

December 20, 1972
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| Authorization | DEC 13 1972 |
| Advertisement | DEC 24 1972 |
| Public Hearing | JAN 3 1973 |

MEMORANDUM

TO : PLANNING COMMISSION

FROM : ROBERT R. WAY, PLANNING DIRECTOR

SUBJECT: CONDITIONAL USE PERMIT AND SPECIAL USE PERMIT REQUESTS FOR PROPOSED SANITARY LANDFILL AND QUARRY OPERATIONS IN THE MAKAKILO AREA

The requested uses are proposed for sites at two different locations. The sanitary landfill operation is proposed for the existing quarry at Puu Palailai located just on the Waianae side of Makakilo City. The proposed new quarry operation is for an area located approximately 1-1/4 miles on the Honolulu side of Makakilo City, makai of Puu Makakilo. Information relative to the proposed sanitary landfill site is as follows:

Applicant: Pacific Concrete and Rock Company, Ltd.

Owner: Campbell Estate

Tax Map Keys: 9-1-16: portion of 6 *— and por 20*
 9-2-03: portion of 12 *— ?*

Area: 29+ acres

Location: Puu Palailai, on the Waianae side of Makakilo City

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 State of Hawaii
 LAND USE COMMISSION

The following information relates to the proposed quarry site:

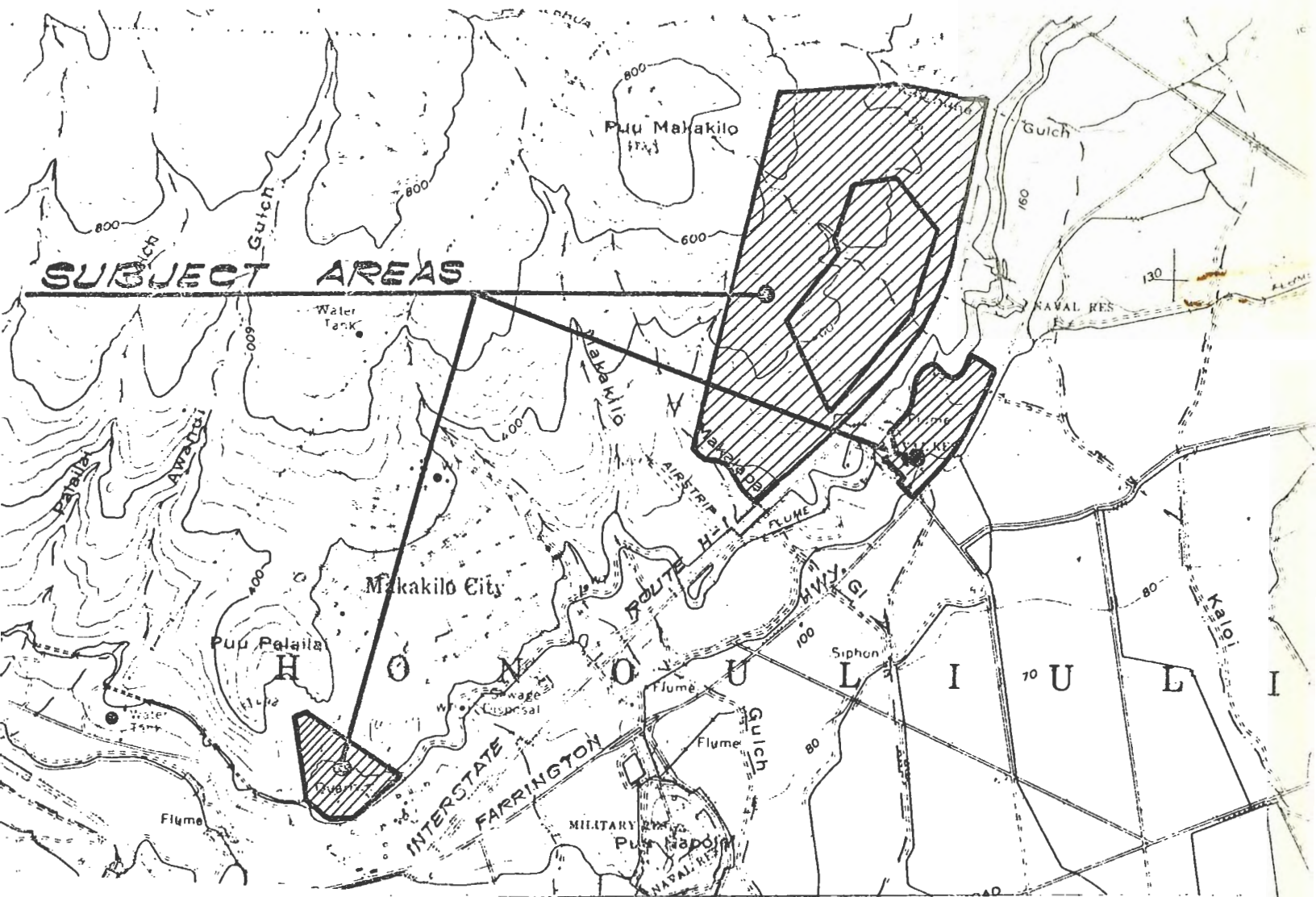
Applicant: Pacific Concrete and Rock Company, Ltd.

Owner: Campbell Estate

Tax Map Key: 9-2-03: portion of 2 *and 9-1-16: por of 4*

Area: 295+ acres

Location: Puu Makakilo, approximately 1-1/4 miles on the town side of Makakilo City



Although the applicant has filed requests for the two proposed projects on a joint basis, this report will discuss the sanitary landfill proposal and the quarry proposal separately. The following is a discussion of the proposed sanitary landfill operation aspect of the applicant's request:

Sanitary Landfill Proposal

General Plan Land Use: Agriculture.

Detailed Land Use Map: None adopted for this area.

7-1-10:11
9-5-03:112

Development Plan: None adopted for this area.

State Land Use District: Agriculture.

Zoning District: AG-1 Restricted Agricultural District. Within this district, sanitary fill operations are permitted as conditional uses.

Applicant's Request and Proposal: The applicant, Pacific Concrete and Rock Company, Ltd., is currently operating a rock quarry at the subject site. This quarry was begun by the U. S. Army during World War II and has been operated continuously for the last 22 years by Pacific Concrete. The applicant now estimates that only 1-1/2 years' deposit of concrete rock remains at Puu Palailai, the subject site.

The applicant explains that in the process of 22 years of quarrying, a 29-acre, 90-foot deep pit with vertical walls has been created. The volume of this pit is estimated to be approximately 3,300,000 cubic yards. The applicant is proposing a sanitary landfill operation at this site. According to the applicant, the landfill operation will be "using the modern 'cell method' including lining the fill bottom with an impervious lining to preclude chance of ground water contamination. All refuse will be acceptable except chemicals, radio-active wastes, and whole animal carcasses. City, private, and commercial refuse will be accepted. The landfill covers approximately 29 acres of an exhausted quarry site at Puu Palailai and this fill will be completed in approximately 10 years."

Comments from Various Governmental Agencies: For sanitary landfill operations, the Comprehensive Zoning Code requires approval of the proposal from the State Department of Health, the State Fire Marshall, the Board of Water Supply, and the Department of Public Works.

Department of Public Works approves of the sanitary land fill project subject to the conditions that: 1) A means of fire protection such as water truck should be provided; 2) If cinders or crushed rock is used for cover material, suitably graded soil should be mixed in to provide a surface more impervious to rain; 3) Additional bulldozers should be readily available in case of equipment breakdown; 4) Provisions should be made for wet weather operation so that refuse trucks can continue to unload; 5) Directional signs should be placed within the site to guide refuse trucks. A sign showing the hours of operation and fees should also be posted; 6) Refuse should be spread and compacted in layers about 2 feet thick; 7) The types of refuse accepted should be approved by the Board of Water Supply.

Board of Water Supply will not object to the proposal provided the following conditions are met to prevent leachates from the landfill operation percolating into the underlying basal water body in the

area: "1) The entire landfill floor area shall be completely covered with a properly-engineered impervious layer of soil; 2) The impervious layer of soil shall in turn be completely overlain with a suitable thickness of pervious gravel material to allow for drainage and collection of leachates from the sanitary fill; 3) At the lowest elevation of the landfill area, there shall be installed an appropriate concrete sump and pump for withdrawal and proper discharge of liquids and a cased, gravel-packed well which will ultimately extend to finished fill surface. The owner shall properly maintain and operate the well and pump at his own expense for the duration, plus 7 years after the termination of the landfill operation; thereafter, the ownership of the well and pump shall be turned to the Board of Water Supply which shall have the option to continue or terminate the operation of the pump; 4) Surface drainage structures shall be provided to intercept and divert all surface runoff not originating in the landfill area; 5) Materials, plans, and specifications for all above 4 items shall be subject to the approval of the Board of Water Supply; 6) The landfill shall be operated to accept general municipal refuse. However, animal carcasses, petroleum products, chemicals, and other noxious materials and wastes will not be acceptable; 7) The landfill shall be operated in a manner to preserve the integrity of the previous and impervious fill layers and the dewatering well; 8) At the completion of the landfill operation, the filled area shall be finish-graded to promote

surface runoff without ponding; 9) The Board of Water Supply reserves the right to stop the landfill operation at any time when any of the above conditions are violated. Resumption of operations will not be permitted until the violations cease and deficiencies are corrected to the satisfaction of the Board of Water Supply."

State Fire Marshall has given its approval to the proposed sanitary land fill operation.

Department of Health has no objection to the proposed operation provided all the provisions, process, and stipulations contained in the applicant's submittal will be implemented during the operation of the project. This includes the stipulations set forth by both the Department of Public Works and the Board of Water Supply mentioned above.

Fire Department has no objection to the proposed sanitary landfill operation provided there is compliance with current adopted Revised Ordinances of Honolulu. The Fire Department comments:

1. "The present location does not constitute any fire exposure hazard.
2. The road leading to the project site is of sufficient width. Although the existing road is unpaved, vehicular travel is possible under adverse climatic conditions.
3. An adequate source of water supply is available at Campbell Industrial Park, a distance of approximately 2 miles."

Analysis:

Need: The applicant explains that the quarrying operation, which has been going on ever since the 1940's, has created a large pit with an average depth of 90 feet. With only a 1-1/2 year supply of rock left in the quarry, the applicant has looked into alternative possibilities for the use of the quarry site. A number of uses were evaluated by the applicant's consultant for the site in its present state. Among the uses considered were a drive-in movie theater, a Hawaiian Electric power plant, and a corporation yard. These alternatives were evaluated and discarded because of problems which the present 90-foot deep pit presented. The problems identified by the applicant relate to drainage, sun light, excessive temperature, little or no wind, and dangerous falling rock.

The applicant concluded from his studies that the best ultimate use of the quarry area is to fill it up to carefully planned contours which when completed can be used either agriculturally as the General Plan currently shows for the area or as an open space, recreational area for a residential development should the General Plan be amended later to permit such a use. The applicant examined the possibility of purchasing and transporting fill material for the quarry pit. This idea was discarded on the basis that it was economically impossible and would require as many as 20 years to accomplish.

The applicant then examined the possibility of filling the pit with 3,300,000 cubic yards of commercial and residential refuse. This seemed to be an appropriate and viable alternative for raising the elevation of the pit area and making the fill area available for either a recreational or agricultural use. In addition to making the quarry pit usable, this proposal will provide a needed sanitary landfill area for the disposal of both commercial and private refuse. The disposal of general refuse at the Waipahu Dump site will not longer be permitted after December 31, 1972. Until such time as a replacement area can be found, refuse will be taken to the Kapaa site on the Windward side.

A study conducted by Metcalf and Eddy, engineering consultants, entitled "Solid Waste Management Plan for City and County of Honolulu - Supplement to Hawaii State Solid Waste Management Plan" studied the problem of solid waste disposal. This plan anticipated the closing of the Waipahu Dump site and recommended that a site in Nanakuli with an estimated capacity of 7,700,000 cubic yards on 300 acres be used as a landfill area. The Nanakuli site is not available for a sanitary landfill project; instead, it has been committed for other private development. The applicant feels that the subject site is superior to the Nanakuli site since the land is available for sanitary landfill purposes and is located much closer to the general population it would serve than the Nanakuli site.

Location: The location is generally considered appropriate for sanitary landfill operation. The nature of sanitary landfill operations is such that they can only take place in relatively few acceptable areas. Traditionally, fill areas have been located where the dumping operation is away from and not visible to areas of heavy population concentrations. This site is relatively contained visibly and has good vehicular access because of its proximity to H-1 Freeway and Farrington Highway.

Site Plan Evaluation: The proposed landfill was reviewed with respect to the Comprehensive Zoning Code requirement "that the proposed conditional use will have no more adverse effect on the health, safety or comfort of persons living or working in the area and will be no more injurious economically or otherwise to property or improvements in the surrounding area than would any use generally permitted in the district."

Traffic Flow and Control: The applicant estimates that changing the use of the quarry site from its present operation to a landfill operation will result in approximately a 17% increase in traffic. At the present time, the quarry operation generates an average of 120 trips per day. 36 of these trips are attributed to 9 mixer trucks making 4 trips. 13 aggregate trucks make an average of 7 trips per day for a total of 91 trips. Under the proposed sanitary landfill operation, the applicant anticipates approximately 145 total trips. This is based upon the anticipated collection of

some 500 to 600 tons of refuse in individual trucks with an average capacity of 4.5 tons. This results in a total daily refuse truck trips of 135 trips. An additional 10 trips to haul cover material from a new quarry site to be located on the town side of Makakilo City is proposed. (The quarry proposal is discussed later in this report.)

The site is located on the mauka side of Farrington Highway between its overpass of H-1 Freeway and its intersection with Kalaeloa Boulevard, the main street leading into Campbell Industrial Park. This section of Farrington Highway is a relatively lightly travelled roadway, therefore, the Department of Traffic does not feel that the increase of traffic expected to be generated by the proposed use will have any significant detrimental effect upon the existing traffic in the area.

The applicant anticipates that approximately 84% of the total daily refuse traffic will come from the Ewa-Honolulu direction. This traffic will make a right turn off of the H-1 Freeway from the town direction onto Farrington Highway at Kalaeloa Boulevard. The entrance to the site is located approximately 1,200 feet on the Honolulu side of the Farrington Highway - Kalaeloa Boulevard intersection. The remaining 16% is expected to come from the Waianae-Nanakuli area, the Campbell Industrial area, and from Makakilo City,

all of which will have access to the site on stretches of roadway without heavy traffic. None of the landfill oriented traffic will have any direct effect on existing residential areas.

Access to and Circulation Within the Property: A single access will be provided from Farrington Highway. Trucks will be weighed on an existing quarry scale located near the entrance to the site. After a refuse truck is weighed, it will travel on a 25-foot wide landfill access road to the dumping site. This road will be located on the extreme Waianae side of the quarry and will be approximately 1,700 feet long.

Hours and Manner of Operation: The land fill operation will be opened to receive refuse from 6:00 a.m. to 5:00 p.m., Monday through Friday, and on Saturday from 7:00 a.m. to 3:00 p.m. Prior to receiving any refuse, the applicant will be laying a 12-inch thick layer of pervious material which will then be overlain and at the lowest point of the fill operation, the applicant intends to install a sump well pump. The landfill is proposed to be operated under the "cell" concept. Under this concept, refuse will be collected and compacted to a height of 8 to 15 feet and then covered daily with a layer of cover material. The cover material is intended to minimize any problems relative to flies, rodents, and smell. The following details the proposed landfill operation as described by the applicant:

1. Chemicals, radioactive wastes, or whole animal carcasses will not be accepted.
2. Refuse will be discharged by the commercial and City haulers in a confined area.
3. A D-8 tractor will spread and compact the refuse into 3-foot deep layers, the top 6 inches of which will be a compacted cover material of dirt, cinder, and rocks no bigger than 2 inches in diameter.
4. The D-8 will continually run back and forth over the refuse from 6:30 a.m. to 5:00 p.m. to compact the refuse from an uncompacted density of 400 or 500 pounds per cubic yard to approximately 1,100 pounds.
5. From 5:00 p.m. to 6:30 p.m., the tractor will spread and compact the cover material to completely encase all of that day's refuse in a hard dirt and rock shell.
6. For the first two years of operation, the cover material for the fill operation will be from the area surrounding the existing pit. It is anticipated that additional cover material required after the initial two years will be brought in from the proposed quarry site to be located on the town side of Makakilo City.
7. The applicant proposes to water as necessary all of the area within the fill that is to be travelled daily by refuse trucks.
8. The applicant proposes to fence the perimeter of the quarry pit once the land fill reaches the elevation equal to the

height of the existing quarry walls. The purpose of the fencing is to trap blowing debris.

9. The operation will be fully supervised and periodically monitored by the City Refuse Division, the Campbell Estate who are the fee owner of the property, and the State Department of Health.

The above description of the manner of operation for the land fill has been accepted by the State Department of Health, the Department of Public Works, the Board of Water Supply, and the State Fire Marshall as required by the Conditional Use Permit provisions of the Comprehensive Zoning Code.

Environmental Control: From the visual point of view, the actual operation of the landfill will not be visible to the residents in Makakilo because the operation will take place in an existing pit and the pit itself is separated from the residential area by an existing knoll.

With respect to noise, the applicant states that all sources of noise will be from mobile equipment which will include the compacting D-8 tractor caterpillar, the oil-water truck, the dump trucks which will haul the cover material from the proposed new quarry site and the refuse trucks. The applicant states that the oil-water trucks, dump trucks, and refuse trucks will be so equipped as to meet the noise limit set by the State Department of Health for the succeeding

years for trucks running on truck routes. The D-8 compacting tractor will be equipped with a muffler which will reduce engine sound to below 90 dba at 50 feet from the center line of a tractor. It is anticipated that noise from the sanitary landfill operation will be able to meet existing and future noise regulations on the basis that noise will be shielded from adjacent areas by the high walls of the pit and that the closest part of the pit to the existing residential development in Makakili is over 800 feet away.

The applicant has identified the potential dust generating areas as the access road into the fill site, refuse as it is being spread and compacted, cover material as it is being spread and compacted, and the cover material at final elevation. The applicant intends to suppress dust from these areas by frequent watering and oiling and also to plant vegetation on each finished acre of increment in order to trap dust and to prevent dust from becoming air borne.

To keep the water runoff from the area adjacent out of the landfill area, the applicant is proposing diversion ditches around the periphery of the pit area. By providing the ditches, rain water from the higher elevations will be diverted around the pit and into an existing irrigation ditch running along the makai boundary of the pit. With regard to the pit area itself, rain water that percolates down through the sanitary land fill will be collected

at the low spot of the impervious layer of soil at the bottom of the pit. This water together with any leachates will be collected through a mechanical sump and will then be diluted and used for dust control purposes in cap rock areas.

Environmental Impact Statement: The applicant prepared an Environmental Impact Statement which was submitted to the State Office of Environmental Quality Control for their review and distribution to other interested agencies. Comments were received from the various agencies and transmitted to the applicant. Concerns relative to the proposed sanitary operation were raised relative to potential problems with fire, odor, and the disposal of leachates. The Environmental Impact Statement was revised to accommodate the concerns raised by the various agencies.

End-Use Plan: The finished grade of the landfill area is shown on the end-use plan as a series of terraced benches with contour lines blending in with the existing contours of the surrounding area. Four large, relatively flat areas are separated by inclines with a 3:1 slope. Two alternative end-use plans have been submitted. One is to vegetate the fill area with dwarf pangola. This proposal would be in consonance with the existing General Plan and zoning designations for the site.

The second alternative shows the landfill area as a central, open space park area surrounded on its periphery by residential development. This alternative is not in keeping with the expressed agricultural policy of the General Plan but was submitted, according to the applicant, to indicate that such development can take place if at some later date the General Plan policies are revised to permit residential development.

Conclusion:

From the foregoing discussion, it is concluded that there is a need for the landfill operation and the proposed site is so situated as to be easily accessible from all directions and yet provides adequate visual buffers for the adjacent Makakilo residential development. It is further concluded that the manner in which the landfill is proposed to be operated and the controls recommended by the Board of Water Supply, Department of Public Works, and the State Department of Health provide sufficient assurance as to minimize any potential problems with respect to dust, odor, noise, and water pollution.

Recommendation:

It is recommended that the request for a Conditional Use and Special Use Permit for the proposed sanitary land fill operation be approved subject to the following conditions:

1. The provisions set forth in the submitted application marked Exhibit A shall be complied with except as may be altered by any of the conditions stated hereunder;
2. The applicant shall comply with all requirements which may be imposed by the State Department of Health, Board of Water Supply, State Fire Marshall, and the Department of Public Works;
3. The permits hereby granted shall expire at the end of 5 years from the date of issuance. The subject permits may upon their expiration be renewed for another 5-year period by the City Council provided the applicant applies for renewal of the Conditional Use and Special Use Permits and provided further that the conditions of the permits have not been violated during the initial 5-year term or if the conditions in the area have not changed in such a manner as to justify refusal of the renewal;
4. The source for the landfill cover material shall be subject to the approval of the Planning Director and other appropriate governmental agencies.
5. If for any reason, either the Conditional Use Permit or the Special Use Permit is denied, the other shall automatically be declared null and void;
6. Signs shall be provided in accordance with the regulations set forth under Section 21-404 of the Comprehensive Zoning Code;

7. The proposed use shall comply with the noise regulations of the Comprehensive Zoning Code and with any other more restrictive noise regulations as may be promulgated by the Department of Health. To determine whether or not noise regulations are being complied with, the applicant shall retain a qualified noise consultant to conduct a noise study within 6 months from the date the use commences. Said study shall be conducted at a time and under conditions acceptable to the Planning Director. The results of the study shall be submitted to the Planning Director for his review and approval. If the study indicates that the use is not operating in compliance with the noise regulation, the applicant shall be required to take corrective actions in a manner acceptable to the Planning Director. Additional noise studies shall be conducted as may be determined necessary and appropriate by the Planning Director.
8. After the issuance of the subject permit, the City Council may at any time, upon finding that any one of the conditions imposed herein is not being complied with by the applicant, authorize the Planning Director to suspend such operation until compliance with said conditions is obtained or to revoke the permit;
9. Any modification to the conditions stated herein shall be subject to the approval of the City Council;

10. The City Council may impose additional conditions after the approval of the subject permits when it becomes apparent that a modification is necessary and appropriate;
11. The applicant shall file with the Bureau of Conveyances or the Assistant Registrar of the Land Court, a declaration of the restrictive conditions stated herein;
12. The applicant shall present to the Planning Department certified copies of the document issued by the Bureau of Conveyances or the Assistant Registrar as evidence of recordation.

Quarry Proposal

The following relates to the conditional use/special use permit requests for a new quarry operation proposed by the applicant.

Location: The proposed quarry site is located on the mauka side of H-1 Freeway approximately 1-1/4 mile on the Honolulu side of the existing Makakilo City. The finishing processing area for the quarry operation is proposed for a location situated on the makai side of H-1 opposite the quarry.

General Plan Designation: Most of the proposed quarry area is designated on the General Plan for residential. A portion of the central area of the quarry area, however, is shown as Preservation.

Detailed Land Use Map: None adopted for this area.

Development Plan: None adopted for this area.

State Land Use District: Agriculture.

Existing Zoning: ~~AG-1 Restricted Agricultural District.~~ Within this district extractive industries such as quarries are permitted as conditional uses.

Existing Land Use: Limited cattle grazing.

Surrounding Land Use: The area immediately surrounding the site is in agricultural, cattle grazing, and vacant uses. Makakilo City, the nearest residential development, is located approximately 1-1/4 mile away.

Applicant's Proposal: The applicant is requesting the conditional use and special use permits for a proposed rock quarry operation. A total of 295 acres is involved. The actual quarry site will consist of approximately 72 acres of a 260-acre site located mauka of H-1 Freeway. The remaining 188 acres of the 260-acre site will be retained as a buffer area. Immediately makai of the H-1 Freeway and the proposed quarry site is an additional 35 acres where the shop, office, scale, processing site, and concrete batching plant will be located.

The applicant proposes to locate the primary and secondary crushing units in the quarry area mauka of the H-1 Freeway. The quarry operation on the mauka side of the freeway will be designed to reduce the size of rocks to 3 inches and smaller. After the rocks go to the secondary crushing system, they will be conveyed to one of two surge piles. Buried under each of these surge piles will be a conveyor which will withdraw and carry the 3-inch minus rock material through a tunnel to be constructed under the H-1 Freeway to the 35-acre processing site. The rocks will then be sized through a series of screens, and conveyed to either finished stock piles or into final reduction crushers for size reduction into sand size particles. From this location, mixer trucks will take the finished products to the applicant's main batching plant off Sand Island Access Road or directly to job sites.

Comments from Various Governmental Agencies:

This proposal has been reviewed by various public agencies and their comments are as follows:

Board of Water Supply does not object to the requested use.

Department of Health does not anticipate any abnormal problems due to the operation of the quarry as long as preventive measures to control dust and noise are incorporated in the plant operations.

Department of Land and Natural Resources suggest that some type of vegetative cover be specified to conform to the Soil and Water Conservation District practices.

Department of Transportation comments that 1. "the applicant's landscaping proposal scheduled for 1990-1991 is not acceptable. It is to be noted that no earth moving should be permitted until the landscape shielding and slope planting have been accomplished. This includes allowing the one-gallon and five-gallon size trees and bushes to have grown to sufficient size to be of any use.
2. All access roads to the State Highway should have adequate acceleration and deceleration lanes."

Additionally, the Department of Transportation has indicated that they and the Bureau of Public Roads have reviewed the proposal to drill a new tunnel under the H-1 Freeway for the purpose of conveying

partially processed rock from the mauka quarry to the finishing plant on the makai side of the H-1 Freeway. They indicate this proposal may be acceptable subject to the following determination:

1. "Soils studies for a good location, not necessarily parallel to the existing culvert.
2. The depth of the tunnel and minimum cover necessary to protect the existing highway pavement.
3. The construction method.
4. The hydraulic considerations.

With respect to the applicant's proposal to provide landscaping within the makai side H-1 Freeway right-of-way by the applicant, the Department of Transportation indicated its approval subject to the conditions that "1. the oleander shall be planted behind the existing guard rails. 2. details of installing the one-inch water line shall be included in the plans. 3. the applicant will be required to continuously maintain the plantings and water line."

West Oahu Soil and Water Conservation District has indicated that it has no major objections to the proposed quarry operation.

Department of Public Works suggests that the area to be stripped for quarry be limited to 15 acres at any one time instead of the 18 acres proposed by the applicant.

Analysis:

Need. The applicant is currently operating a quarry located on the Waianae side of Makakilo City which is estimated to have approximately one and one-half years supply of quality concrete aggregate rock remaining. The new quarry will enable the applicant to continue to supply rocks necessary for building and roadway construction at competitive prices. They point out that the only other major source of rock is being provided by HC&D at its Kapaa Quarry on the Windward side. The applicant feels that there is and will continue to be sufficient demand for rock to warrant continued operation by both HC&D and Pacific Rock & Concrete Company.

Location. Unlike many uses, the location of quarries is dictated to a large extent by the location of quality rock resources. The proposed site has been selected according to the applicant as a result of an extensive study which began over eight years ago when the limited quantity of usable rock at the existing quarry was first realized. The applicant states that "aerial reconnaissance and utilization of the magnetic survey to indicate intensities of rock underlying various areas on Oahu were undertaken. Exploratory drilling was also done in various areas of Oahu." A consulting geologist was also retained to undertake a geological reconnaissance of the Waianae Range. His study examined the quality of potential rock sources at Kahe Point Ridge, Maili Point Ridge, Paheehee Ridge,

Kepuhi Point Ridge, Kaneana Cave Ridge, Kolekole Pass, the northern slopes of the Waianae range, Kaala Mountain, Kaukonahua Gulch, and the Camp Erdman area on the North Shore. His conclusion was that the majority of the Waianae range does not have suitable dense rock for quarrying. He identified two sites as having thick and dense rocks suitable for quarrying. One is at Camp Erdman and the other at the subject site. The subject site, at the base of Puu Makakilo was selected by the applicant because: 1. High-quality rock exists at the site; 2. It is within relatively close proximity to the applicant's existing operation which will make hauling of cover material to the proposed sanitary fill project feasible and, additionally, the transferring of equipment from the existing site to the proposed can be accomplished without too much difficulty; and 3. The distance from the site to the applicant's central base of operation off of Sand Island Access Road remains competitive with that of HC&D, their major competitor. In this regard, the applicant notes that HC&D's Kapaa Quarry on the windward side is located approximately 13.5 miles from their central batching plant in the Middle Street area. Pacific Concrete's Quarry will be approximately 18 miles from their central Sand Island Access Road operation. The applicant feels that the mileages compare favorably in view of the fact that the Koolau Mountains separate the HC&D

operations whereas the roadway between the applicant's proposed quarry site and their central batching plant is relatively level.

The general area of the proposed quarry operation may be appropriate. However, there is a question as to the appropriateness of the specific quarry operation site that has been selected. Running through the central portion of the proposed quarry area is a gulch that is designated as Preservation on the General Plan. The remaining area consists of a series of ridges and knolls which in their present natural state provide a highly desirable setting for residential development as provided for on the General Plan.

The finished grade proposed by the applicant indicates that there will be a series of four benches increasing from a low elevation of 250 feet above main sea level up to approximately 365 feet. The difference in elevation between benches varies from approximately 30 feet to 45 feet. The proposed configuration and contours of the quarry area reflect a substantial alteration of the existing natural conditions. This would be true especially with respect to approximately one-quarter of the site which is designated on the General Plan as Preservation. The purpose of the Preservation area is to "curb urban sprawl; to encourage more economical and desirable urban development; and to help provide necessary recreational, conservation and scenic areas by preserving open space land essential

to proper development and welfare of the urban areas." The proposed quarry site would not be in keeping with this General Plan policy.

The applicant responded to the Planning Department's concern regarding the Preservation area by stating that the gulch was designated as a Preservation area because it was neither suitable to develop the gulch nor bridge and that "the topography in a natural state made development of this gulch uneconomical. The changed topography is useful not only in providing recreational access mauka to Puu Makakilo but also in providing recreational access to the extensive recreational area in the ultimate use plan which was created over major portion of the lower part of the site."

It is felt that this explanation does not provide sufficient justification for including the General Plan Preservation area as part of the quarry site.

Because the proposed quarry site in its present natural setting is highly desirable for residential and preservation uses, it is felt that alternative sites should be explored. The geological information provided by the applicant does not sufficiently detail the exact limits of good rock sources, therefore, it would be difficult to evaluate alternative sites for the quarry at this time. It may be that other good rock sources are located where a quarry would be

Site Plan Evaluation. The site plan has been reviewed with respect to the requirement of the Comprehensive Zoning Code that "the proposed use will have no more adverse effect on the health, safety or comfort of persons living or working in the area and will be no more injurious economically or otherwise to property or improvements in the surrounding area than would any use generally permitted in the district."

Traffic Flow and Control. The applicant proposes to provide a 15-foot wide, 5,300-foot long access road from Palehua Road to the quarry site. This roadway is considered adequate since traffic will be limited to employees and by 1975 approximately 10 truckloads per day of cover material that will be hauled to the proposed sanitary landfill site at the existing quarry located at Puu Palailai just on the Waianae side of Makakilo City.

With respect to the finishing-processing site to be located on the makai side of H-1 Freeway, the applicant proposes to have a single ingress and egress from Farrington Highway. This stretch of Farrington Highway is relatively lightly travelled, therefore, the Department of Traffic does not anticipate any problems with the traffic that would be generated by the proposed use. The number of trips to be generated at this site will be equal to what is currently being generated by the existing Puu Palailai quarry.

The total daily traffic will be 36 mixer truck round trips between the hours of 6 a.m. and 4 p.m. and 91 dump truck round trips from 7 a.m. to 12 p.m. Accessibility from Farrington Highway to H-1 Freeway is relatively good because of the access provided by Makakilo Drive and Kunia Road.

Screening and Buffering. The applicant's plans indicate that both the quarry operation site and the finishing-processing site will not be fully visible from either H-1 Freeway or Farrington Highway. The area selected for the quarry lies between two ridges which will hide most of the quarry from those who would be travelling in either direction on Farrington Highway. Where there are potential problems with visibility of the quarry, the applicant proposes berms and substantial landscaping. For the finishing-processing site, the applicant proposes substantial landscaping of oleanders on the makai side of the H-1 Freeway right-of-way in order that the stockpiles and equipment will not be visible from the H-1 Freeway. The State Department of Transportation has given its preliminary approval for the applicant to landscape within the H-1 right-of-way. Along the Farrington Highway frontage, the applicant proposes a berm and substantial landscaping to hide the operation from the traffic along Farrington Highway.

Manner of Operation. The following is a description of the basic operation proposed for the quarry use:

1. The existing access road into the quarry site area from Palehua Road will be widened and straightened.
2. The overburden or top soil will be pushed aside by a D-9 tractor and be used to build berms and drainage dykes along the periphery of the quarry site.
3. Holes will be drilled into the heart of basalt rock into which explosives will be placed. All explosives storage, handling and shooting will be controlled by the Division of Industrial Safety, State of Hawaii.
4. The blasts will be calculated to reduce rocks to no larger than four-foot pieces.
5. The rocks will be then loaded on to hauling trucks which will haul the rocks from the blast area to a primary crusher to be located in the quarry area.
6. The primary crusher will then reduce the size of the rocks to ten inches or smaller.
7. Then the rocks will be put through a secondary crushing system which is intended to reduce the size of the rocks to three inches or less.
8. From the secondary crusher, the rock will be conveyed by a conveyor to one of two surge piles under which there will be conveyors to withdraw and convey the rock under the H-1 Freeway to the processing site off of Farrington Highway.

9. At the processing site, the rocks will be stocked into three surge piles, one pile for high-grade rock usable in concrete and the other two piles for low-grade rock to be used as road rock and fill rock.
10. At the 35-acre site, the rocks will be reduced to final sizes and stockpiled.
11. The materials will be then hauled to off-site locations most of which will go to the applicant's main plant site off of Sand Island Access Road. Other deliveries will be made to specific job sites directly.

Noise. The applicant identifies as potential noise sources the crushing operation at the quarry site, the finishing operation at the Farrington Highway site, and noise from the hauling equipment. With respect to the crushing operation at the quarry site, the applicant indicates that the crushing plants will be located at the low point (250-foot elevation) to take advantage of the shielding and reflecting effects of the higher terrain that would surround this location. The applicant also points to the fact that they have under their control a 600-foot wide buffer strip between the quarry site itself and the adjacent lands. With regard to the finishing-processing site, the applicant indicates that noise will be reduced by enclosing as much as possible known noise sources. Noise will also be reduced

by the existing terrain and the proposed berms in landscaping. The applicant also indicates that all mobile gas and diesel equipment will have properly installed mufflers.

Because of the proposed layout of the quarry activity, the existing and proposed contouring of lands and the fact that the nearest residential area is more than one and one-quarter mile away, it would appear that noise will not be a source of major problems.

Dust. The applicant recognizes that dust is a potential problem with respect to his proposed operation. In the area of the proposed quarry site, trade winds blow toward the general direction of Makakilo City approximately 70 percent of the time. For this reason, adequate dust control measures are necessary.

The applicant identifies the operations within the pit as the greatest potential source of dust problems. Dust sources can come from stripping, drilling, blasting, loading and unloading. With respect to stripping, the applicant indicates that this is normally not a continuous operation therefore stripping can be done when wind conditions are favorable for such work. With regard to the drilling operations, the applicant indicates that a special portable wet dust suppression system has been developed which will dampen and agglomerate the dust particles into pellets which cannot

become air borne. They indicate that Lone Star Industries at the Halawa Quarry is using this technique successfully. With respect to blasting, the applicant points out that the biggest factor in dust pollution is wind velocity at the moment of the blast. Therefore, they will conduct their blasting operation at such time as when wind is at a minimum. For unloading and loading, the material will be coated with a wetting solution from a portable tank. For the conveyor system and other stationery equipment at the processing site, the applicant proposes to either partially enclose or provide a wetting operation.

It would appear that potential problems with dust can be successfully encountered provided the applicant undertakes the prevention, suppression, and collection programs as setforth in his application. Further, the 600-foot wide buffer strips surrounding the quarry site will also provide a measure of assurance that dust problems with respect to adjoining properties will be minimized.

Drainage. For his water run-off control program, the applicant proposes the following:

1. To install a settling channel immediately makai of Farrington Highway to reduce the velocity of surface run-off and to allow deposition of silt and rocks.

2. To construct drainage swales and terraces around the periphery of the proposed excavation area for the purpose of intercepting surface run-off from higher elevations and diverting the water into existing drainage ways.
3. To preserve the indigenous vegetation within the buffer zone area to provide protective cover on the land.
4. The applicant feels that the level terraces in the 72-acre quarry area will serve to improve water infiltration based upon past experience.

End-Use Plan. As mentioned previously, the applicant proposes to have a series of terraced benches upon conclusion of the quarry operation. The End-Use Plan indicates a possible residential subdivision for the quarry area. This plan shows the residential subdivision occupying areas designated on the General Plan for both residential and preservation and, therefore, is not fully in accord with the General Plan land use.

An alternative plan was also submitted which shows that the property can be used for a planned unit housing development with a variety of housing types. School and park uses are indicated on both alternatives as occupying the large level area. This also is not in conformance with the land use policies of the General Plan.

Conclusion:

From the foregoing discussion, it is concluded that:

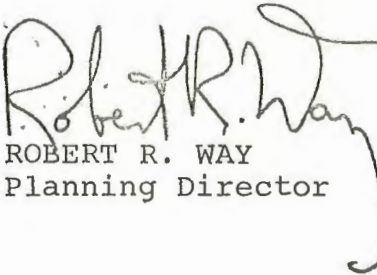
1. There is and there will continue to be a high demand for rock for the construction of buildings and roadways.
2. The manner in which the quarry is to be operated appears to provide adequate controls to minimize any potential noise, dust, water pollution, and traffic problems.
3. The specific site selected for the proposed quarry operation, however, is not considered appropriate because:
 - a. the site in its present state provides a highly desirable setting for a residential development; and
 - b. a portion of the quarry is in an area which is designated as Preservation on the General Plan.

The applicant's information relates primarily to the subject site. A more detailed examination of alternative sites should be undertaken to determine whether the subject site is, in fact, the most appropriate from an overall view point.

Recommendation:

Inasmuch as the proposed site has natural amenities highly desirable for residential development, and sufficient information has not been provided to evaluate alternative sites for a quarry, it is

recommended that the request for a conditional use and special use permits to establish and operate a new quarry be denied at this time.


ROBERT R. WAY
Planning Director

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