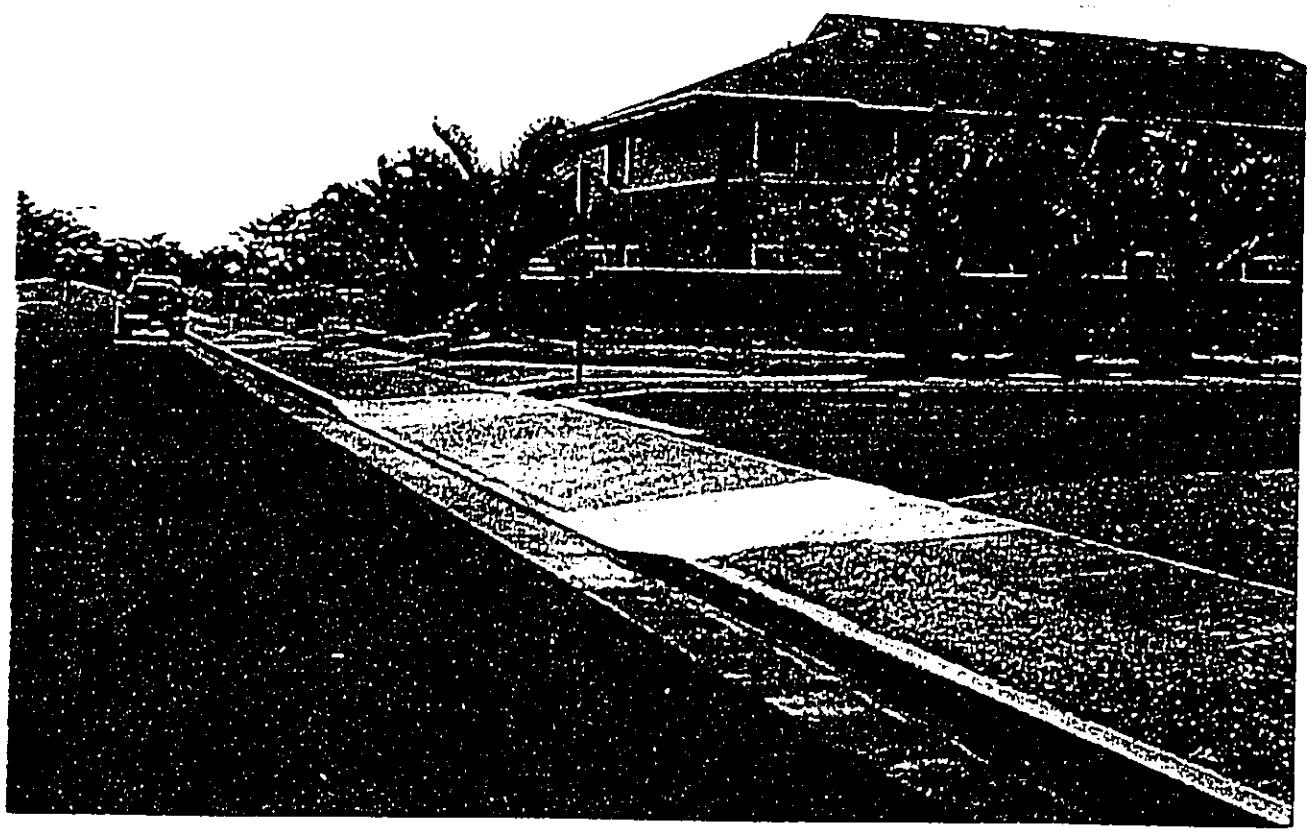
APPENDIX VII

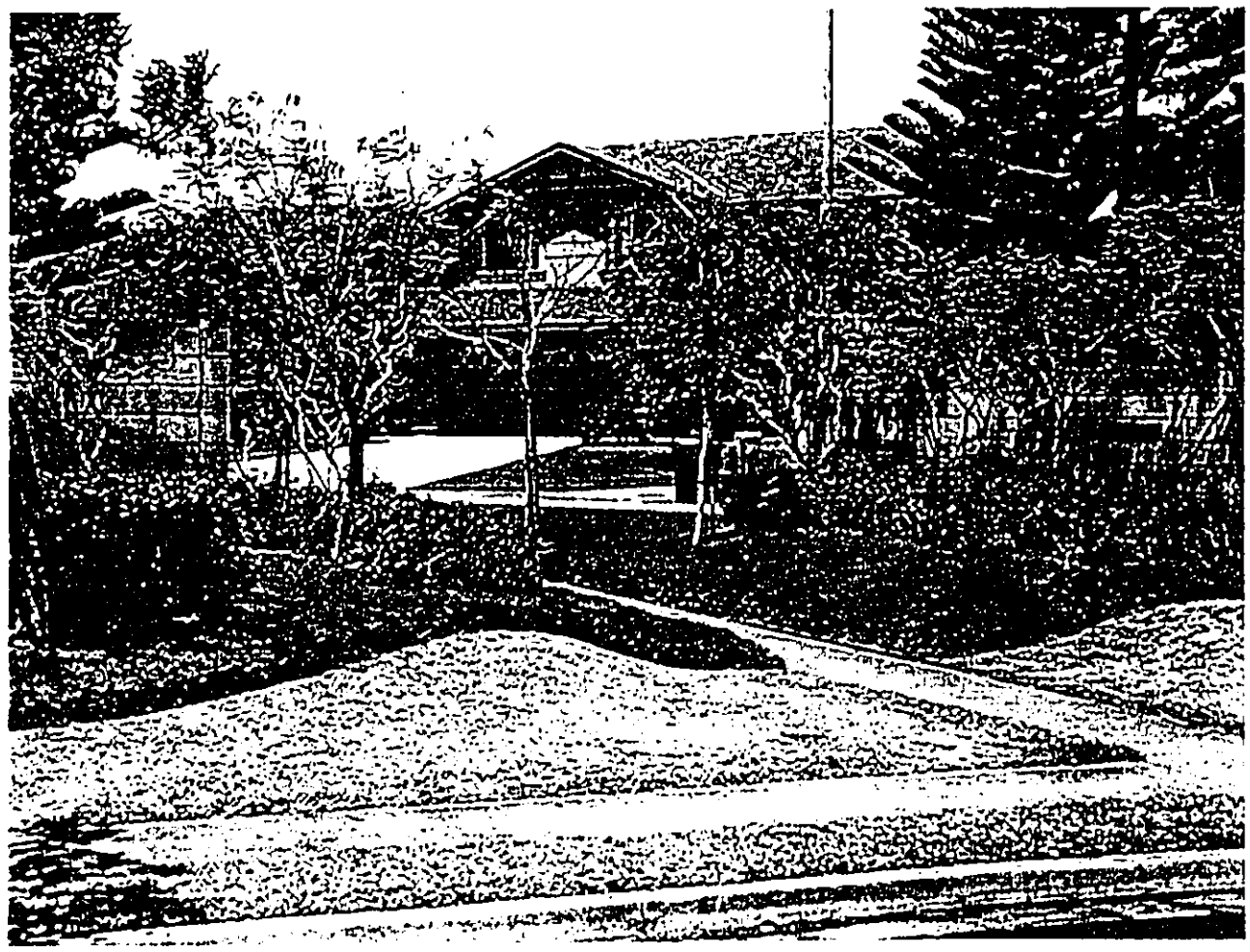
PHOTOS - BUILDING DESIGN AND LANDSCAPING











APPENDIX VIII

CULTURAL IMPACT ASSESSMENT

A Traditional Practices Assessment for the Proposed Mililani Mauka Phase III Development in Waipi`o *Ahupua`a* `Ewa District, Island of O`ahu (TMK 9-05-49:portion of 27)

by

Kristina W. Bushnell, B.A.

and

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Prepared for

Kusao & Kurahashi, Inc.

Cultural Surveys Hawaii
June 2001

ABSTRACT

A traditional practices assessment for the proposed Mililani Mauka Phase III Development was requested by Kusao & Kurahashi, Inc. The approximately 100-acre proposed Mililani Mauka Phase III project area is located in the Mililani area in the *ahupua`a* of Waipi`o and Waikele, `Ewa District, island of O`ahu (TMK: 9-5-49: portion of 27). The parcel is situated adjacent to and just north of the H-2 Freeway and adjacent to and just south of Waikakalua Gulch.

This study examined the potential impact the proposed project might have on traditional cultural practices: burials, religious sites, archaeological sites, historic properties, pre-historic and historic trails, hunting and gathering for cultural resources. Two formal interviews were conducted as part of this study. Based on the history of the land use, talk-story with community members and interview informants,three traditional practices have been indicated in relation to the project area: native hunting practices, native plant gathering, and practices involved with a cultural site known as O`ahunui.

Most directly, the development may impact gathering of native plants within the study parcel, or directly outside of the property on the gulch edge. The impact may be not only on the possible destruction of such plants, but the denial of access to gather such plants. The Waikakalaua Gulch and areas along the rim of the gulch, including the project area boundary, have traditionally been used for plant gathering by one of the interviewees and his family. Plants harvested include *`a`ali`i, pūkiawe, lehua* and various ferns. The specific plant species indicated as the focus of traditional cultural practices are relatively common in undisturbed lands in the vicinity of the project area. The area of concern in which traditional gathering practices are operative appears to be quite limited within the present project area to a previously undisturbed area on the northern margin along Waikakalaua Gulch. This native gathering concern is understood to relate to much less than 10% of the project area.

While this study did identify access for pig hunting and pig hunting as issues in the Mililani Mauka area in general, it did not identify these as issues specifically in the project area. A hunter who was interviewed claimed that most of the hunting grounds, both used traditionally and presently are in the *mauka* regions of Waikakalaua and Kīpapa, up the stream valleys. The development of the present study area would not appear to restrict access to these prefered hunting areas.

There is evidence that O`ahunui, a cultural site located in the adjacent Waikakalaua Gulch has cultural practitioners. This study has developed a substantial body of information pertaining to O`ahunui which is regarded by some Hawaiians as an area of historic and spiritual significance. This study documents the concern of certain individuals for a buffer zone on the top of the gulch as part of a transition into the cultural site of O`ahunui. It should be made clear that the cultural site of O`ahunui, while understood variously, is not understood by us to lie within the present project area. There is no consensus at this time regarding the appropriate size and nature of a buffer zone for such cultural sites. It has been suggested that the Wahiawā Hawaiian Civic Club be consulted regarding this matter of a buffer zone for the O`ahunui site.

Note: Throughout this report the spelling of Hawaiian vocabulary and place names has been standardized to present orthography.

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I. INTRODUCTION

At the request of Kusao & Kurahashi, Inc., Cultural Surveys Hawai`i (CSH) conducted a Traditional Practices Assessment of an approximately 100 acre parcel for the proposed residential development of the Mililani Mauka Phase III development.

The purpose of this Traditional Practices Assessment is to consider the effects the proposed development may have on native Hawaiians as it pertains to cultural practices and their right to practice traditional customs. The Hawai`i State Constitution, Article XII, Section 7 protects "all rights" of native Hawaiians that are "customarily and traditionally exercised for subsistence, cultural and religious purposes".

This assessment is meant to be informational for the purpose of disclosing any impacts the proposed development might have on native Hawaiian culture and to meet the requirements of the Office of Hawaiian Affairs (OHA), the Office of Environmental and Quality Control and any other state and county agencies involved in the review process for the proposed development.

In 1997, the Office of Environmental and Quality Control issued Guidelines for Assessing Cultural Impacts. The Guidelines discuss the types of cultural practices and beliefs that might be assessed.

> The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs. The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both man-made and natural, including submerged cultural resources, which support such cultural practices and beliefs.

It should be remembered that these are "suggested" guidelines and not actual law.

Most recently, H. B. No. 2895 was passed by the 20th Legislature, and approved by Governor Cayetano as Act 50 on April 26, 2000. The bill acknowledges that

> ". . . the past failure to require native Hawaiian cultural impact assessments has resulted in the loss and destruction of many important cultural resources and has interfered with the exercise of native Hawaiian culture. The legislature further finds that due consideration of the effects of human activities on native Hawaiian culture and the exercise thereof is necessary to ensure the continued existence, development, and exercise of native Hawaiian culture."

This bill makes it clear that ". . . environmental assessments or environmental impact statements should identify and address effects on Hawai`i's culture, and traditional and customary rights."

A. Scope of Work

In addressing Hawaiian customary and traditional rights and their applicability to the project area, the following scope of work was followed:

1) Examination of historical documents, Land Commission Awards, historic maps, with the specific purpose of identifying traditional Hawaiian activities including gathering of plant, animal and other resources or agricultural pursuits as may be indicated in the historic record.

2) A review of the existing archaeological information pertaining to the sites on the property as they may allow us to reconstruct traditional land use activities and identify and describe the cultural resources, practices and beliefs associated with the parcel, and identify present uses, if appropriate.

3) Conduct oral interviews with persons knowledgeable about the historic and traditional practices in the project area and region. We anticipate 3-4 formal interviews and possibly more informal interviews plus coordination with relevant community groups.

4) Preparation of a report on items 1-3 summarizing the information gathered related to traditional practices and land use. The report will assess the impact of the proposed action on the cultural practices and features identified.

B. Methodology

Historical documents and maps were researched at the Hawai`i State Archives, Hawaii State Survey Office (DLNR), the Bernice Pauahi Bishop Museum Archives, and the library of Cultural Surveys Hawaii.

Hawaiian organizations, agencies and community members were contacted in order to identify potentially knowledgeable individuals with cultural expertise and/or knowledge of the project area and the surrounding vicinity. These agencies and organizations include the Office of Hawaiian Affairs, the Wahiawā Hawaiian Civic Club, Mililani Area Elementary Schools (*Kūpuna* Programs), Mililani Public Library, and the State Historic Preservation Division.

Identification of Knowledgeable Interview Informants

Hawaiian organizations and community members were contacted to identify types of cultural practices and current users of Mililani Mauka. As a result, several names of community members were mentioned over and over again as people who might be knowledgeable about cultural practices at Mililani Mauka.

The Interview Process

As partial fulfillment for the Scope of Work (SOW), formal, two taped interviews were conducted with three cultural practitioners two of whom currently frequent the Waikakalaua Gulch for cultural practices and one who uses areas *mauka* of the project area for cultural practices. Formal consent has not yet been received from the interviewees for the use of the interview and until this is done, their testimony cannot be used.

II. DESCRIPTION OF THE PROJECT AREA AND TRADITIONAL CUSTOMS AND PRACTICES REGION

A. Project Area

Mililani Mauka Phase III is located in the Mililani area (Figures 1-3), *ahupua`a* of Waipi`o and Waikele, `Ewa District, island of O`ahu (TMK: 9-5-49: portion of 27). Situated adjacent to and just north of the H-2 Freeway, Mililani Mauka Phase III is part of the development plan for the area known today as "Mililani Mauka". To the north and west of the project area is the Waikakalaua Gulch and the Schofield Barracks Military Reservation. East of the project area is a small finger gulch, part of Castle & Cooke lands. Northeast of the project area is a residential development, a former phase of Mililani Mauka (Figures 1-3).

The 100 acre parcel extends from just north of the H-2 Freeway to approximately 860 ft elevation. Average annual rainfall in the project area vicinity ranges from 40-60 inches (Foote *et al.*, 1972: 124). The gently sloping portion of the project area contains soils classified as Wahiawā and Leilehua silty clays which are well-drained soils derived from weathered igneous rock and weathered alluvium (Foote *et al.*, 1972: 81, 124). Pockets of Manana silty clay loams line the Waikakalaua Drainage and these are also described as well-drained soils derived from weathered igneous rock (Foote *et al.*, 94).

Approximately 20 acres of the southern portion of the project area has been utilized in the past as a tree farm for the Mililani Town Association. This area borders H-2 Freeway. The central portion of the study parcel has been used as a storage area for large amounts of soil, apparently excess soil from grading during past development stages of the Mililani Mauka Community. The project area is accessed from Ukuwai Street and the location of the Castle & Cooke Field Office.

The project area is located on plateau land overlooking Waikakalaua Gulch. The study parcel extends to the edge of the gulch. Waikakalaua Gulch drops approximately 100 feet from the study parcel to the Waikakalaua Stream and the development below, Launani Estates. Along the gulch border, the slope into the gulch is fairly precipitous, however there are places where the gulch can be accessed from the study parcel.

Evidence of former pineapple cultivation still exists on the study parcel in the form of old pineapple stems which are strewn on the ground. The vegetation in the project area represents mostly second growth alien species. These include introduced grass interspersed with scattered trees such as the African Tulip (*Spathodea campanulata*), Cocklebur (*Xanthium* sp.), Christmas Berry (*Schinus terebinthifolius*), Koa-Haole (*Leucaena glauca*), and Guava (*Psidium guajava*). Along the gulch edge, there are Christmas Berry, Albizia (*Albizia lebbeck*), Lantana (*Lantana camara*), Java Plum (*Eugenia cuminii*), and large stands of strawberry guava or *waiawi* (*Psidium cattleianum*). Several native Hawaiian plants can also be found growing along the gulch edge, some located within the boundaries of the study property and some located outside. The native Hawaiian plants include *a`ali`i* (*Dodonea viscosa*), *koa* (*Acacia koa*), *`iliahi* (*Santalum* spp.), *`ūlei* (*Osteomeles*

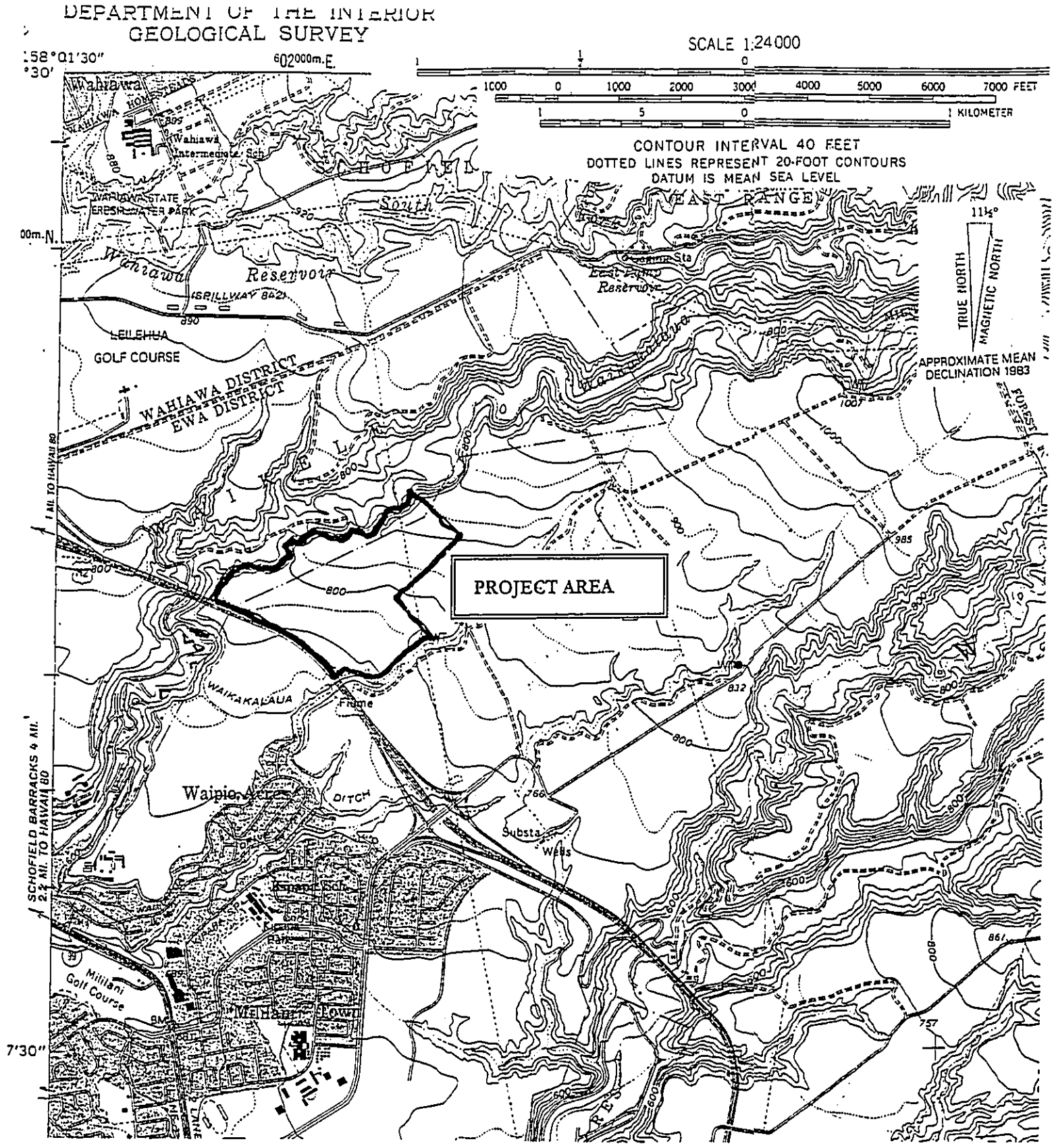


Figure 1 Portions of (1983) USGS Topographial Map (7.5 Minute Series), Waipahu Quad including the location of the project area.

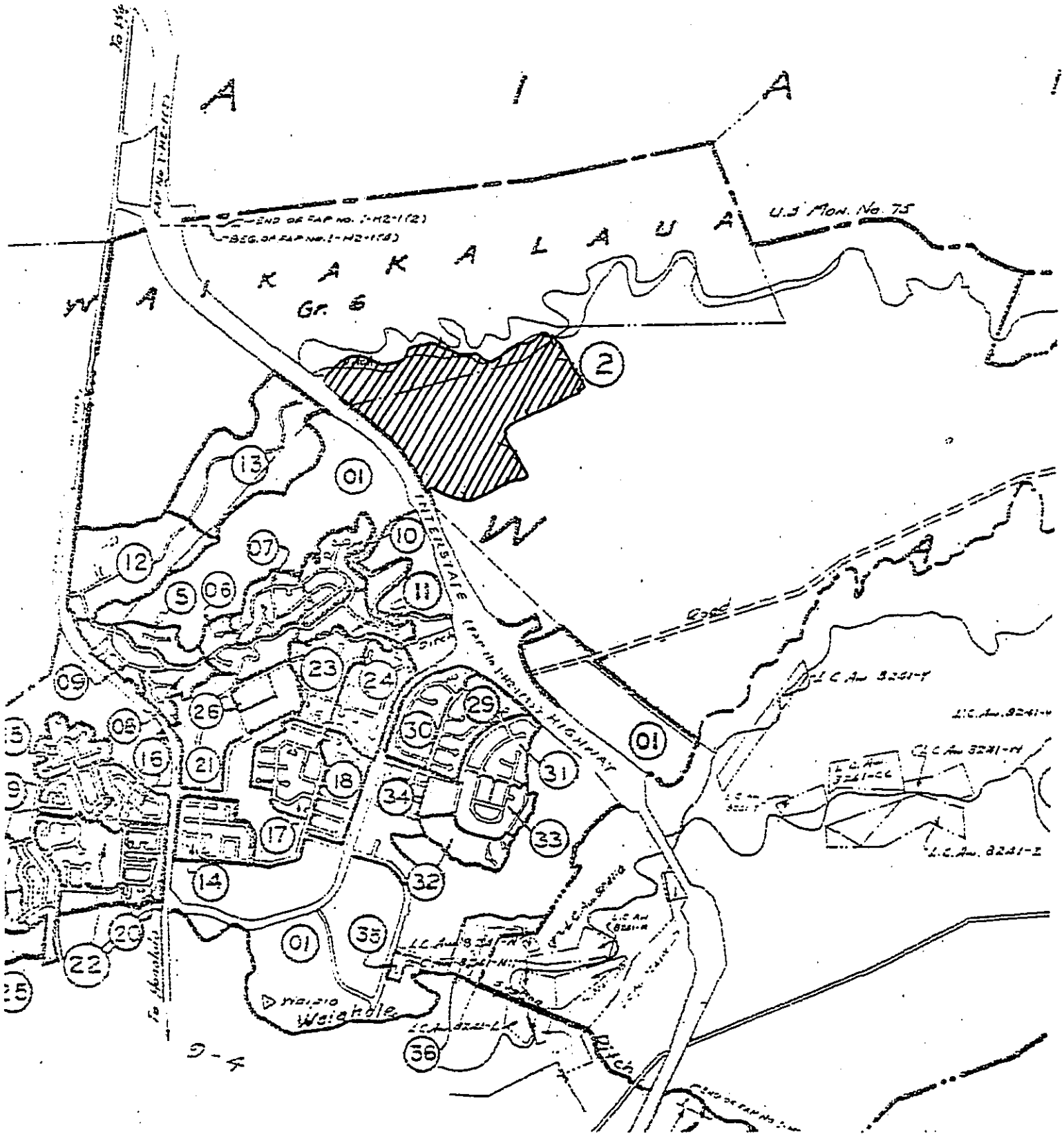
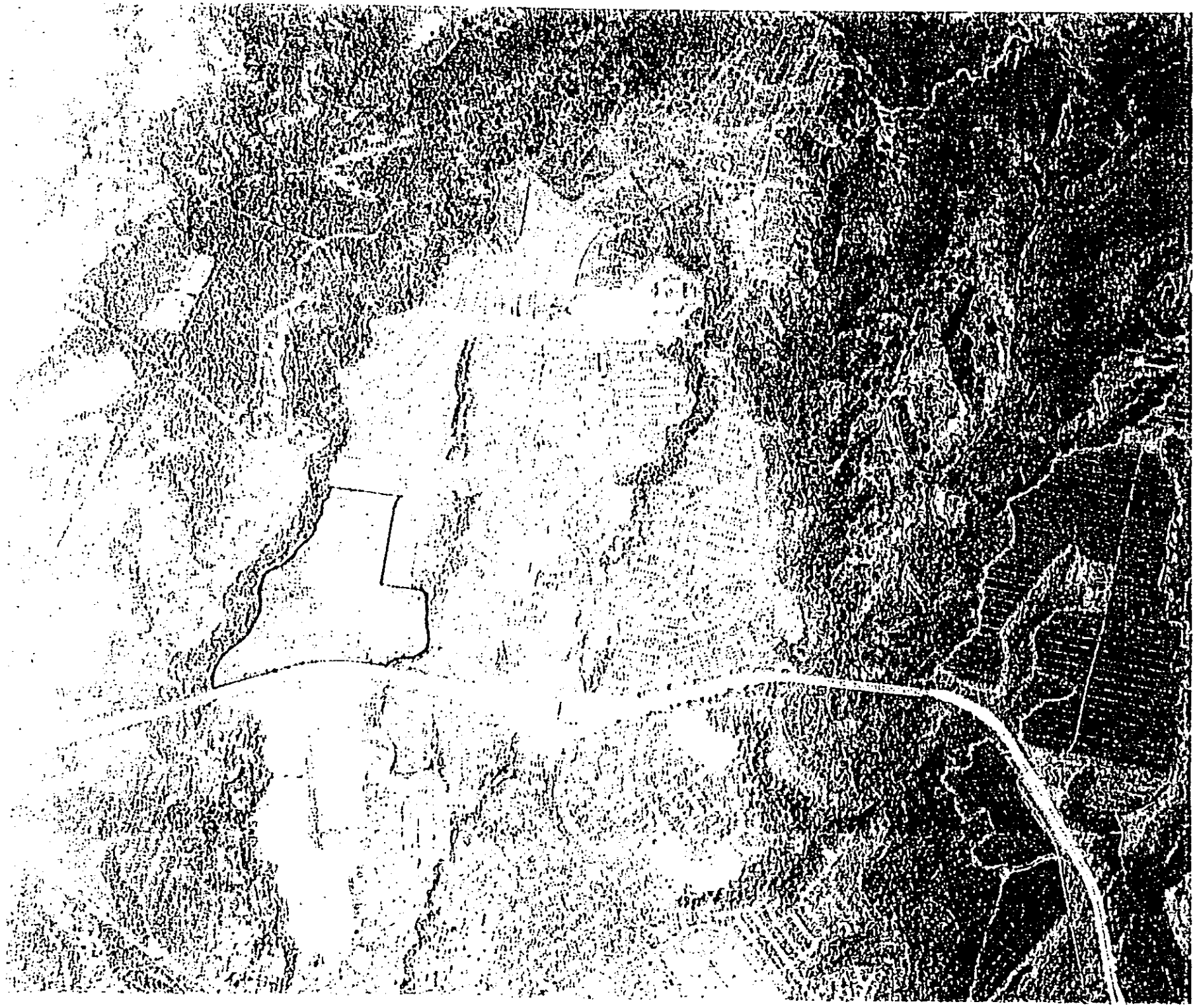


Figure 2 TMK map showing present study area (TMK 9-5-49:27)



anthyllidifolia) and *laua`e* (*Phymatosorus scolopendria*). The sandalwood or *`iliahi* was found approximately 6 meters from the gulch in the northern corner of the old tree farm. Many signs of the presence of pigs were noted. Many pig trails traversed the gulch sides. These were particularly abundant in the groves of *waiawi*. Also, there are signs of pig rooting and pig nests in the study parcel.

Although the Waikakalaua Gulch is physically located outside of the property area, gulches and water ways are traditionally high use areas in regards to Hawaiian cultural practices. Therefore, it is important to consider how the proposed development will affect traditional practices not only within the project area, but over the study parcel boundary into the Waikakalaua Gulch. This is particularly pertinent in the context of whether the study parcel provides access into the gulch areas which may be used for traditional Hawaiian cultural practices.

B. Natural Setting

Waipi`o and Waikele *Ahupua`a*

Waipi`o and Waikele are adjacent *ahupua`a* situated in the `Ewa District of the island of O`ahu. Their southern boundary is at Pearl Harbor at sea level. Waipi`o encompasses most of Waipi`o Peninsula and Waikele's boundary includes West Loch. Pearl Harbor is a large inland embayment essentially composed of drowned river valleys formed by erosion during a lower stand of the sea.

The *ahupua`a* continue inland in a northerly direction upslope onto the Schofield Plateau and the Ko`olau Mountains. "Lava flows from the Ko`olau volcano banked against the already-eroded slope of the Wai`anae volcano to form the gently sloping surface of the Schofield Plateau" (Macdonald and Abbott 1983:420). To the west of Waikele is Hō`ae`ae *Ahupua`a* and to the east of Waipi`o is Waiawa *Ahupua`a.*

Elevation of the Waipi`o *ahupua`a* ranges from sea level at Pearl Harbor, slowly rising to the gently sloping central plains and Schofield Plateau, up to the foothills and valleys of the Ko`olau Range and on up steeply to the summit of the Ko`olaus at around 2700 ft. At about 1,000 ft elevation, it enters the `Ewa Forest Reserve. The highest elevation of Waikele, however, is approximately 800 ft. amsl. on the Schofield Plateau.

There are four basic topographic zones in Waipi`o including the gentle slopes of Schofield Plateau, the gulches, the coastal plain at Pearl Harbor, and the leeward ridges and valleys of the Ko`olau Summit. Waikele does not extend into the Ko`olau Mountains as it is cut off by the convergence of Wahiawā and Waipi`o *Ahupua`a*..

Waipi`o *Ahupua`a* is deeply dissected through its center by Kīpapa Gulch, a tributary of the Waikele Stream. Another gulch, Pānakauahi, comes in from the east (Waiawa *Ahupua`a*) along the lower southeast border of Waipi`o *Ahupua`a.* Kīpapa Stream is a permanently flowing stream in the "lower section, below the forest, which occasionally dries up after a long drought" (Hosaka 1937:178). The entire watershed of Pearl Harbor and Waiawa and Waipi`o in particular is one of the largest watersheds on O`ahu (Dugan 1990; in Goodman and Nees, 1991:3). A second tributary of the Waikele Stream, Waikakalaua, waters the uppermost reaches of Waikele *Ahupua`a* adjacent to the project area.

Waipi`o and Waikele enjoy a climate characterized by equable temperatures ranging from an average mean minimum of 60° to an average mean maximum of 85° near Pearl Harbor (Armstrong 1973:58). Rainfall varies between 20" in the Pearl Harbor region to a maximum of 200 inches at the summit of the Ko`olaus (Armstrong, 1973:56).

III. CULTURAL SETTING

A. Pre-Contact to 1800 Waipi`o *Ahupua`a*

The greater portion of the present study area is located in the *ahupua`a* of Waipi`o which was a focus of Hawaiian settlement and activity on O`ahu during the centuries preceding western contact. "The populous dwelling place of the *ali`i* was formerly located on an east point of Waipi`o Peninsula known as Lēpau" (McAllister 1933:106). The historian Kamakau also associates Waikele with high status chiefs (1961: 75). The *ali`i* at Waipi`o and Waikele were no doubt attracted to the great abundance the region offered.

> The primary reason for `Ewa's prominence in history and as an *ali`i* stronghold was undoubtedly the existence of the great number of fishponds at different points around Pearl Harbor, which was `Ewa territory. Two of the largest were on the [Waipi`o] peninsula, and another was at its northwest corner...(Handy and Handy 1972:470)

Other resources of the `Ewa *ahupua`a*, including Waipi`o, were available to promote their settlement by an expanding population:

> The lowlands, bisected by ample streams, were ideal terrain for the cultivation of irrigated taro. The hinterland consisted of deep valleys running far back into the Ko`olau range. Between the valleys were ridges, with steep sides, but a very gradual increase of altitude. The lower parts of the valley sides were excellent for the culture of yams and bananas. Farther inland grew the *`awa* for which the area was famous. The length or depth of the valleys and the gradual slope of the ridges made the inhabited lowlands much more distant from the *wao*, or upland jungle, than was the case on the windward coast. Yet the *wao* here was more extensive, giving greater opportunity to forage for wild foods in famine time. (Handy and Handy 1972.:469)

The Handys characterize Waipi`o and its peninsula as "an *ali`i* stronghold" and traditions of the *ahupua`a* focus on it as the scene of battles by the *ali`i* from other islands for political control and conquest of O`ahu. Several accounts relate the "Battle of Kīpapa" during the reign of the 15th century *mō`ī* Ma`ilikūkāhi, explaining how the gulch and stream in Waipi`o got their name; according to Abraham Fornander:

> I have before referred to the expedition by some Hawai`i chiefs, Hilo-a-Lakapu, Hilo-a Hilo-Kapuhi, and Punalu`u, joined by Luakoa of Maui, which invaded O`ahu during the reign of Ma`ilikūkāhi. It cannot be considered as a war between the two islands, but rather as a raid by some restless and turbulent Hawai`i chiefs, whom the pacific temper of Ma`ilikūkāhi and the wealthy condition of his island had emboldened to attempt the enterprise, as well as the eclat that would attend them if successful...The invading force landed at first at Waikīkī, but, for reasons not stated in the legend, altered

> their mind, and proceeded up the `Ewa lagoon and marched inland. At Waikakalaua they met Ma`ilikūkahi with his forces, and a sanguinary battle ensued. The fight continued from there to Kīpapa gulch. The invaders were thoroughly defeated, and the gulch is said to have been literally paved with the corpses of the slain, and received its name, "Kīpapa", from this circumstance. Punalu`u was slain on the plain which bears his name, the fugitives were pursued as far as Waimano, and the head of Hilo was cut off and carried in triumph to Honouliuli, and stuck up at a place still called Po`o-Hilo. (cited in Sterling and Summers 1978:20)

During the second half of the 18th century, Waipi`o again became a focus of political intrigue and warfare on O`ahu. In 1783, forces of the Maui chief Kahekili gained control of the island of O`ahu by defeating the mō`ī Kahahana, "from the powerful `Ewa chiefs' line" (Cordy 1981:207). According to the 19th-century Hawaiian historian Samuel Kamakau, the defeated O`ahu chiefs plotted to kill the Maui chiefs. Waipi`o was given the name Waipi`o *kimopō*, "Waipi`o of secret rebellion" as it became the stage for the plotting (Kamakau, 1961: 138). After the failure of this plot, Kahekili took revenge on the `Ewa and Kona districts:

> ...and when Ka-hekili learned that Elani of `Ewa was one of the plotters, the districts of Kona and `Ewa were attacked and men, women, and children were massacred, until the streams of Makaho and Niuhelewai in Kona and of Kahoa`ai`ai in `Ewa were choked with the bodies of the dead, and their waters became bitter to the taste, as eyewitnesses say, from the brains that turned the water bitter. All the Oahu chiefs were killed and the chiefesses tortured. (Kamakau, 1961:138)

If Kamakau is correct, the population of Waipi`o would have been decimated during the 1780s. "The O`ahu society never rose again" (Cordy 1981:208).

Kahekili and the Maui chiefs retained control of O`ahu until the 1790s. Kahekili died at Waikīkī in 1794. His son, Kalanikūpule, was defeated the following year at the battle of Nu`uanu by Kamehameha, who distributed the O`ahu lands - including Waipi`o *Ahupua`a* among his favorites: "...land belonging to the old chiefs was given to strange chiefs and that of old residents on the land to their companies of soldiers, leaving the old settled families destitute" (Kamakau 1961:376-377).

B. 1800s to 1850

The end of the eighteenth century and beginning of the nineteenth century marked Hawai`i's entry into world trade networks. One of the chief exports at this time was the sandalwood tree (*Santalum* sp.) or *`iliahi* which was prized in China for its unique fragrance and used there in the fabrication of chests, as incense, perfumes and as medicine (St. John, 1947). There is some evidence that the central plains of `Ewa supplied the Hawaiian Kingdom with *`iliahi.* One of the first generation missionaries, Sereno Bishop, described his memories of the Central O`ahu region in the 1830s:

> Our family made repeated trips to the home of Rev. John S. Emerson at Waialua during those years. There was then no road save a foot path across the generally smooth upland. We forded the streams. Beyond Kīpapa gulch the upland was dotted with occasional groves of Koa trees. On the high plains the ti plant abounded, often so high as to intercept the view. No cattle then existed to destroy its succulent foliage. According to the statements of the natives, a forest formerly covered the whole of the then nearly naked plains. It was burned off by the natives in search of sandalwood, which they detected by its odor burning. (Bishop in Sterling and Summers, 1978: 89).

If this was the case in the land of the current study area, the dry forests formerly covering this region probably never came back, particularly considering the harm done to the *`iliahi* seedlings with the introduction of cattle soon thereafter (Judd, 1933).

During much of the 19th century, Waipi`o *Ahupua`a* is associated with John Papa `Ī`ī, a significant figure and chronicler of the Hawaiian Kingdom. In an account of his birth, `Ī`ī records the establishment of his family at Waipi`o after the ascendancy of Kamehameha on Oahu:

> John Papa `Ī`ī was born in Kumelewai, Waipi`o, in `Ewa, O`ahu, on the third day of August (Hilinehu in the Hawaiian calendar) in 1800, on the land of Papa `Ī`ī, whose namesake he was. Papa [`Ī`ī's uncle] was the owner of the pond of Hanaloa and two other pieces of property, all of which he had received from Kamehameha, as did others who lived on that *ahupua`a*, or land division, after the battle of Nu`uanu. He gave the property to his *kaikuahine*, who was the mother of the aforementioned boy. (`Ī`ī 1959:20)

`Ī`ī's writings, collected in *Fragments of Hawaiian History*, provide glimpses of life within Waipi`o *Ahupua`a* during `Ī`ī's lifetime. `Ī`ī mentions the "family [going] to Kīpapa from Kumelewai by way of upper Waipi`o to make ditches for the farms" (`Ī`ī 1959:28) and recalls that, during the visit to O`ahu by the Kauai chief Kaumuali`i and his entourage, the chief's attendants were provided with gifts: "from Waipi`o in `Ewa and from some lands of Hawai`i came tapa made of *mamaki* bark" (`Ī`ī 1959:83). `Ī`ī notes how a period of famine was managed in Waipi`o and what resources were available during the famine:

> Here is a wonderful thing about the land of Waipi`o. After a famine had raged in that land, the removal of new crops from the taro patches and gardens was prohibited until all of the people had gathered and the farmers had joined in thanks to the gods. This prohibition was called *kapu `ohi`a* because, while the famine was upon the land, the people had lived on mountain apples (*`ōhi`a `ai*), tis, yams, and other upland foods. On the morning of Kane an offering of taro greens and other things was made to remove the *`ōhi`a* prohibition, after which each farmer took of his own crops for the needs of his family. (`Ī`ī 1959:77)

C. Waipi`o Uka and the Māhele

In contrast to the well-populated *makai* lands of Waipi`o and Waikele, the *mauka* regions were often described as virtually uninhabited. The missionary William Ellis describes the interior regions of `Ewa in 1823-24:

> The plain of Eva is nearly twenty miles in length, from the Pearl River to Waiarua, and in some parts nine or ten miles across. The soil is fertile, and watered by a number of rivulets, which wind their way along the deep water-courses that intersect its surface, and empty themselves into the sea. Though capable of a high state of improvement, a very small portion of it is enclosed or under any kind of culture, and in traveling across it, scarce a habitation is to be seen. (Ellis 1963:7)

Despite Ellis' impression of a desuetude and lack of people in the more *mauka* reaches of `Ewa, there is evidence that the population of Waipi`o during the early 19th century was not focused solely on the fertile coast; Kamakau notes, in an inventory of advances in education during the reign of Kamehameha III (from 1825 to 1854):

> Schools were built in the mountains and in the crowded settlements. Waipi`o had school houses near the coast and in the uplands. (Kamakau 1961:424)

The placement of a school "in the uplands" of Waipi`o suggests that some portion of the *ahupua`a*'s population was settled there.

By the late 1840s, approximately 300 persons were listed as living in Waipi`o *Ahupua`a*. This population figure is documented in records of the 1840s for the Great *Māhele*. The Organic acts of 1845 and 1846 initiated the process of the *māhele* - the division of Hawaiian lands - which introduced private property into Hawaiian society. In 1848 the crown and the *ali`i* (royalty) received their land titles. The common people received their *kuleana* (individual parcels) in 1850. It is through records for Land Commission Awards (LCAs) generated at the *māhele* that the first specific documentation of life in Waipi`o *Ahupua`a*, as it had evolved up to the mid-19th century, come to light.

John Papa `Ī`ī was awarded most of the *ahupua`a* of Waipi`o - in LCA 8241 - comprising approximately 20,540 acres. Included in the documentation for `Ī`ī's award is a list of "the people living on the land of Waipi`o `Ewa" in 1848 (Native Register vol.5:512-517).

A substantial award within the *ahupua`a* went to Abenera Pākī, the father of Bernice Pauahi Bishop. Part of LCA 10613 to Pākī comprised the 350 acres of the *`ili* of Hanaloa. Also receiving a land award (LCA 2937) in Waipi`o was William Harbottle who claimed 2 acres at Hanapouli *`ili*.

The remaining land claims - totaling 99 (not all of which were awarded) - documented in the records are for *kuleana* worked and lived upon by the Hawaiians of Waipi`o. Predominant among the claimed land usages in Waipi`o are 312 *lo`i*, irrigated taro patches, of various sizes; and 43 *mo`o* or fields comprising indeterminate numbers of *lo`i*. Clearly, wetland taro cultivation was the primary agricultural pursuit within the *ahupua`a* at mid-19th century, likely reflecting a long history of taro farming. At the coast, 4 fishponds are claimed. In the more *mauka* reaches of Waipi`o, 53 claims were made for portions of *kula* (pasture land) and 25 for "*okipu*" or *`okipu`u* (forest clearing). The fact that several claims were made in the *mauka* regions suggest that Waipi`o residents had particular locales which they traveled to repeatedly. The land use for these suggest *kula* and *`okipu`u*. *"Kula"* land is a general term for open fields, pastures, uncultivated field or field for cultivation, and upland in distinction from meadow or wetland (Lucas, 1995: 60). *Kula* lands were often used for opportunistic plantings which did not depend heavily on a consistent source of water such as bananas, sugar cane, sweet potatoes, dry land taro, etc... *Okipu`u* is defined as a forest clearing (Lucas, 1995: 82), a place presumably used to gather forest products and medicinal herbs and for parturage.

Historic maps and modern tax maps show the great majority of the awarded land parcels located in the *makai* portions of Waipi`o, at or just above the peninsula. However, there were 19 claims describing land use in upper Waipi`o or "Waipi`o Uka". Eleven of these claims were awarded. All of the awards are located in Kīpapa Gulch. Most claims include *mo`o*, houselots, houses, *kula*, and some mention *okipu*.... The "house lot" and "house" claims indicate that Hawaiians continued to live in *mauka* Waipi`o during the mid-19th century. Also noteworthy are the claims for "*kula*" or pasture land; exact locations of these *kula* have not been identified.

Cattle grazing was begun in the *mauka* regions of Waipi`o around the 1830s (Bishop, 1901: 87). In 1847, residents living in *kuleana* land in Waipi`o Uka petitioned the Minister of the Interior, John Young, to resolve the problem of stray animals (cited in Hammatt *et. al*, 1996). These stray animals may have been from herds of cattle and goats grazing on the flat *kula* lands of Waipi`o. In addition to the havoc the stray animals were imparting to the residents of Waipi`o Uka, the impact of grazing animals was noted several kilometers away at Pearl Harbor.

> The subsequent occupation of the uplands by cattle denuded the country of herbage, and caused vast quantities of earth to be washed down by storms into the lagoons, shoaling the water for a long distance seaward. (Bishop 1901:87).

Stray cattle probably continued to be a problem until large-scale agriculture was introduced in the early part of the twentieth century.

D. 1850s to 1900

An 1877 map of Waipi`o *Ahupua`a*, compiled by J. F. Brown, shows the *mauka* lands, including the present study parcels, are labeled "grassy plain," suggesting suitable

areas for the grazing of livestock (Figure 4). After John Papa `Ī`ī's death in 1870, his estate - including the Waipi`o lands - was inherited by his daughter Irene `Ī`ī Brown. Shortly after, small parcels within the *ahupua`a* were sold off, "including a portion to James Robinson and Co. in September 1871" (in Riford 1986:22). It would not be until the late 1890s that large tracts of Waipi`o land would be leased for large-scale commercial agriculture.

The newly organized Oahu Sugar Company, an "annexation plantation, a direct promotion of Benjamin F. Dillingham" (Condé and Best 1973:313), leased 3,400 acres of the *mauka* portion of Waipi`o from the `Ī`ī estate in 1897. A few years earlier, the Oahu Railway and Land Co. (O.R. & L.) had leased a tract through Kīpapa Gulch to transport sugar and pineapple from Wahiawā to Honolulu. The growth of pineapple in Waipi`o would comprise the major transformation of the present study parcel during the 20th century.

E. 1900s to Present

At the start of the century, the U.S. Government commenced acquiring the coastal lands of `Ewa for the development of a naval base at Pearl Harbor. In 1909 the government obtained Waipi`o peninsula by condemnation from the `Ī`ī estate; the land was valued at *$10,000.*

At the same time, lands in Waipi`o *mauka* were being acquired for pineapple cultivation. An unrecorded lease from the John I`i Estate, Ltd. to Yoshisuke Tanimoto and Kintaro Izumi in 1908 led to the formation of the Waipio Pineapple Company who cleared and cultivated approximately 223 acres in portions of the Kīpapa Gulch (Liber 434: 228-235). This was probably the beginning of pineapple cultivation in the uplands of Waipi`o, just east of the project area. In 1915, Libby McNeill & Libby took over Waipio Pineapple Company's leases and continued to cultivate pineapple in the area. By the late 1920's, Dole had arrived and was cultivating pineapple on thousands of acres in the *mauka* area of Waipi`o including in the current project area (Figure 5).

Meanwhile, Oahu Sugar Company was tackling the problem of obtaining sufficient water to cultivate sugar. In 1913 a project began to transport water from the windward side of O`ahu through the Ko`olau Range to irrigate the fields and mill of the Oahu Sugar Company in `Ewa. During the next decade, the *mauka* lands of Waipi`o would be the site of a portion of a major undertaking. The Waiāhole Water Company, a subsidiary of Oahu Sugar, created the Waiāhole Ditch System that was "an engineering feat of epic proportion for those times" (Condé and Best 1973:37). The ditch system was completed in 1916, and with some modifications is still in use.

Although sugar covered vast tracts of land in Waipi`o, there is no indication sugar was ever planted in the present study parcel. A 1928-29 U.S. Army Map shows the development of sugar and pineapple within Waipi`o but sugar cultivation does not extend into the present study parcel (Figure 5). A 1925 map shows the extent of the Oahu Sugar Company fields within Waipi`o and the neighboring *ahupua`a* (Figure 6). The sugarcane fields reach elevations just below those in the project area. Most likely, the conditions in the project area were not suitable for cultivating sugar.

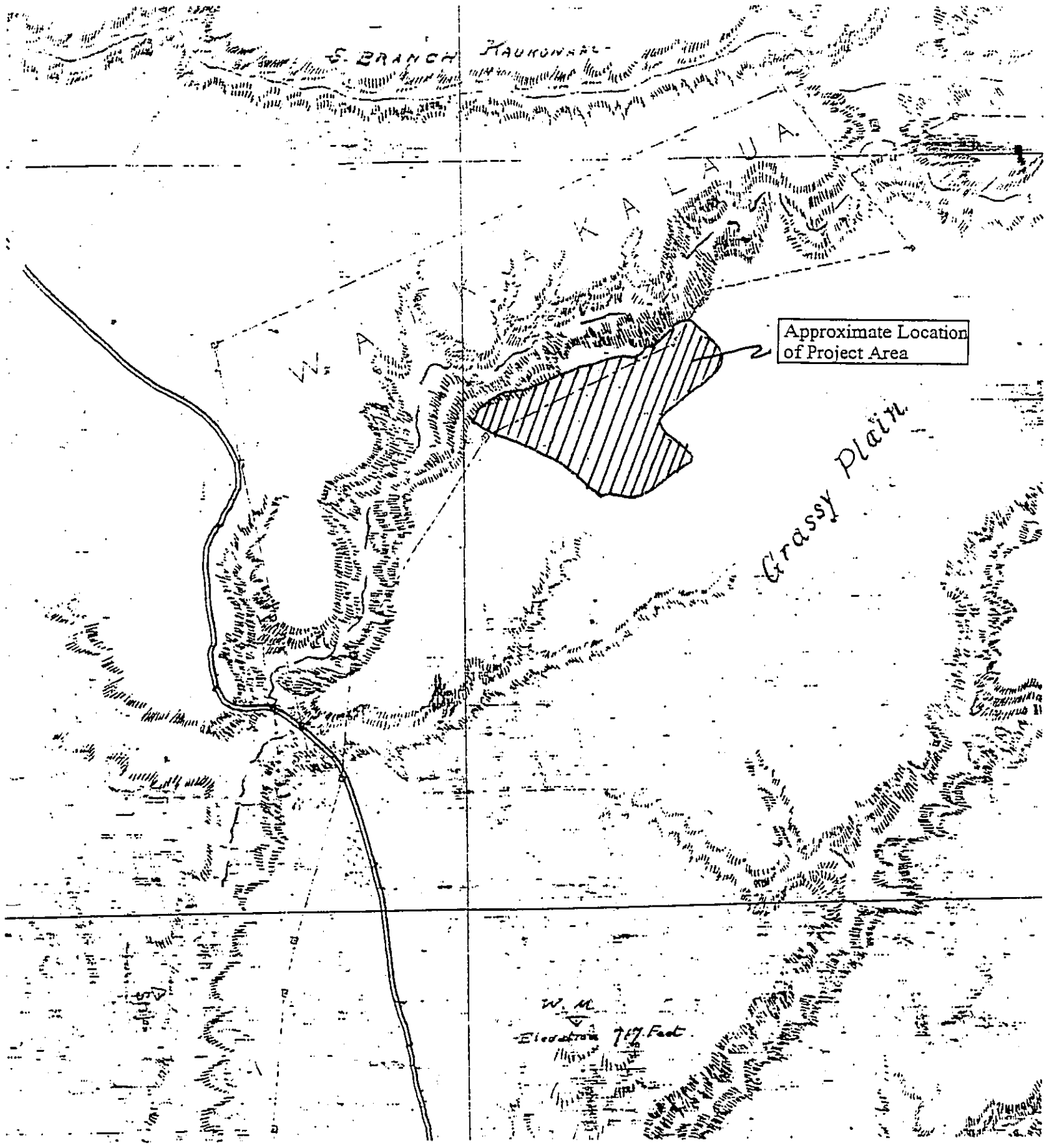


Figure 4 1877 map of Waipi`o *Ahupua`a* showing approximate location of present study parcel

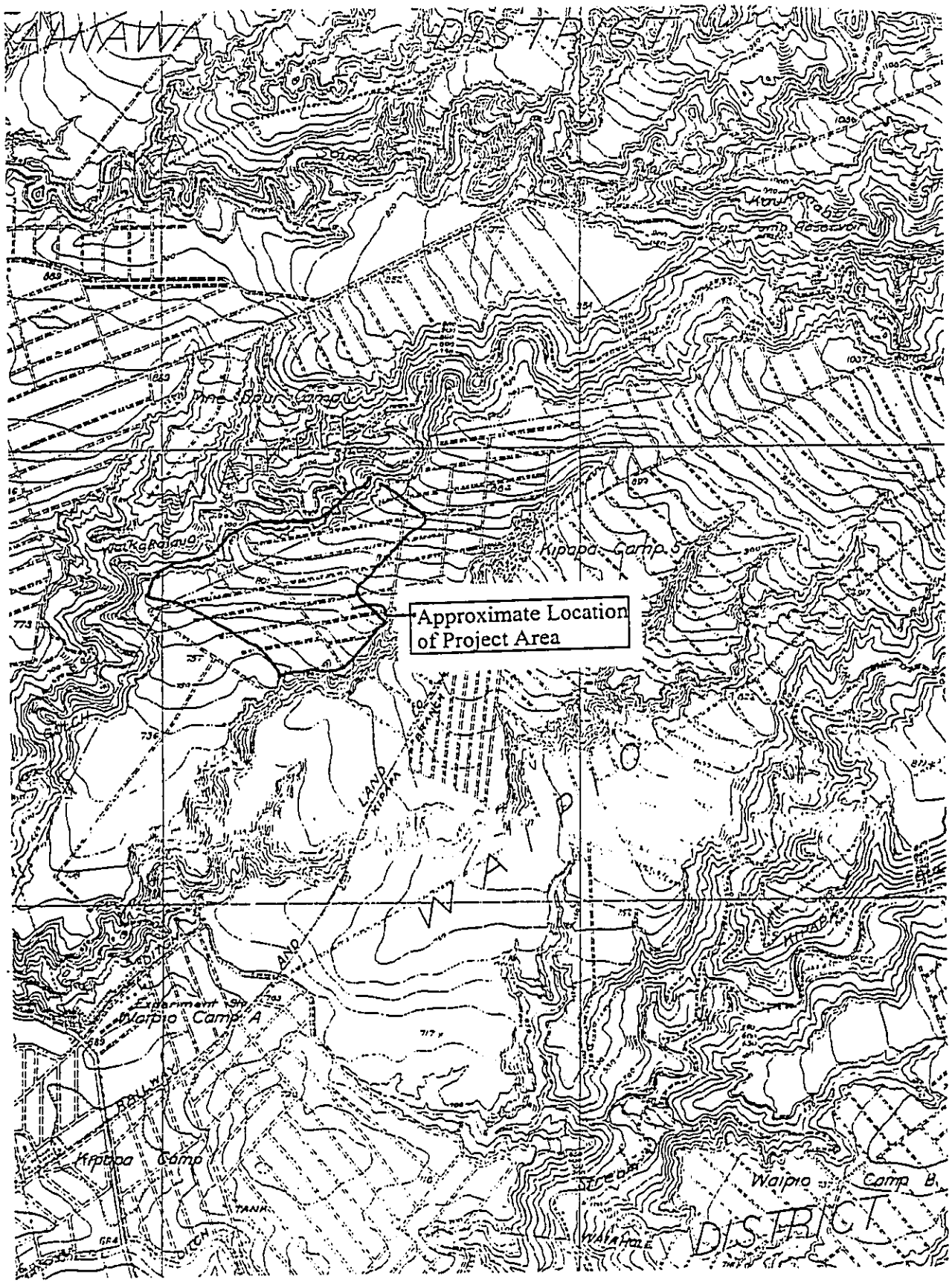


Figure 5 Portion of 1928/1929 USGS Wahiawa quadrangle map showing project area

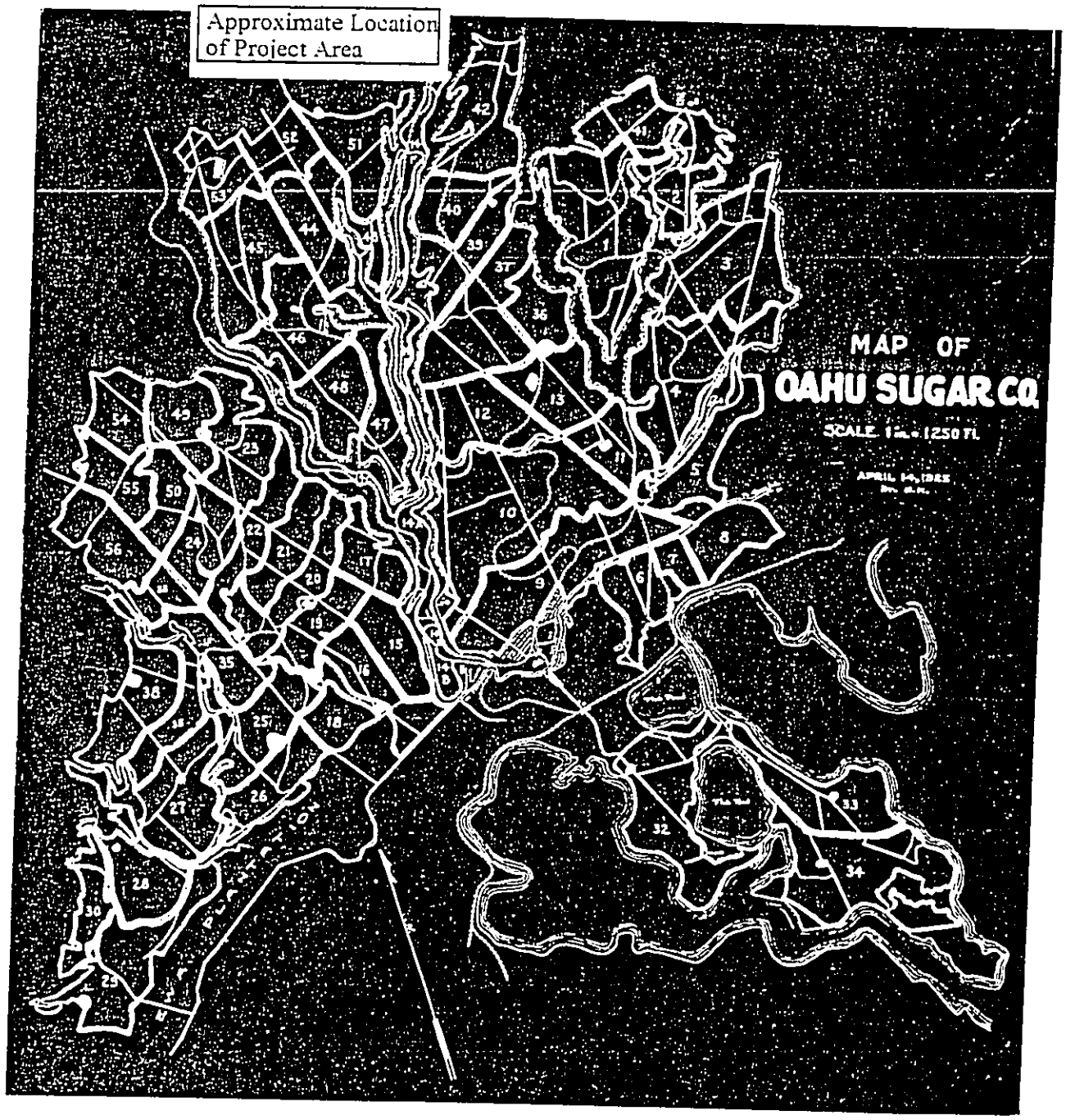


Figure 6 1925 Map of O'ahu Sugar Company showing fields near project area

In the 1930s, use of Waipi`o by the U.S. military extended well *mauka* of the peninsula at Pearl Harbor. The military began the appropriation of Kīpapa Gulch around 1938 and during World War II used the rail system to "haul large quantities of ammunition" (Condé and Best 1973:315). Also, in 1941, "on the day after the bombing of Pearl Harbor, Hanaloa fishpond was seized by the U.S. Navy and filled in" (Loo in Char and Char 1988:209).

During the second half of the 20th century, growth in Waipi`o *Ahupua`a* focused on the development of Mililani Town by Castle & Cooke, Inc. through its subsidiary, Oceanic Properties, Inc. In 1964, the state Land Use Commission redesignated for urban use 705 acres of agricultural land in Waipi`o. The first increment of Mililani Town opened in June 1968. In 1973 construction began on the H-2 freeway across Waipi`o, connecting Mililani to the H-1 freeway.

F. Folklore and Mythological Traditions Pertaining to Waipi`o

Many of the legends of Waipi`o and Waikele pertain to lands *makai* of the project area in the vicinity of Pu`uloa. In Waipi`o, `Ewa, `Ai`ai was said to have established a *pōhaku i`a* (fish stone) at Hanapouli and a *ku`ula* named Ahu`ena (Kawaharada, 1992). In Waipahu, Waikele, there is reference to the Waipahu Spring where a tapa mallet from Kahuku appeared (McAllister, 1933). This spring is also famous as the location where Ka`ahupāhau (a shark goddess) swam up from the sea to bathe in the fresh water (Sterling and Summers 1978:25). Legend also speaks of a *pōhaku*, a stone, that belonged to the gods Kāne and Kanaloa, who divided the lands of `Ewa when they came to earth and established the boundaries of Waikele, which have remained the same ever since (Sterling and Summers 1978:29).

In the *mauka* regions of Waipi`o, legend speaks of Kalelealuaka, who lived during the reign of the O`ahu chief, Kākuhihewa (Thrum, 1998). Kalelealuaka was the son of Kaopele, who was born in Waipi`o, Hawai`i. Kaopele had a tendency to fall into deep trances for months at a time. When he would awaken, he would plant plantations of supernatural proportions. However, he was never able to enjoy the fruits of his labors because Kaopele would fall into deep sleeps. Once, during a deep slumber, he was mistaken for dead and taken to Wailua, Kaua`i to be offered as a sacrifice. Upon awakening, he created a life on Kaua`i and married. On Kaua`i, he had a son Kalelealuaka who he reared in his image. His son was also blessed with supernatural powers and Kaopele instructed the boy in the arts of war and combat, which Kalelealuaka exhibited during two challenges with kings of Kaua`i. One day, Kalelealuaka decides to travel to O`ahu. He takes with him a boy, Kaluhe and paddles to Wai`anae. There, he meets another companion who he later names Keinoho`omanawanui, the sloven. They settle in an old plantation in the *mauka* regions of Waipi`o, formerly planted by Kaopele. This place is called Keahumoe and here they build their mountain house Lelepua after Kalelealuaka's magic arrows.

G. Waikakalaua Pre-Contact History

The current project area lies on the plateau lands east of and just above what is known today as Waikakalaua Gulch. Waikakalaua is translated as water rough [in] rain (Pukui *et al.*, 1974: 222). Very little is known about the prehistory of Waikakalaua. What little that can be gleaned from the archaeological record has been greatly impacted by modern development, particularly in the 20th century. Several rockshelters, caves and crawl spaces were identified in lower Waikakalaua Gulch, near the confluence with Kīpapa Gulch (Riford, 1986). It was suggested that these sites served as temporary habitations for a travel route which led from Pearl Harbor over Kolekole Pass into Wai`anae. Other findings include a possible basalt quarry. Archaeological sites in the upper gulch closer to the project area are interpreted as related to historic farming, pineapple plantation camp activities, trail modification, and military activities, activities which all transpired in the 20th century.

Archaeological studies in the lower portion of Waikakalaua Gulch produced *kukui* remnants in several feature excavations suggesting *kukui* was a well utilized locally occurring resource (Riford, 1986:56). A land survey conducted in 1847 to define the boundaries of leased land in Waikakalaua gives a good sense of the vegetation in the gulch during that time period. Trees and plants were often used as landmarks and survey points during this time and several native Hawaiian plant species are recorded as survey points including *`ulei* (*Osteomeles anthyllidifolia*), *kukui* (*Aleurites moluccana*), *koa* (*Acacia koa*), *a`ali`i* (*Dodonaea viscosa*), *wiliwili* (*Erythrina sandwicensis*), and *kakalaioa* (*Caesalpinia crista*) (Hawaii State Archives, Interior Department Letters, August 17, 1847). In a map of a portion of Waikakalaua which probably corresponds to the survey, *lauhala* (*Pandanus tectorius*) is also mentioned (See Figure 7). All of the plants specified served multiple purposes traditionally. Another significant feature in the map is the Waikakalaua Bridge. This bridge was part of a well documented trail leading from Waiawa, `Ewa over the central plains to Waialua, with a lead into a second trail over the Wai`anae Range to Wai`anae (in I`ī, 1959: 99; in Sterling and Summers, 1987). The present day Kamehameha Highway follows the general route of this traditional trail, although it is not known how the Waikakalaua Bridge in the survey map correlates with the location of the present day Kamehameha Highway Bridge over Waikakalaua Stream.

H. Archaeological Sites at Waikakalaua and Legendary Associations

As mentioned in the Waipi`o background history, Waikakalaua and Kīpapa are recorded as an archaeological site (Site 132), military strongholds during battles initiated by Hawai`i and Maui rebels during the reign of O`ahu Chief Ma`ilikūkāhi (McAllister, 1933:107) [See pp. 10-11 for description of battle at Kīpapa]. Waikakalaua may also be connected to a second archaeological site described by McAllister, O`ahunui (Site 204). McAllister describes O`ahunui as a stone whose outline is said to resemble that of O`ahu. The following description of O`ahunui is given by McAllister (1933: 132):

> The stone was formerly visited by the Hawaiians, for no one could say that he had been entirely around the island of O`ahu, unless he had been around this stone. In the nineties it seems to have been a favorite expedition for

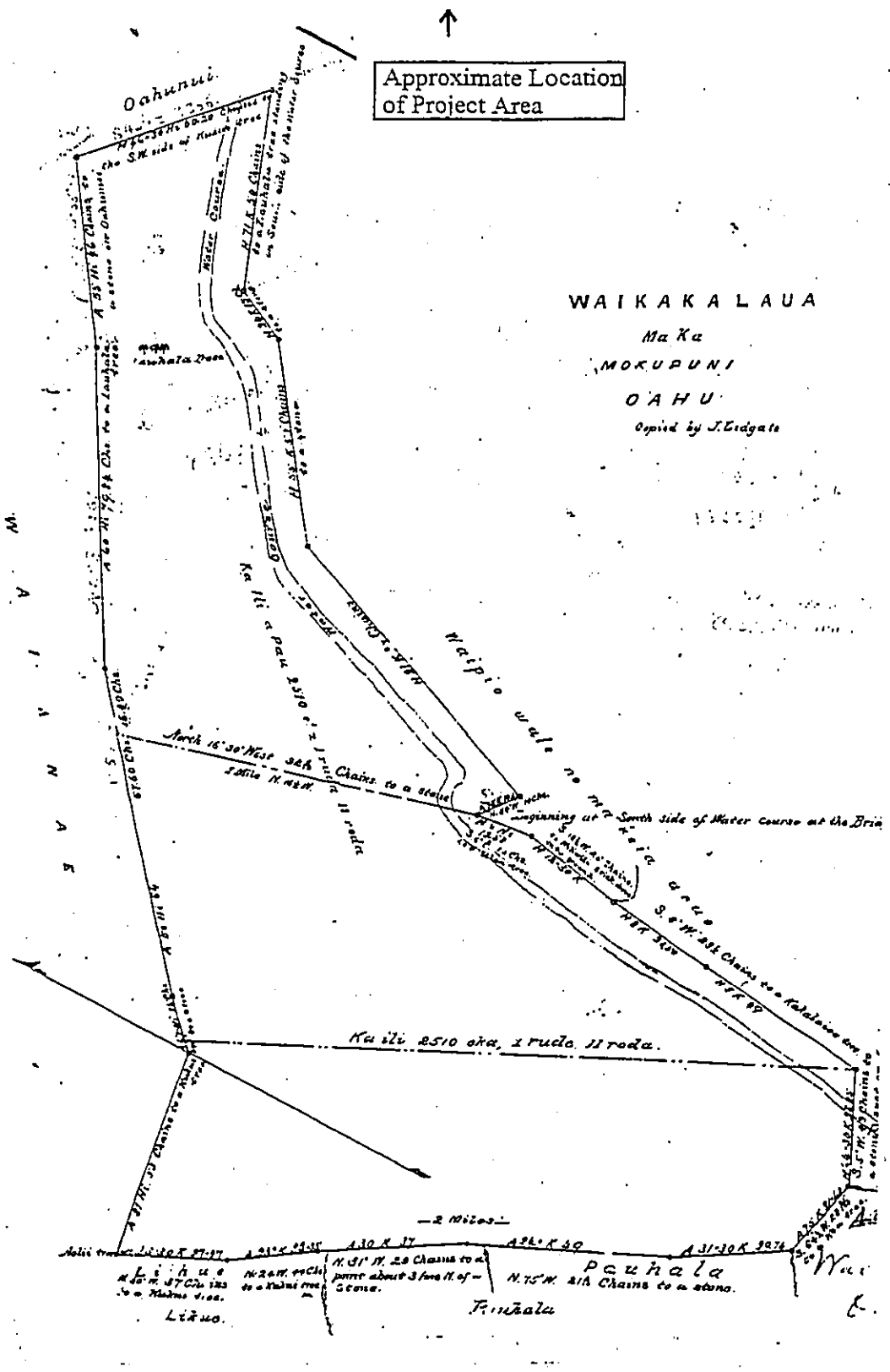


Figure 7 Map of Waikakalaua, original circa 1847

> Honoluluans to ride out to O`ahunui and walk around this stone. O`ahunui is also the name of one of the former chiefs of O`ahu. He came under the influence of the cannibal chief, Lo Aikanaka, and learned to like human flesh. It is reported that he killed and ate his two nephews, the children of his older sister, who shared with him the royal power and prerogative. Lehuanui avenged the death of his children by killing O`ahunui and his wife, Kilikiliula, who had it within her power to save her children. It is said that O`ahunui and Kilikiliula and the attendants that participated in the killing and cooking of the children were turned to stone and are still to be seen.

McAllister describes O`ahunui as a stone and a former O`ahu chief, however there is evidence that O`ahunui was also a place. After Kahekili of Maui defeated O`ahu, Kahahana fled with his wife to `Ewa in hiding. After sequestering themselves in the uplands of Waipi`o, they "thought it better to go to O`ahunui at Wahiawā..." (in Sterling and Summers, 1978: 6-7). In *Ancient Oahu: Stories from Fornander & Thrum*, O`ahunui is described as an historical place. "This was the residence of the kings of the island. Tradition has it that before the coming of the cannibal chiefs, the place had a different name" (Fornander & Thrum, 1996: 51). In addition to these references, a map of Waikakalaua, probably surveyed circa 1846 or 1847, depicts O`ahunui as a place northeast or upstream from Waikakalaua (See Figure 7). The map even notes "a stone in O`ahunui", although the stone was probably simply a convenient survey point and is probably not a reference to the famous O`ahunui Stone.

In the Hawaiian legends, the place O`ahunui was named after the chief O`ahunui who came under the influence of Lō `Aikanaka, a cannibal chief purported to have come from the South Pacific (Fornander & Thrum, 1996). Other versions refer to the cannibal chief as Lō `Aikanaka as Ke-ali`i-ai-kanaka (in Beckwith, 1959: 340) and Kalo (in Sterling and Summers, 1978: 110) and place their residence at Halemano. To supply the chief with his feasts, large amounts of human flesh were required and one day, O`ahunui's nephews were targeted. Upon sensing that his two young sons had been eaten, Lehuanui (a priest married to O`ahunui's sister, Kilikiliula) hurried home only to find the skulls of his two sons tied up in a *lehua* tree. Lehuanui kills his brother-in-law O`ahunui and his wife Kilikiliula, who had it in her power to save her sons.

> The headless body of O`ahunui lay where he was killed, abandoned by everyone. In time, it also turned to stone, as a witness to the anger of the gods and their detestation of his horrible crime. All the servants who had in any way participated in the killing and cooking of the young princes were, at the death of Kilikiliula, likewise turned to stone, just as they were, in various positions of crouching, kneeling, or sitting. All the rest of the royal retainers, with the lesser chiefs and guards, fled in fear and disgust from the place, and thus the once sacred royal home of the O`ahu chiefs was abandoned and deserted (Fornander and Thrum, 1996: 55-56).

The place O`ahunui is said to have been cursed by Kāne thereafter.

Fornander and Thrum (1996) make a loose correlation between Kūkaniloko, Halemano and O`ahunui. Kūkaniloko is located in present day Wahiawā and is well known as one of two sacred birth places for *kapu* chiefs, the other being Holoholokū at Wailua on Kaua`i (Thrum, 1912: 101). Besides its position as a birth place, Kūkaniloko had another function. The importance of Kūkaniloko is described in the following:

> In ancient times Kūkaniloko was kapu, for here the high priest of the island had his headquarters. This priest was usually a descendent of a chiefly family, and in many instances, an uncle or younger brother of the ruling king, or connected by marriage with those of the royal line. He headed a numerous, well organized, and powerful priesthood, and his influence was hardly second to that of the king. In some matters his authority was paramount (Fornander and Thrum, 1996: 51).

Kamakau refers to the Lo chiefs or tapu chiefs who were associated with areas surrounding Kūkaniloko (in Sterling and Summers, 1978: 111).

> The Lo chiefs are those who, like those of Līhu`e, Wahiawā, and Halemano went to the mountains to live but kept up their tapus as chiefs and were descended from tapu chiefs on both the father's and mother's side and intermarried with tapu chiefs and bore children and guarded their tapus. When the country had no ruler one was found among these to become ruling chief over the land.

If Fornander's claim that O`ahunui was a residence for O`ahu chiefs is true, there most likely did exist a powerful link, both physical and spiritual between O`ahunui and Kūkaniloko.

There is some contention as to the actual location of O`ahunui. In relating Kahahana's flight from Kahekili, O`ahunui is referred as part of Wahiawā (in Sterling and Summers, 1978: 6-7). McAllister describes the location of O`ahunui as "in the gulch near the division line between Ewa and Waialua", and his map shows O`ahunui (Site 204) situated near the South Fork of the Kaukonahua Stream. (McAllister, 1933: 132). I`ī describes O`ahunui as being off the main Waialua-`Ewa trail, but does not give the location. Fornander and Thrum (1996: 51) place the location of O`ahunui "to the east of Helemano, and about the same distance (a few miles) from Kūkaniloko". An 1846-1847 map of a portion of Waikakalaua refers to O`ahunui as an area NE of, *mauka* of or upstream from Waikakalaua.

Part of the mystery of O`ahunui may lie in the confusion over the historic alteration of district boundaries as well as boundaries associated with Waikakalaua. On the 1983 USGS 7.5 Series Map, the boundary between the `Ewa and the Wahiawā Districts is located northwest of the Waikakalaua Stream Gulch (Figure 1). However, the Wahiawā District did not exist during traditional times. At the time of the Māhele, there were six geographical districts on O`ahu: Kona, Ko`olau Poko, Ko`olau Loa, Waialua, Wai`anae and Ewa (King in Coulter, 1935: 215). Beginning with the Civil Code of 1859, the district

boundaries were changed numerous times through the next sixty years for taxation, educational and judicial purposes. The Wahiawā District was created in 1913 and included the already established *ahupua`a* of Wai`ane `Uka and Wahiawā which were formerly part of the Waialua District (King in Coulter, 1935: 221). Considering the present Wahiawā-`Ewa District Boundary is the former Waialua-`Ewa District Boundary, this still places the boundary in the same position. Examining the present district boundary in the Waikakalaua area, the boundary follows the terrain continuously from the top of the Ko`olaus down through Waikakalaua Stream and at about the 900 ft. elevation suddenly takes a right turn to the north where it continues down the plateau near the present day Leilehua Golf Course. From here, the boundary line heads southwest along no known landmarks. An 1877 map of Waipi`o, `Ewa by J. F. Brown shows Waikakalaua contained within boundaries similar to those depicted in the `Ewa -Wahiawā District Boundary on the 1983 U.S.G.S. Waipahu Quad (Figures 1&4). The area of Waikakalaua depicted on the 1877 map may correspond to Grant 6, approximately 836 acres of Waikakalaua sold to J. N. A. C. Gilman in 1846. The area was most likely surveyed at the time it was granted and the boundaries of the survey may have been transferred to subsequent maps eventually becoming the standard boundary district line.

If the traditional location of the `Ewa-Waialua District Boundary is not the present `Ewa-Wahiawā District Boundary, where was it? An investigation into the land history of Waikakalaua was made with the objective of finding some clue as to the traditional district boundary between `Ewa and Waialua. Waikakalaua is described as a land section (probably an *ahupua`a*), a ditch and a stream gulch (Coulter, 1935: 194). After Waikakalaua passed into Government Lands during the Māhele, the Department of the Interior took over the management of the lands. Sometime in 1846, 836 acres of Waikakalaua was granted to I. N. A. C. Gillman in Grant 6 (Office of the Commissioner of Public Lands, 1916: 44). There is mention of Waikakalaua in Interior Department documents A document from a *kama`āina* Kalanikahua in 1846 (translated by E. H. Hart) declares the Waikakalaua Stream as the boundary separating Waikakalaua and Waipi`o.

> The stream between Waipi`o and Waikakalaua is the true boundary separating Waikakalaua and Waipi`o, but the stream is not the only boundary separating all of Waikakalaua, it crosses over the stream at some place. Mauka of the wooden bridge, then it jumps over the stream (Hawaii State Archives, Interior Department Letters, October 9-10, 1846).

Presumably, Waikakalaua and Waipi`o are *ahupua`a* and Kalanikahua is referring to an *ahupua`a* boundary. In the 1983 USGS 7.5 Series Quad map, Waikakalaua is denoted as a stream and gulch in the *ahupua`a* of Waikele, not as an *ahupua`a*. In another document translated from Hawaiian, several place names, possibly *`ili*, are described as belonging to Waikakalaua.

> Honolulu, November 8, 1846
> This is what I know, from the time of Kamehameha First, Kaikialamea was the Chief who accepted tribute from this land, Makue was the *konohiki*.

> Makue gave it to Waimaka, his wife-Waikakalaua, –the upland is Kahakuohia, the sea is Pahou, the fishpond is Hanohano, to Waikakalaua belongs Waiahualele, Waikele belongs to Waikakalaua. Another portion of Waikakalaua is Nio, one sand hill, Ulemoku is a portion of Waikakalaua. From Kuene (Hawai`i State Archives, Interior Department Letters, Nov. 8, 1846).

The description of the place names with the different resources such as the uplands, the sea, the fishpond, the sand hill, suggest Waikakalaua was an *ahupua`a*. In an 1889 Bishop Map of Waikele (Rm 1498), Kahakuohia, Onio (Nio) and Waikele appear to be *`ili* along the Waikele Stream however, they are all situated well *makai* of the project area and what is today considered the Waikakalaua Gulch. The "upland of Kahakuohia" is physically located *makai* of the project area. It may be that the land Kuene is referring to is in a portion of the lower Gulch which is adjacent to the listed *`ili*. In the Hawaiian version of this letter, Kuene refers to the land of Waikakalaua as *lihi o Waikakalaua* (see Appendix A). The *Hawaiian Dictionary* defines *lihi* as "edge, rim, border, boundary, margins, brim" (Pukui and Elbert, 1986: 205). However, another definition of *lihi* is a "piece of land usually between two *ahupua`a* of unestablished ownership" (Pukui and Elbert, 1986: 205). There is a possibility that the confusion over the district and *ahupua`a* boundaries stems from an older history of the area, one that was not even familiar to the Hawaiians living in the area in the 1840s.

I. Waikakalaua and the Māhele

As in Waipi`o, the majority of the Māhele quiet land titles in Waikele Ahupua`a concentrated in the *makai* areas near the marine resources and the *lo`i* lands. Claims were made for agricultural fields, houselots, sand dunes, animal pens, garden plots, and *kula*. In the *mauka* regions, four large land awards, consisting of entire land sections or *`ili*, were granted (in McDermott, 1992: 12). These included the *`ili* of Pouhala, Koalipea, Aulii, and Hanohano. The land use for Pouhala and Koalipea *`ili* is described as *kula* while it is uncertain how Aulii and Hanohano lands were used (McDermott, 1992: 12) Waikakalaua, also a *mauka* region of Waikele, `Ewa, was named as a government land (Office of the Commissioner of Public Lands, 1929). No LCAs were claimed in Waikakalaua, however one Hawaiian person, Kuene, applied to the Privy Council for lands in the upper portion of Waikakalaua in 1846.

> At the conclusion of the above the application of Kuine asking for the upper portion of Waikakalaua as per submitted survey, was taken up and the same was objected to, said taro patches belonging to Ohua (Hawaii State Archives, Notes from the Meeting of the Privy Council, Nov. 20, 1846).

Neither Kuine's [Kuene] application nor the survey submitted to the Privy Council was available so it is uncertain if he is claiming taro patches in Waikakalaua, though it might appear to be the case since he was asking for land in Waikakalaua.. The "taro patches belonging to Ohua" probably refer to the *`ili* of Ohua in Waikele, located southwest of the project area. Most likely, Kuene applied for Waikakalaua lands which were located just *mauka* of the well known cultivated *`ili*, although it may be that those portions of

Waikakalaua had already been sold or leased off and for that reason, Kuene's request was denied. There is no historic record of human settlement or cultivation practices in the portion of Waikakalaua situated adjacent to the project area.

Following the Māhele, the Department of the Interior sold one third of Waikakalaua to J. N. A. C. C. Gilman (John Neddles) in fee simple in 1846 recorded as Grant 6 in the *Index of all Grants and Patents Land Sales* (Hawaii State Archives, Interior Department Letters, October 7, 1846; Office of the Commissioner of Public Lands, 1916: 44). Terms of a later lease between Harriet and G W C Jones (John Neddles' daughter and daughter's husband) and Charles A. Brown include the building and repair of fences suggesting cattle was being raised on the land (Liber 133: 89-90). The remaining two thirds of Waikakalaua Gulch was leased to Arthur Brickwood in 1847 for pastureland (Hawaii State Archives, Interior Department Letters, August 7, 1847). An 1877 map of Waipi`o depicts the project area and vicinity as "grassy plains" suggesting the plateau in between Waikakalaua and Kīpapa was being utilized as pasture lands.

Although there is some evidence of sugar cane cultivation within the lower reaches of the Gulch (Hammatt *et al.*, 1988), there is no indication sugar cane was grown in the gulch adjacent to the study parcel. O.R.&L. Co. began construction of a railroad line up Waikakalaua Gulch beginning 1905 (Kneiss, 1957: 11). Apparently, it was first used to transport pineapple and later developed for sugar cane. A 1928-29 U.S. Department of the Army Map shows a branch of the O.R.&L. railroad extending up to Kīpapa Camp 5 (K-5), a Dole Pineapple Co. plantation camp formerly located adjacent to the project area (See Figure 5). A brief description of K-5 is provided by a former resident from one of the camps: "Nestled among the eucalyptus trees, the typical pineapple plantation camp had its bath house, outdoor toilets and even an unsurfaced basketball court" (Harada, 1996). Another Dole Pineapple Co. camp, Pine Spur Camp, was located on plateau land west of Waikakalaua Gulch. Remnants of this camp were recorded during an archaeological investigation of the area (Sinoto, 1990).

The Waikele Branch of the Naval Ammunition Depot was commissioned more than ten years prior to World War II (Allen, 1971: 228). Tunnels were excavated beneath Waikakalaua and Kīpapa Gulches for storing ammunition. An example of the magnitude of such underground military works in the *mauka* areas of Pearl Harbor is the following description of "The Hole", a $23,000,000 excavation beneath Schofield:

> The entrance appeared to lead only to a small dugout in a rolling hill, but at the end of a quarter-mile tunnel two elevators–one big enough for 20 passengers and the other able to carry four 2½ ton trucks–gave access to a three floor structure, self-sufficient even to a cafeteria which could serve 6,000 meals a day (Allen, 1971: 229).

There is no documentation of the location of the tunnels or how far up Waikakalaua they extended. None of the archaeological studies in the vicinity of the project area mention military use of that particular area of the gulch.

IV. PREVIOUS ARCHAEOLOGY

Waipi`o and Waikele

The earliest archaeological work in the Waipi`o and Waikele *Ahupua`a* was conducted by J. Gilbert McAllister in the 1930s. He described several sites in Waipi`o and Waikele, most of them located near the marine resources and the fishponds of Pu`uloa or on the wide coastal plain with the excellent taro lands in proximity to the Waipi`o Peninsula. Those archaeological sites recorded closest to the project area include Sites 130, 131, 132 and 204. Site 130 is documented as Moaula Heiau located on the east side of Kīpapa Gulch and described as being a companion *heiau* to Heiau o Umi (Site 131) located at the bottom of Kīpapa Gulch (McAllister, 1933: 107). McAllister claimed both *heiau* were covered in cane during the time of his survey. In a reconnaissance survey of military lands in Kīpapa Gulch conducted by Bishop Museum, both *heiau* were documented as located inside Kīpapa Gulch and were listed as destroyed sites (Rosendahl, 1977). During a reconnaissance survey and sub-surface testing in Kīpapa Gulch in 1988, Cultural Surveys Hawaii searched for the Moa`ula Heiau and Heiau o Umi. "No actual structure was observed, but a fairly level area, with some *ki* plants, was observed" (Hammatt and Borthwick, 1988: 31).

Site 132 is described as Waikakalaua and Kīpapa Gulches which were made famous by a battle between Hawaii and the then chief of Oahu, Mailikūkahi (McAllister, 1933: 107). Site 204 is named O`ahunui and is described as a stone "whose outline is said to resemble that of O`ahu" (McAllister, 1933: 132). The location of the O`ahunui stone is in the gulch near the Ewa-Waialua District boundary, presumably Waikakalaua Gulch. McAllister quotes as further description of the stone.

> The stone was formerly visited by the Hawaiians, for no one could say that he had been entirely around the island of O`ahu, unless he had been around the stone. In the nineties it seems to have been a favorite expedition for Honoluluans to ride out to O`ahunui and walk around the stone. O`ahunui is also the name of one of the former chiefs of O`ahu. He came under the influence of the cannibal chief (Site 220), Lo Aikanaka, and learned to like human flesh. It is reported that he killed and ate his two nephews, the children of his older sister, who shared with him the royal power and prerogative. Lehuanui avenged the death of his children by killing O`ahunui and his wife Kilikiliula, who had it within her power to save her children. It is said that O`ahunui and Kilikiliula and the attendants that participated in the killing and cooking of the children were turned to stone and are still to be seen (77, pp. 139-147).

No archaeological resources were documented in the area for many years. In 1983, an archaeological reconnaissance survey of 300 acres was conducted for the proposed Hawaii High Technology Park (Hommon and Ahlo, 1983). One archaeological site was identified during the survey, Site 50-80-09-3401. This site consisted of a terrace measuring 17m long by 2-4m wide by 0.3-0.6m high with one stacked retaining wall. One interpretation of the

terrace was as an agricultural plot used for non-irrigated crops. No further archaeological work was recommended based on the small size of the site, its simple form and the lack of surface artifacts encountered.

The archaeological inventory survey of the final phase of Mililani Town [Mililani Mauka] was completed in 1985 (Barrera, 1985). The lands surveyed include the approximately 100 acres of the current project area The fieldwork consisted of a brief inspection of the fields which were then cultivated in pineapple and particularly the two shallow gulches in the study parcel (See Figure 1). It was concluded that "if any structural remains of an archaeological or historical nature ever existed on the subject property, pineapple cultivation has long since erased any such evidence (Barrera, 1985: 1). No further archaeological work was recommended.

One site was identified during a 70 acre reconnaissance survey of the Waikakalaua Gulch (Kennedy, 1985). This site was described as "an unirrigated terrace-most likely for the cultivation of dry taro or sweet potato" (Kennedy, 1985: 4). Subsurface testing produced one small piece of *kukui* nut, too small for radiocarbon testing. It was concluded the property needed no additional archaeological work. In 1990, a reassessment of the 70 acres was undertaken because the original survey was considered deficient and failed to "meet the minimum guidelines set by the Historic Preservation Program of the State Department of Land and Natural Resources" (Sinoto, 1990: 1). Due to lack of site location map, the single terrace recorded during the first survey was not relocated. During the 1990 resurvey, four areas of structural remains were located including areas of historic habitation platforms, retaining walls, water catchments, bridge remains, historic roadbeds and associated retaining walls. Areas 1 and 2 were assigned State site numbers 50-80-08-4662 and 50-80-08-4663 respectively. The structures of Area 2 including historic habitation platforms, retaining walls and excavated catchments were associated with Japanese plantation workers who probably lived at the Pine Spur Camp, a plantation camp functional in the early part of the twentieth century. Recommendations included possible preservation of some features of Site 50-80-08-4662 and further archaeological work on this site.

A survey of the Waikele Branch of the Lualualei Naval Magazine documented five archaeological sites [50-80-08-2919-2923] (Riford and Cleghorn, 1986). This study area consisted of 264 acres along Kīpapa and Waikakalaua streams near their confluence. Twenty-one overhang caves and crawl spaces were identified in Waikakalaua Gulch including one modified cave and eleven with prehistoric material. Several historic features were also recorded (though not deemed archaeological sites) in Waikakalaua Valley including cement boulders, portions of an old roadbed, boulder and cobble paving associated with an abandoned railroad berm, scattered boulder mounds and facings connected to historic agricultural clearing activities and boulder rock tailings associated with road construction or ammunition storage facility excavation. In Kīpapa Gulch, three rock shelters were observed as well as segments of a railroad berm, remains of a railroad cane-hauling car and rock tailings. The rock shelters along Waikakalaua Gulch are suggested as temporary habitation sites for a possible travel route from Pu`uloa over Kolekole Pass and into Wai`anae. Many historic references point to a transportation route

between the south coast and central and western O`ahu. Site 50-80-08-2922, situated on an intermittent tributary of Waikakalaua Stream, was recorded as a historic basalt rock quarry which may have been used prehistorically. Further archaeological testing was recommended for only one site, Site 50-80-08-2919.

An archaeological reconnaissance survey was conducted for a 2.75 acre parcel of land in Mililani Town, west of Mililani High School (M. Rosendahl, 1987). No archaeological resources were identified and no further archaeological work was recommended.

422 acres of the Waikakalaua Gulch were surveyed during an archaeological reconnaissance of Waikakalaua Ammunition Storage Tunnels Site (Hammatt *et. al*, 1988). Two small agricultural terraces were recorded situated parallel to the stream. The dimensions of the terraces were 12 m long and 0.3 m wide. The two terraces were associated with sugar cane cultivation based on their low height and their location in a former cane field. The land within the study area had been heavily modified due to the grading and filling required during the construction of the 1905 railroad line and with the excavation of the ammunition storage tunnels during the second world war. No further archaeological work was recommended for the area.

The proposed stream clearing of Melemanu Woodlands Phase III was given archaeological clearance in a letter by Joseph Kennedy (March 16, 1992) who stated "it was in our opinion that no further work was necessary on the subject property or, by extrapolation, any lands mauka here due to topographic conditions (Kennedy, 1992: 1). Kennedy also based his decision on a field inspection of the study parcel by Dr. Dye from the State Historic Preservation Division who maintained 'the depositional environment is inhospitable to the preservation of historic deposits'....'there is no reason to conduct an archaeological survey for this project' (in Kennedy, 1992: 1). No map was included in the letter report and the exact location of the subject property is unknown.

An archaeological inventory survey of the proposed Mililani Summit project area produced three sites (50-80-08-4436-4438) consisting of two historic charcoal ovens linked to Japanese pineapple workers and a complex of World War II military structures (Cleghorn *et. al*, 1992)*****. Large scale land modifications were noted in the subject property commencing with pineapple cultivation, continuing with the military construction of storage facilities during World War II and most recently with lime and lychee orchard activities. The two historic charcoal ovens were considered significant under Criteria A and D of the National Register and would be avoided during development. No further archaeological work was recommended for the study area.

In June 1993, two members of the Waipi`o-Wahiawā communities contacted the State Historic Preservation Division Office and offered to take the SHPD staff archaeologist to the O`ahunui Stone as part of the Waikakalaua Stream Realignment Project blessing ceremony in order for SHPD to record and map its location (Dagher, 1993). During the site visit, the informant was vague about the actual location of the stone and would not disclose its whereabouts. The informant "stated he believed the area was sacred

and had spiritual significance" and he was told by SHPD that this claim must be substantiated by the *kūpuna* in order for the site to be given protection status (Dagher, 1993: 2). The second informant also offered to show the SHPD staff archaeologist the O`ahunui Stone, but cancelled when he did not receive permission from the *kūpuna*.

An archaeological inventory survey conducted for the proposed drainage of the Mililani Mauka Subdivision produced no archaeological finds (Stride and Hammatt, 1993). The location of the project area was in a tributary gully of Kīpapa Gulch which showed no signs of inhabitation or agricultural modification in the prehistoric period and seemed to have been utilized only as a drainage for the pineapple fields. No further archaeological work was recommended.

Archaeological investigations were carried out for the Launani Valley Townhouse Development in 1994 (Moore and Kennedy, 1994). This development is situated inside the Waikakalaua Gulch, in close proximity to the current project area. The objective of the study was to gather more information on two documented archaeological sites (Sites 50-80-08-4812-4813) before construction began in the development. Site -4812 consists of 19 *ahu* and a capped stone flume and a terrace. The capped stone flume is associated with historic agricultural modifications. After test excavation in the terrace revealed no cultural material, it was suggested this feature was a historic modification from an old foot trail which led up the Waikakalaua Stream to a horse crossing. The complex of *ahu*, were interpreted as possible historic growing mounds for sweet potatoes and gourds due to their positioning in the ravine optimizing water catchment and soil retention. Site -4813 consists of the collapsed structures and walls associated with a former nursery which is known to have been in use until the 1960's. In addition to the archaeological excavations conducted during this study, this study briefly addressed community members concerns regarding the O`ahunui Stone. According to this study, members of the community claimed all or portions of Site -4812 constituted the "Oahu-nui Stone" (Moore and Kennedy, 1994: 1). It was concluded that because none of the *ahu* in Site -4812 resembled the shape of O`ahu and the two referenced maps depicted the location of the O`ahunui Stone outside of Waikakalaua Gulch that O`ahunui Stone was probably never located within the Waikakalaua Gulch.

In 1996, an archaeological inventory survey was completed for 1339 acres of Castle and Cooke lands slated for residential development in the *mauka* areas of Waipi`o and Waiawa Ahupua`a (Hammatt *et. al*, 1996). No evidence of historic settlement was found. This was attributed to the fact that the majority of the project area lands had been cultivated in pineapple in the historic to modern periods as well as the settlement patterns for these *ahupua`a*. A portion of the Waiāhole Ditch System (Site 50-80-09-2268) was identified as traversing a part of the project area. Recommendations were made to take appropriate mitigative measures if the site was to be impacted during development. Also, the Kīpapa Ditch Site (50-80-098-9529) is located adjacent to, but outside of the project area.

During an archaeological inventory survey of 162 acres located between H-2 Freeway and Kamehameha Highway on the west side of Waikakalaua Gulch in Waikele

Ahupua`a (TMK 09-05-02: por. 3), no archaeological sites were located on the plateau portion of the project area. However, in the southwestern portion of the project area where the study parcel extends down into the Waikakalaua gulch, three features were documented. These include a boulder structure which may have served as a possible trestle footing for the O.R. & L. rail line, a road cut and a discontinuous basalt boulder retaining wall which are associated with historic period railway construction and erosion control. The three features were considered sufficiently documented and no further archaeological work was recommended for the study parcel.

V. SETTLEMENT PATTERNS

Waikele/Waipi`o

In the pre-contact period, the settlement patterns for the *mauka* regions of Waipi`o and Waikele is unknown. In former times when the `Ewa District played a more central role in O`ahu politics, the *mauka* regions of Waipi`o and Waikele may have held more significance. Part of the regions significance may lie in the area's proximity to a major trail which linked `Ewa to the Wai`anae and Waialua Districts. Traditional literature records two battles, one involving O`ahu Chief Ma`ilikūkāhi and a later one involving Ku`alii which took place in the vicinity of the plains in the *mauka* areas of Waipi`o and Waikele. Descriptions of the locations of the battles suggest the trail was in use, even in those times.

There is some suggestion that the area today known as Waikakalaua was once known as O`ahunui and prior to that by an unknown name. The O`ahu legends indicate a connection between O`ahunui, a sacred residence of the chiefs, the sacred birth site Kūkaniloko and Helemano, the alleged home of Lō `Aikanaka, a cannibalistic chief. References allude to these areas as set apart for the exclusive use of the chiefs.

Historic references suggest the project area was once a dry forest with *`iliahi*. This was purportedly burned off during the sandalwood trade in the late part of the eighteenth century, early part of the nineteenth century. Information collected from the Māhele indicate the majority of human settlement in Waipi`o and Waikele was concentrated on the margins of Pearl Harbor (Pu`uloa) where marine resources, fertile *kalo* lands and fresh water were abundant. The Māhele documents some settlement in what was known as Waipi`o Uka or the uplands of Waip`io. This was concentrated in Kīpapa Gulch. There is no report of human settlement in the Waikakalaua Stream Gulch, although historic letters suggest *kama`āina* were familiar with the area.

Cattle grazing probably comprised the main land use in the project area and vicinity in the latter half of the nineteenth century. Large scale pineapple agriculture appeared in 1908 with the formation of the Waipio Pineapple Company, although pineapple may have been grown there earlier. Oahu Sugar Company was also planting sugar in the *mauka* areas of Waipi`o, although the project area seems to be beyond the upper limits of sugar cultivation. There is no indication sugar cane was ever planted in the study area. The earliest mention of pineapple in the study parcel is approximately 1917 when the Schofield Barracks Military Reservation was formed. To manage the fields in this remote area, Dole Company established a plantation camp named Kīpapa 5 (K-5), located less than ½ kilometer east of the project area. The camp was disbanded in the 1940s although pineapple continued to be cultivated until 1989. Approximately twenty acres of the project area has been used as a tree farm for the Mililani Town Association since Castle & Cooke acquired the lands, however the majority of the land has not been used since the last pineapple harvest in 1992.

VI. NATIVE HAWAIIAN CUSTOMS PERTAINING TO THE PROJECT AREA AND POSSIBLE CULTURAL IMPACTS

A. Burials

There are no documented burials in the project area. The project area has been cultivated in pineapple for approximately eighty years (c. 1910-1989), during which time the topsoil has been greatly impacted. If there were once burials in the project area, they probably no longer exist.

B. Hawaiian Trails

In the vicinity of the project area, the Kamehameha Highway follows the general route of a well documented traditional trail, which formerly connected `Ewa to the Waialua District through the Central O`ahu Plains as well as to Wai`anae over Kolekole Pass. The route of the trail is described as such, running from Waialua to `Ewa.:

> Beyond [Kūkaniloko] was Paka Stream and the *maika* field of Kapalauauai, which lay beyond the pond belonging to the village. There the trail met with the one from Kolekole and continued on to the stream of Waikakalaua, Piliamo`o, the plain of Punalu`u, to a rise, then down to Kīpapa and to Kehualele (`Ī`ī, *John Papa, 1959: 99*).

The Kamehameha Highway is approximately 1.5 kms south of the project area and thus the `Ewa-Waialua Trail was probably about that distance from the study parcel. This trail most likely attracted much traffic through the area. Traditional accounts speak of O`ahu chiefs engaging in battles on the plains of Punalu`u and Kahuamoa. These place names correlate to areas along the `Ewa-Waialua road.

A second trail which may have been located even closer to the project area is also noted by `Ī`ī. The following is a description of the trail:

> A trail ran from this main trail [Waialua-`Ewa] to Kalakoa, O`ahunui, and other places much visited, such as Kukaniloko. From there it extended to the digging place of Kahalo, then went below to Paupalai, thence to Lelepua, and to Kahalepoai, where the legendary characters Kalelealuaka and Keinohoomanawanui lived. Then it reached Kekuolelo, the stone in which the *niho palaoa* was hidden, then went to Pu`unahawele and Pueohulunui, where it met with the Waialua trail (`Ī`ī, John Papa, 1959:99).

The exact route of this trail is unknown, however, it may have existed somewhat *mauka* of the main route given the supposed location of O`ahunui (See Figure 7). If this trail did once traverse the plains near the project area, knowledge of its location has been lost.

We have identified no documentation pertaining to any other trails in the project area, though as in the case of the burials, any preexisting trails would have been obliterated with pineapple cultivation practices.

C. Native Hunting Practices

We are aware of hunting practices in the area. Castle & Cooke has informed us of pig hunters who access the property illegally (personal communication, A. Gaston, May 2001). There are also many tell-tale signs of pigs inside the project area and just outside the parcel within the gulch. These signs include rooting, burrowing and pig trails. Although modern pig hunting is often not considered a "traditional cultural practice", it is associated with sustenance for many Hawaiians and therefore is part of gathering.

Preliminary contact with the community suggests that access for pig hunting is an issue in the Mililani Mauka area in general, but not specifically in the project area. A hunter who was interviewed claimed that most of the hunting grounds, both used traditionally and presently are in the *mauka* regions of Waikakalaua and Kīpapa, up the stream valleys. Access to some of these areas was formerly from Mililani Mauka, at the *mauka* edge of the Mililani Mauka Subdivision. When the area was formerly planted in pineapple, access to hunting grounds was not a problem. However, with the growth of Mililani Mauka, all points of access to those *mauka* hunting grounds have been cut off.

D. Native Gathering Practices for Plant Resources

Several native plants were observed in the study parcel. With the exception of *ʻiliahi* (*Santalum* spp.), all the native plants were located on the edge of the study parcel, overlooking the Waikakalaua Gulch. The sole *ʻiliahi* (sandalwood) tree was situated in the northern corner of the Tree Farm, approximately 6 meters from the gulch edge and near the fence separating the tree farm from the remainder of the undeveloped lot. *ʻIliahi* is recorded to be one of the original species which inhabited vast dry forests which formerly covered the region. Traditional uses of *ʻiliahi* include for medicine, as a perfume, as firewood and in the manufacture of musical instruments (Krauss, 1993; Wagner, 1986; Buck, 1964). The other native plants include *aʻaliʻi* (*Dodonea viscosa*), *koa* (*Acacia koa*), *ʻūlei* (*Osteomeles anthyllidifolia*) and *lauaʻe* (*Phymatosorus scolopendria*). *Aʻaliʻi*, *koa* and *ʻūlei* are common dye plants, once used to color tapa (Krauss, 1993). *ʻAʻaliʻi* is considered a hard, heavy wood and was generally used when conditions necessitated such as posts, rafters, and purlins in house construction. The flowers of the *ʻaʻaliʻi* are popular in *lei* making in old Hawaii and today. *Koa* wood was traditionally the preferred wood from which to manufacture the Hawaiian canoe (Krauss, 1993: 48). Canoe paddles were also carved from *koa*. *Koa* is also indicated as a medicine (Krauss, 1993, Gutmanis, 1976). A mixture of *koa* bark, *ʻōlena* and mountain apple bark was used as a general tonic for "cleaning the blood" (Krauss, 1993: 102). The strong tannin content may have been key to the use of *koa* leaves as a contraceptive (Gutmanis, 1976: 32). *ʻŪlei* berries are edible and were probably a common famine food in the Waipiʻo ʻUka region. Like the *ʻaʻaliʻi*, the *ʻūlei* wood was a hard wood and was commonly used in fashioning farming tools such as the *ʻōʻō*, the digging stick and adzes. The bark of the *ʻūlei* was mixed with other plants to form a mild enema (Gutmanis, 1976: 25). The *lauaʻe* fern was most noted for its fragrance and was used in that capacity to perfume tapa (Krauss, 1993). *Lauaʻe* was and continues to be a popular *lei* making plant.

All of the listed native plants found along the gulch rim were probably once more extensive on the plains, or plateau lands which now encompass the project area. An account from the 1830s documents groves of *koa*, tall stands of *ki* and testimony of vast dry forests which once covered the `Ewa plains. J. F. Brown's 1877 Map of Waipio attests to *Koa* and *`Ōhia* forests in the upper mountainous reaches of Waipi`o. These *koa* and *`ōhia* forests probably did extend down into the plateau lands at one time. *`Ōhia lehua* trees still exist on the steeper gulch sides of Waikakalaua, just outside of the project area.

The Waikakalaua Gulch and areas along the rim of the gulch, including the project area boundary, have traditionally been used for plant gathering by one of the interviewees and his family. Plants harvested include *`a`ali`i, pūkiawe, lehua* and various ferns. Most of the time, these plants were gathered for the purpose of making *lei*, but sometimes they were used for food or medicine. The *lehua* in particular was indicated for medicinal purposes as well as for *lei*.

E. Cultural Sites

The study parcel is located on plateau lands directly overlooking the Waikakalaua Gulch. Sources on O`ahu legends and a map (Figure 7) suggest that the gulch area is part of O`ahunui, an ancient land area reserved for the O`ahu chiefs. Two cultural practitioners indicate that this area of Waikakalaua, adjacent to the project area, is an area of historic and spiritual significance. Although a portion of O`ahunui has been severely modified by the Launani Estates Development, these individuals continue to visit the area. Part of their cultural practice includes taking care of the O`ahunui and O`ahuiki stones as well as several *ahu* on the west side of Waikakalaua Gulch. In addition, the native Hawaiian plants in the area are tended to and cleared of weeds to promote healthy growth. These individuals have requested a buffer zone on the top of the gulch as part of a transition into the cultural site of O`ahunui.

VII. SUMMARY AND RECOMMENDATIONS

This assessment has examined the effects the proposed Mililani Mauka Phase III development may have on Hawaiian culture relating to specific practices and traditions. Specific issues addressed were possible burials, Hawaiian trails, hunting and gathering practices for plant and animal resources, and cultural sites in order to identify potential traditional practices which may be affected. Three traditional practices have been indicated in relation to the project area: native hunting practices, native plant gathering, and practices involved with a cultural site known as O`ahunui.

Most directly, the development may impact gathering of native plants within the study parcel, or directly outside of the property on the gulch edge. The impact may be not only on the possible destruction of such plants, but the denial of access to gather such plants. The Waikakalaua Gulch and areas along the rim of the gulch, including the project area boundary, have traditionally been used for plant gathering by one of the interviewees and his family. Plants harvested include *`a`ali`i, pūkiawe, lehua* and various ferns. Most of the time, these plants were gathered for the purpose of making *lei*, but sometimes they were used for food or medicine. The *lehua in particular was indicated* for medicinal purposes as well as for *lei*. The specific plant species indicated as the focus of traditional cultural practices are relatively common in undisturbed lands in the vicinity of the project area.. The area of concern in which traditional gathering practices are operative appears to be quite limited within the present project area to a previously undisturbed area on the northern margin along Waikakalaua Gulch. This native gathering concern is understood to relate to a small portion of the project area.

Although hunting has not been identified in the project area, the general feeling of the hunters who traditionally have hunted in more *mauka* regions is that access to those traditional hunting grounds is being blocked off. This is particularly so considering the exponential growth the area has experienced in the last decade.

There is no consensus at this time regarding possible native Hawaiian rights to traverse privately owned lands for purposes of hunting or possible native Hawaiian rights to hunt on privately owned lands. Large land owners have pointed out safety concerns in their opposition to allowing armed groups of Hawaiian hunters with dogs to enter, camp and hunt on their property. Hawaiians involved with native rights issues have tended not to push such relatively controversial issues as hunting. In the present case it is to be emphasized that while our study did identify access for pig hunting and pig hunting as issues in the Mililani Mauka area in general, it did not identify these as issues specifically in the project area. A hunter who was interviewed claimed that most of the hunting grounds, both used traditionally and presently are in the *mauka* regions of Waikakalaua and Kīpapa, up the stream valleys. The development of the present study area would not appear to restrict access to these preferred hunting areas.

Finally, there is evidence that O`ahunui, a cultural site located in the adjacent Waikakalaua Gulch has cultural practitioners. This study has developed a substantial body of information pertaining to O`ahunui which is regarded by some Hawaiians as an area of

historic and spiritual significance. This study documents the concern of certain individuals for a buffer zone on the top of the gulch as part of a transition into the cultural site of O`ahunui. It should be made clear that the cultural site of O`ahunui, while understood variously, is not understood by us to lie within the present project area. There is no consensus at this time regarding the appropriate size and nature of a buffer zone for such cultural sites. It has been suggested that the Wahiawā Hawaiian Civic Club be consulted regarding this matter of a buffer zone for the O`ahunui site.

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APPENDICES

Preface to Interview Transcriptions

As part of this project, two formal interviews, conducted by Tina Bushnell for Cultural Surveys Hawai`i, were taped and transcribed. Transcripts of the interviews are included in their entirety in an appendical document which will be made available for public review.

The reader is reminded that the information shared in the interviews are the express opinions and views of the informants, much of which relates to their personal experiences as cultural practitioners and their own family traditions. These are their words, their experiences and their stories. Please respect them by not using portions of the interviews out of context or quoting from the interviews without giving proper credit to the interviewees. These interviews may not be used in their entirety in any publications unless the written authorization of the interviewee is obtained.

Cultural Surveys Hawai`i is very grateful to the interviewees, Mr. Tom Lenchanko and Mr. Dan Au (interviewed together) and Mr. Richard De Lima, for sharing their thoughts and for giving so willingly of their time. It is hoped that the value of documenting their *mana`o* (thoughts) will be understood and appreciated by future generations of Hawaiians and that it will serve to perpetuate the Hawaiian culture, not only for Hawaiians, but also for those who seek to understand the depth and wealth of this rich, cultural heritage.

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