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Dear Mr. Yuen:

Following are my comments on the Draft Environmental Impact Statement(DEIS) for the Sea Mountain project at Punalu'u.

(1) Over-all impact of the project

“The plans are supportive of urban growth in this area.”(1-11)

“In the long term, this project will add to the urbanization of Ka'u.”(1-21)

“New development tends to attract other development.”(5-78)

“A double-edged impact is the general rise in real property values. It is positive from a tax revenue and asset value increase perspective but negative in that it raises prices and makes housing less affordable to lower income families. There will likely be a slow demographic shift in some parts of the region, a kind of gentrification, as income and ethnic profiles slowly shift with the increasing rise in property values.”(5-80 to 5-81)

It is clear then that the project will have a negative impact on lower income families. The only question is—how fast will this “gentrification” occur? the developers list 5 developments they believe are likely to occur. HOVE and Discovery Harbor are anticipated to “buildout”(no mention of Mark Twain or Green Sands subdivisions) Honuapo hills have 1,653 acres, zoned Ag 20(could be 80 units if zoning remains the same), Honuapo lookout have plans for 46 “farms” of 2 acres each, the Great Crack has plans for 90 lots, Kawala has plans for 14 lots(5-77 to 5-80). The thought of HOVE filling up is by itself frightening enough but adding the other anticipated developments(including Mark Twain and Green Sands) means K'au will definitely shift toward “gentrification”. The developers give no time estimates for this process but is it unreasonable to think these developments could be completed within the 10 years to buildout for the Sea Mountain development?

(2) Housing

“The project would provide a mix of housing in a part of the island in which there is strong demand for a range of housing types and prices.”(1-11)

1. A greater range of housing types and prices is provided by the existing

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subdivisions in Ka'u plus the proposed developments outside Punalu'u. There is no need for more housing projects in Ka'u.

2. On p. 3-1 the developer states, "...sales starting from \$264,000 for condo/townhouse lots[sic] to \$770,000 for single family lots..." As Appendix G makes clear, this statement is total nonsense and why the developer made it is puzzling. \$264,000 is the price for single family lots with a golfcourse view (half-acre lots with an ocean view go for \$600,000). \$770,000 is the price for ocean view duplexes in Area 2 and the cheapest condo/townhouses are \$372,000(Appendix G,p. 5-6)

The only units which are in any sense affordable are the "potential" 55 units of housing at \$245,000/unit. The lot prices in Area 1 make those beyond consideration. The multifamily units start at \$372,000 and there are only 152 of them compared to 796 units at \$496,000(and 130 at \$770,000). The "mix" of housing is a mix for the wealthy.

3. They state their prices do not take into account inflation or rising values in real estate and this would seem to be important as the project will take 10 years to complete.
4. Regarding the impact of the project on housing in Ka'u, as the DEIS does not address this(except for making the same statements as George Atta re: construction workforce housing units)I will examine Atta's answers to my questions. I asked,

"What impact will the influx of construction workers who did not live in Ka'u prior to their employment at the project have on the cost of single family house and rental units in Ka'u?" Atta answered, "We do not expect a significant impact as we will provide units for those who wish to live in the area. Those who commute should not have any impact on prices in the region." And in answer to my question # 5 concerning construction worker housing, Atta states, "Based on experience with othe Big Island projects we have experience with we are projecting that 10-15% of the workforce will want to find rental housing in Ka'u during their employment. We are considering developing approximately 60 construction worker accommodations." While there is no commitment to building worker housing as they are only "considering" it and we don't know the exact number, only that it will be "approximately" 60 "accommodations"(bunkhouses?), let us assume they are going to build 60 units of construction worker housing and that they will be onsite.

I then take Atta's two answers to mean that they anticipate that 10-15% of the construction workfore will come from off-island and need housing and they anticipate the number of such workers to be 60. Appendix G, table 8 contains the anticipated yearly construction jobs from 2008 to 2017(2006 and 2007 are start up years with only a few jobs). While there is considerable fluctuation (range: 809-181) in the anticipated number of jobs, at 10-15% and with 60

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units, there appears to be no impact on the Ka'u rental market except for the first year. There are 809 jobs anticipated the first year(2008) and assuming there will be no construction worker housing built before the construction workers arrive this means there will be a demand for 81-121 rental units by construction workers the first year. What impact will this have on the rentals in Ka'u? It would help if we knew current vacancy rates but in answer to my question about that, Atta replied, "We have not investigated the current average vacancy rate for single family and multi-family units in[Ka'u]." Nor is this question addressed in the DEIS. I believe the answer is needed. The rental question gets really interesting if you consider that in 2009 they are anticipating only 276 workers. This means the 81-121 units that workers somehow got in 2008 will now be vacant. Does the Ka'u rental market have that much elasticity? I doubt it and I suspect the first two years of construction will be financially and/or emotionally stressful for both workers and landlords.

But the more important question is whether 10-15% is an accurate estimate of construction workers needing housing. If the percentage rises a little to 20% then in 5 out of the 10 years from 2008-2017, more than 60 rental units will be needed(ignoring the first year, the range is 90-76). Therefore, it is important to know if the other projects on the Big Island which were used to establish 10-15% are comparable to Sea Mountain. How many mixed residential/commercial projects on the Big Island were examined for data regarding worker rental housing? How large were they and what was the construction time span? Where were they located?

(3) **Jobs**—Jobs are being touted as a major benefit of this project to Ka'u(perhaps the only benefit except for those who own real estate and/or a business in Ka'u).

The developer states several times there will be 517 "ongoing" jobs at buildout. However, the consultant in Appendix G,p. 2 states there will be "over 600 permanent jobs" at buildout but then on page 13 in Table 1 says there will be 517 "ongoing" jobs. Assuming ongoing and permanent mean the same thing, I will assume the developers reference to over 600 permanent jobs is simply a mistake.

However, the job situation gets genuinely confusing when on p. 5-64 when considering the employee housing they will have to provide per the agreement with Brewer for the zoning, the developer states there will be 240 employees and by the agreement they will provide 60 units.

- a. If there are 517 permanent jobs then are these 240 employees each working more than one job or are there 277 permanent employees which for some reason don't fit in the category of workers for which they have to provide housing?
- b. Is it coincidental that they state they will build 60 "accommodations"

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for construction workers and 60 for employees(i.e. are these 60 intended to do double duty?)

c. If there are 517 permanent employees and each is working one job then why won't the developer have to provide 119 units of employee housing per the agreement?

1. Will there really be 517 jobs at buildout?

Table 6 in Appendix G gives figures for the number of jobs at 4 venues (e.g. Golf course, Sea Mountain Inn). However, there is no statement as to how these figures were arrived at nor is there any data on the types of jobs and the number of employees for each within each venue. How were these figures arrived at and what is the distribution of jobs? And what will be the wages or salaries expected?

As it is we have to take the developer's word that there will be 517 jobs and we have no idea what the minimum wage will be, etc. In fact, we don't even have average or median wages/salaries in the DEIS even though as a consulted party I asked in January, 2006 "Given the maximum number of workers, what would be their average hourly wage and what would be their median hourly wage?". George Atta answered in June, 2006, "We do not know the specific range of wages since an operator has not been selected but we anticipate that they will be comparable to resort wages in Kona". The developer has had several months to determine resort wages in Kona and give a dollar figure answer to my question in the DEIS but has failed to do so. Why not? Perhaps partly because they don't know if there really will be 517 jobs. One of my questions was, "Once the project is completed, what percentage of the goods and services needed by residents of the project will be provided by businesses located within the project and what percentage will be provided by other businesses in Ka'u?". Atta answered, "The percentage of services provided by onsite vendors as opposed to offsite vendors has not been broken down[and is not provided in the DEIS so I still would like to know how economically self-contained the project will be].....However, as you know business viability is based on the size of the existing market and some may not locate on site till a certain critical mass of development is reached," Why did Atta include this last statement as it is irrelevant to answering my question as I specify "Once the project is completed". Is he equivocating on whether vendors actually will establish themselves on the project site? Or do I need to rephrase my question as at buildout rather than completed?

2. Regardless how many jobs are generated, will people from Ka'u get these jobs? I asked, referring to employment at the project, "Given the maximum number of workers, what percentage will have lived in Ka'u prior to their employment at the project?" Atta answered, " This question was asked earlier and the figure is unknown at this time." Actually, the earlier question was "What percentage of construction workers will have resided in Ka'u prior to their employment at the project", so I guess we can take his answer as applying to both categories. In any case, we have no idea how many Ka'u

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people will get what kind of permanent job at the project.

3. Turning to construction jobs, there is a little more clarity. In Table 8 in Appendix G, most of the construction jobs are given an average wage of \$65,000[per year?] with some at \$50,000. I oppose the project but as neither Atta or the DEIS will commit to whether construction jobs will be union or non-union, I urge the county to require that the construction contractor be union.

And who will get these jobs? As discussed above, the developer apparently anticipates 10-15% of these jobs will be from off-island, although we don't know how well founded this estimate is. Given Atta's answer stated above and no data from the DEIS we have no idea how many of the remaining 85-90% of the construction workers will come from Ka'u and how many will come from other parts of the Big Island. What we do know is that there will be considerable fluctuation in the number of jobs from year to year. For example, as noted above, in 2008 there will be 809 workers and in 2009 only 276 workers. This is the most dramatic change from year to year but in 2011 they anticipate 262 jobs and in 2012, 476 jobs (Appendix G, table 8) so marked changes continue. Construction jobs pay well but this won't help Ka'u workers unless they can get them and somehow manage to hold onto them through all the fluctuations in the workforce. Otherwise, they will simply end up paying more for food, housing, etc. because of the influx of money into the area.

- (4) **Recycling**—the developer emphasizes how they anticipate 15%-40% of the non-green waste to be recycled but beyond education they never specify how this will be accomplished? Will there be a central station where residents bring their recyclables? Or will there be containers at each unit /complex which will be picked up by some contractor? Or will there be some other arrangement? This is an important issue because the calculation of the percent being re-cycled is important for their estimates of the impact of the solid waste from the project on the Pu'uana'hulu landfill(cf. # 11—**Solid Waste**)

On 5-62 they state that "Green waste will be composted at the proper facility." This apparently means that it will be taken to Pu'uana'hulu landfill and composted there(this, at least, is where the construction green waste is going).

- (5)**Punalu'u beach carrying capacity**—This analysis epitomizes for me what I believe is the developers lack of any real interest in the area except for making money. Appendix L contains the analysis of beach carrying capacity. It begins with a traditional mode of analysis in which you assume a certain amount of space needed by each person on the beach and then take a turn-over rate and arrive at the number of people per day that the beach could handle. They state(Appendix L, p. 1), "At locations such as Punalu'u where tour bus traffic is popular and people tend to spend 15-30 minutes...." you use a turnover rate of 4/day. In the first place, as the survey by Ka'u Preservation demonstrates, the main traffic

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to the beach is not four buses but cars. Granted these may be mostly tourists and therefore their assumption of 4/day may be accurate. But it is accurate for the wrong reasons and demonstrates they did no survey themselves of the use of Punalu'u beach. This becomes even clearer when they arrive at a figure of 640 people/day as the carrying capacity of the beach. Again, Ka'u Preservation's survey reveals that the beach already averages over a 1000 people/day and therefore by their calculations is already over carrying capacity. And this is without any estimate of the amount of increased beach use by the residents of the project. It becomes almost laughable when they have the nerve to say they are going to do more than just the traditional analysis and consider other questions and then give the answers to a survey they gave to FIVE people. Five people isn't a representative sample of anything except perhaps the number of people on Mars. Or did they intend the whole analysis to be a joke?

(6) **Water**—the developers state that “The project hydrologist will analyze sustainable yields of the aquifer to ensure water use does not exceed demand.”(5-52) It is hard to believe that that this critical analysis has not been done, especially when in answer to my question about this issue, George Atta in a letter to me on June 23, 2006 stated “While the capacity of the aquifer below the property is under investigation and sustainable yield calculations have not been determined, it is the general professional opinion that there are huge quantities of flow in the aquifer.” I must admire the willingness to base your project on “general professional opinion”(whose?) but if there is not a sustainable aquifer then it would seem insane to allow the project to continue, especially as there already is a water shortage in the Ka'u area and water meters are no longer available in some areas(although commercial water haulers still are hauling daily and there are reports the aquifer is being lowered). Surely there must be a completed analysis of the water availability before the EIS is approved.

(7) **Hazardous materials**—p. 1-13 they state there will be “hazardous materials” which may contaminate groundwater but (a) what are these hazardous materials (b) how much contamination will result?—on p. 5-14 they state it will be within NPDES limits but what are these limits? (c) what possible damage to flora or fauna will there be from this contamination? Especially as on p. 4-40 they state chemical run-off from construction may threaten one rare damselfly species at Punalu'u.

Dust during construction is another issue and in Appendix B they state the measures which will be used to control it(mostly watering). The consultant goes on to state that “Monitoring dust at the project boundaries during the period of construction could be considered as a means to evaluate the effectiveness of the project dust control program.”(Appendix B page 3). The developers do not discuss this possibility in their general discussion and does this mean they do not intend to have such monitoring? If not, who will monitor dust levels?

(8)Traffic volume

(A.)First I will take their analysis as adequate and examine the conclusions they come to. The point of the analysis is to establish a Level of Service(LOS) value. Some sections will drop from A to B and all of Mamalahoa Hwy. east and west of the project will be at level C during the peak AM and PM hours(Table 3 in Appendix K). But the most critical decline in LOS will be

at the west intersection of Ninole Loop Rd. with the Mamalahoa Hwy. They state that the left turn/through lane at the west intersection going west on Mamalahoa Hwy (i.e. the turn into the makai portion of the project) will be at a LOS of E which they say is “indicating minimally acceptable conditions.” In their tables they give speed and waiting time values but they give no narrative description of the LOS levels. Fortunately these are available in the EIS for the spaceport in Ka’u. There you find that, “Level-of-Service C represents conditions at which noticeable delays occur and the freedom to maneuver between lanes becomes restricted. Slowing of traffic is particularly noticeable when vehicles turn left and passing capacity is reduced”(Vol. V, 2-15). Sounds like some definite inconvenience. Consider then E. “Level-of-Service represents unstable traffic flow operations at or near capacity. *Any* disruption no matter how minor causes queues and deterioration of LoS[the only level below this is F which is inoperable]. Passing becomes virtually impossible on two-lane roadways.”(Vol. V,2-16)(my italics). I don’t know who considers this “minimally acceptable”. And then you find that not only will the peak hours on Mamalahoa be at LoS C but also at the west intersection the left turn/through lane for eastbound traffic(i.e. the traffic turning into the mauka section of the project) will go to a LoS level of C. Given all the C’s and E’s, the consultants statements in Appendix K that you need only some channelized improvements to Mamalahoa Hwy and Ninole Loop Rd. seem understated.. The consultant does go on to say that if primary buyers exceed 30%(the figure used for calculating traffic volume) then “...additional mitigating measures may be required , including the installation of traffic signals at the west intersection...”(Appendix K page 15).

- a. this is true only if a LOS of E is acceptable
- b. it doesn’t specify how much over 30% would force signals. Given one intersection is already E and the another C maybe 31% would push it over the edge?
- c. It looks to me like a signal is inevitable at the west intersection. This becomes even more likely when you look at some of the assumptions underlying their traffic volume analysis. They make several assumptions which lower the number of drivers turning into or out of the project.

1. they assumed continued growth rate of non-project traffic on Mamalahoa Hwy to be the same as the increase from 1994 to 2004. They get a rate of 7.4% which was gotten by taking the Hawaii State DOT figure for 1994 and the figure for 2004 and calculating the % increase(i.e. it was not averaged over the ten year period). Given the possible developments that will occur in Ka’u,includ-

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ing possible commuting construction workers for the first 10 years, this is most likely a low percentage increase.

2. They then say that “The volumes of traffic entering and exiting the project site were not changed.”(Appendix K page 6). That is, they kept the same figures for the traffic on Ninole Loop Rd. as in 2004. However, the DOT data shows that in 1994 there were 490 vehicles on Ninole Lp. Rd. and in 2004 there were 637 vehicles on Ninole Lp. Rd. Using their methods of calculation this gives a 30% increase from 1994 to 2004 and therefore should be projected for the future. This is important because the non-project traffic on Ninole Lp. Rd. is almost entirely visitors of one form or another(a few campers and a few residents at Punalu’u constitute the rest). This means that each car that is on Ninole Lp.Rd. has to turn into and turn out of Punalu’u. This indicates that with a 30% increase in traffic on the road you have as much as a 60% increase in the number of turns into and out of Punalu’u. That traffic into Punalu’u will continue to increase seems highly likely when Punalu’u beach is described by one realtor as being “voted the number one Black Sands Beach in Hawaii by the Travel Channel”(HIJ, vol. 8, #22, Kau Country Properties ad)

Apart from visitors to the beach there are also those who would visit the shops,etc. in the project and here they state “For the purposes of this study, the Village Center was assumed not to attract any by-pass or diverted trips.”(Appendix K page 10). A somewhat startling assumption but one that certainly helps in keeping the LOS at the west intersection from going even lower(i.e. from E to F).

2. Their sampling of the turns into and out of Punalu’u yields figures that are lower than would be indicated by the number of vehicles that the DOT says are on Ninole Lp. Rd. My hunch is that this is because they used samples at the supposed peak hours(6:30 a.m. to 8:30a.m. and 3:30 p.m. to 5:30 p.m.). These may be peak hours for those going to and returning from work but they are not necessarily useful when there is heavy tourist traffic throughout the day(as is the case at Punalu’u as the survey by Ka’u Preservation confirms). In any case these discrepancies need to be resolved.

The above assumptions in their analysis and the discrepancy between their turning in/out data and DOT data all point to the certainty that there will be the need for at least a traffic signal and perhaps other changes in order to bring the LOS at the west intersection to an acceptable level. Is this a cost to Hawaii county which has not been stated in their estimated costs?.

(B) Ninole Loop Rd. at buildout

Interestingly enough, there is no LOS analysis for Ninole Loop Rd. at buildout. However, in Appendix C to Appendix I we find the following

The consultant goes on to say “The remaining project residences fronting the high way are expected to be in the “Moderate Exposure”, Acceptable” noise exposure category.” (Appendix I, p. 35). Table 6 in Appendix I page 31 shows that at peak hours, 100 feet from the centerline of the highway, the DNL will range from 63.5 to 64.4 DNL. That is, barely below 65 DNL. Remembering the statistician who drowned crossing a stream which averaged 4 feet in depth, we don’t know at any given distance from the centerline what % of time the residents will be above the 65 dB level. But best guess is it will certainly be some of the time for some of them. It is therefore instructive to consider the reason(s) for using 65 DNL as the standard and the consequences of this choice.

The consultant states, “For typical, naturally ventilated structures in Hawaii, an exterior noise level of 55 DNL results in an interior level of 45 DNL, which is considered to be the “Unconditionally Acceptable(or “Near-Zero Risk”) level of interior noise. However, after considering the cost and feasibility of applying the lower level of 55 DNL, government agencies such as FHA/HUD and VA have selected 65 DNL as a more appropriate regulatory standard.” (Appendix I, p. 8). That is, the 65 DNL level has been accepted for financial reasons, not for comfort reasons. Table 2 in Appendix I, p. 6 described the various DNL levels and there you find that at 65 DNL, 15% of the population will be “highly annoyed” by the noise(no comment on what percent are simply annoyed). The Average Community Reaction is classified as “significant”. Under General Community Attitudes Towards the Area they say “Noise is one of the important adverse aspects of the community environment.” In this latter section they also make the comment that “Noise at low levels can still be an important problem, particularly when it intrudes into a quiet environment.”[will Ka’u at buildout still be such?]. And in a note in Table 2 state “Research implicates noise as a factor producing stress-related health effects such as high-blood pressure and stroke, ulcers and other digestive disorders.”

The consultant recognizes these considerations and says, “It should be noted that the “Minimal Exposure, Unconditionally Acceptable” noise exposure level is 55 DNL. Essentially all of the future residences fronting Mamalahoa Highway in Figure 12 are predicted to be exposed to traffic noise greater than 55 DNL, so there is some risk of occupant dissatisfaction due to future traffic noise levels at these future residences. In order to reduce future traffic noise levels at these frontage lots to 55d DNL or less, sound attenuation wall heights in the order of 10 feet will be required to single story homes....The construction of sound attenuating walls and/or the use of air conditioning *should be considered* to minimize the risks of occupant dissatisfaction along the first row of homes fronting Mamalahoa Highway.”(my italics)(Appendix I, p.35). What would be needed for 2 story residences—20 foot walls? And what about those two residences where they already have to build a 6 foot wall just to bring it down to 65 DNL—don’t want to think about it.

The developer does cite the consultant’s concerns in their examination of noise but under Mitigative Measures they simply state, “The applicant shall

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reduce noise levels to[sic] at future residences to below the 65 DNL FHA/HUD threshold by either constructing a minimum 6 foot sound wall along Mamalahoa highway or by constructing residences outside of the 65 DNL noise contour per the recommendations of the noise study.”(5-74) The developer has no intention of reducing levels below the 65 DNL standard, let alone to 55 DNL. Therefore it seems that in the future we could expect complaining residents along the highway(and a higher incidence of stress-related illnesses). Consider further that “ Interior lots are usually exposed to 3-10 DNL lower than the front lots which are not shielded from traffic noise.”(Appendix I, p.8). It appears that some residents of interior lots would also be complaining about the noise level if the 65 DNL is maintained. If these complaints are to be addressed(and I am certain the council member for Ka’u will hear about it) it seems it would fall on the County. This raises the specter of not just 10 foot walls along Mamalahoa Hwy but also a large expenditure of public funds.

2. Ninole Loop Rd.—The developer makes no mention of what DNL is to be maintained for Ninole Loop and therefore no mention of mitigative measures. The consultant states, “In summary, the traffic forecasts for CY2015 conditions indicate that future traffic noise levels with the project should not exceed the FHA/HUD acceptability threshold of 65 DNL at existing residences in the project environs. For this reason, traffic noise mitigation measures should not be required for these existing residences.”(Appendix I, p.33 and p.35).
 - a. The consultant shows no concern for the 55 DNL inside the project. Why not?
 - b. The traffic noise consultant used Hawaii DOT data and data from M&E Pacific. The latter are the consultants who prepared the traffic volume report and as noted in that discussion underestimated the amount of traffic on Ninole Loop. Therefore, the noise level along Ninole Loop is probably higher than the consultant calculates.
 - c. But even the consultant’s calculation indicate that, as along Mamalahoa Hwy, essentially all the residences fronting Ninole Loop Rd. could be predicted to be exposed to noise exposure greater than 55 DNL. For example, in 2015, the 63 DNL contour will run 50 feet from the centerline of Ninole Loop and there are already two condos at Sea Colony who fall within this.
 - d. If we were to follow the consultant’s recommendations for sound abatement along Mamalahoa Highway then do we need 10 foot walls along Ninole Loop Rd.? I would wonder if the specter of this or walls of some height was enough to dissuade the consultant from bringing up the 55 DNL in this context? In any case, once again we have the possibility of complaining

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- e. residents and who would be responsible for sound abatement measures along Ninole Loop Rd.?

(10) Trails

There appears to have been little attempt to determine the continued existence of traditional trails within the project area and a more thorough survey needs to be done.

(11) Solid Waste

1. The developer states that the project at buildout will contribute "...less than .0003% of total capacity of solid waste to the landfill[Pu'uanahulu] a year." (5-62). This is not true as it confounds ratios and percents, a mistake which the consultant also makes. The *ratio* of waste/year to the landfill is .0003. Therefore, the *percent* contributed is .03%. In fact, with 15% recycling reduction it is .0329%. They say "less than" because at 40% recycling reduction it is .0232%. This difference indicates how important it is that they actually develop a concrete recycling program specified in the DEIS. In any case, one might argue that .03% is still a small amount but it is 100 times greater than .0003%.

3. A confusion arises in the concept of a "ton". Hawaii stated that Pu'uanahulu had 5.28 million tons capacity in 2003(Appendix M, p. 1). If "ton" is taken as 2,000 lbs. then the project will actually contribute .0368% at 15% recycling. This does not fit the consultant's figures. This is because if you look in the Estimates Summary and the end of Appendix M you will see "long ton" which is defined as 2, 240 pounds. Looking in the Random House Dictionary of the English Language, you will find that for the definition of "long ton" they say "see ton" and under "ton" the definition is given as 2,000 pounds. Therefore, it would seem that Hawaii's use of ton is 2,000 pounds and the consultant's calculations are all actually lower than they should be.

4. Not only is there this puzzling confusion over the concept of a ton, they also give no source references or anything for the figures they use for the amount of waste per year from the different types of residences and businesses.

5. They estimate construction waste to contribute .0007% /year to Pu'u-
anahulu's capacity. Again, the percent/ratio confusion and it should be .07%.
And if a ton is a ton, then it actually equals .08%.

6. Both the project waste and construction waste calculations ignore the fact that each year Pu'uanahulu becomes smaller. Therefore, with a constant contribution, the % contributed each year increases . In 2003 the estimated capacity of Pu'uanahulu was 5.28 million tons and the

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7. developers use the figure of 5 million tons for 2005 in order to account for usage(Appendix M, p. 1). This averages to a fill in rate of .14 million tons/year. Taking this rate and the amount contributed by project construction at .07%/year, you will find that over 10 years, the construction waste will fill up a little more than 1% of the landfill.

If you were to ignore the shrinking Pu'uanahulu and take the developer's figure of .0007%/year then over 10 years it would appear to fill only .007% of the landfill. Now, whether 1% is considered significant or not, it is a long way from .007%.

Now, whether 1% is considered significant or not, it is a long way from .007%. Therefore, with a constant contribution, the % contributed each year increases. If you take .07%/year over 10 years this yields .7% total(or .8% if a ton is a ton). If you use the developers figure of .0007% then at the end of 10 years it would be .007%.

Cc: George Atta, Group 70
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