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Office of Environmental Quality Control  
Office of the Governor  
550 Halekauwila Street  
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Honolulu, Hawaii 96813

**revised environmental  
impact statement  
for the proposed  
PHYSICAL EDUCATION FACILITIES  
UNIVERSITY OF HAWAII  
MANOA CAMPUS**

**DAGS JOB NO. 02-31-1851.2**

**October 1977**

October 28, 1977

MEMORANDUM

TO: The Honorable Hideo Murakami, State Comptroller  
Department of Accounting and General Services

SUBJECT: Environmental Impact Statement - Physical Education Facilities,  
University of Hawaii at Manoa

Based upon the recommendation of the Office of Environmental Quality Control, I am pleased to accept the subject document as satisfactory fulfillment of the requirements of Chapter 343, Hawaii Revised Statutes, and the Executive Order of August 23, 1971. This environmental impact statement will be a useful tool in the process of deciding whether or not the action described therein should or should not be allowed to proceed. My acceptance of the statement is an affirmation of the adequacy of that statement under the applicable laws, and does not constitute an endorsement of the proposed action.

When you make your decision regarding the proposed action itself, I hope you will weigh carefully whether the societal benefits justify the environmental impacts which will likely occur. These impacts are adequately described in the statement, and, together with the comments made by reviewers, will provide you with a useful analysis of alternatives to the proposed action.

  
George R. Ariyoshi

bcc: ✓ Hon. Richard Marland

The Revised Environmental Impact Statement for the Proposed Physical Education Facilities, University of Hawaii, Manoa Campus, dated October, 1977, contains various changes to reflect the comments received during the environmental impact statement review period. In most cases, the revised pages (indicated by a large R in the upper right hand corner of the page) represents a clarification or elaboration of the original data provided. Section XV has been added to the Revised EIS; this Section identifies and reproduces letters received during the EIS review period and immediately after the letter, the applicant's disposition is provided.

In addition, it is noted that a summary section is included in the revised environmental impact statement.



## SUMMARY

The proposed Physical Education Facilities (PE Facilities) will be located at the University of Hawaii at Manoa, in the makai campus quarry area, Ewa of Cooke Field and Diamond Head of the Lower Campus Road. The proposed PE Facilities consist of constructing approximately twelve buildings. The proximity and use relationship of these buildings will constitute several "complexes". These complexes will be linked by walkways and/or covered corridors. In total, the PE Facilities will include Gymnasium A Complex, Gymnasium B Complex (4), Gymnasium C Complex, five studios, administrative space, instructional space, lockers, and seven indoor handball courts.

Presently, the site is occupied by the Present Health and Physical Education Facilities (HPE Facilities) and several temporary buildings. Fourteen (14) portable buildings will be relocated on the campus; the remaining structures will be demolished. A drainage system will be constructed in the near future (a separate project) and will adequately divert the surface water runoff from the project site. The structural systems, architectural systems, electrical systems, communications, illumination, and other specific performance requirements (e.g. traffic circulation, handicapped considerations, safety and security) will meet the established educational, professional, and design standards and regulations.

The objective of this proposed project is to establish a PE Facility which will adequately serve the educational and recreational needs of the students. The present HPE Facilities are inadequate to meet the needs of the students and coaches participating in sporting events; moreover, the present facilities will not be sufficient to accommodate future plans for the increasing staff and activities of the Department. The project will accommodate the following programs: HPE Facilities, Intramural Program, Recreation and Free-time Activities, and Community Activities.

### Probable Impacts

Minimal impact is anticipated on the site's physical geography. The planned use of the site will be similar to the present use of the site and no significant modifications to the physical geography is anticipated. The impact on environmental quality is also anticipated to be limited. The planned drainage system for the Lower Campus area has been planned and is anticipated to be completed on or before the end of 1980. Aesthetics including buildings mass, building height and the configuration of the proposed complexes have been taken into consideration and the buildings have been designed so that they will not exceed the present height of the existing parking structure. The configuration of the buildings and building masses have been considered in the design so that the complexes relate to each other and will not represent a "monumental" type building. In addition to these considerations, landscaping will be provided as well as coordination with other projects in the quarry area including a mauka/makai mall (a pedestrian walkway from the quarry area to the core of the campus and the proposed mass transit station).

The air quality of the project site was estimated and the impact of the proposed project on the air quality was evaluated. It was concluded that the proposed project will not significantly add to the existing air quality conditions in the area.

Fugitive dust during the construction period will be evident; however, it was felt that standard mitigation measures including watering down the area during site clearing/construction would adequately minimize fugitive dust.

Noise is expected to be generated during the construction period. This noise will disturb some classroom activities and may annoy the adjacent residential area makai of the quarry. The construction noise will be limited to normal weekday hours and must comply with applicable Federal and State standards on vehicular and construction noise.

The project's impact on infrastructures and utilities is expected to be insignificant. For the most part, existing utilities and infrastructures are available and will be utilized. In most cases, the existing utilities connection will be capped and new utilities/infrastructures will be provided. It is not anticipated that the additional energy, communication, water and sewer facilities needed will adversely or significantly affect these resources.

Parking and traffic. The overall master plan for the Manoa Campus considers the total parking requirements and thus the PE Facilities have been already included in this total parking requirements. The parking structure is located in the quarry. Major sporting events will be scheduled so as not to conflict with normal classroom hours; the parking structure will be available to those attending the event.

It is felt that the proposed PE Facilities will have a beneficial impact on the educational goals established by the State and the University of Hawaii Board of Regents. In addition to this beneficial impact, the following socioeconomic impacts are noted:

1. The PE Facilities will create a greater usage of the area and more intense activities than at present.
2. Employment will be generated because of the proposed PE Facilities. This employment will take form in construction employment as well as the employment of additional PE staff members and maintenance personnel.
3. Land will not be removed from the tax base.
4. No families and businesses will be displaced.
5. Public facilities and parks will not be replaced.

Alternatives to the proposed project. Various alternatives were considered for the proposed project. Amongst these, alternatives included consideration of space programs and a no action alternative. A different site alternative was not considered primarily because the quarry area is the only area which is presently part of the University that has available land and is felt to be ideally suited for the proposed PE Facilities.

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Mass Transit. The proposed project has been coordinated with the Mass Transit Division of the Department of Transportation Services. In this regard, a letter which briefly details the resolution of any conflicts is provided on page 74.



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## I. PROJECT DESCRIPTION

## A. PROJECT LOCATION

The proposed Physical Education Facilities (PE Facilities) will be located at the University of Hawaii at Manoa, Honolulu, Oahu. (See Figures 1 and 2, which show the location of the proposed project to the island of Oahu and the Manoa-Moilili area, respectively.) More specifically, the PE Facilities will be located in the makai campus quarry area, Ewa of Cooke Field and Diamond Head of the Lower Campus Road. The proposed site is identified as a portion of parcel TMK 2-8-29:1 (see Figure 3).

## B. DESCRIPTION OF THE PROPOSED ACTION

The proposed PE Facilities will house the scheduled activities of the Department of Health and Physical Education, College of Education, UH Manoa (HPE Department), the Athletics Department, the Intramural Programs, the free time Recreation needs of the general UH population and community programs. In addition, support facilities for administration and maintenance of the activities will be provided.

The site is situated in the quarry where the present HPE Facilities and other temporary buildings are scattered. The total land area for the ultimate HPE program is about eight acres or 350,000 square feet (s.f.). Total building area required to meet the ultimate HPE program needs as indicated in the Project Development Report prepared by Sam Chang & Associates, December 1975, is 312,266 gross square feet (g.s.f.). Because the building area required is almost equal to the land area available a multi-level scheme is proposed.

The proposed PE Facilities consist of constructing approximately twelve buildings. The proximity and use relationship of these buildings will constitute several "complexes." These complexes are linked by walkways and/or covered corridors. In total, the PE Facilities will include Gymnasium A Complex, Gymnasium B Complex (4), Gymnasium C Complex, five studios, administrative space, instructional space, lockers, and seven indoor handball courts.<sup>1</sup> (See Figure 4a showing the site plans and Table 1 showing the space requirements for each use.)

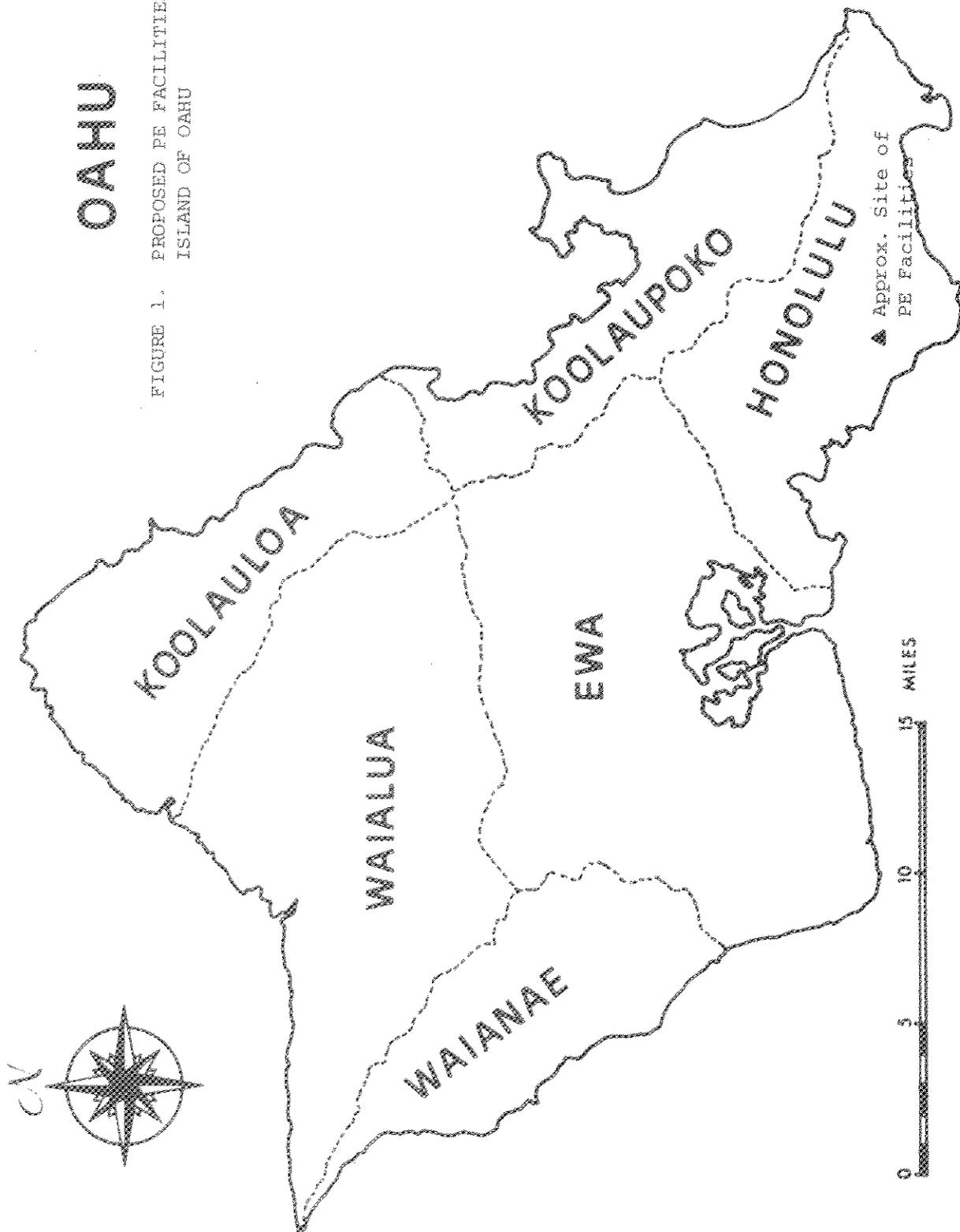
The proposed facilities are designed to promote a special sense of team spirit common to sports activities. At the same time, the whole building is designed to promote a sense of easy accessibility for the general population of the UH.

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<sup>1</sup> To determine the number of gymnasiums and studios required, in addition to the Gymnastics Gym (Gym C) which has a specific use, the following factors were considered: (1) Athletics, HPE, Intramural and Community usage demands; (2) Scheduling; (3) Recreational use; and (4) Maintenance time.

# OAHU

FIGURE 1. PROPOSED PE FACILITIES SITE  
ISLAND OF OAHU



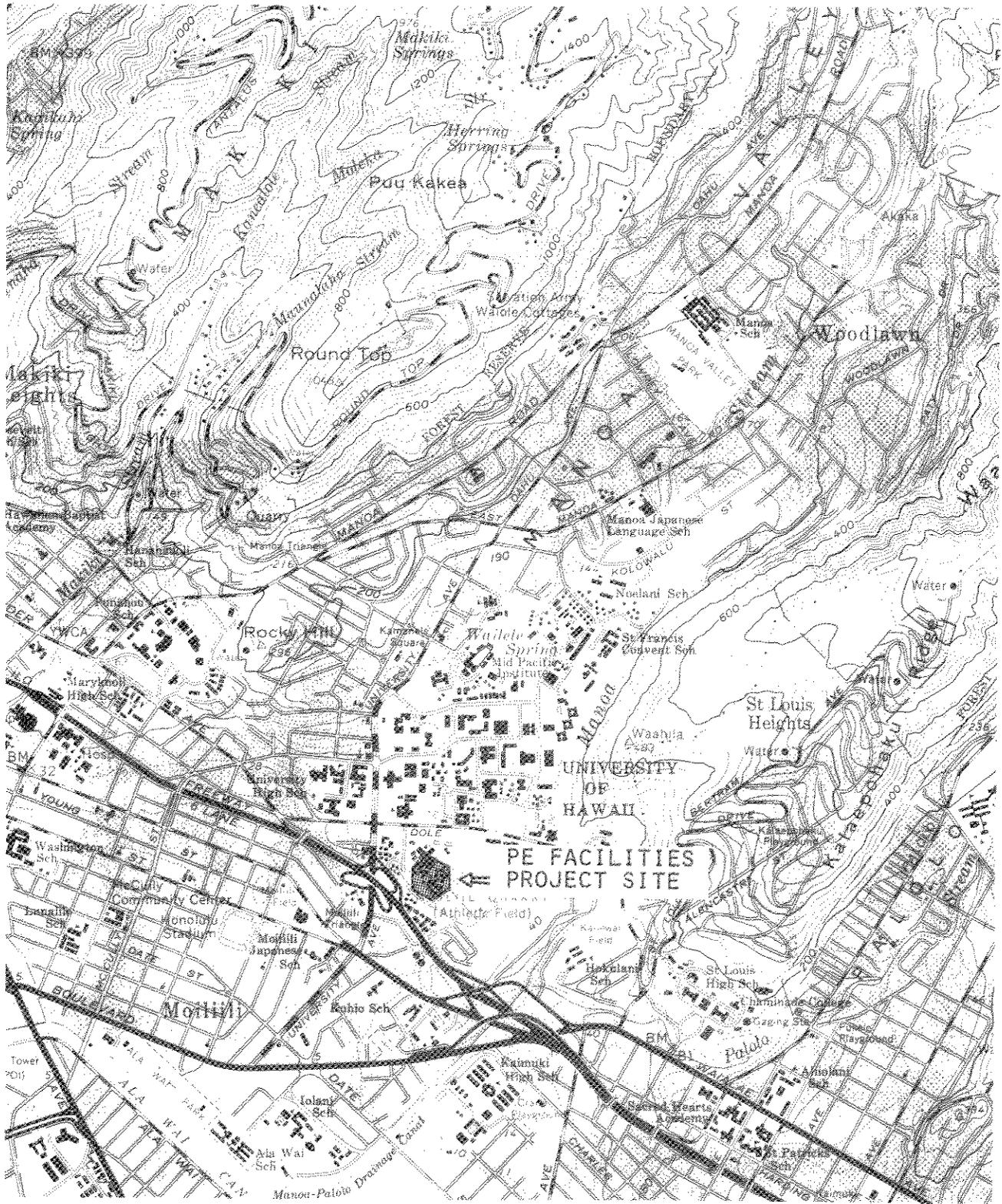


FIGURE 2. PROPOSED PE FACILITIES AT UH MANOA, MANOA-MOILILI AREA  
 U.S. Geological Survey Map (portion of)

1 inch = 2,000 feet

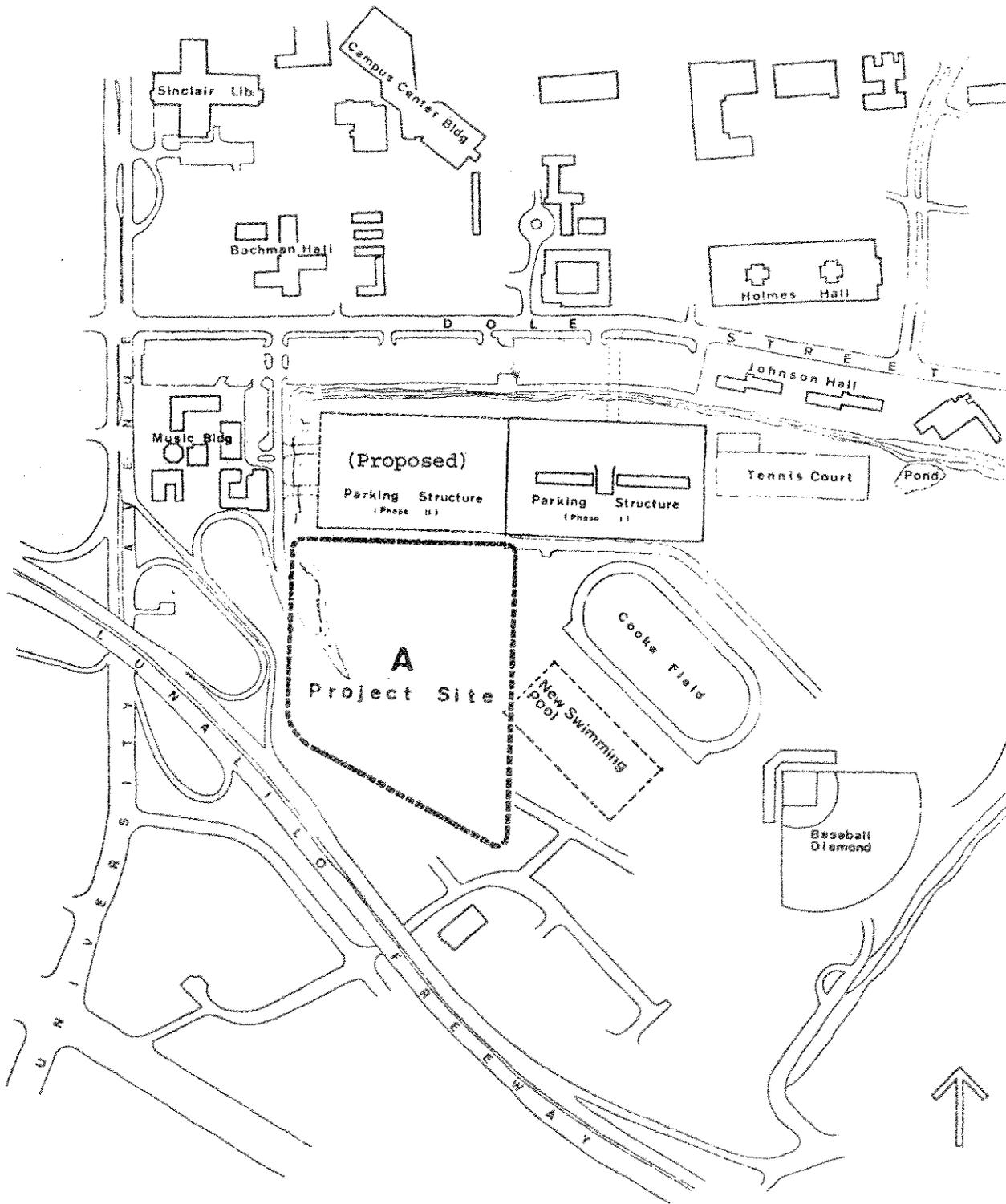
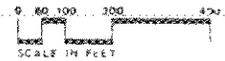


FIGURE 3.

LOCATION MAP

TAX MAP KEY : 2 - B - 2 9



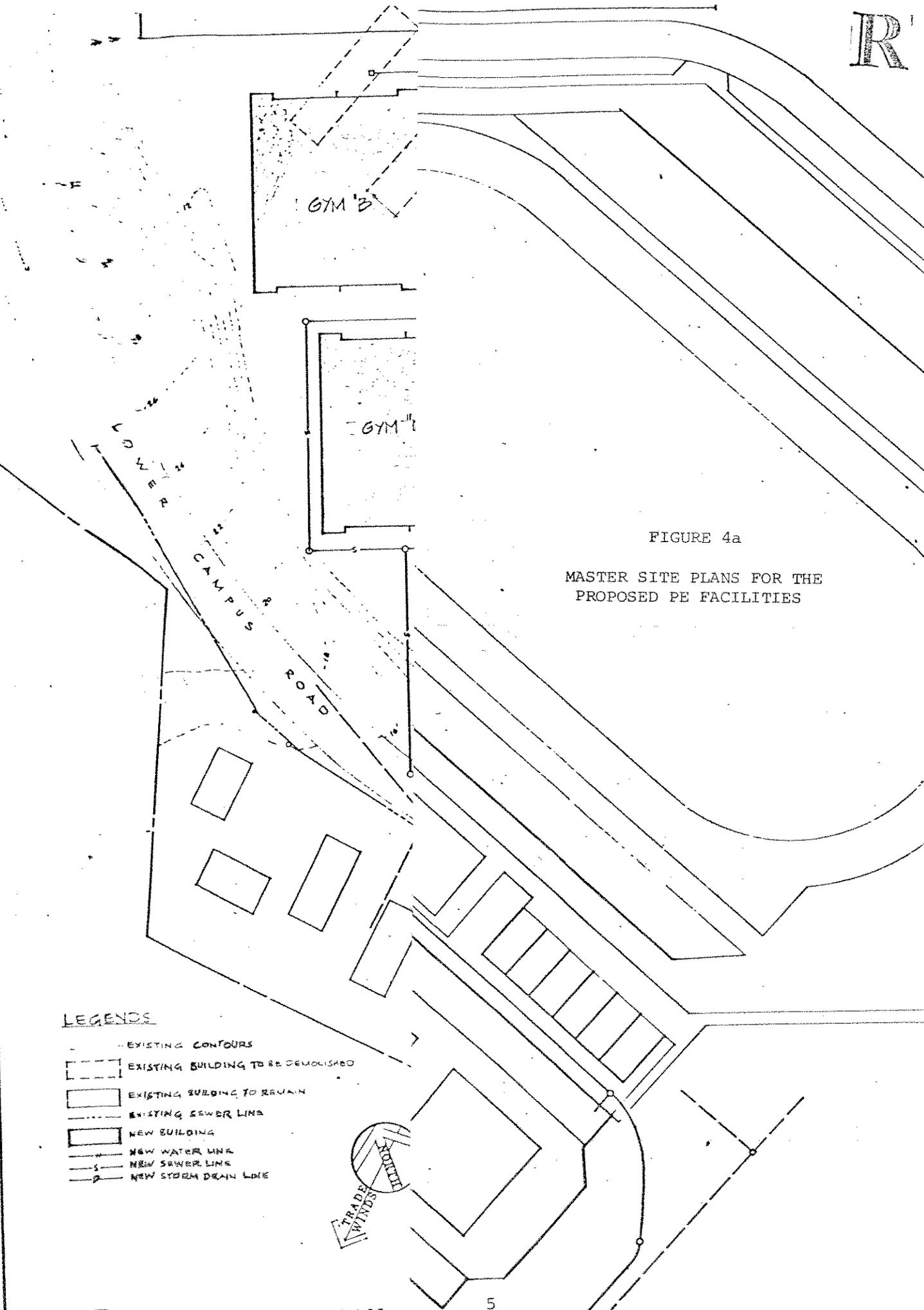


FIGURE 4a

MASTER SITE PLANS FOR THE PROPOSED PE FACILITIES

LEGENDS

- - - - - EXISTING CONTOURS
- [Dashed Outline] EXISTING BUILDING TO BE DEMOLISHED
- [Solid Outline] EXISTING BUILDING TO REMAIN
- [Dotted Line] EXISTING SEWER LINE
- [Solid Outline] NEW BUILDING
- [Line with 'W'] NEW WATER LINE
- [Line with 'S'] NEW SEWER LINE
- [Line with 'D'] NEW STORM DRAIN LINE



Table 1

PHYSICAL EDUCATION, INTRAMURALS AND ATHLETICS FACILITIESSpace Program Summary (ASF)

<u>ATHLETICS</u>	<u>Phase I</u>	<u>Phase II</u>	<u>Phase III</u>	<u>Total</u>
Administration	2,125	-	-	2,125
Coordination and Promotion	795	-	-	795
Business Office	1,345	-	-	1,345
Sports Information	1,145	-	-	1,145
Gym Sports Office Complex	4,653	-	-	4,653
Gym Sports Men's Locker Complex	1,899	-	-	1,899
Gym Sports Women's Locker Complex	1,669	-	-	1,669
Training Complex	10,580	-	-	10,580
Men's Equipment Storage	3,290	-	-	3,290
Women's Equipment Storage	2,040	-	-	2,040
Field Sports Office Complex	6,175	-	-	6,175
Field Sports Men's Locker Complex	4,627	-	-	4,627
Field Sports Women's Locker Complex	2,406	-	-	2,406
<u>INTRAMURALS AND RECREATION</u>				
Administration	1,585	-	-	1,585
<u>HEALTH &amp; PHYSICAL EDUCATION</u>				
Administration	4,155	-	-	4,155
Laboratory Complex	-	5,532	-	5,532
Staff Locker Complex	942	-	-	942
<u>COMMON SPACES</u>				
Instructional Complex	2,520	14,214	-	16,734
Gym Complex "A"	-	25,416	-	25,416
Gym Complex "B"	34,278	17,139	17,139	68,556
Gym Complex "C"	-	17,595	-	17,595
Performance Instructional Complex	15,660	2,450	12,762	30,872
Handball Complex	-	-	8,960	8,960
Administrative Support	2,470	-	-	2,470
Facilities Support	10,973	-	-	10,973
Total ASF	115,332	82,346	38,861	236,539
Total GSF (1.31 x ASF)	151,085	107,873	50,908	309,866

The administrative and common space support facilities are designed to promote high interaction among the users, but at the same time, provide sufficient insularity to the function spaces to allow efficient performance of tasks.

The new structure(s) as a whole will be seen as only the indoor portion of the larger complex of spaces in the lower campus area devoted to physical activities. As such, close interrelationships with the existing and planned outdoor fields is of prime importance.

The major sports activity spaces in the new structure - gymnasiums, studios, handball courts, exercise complex - will vary in their usage from high levels of control in HPE classes and Athletic team practices to very low levels of control for recreation and certain community uses. Since controlled activities and uncontrolled activities could occur at the same time of the day, separation of facilities must be considered. Toward this end a modular size of gymnasium space - 13,000 square feet - has been chosen (Gym B). Each such space can accommodate 2 basketball courts, or 3 volleyball courts, or 4 badminton courts. A number of such gyms (identified as Gym B) can accommodate the flexibility of scheduling both controlled and uncontrolled activities. In addition, one large gym (Gym A) with a 3,000 spectator capacity will be included for competitions.

Studio spaces for dance, martial arts, and wrestling are primarily controlled in usage. The handball courts will be primarily of uncontrolled usage, except for certain class hours and a sign-up sheet.

#### 1. Site Work

A complete topographic survey was taken prior to commencing with the preliminary design. All contours are taken into account along with all existing structures, paving and utility lines related to the project site. The site work related to the new facility will consist of underground utilities, drainage system, landscape, sprinkler system, earthwork, demolition, walks and driveways. Consideration in the site will be given for the future Mall (see pages 30-31) location.

Relocation: Fourteen (14) portables will be relocated on the campus to provide for interim facilities.

Demolition: Demolition of the existing structures (except the portables), paving and utility lines relocated to the proposed site. Demolition will be accomplished according to construction phasing scheduled for the various increments. At the time of demolition, utility lines will be disconnected and capped according to the appropriate authority and/or utility company. Debris shall be removed from the project site. All dust and noise preventative methods, as required by local ordinances, shall be followed.

Drainage: A drainage system will be constructed<sup>1</sup> which plans to divert surface runoff from the buildings, the athletic areas, and the roads in the quarry. The drainage system will prevent flooding of the project site.

<sup>1</sup> Sunn, Low, Tom & Hara, Inc., "Lower Campus Drainage Preliminary Engineering Report, University of Hawaii, Manoa Campus, Honolulu, Hawaii, D.A.G.S. Job No. 02-31-0982.2." December 23, 1975.

Landscaping: Landscaping will consist of plant materials, topsoil and sprinkler system. Plant material selected will be compatible to the area, keeping in mind convenience of maintenance. Landscaping for the project site will need to consider the future Mall.

Exterior Paving: In general, service roads, and vehicular parking and loading areas will be constructed according to standards of the City and County of Honolulu.

## 2. Structural Systems

Framing: The structural framing system allows for maximum flexibility in gym, studio and classroom layout and shall take into consideration all increments of construction phasing to be compatible with mechanical and electrical systems. Long spans include consideration for those spaces to be flexibly divided, eliminating columns or piers wherever undesirable. Design is for applicable earthquake forces in Earthquake Zone III.

Floors: Loads for this facility are typical in office and classroom areas, but are special in sports activity areas and other common spaces.

Roofs: Loads for this facility are typical, except special design consideration is given for roof recreation decks and malls.

Fireproofing: As per all applicable codes and regulations.

## 3. Architectural Systems

Floors: Special consideration is given to the gym spaces and studio spaces; the gym floor includes a hard maple floating floor and the studio floor consists of a synthetic type or wood floor. Standard resilient flooring will be used in office and classroom areas, with some exceptions. These areas will require carpeting, equal to 100% continuous filament nylon, tufted or woven, looped with static control yarn, with flame spread rating of 75 or less and with heavy duty padding. Hard tiles will be used in locker and shower rooms and other rooms prone to constant wetting.

Walls: All exterior and interior walls and partitions are planned to be constructed to provide for the required fire separation, low maintenance, and special consideration for sound transmission and absorption due to the various usages. Certain spaces will have special wall treatment; movable walls are planned to be acoustically sound and easily operable. Classroom walls adaptable to attachments such as cabinets, tack and chalkboards, and bookshelves. Certain walls in sports activity areas will have sufficient strength for attachment of gym equipment, sports backboards, etc.

Ceiling: In general, all ceiling surfaces have appropriate sound absorbtive characteristics. Finishes and colors are consistent with desired lighting levels and require low maintenance. Integrated ceiling systems combining lighting and mechanical components are

highly desirable whenever possible in offices and classrooms. Gym and studio spaces shall have a clerestory above with special consideration on acoustics. Locker and shower rooms will have special moisture protection. Ceiling heights appropriately conforms with their functional requirements, some requiring specific attachments, finishes, etc.

Roofs: Roofing material will be typical except at recreational decks and public malls, which require hard tile or special playing surfaces with special emphasis on water proofing and drainage of the recreational deck and public mall exposed to weather.

Doors and Frames: Doors and frames utilize proper material use as required according to the location and function. Depending on the location and use, doors will provide visual, acoustic, security and special devices for the handicapped, as required. All doors will meet the fire ratings as called for by governing codes.

Windows and Glazing: Windows, window frames, and glazing are designed according to daylight control needed, operable or fixed windows due to natural ventilation or conditioned air and glare protection according to location and function of space. Strength and size are governed by local building codes.

#### 4. Mechanical Systems

Air Conditioning: Insofar as is justifiable, air conditioning shall be provided in the greater part of this proposed facility. The primary purpose of the design will consider economy of operation, flexibility of control, and quietness of operation. Mechanical equipment spaces are located in the facility to minimize noise transmission caused by mechanical equipment. The facility will be divided into zones, depending on usage and time periods to be operational.

Ventilation: Complete exhaust systems provide for all locker and shower rooms conforming to all applicable codes and regulations. Ventilation systems are also planned for certain work areas. Heavy ventilation will be required in the locker rooms to flow free through open mesh type lockers to provide for airing and drying of athletic clothing stored in these lockers.

Plumbing and Drainage: All sewer, drain, and water systems from the new facility should be connected to their respective City and County systems.

Fire Protection: Wet standpipes, fire hose cabinets, and sprinklers will be installed as required by all applicable codes.

Plumbing Fixtures: All toilet fixtures should be wall hung for low maintenance; toilet partitions should be ceiling supported. Shower facilities will be group column showers for men and a mixture of group column and module stall showers for women.

5. Electrical Systems

Electrical Service and Distribution: Electrical service shall be obtained from existing University of Hawaii primary electrical distribution system. Service voltage is 12,470 volts. Existing primary cables shall be tapped in existing electrical handhole. New service raceways will be connected to existing stub-outs. New primary cables shall extend the primary distribution system to new substation, where voltage shall be stepped down. The primary system is adequate to support the new load.

6. Communications Work

General: Communications work will provide empty raceways for telephone system, complete fire alarm system, synchronized clock and program bell control system, empty raceways for public address systems.

Telephone: Empty raceways will be provided for use by the Hawaiian Telephone Company. Telephone service raceways will be connected to existing stub-outs from existing telephone handholes. Telephone raceways on the interior will consist of electrical boxes, cabinets, and empty rigid steel conduits. Boxes will be fabricated from steel and provided with plastic grommets hole device plates.

Fire Alarm System: Complete zoned, non-coded, series and electrically supervised system will be provided.

Synchronized Clock and Program Control System: Complete synchronized clock and program control system will be provided.

Public Address Sytem: This system shall serve areas where general announcements or paging is required. The central control will be located at the main switch board in the common area.

7. Illumination Work

General: The illumination work will provide artificial lighting for interior and exterior building spaces and mall. In general, the lighting levels will be in accordance with the recommendations of Illuminating Engineering Society (IES) and Occupational and Safety Health Act (OSHA) requirements.

Lighting Levels: The following lighting levels and factors cited in performance requirements above will govern the design in addition to the requirements of the IES:

Office areas	50 footcandles
Classrooms	70 footcandles
Competition Gym	200 footcandles
Martial Arts Rooms	50 footcandles
Practice Gyms & Athletic Rooms	30 footcandles
Corridors & Stairs	20 footcandles
Utility & Storage Rooms	20 footcandles

Controls: With the exception of night lighting, lighting equipment will be manually controlled by wall switches or circuit breakers in panelboards. Night lighting will be automatically controlled by time switches. Exterior area lights will be automatically controlled by light-sensitive photo-electric cells.

Emergency Lighting: Emergency lighting will be provided for all exit lights and in public areas. Approximately 10 per cent of the light fixtures in Gym A and the Gymnastics Gym (C) will be on the emergency system.

Light Fixtures: Steel parts will be prime coated and enamel finished. Aluminum parts will be anodized finished. Diffuser will be formed from acrylic plastic or heat resistant glass. Units shall be UL approved. Shapes and sizes of major fixtures shall be provided with impact resistant tamper-proof diffusers.

#### 8. Other Specific Performance Requirements

Traffic Circulation and Access Consideration within the building shall be designed with the objectives of minimizing travel time, reducing congestion of travel lanes, increasing comfort and safety for users (pertinent handicapped considerations, see below), providing for ease of supervision and separation, and providing for ease of connection with related surrounding facilities, such as outdoor fields, campus mall, parking, etc.

Handicapped Design Considerations, as specified by code and by guidelines set down by the American Standards Association, as well as other guidelines named in the HEW section on "Regulations and Guidelines", shall be followed. In general, 3 types of considerations shall enter into the design. Access/egress considerations at each destination must be designed to facilitate handicapped use. Beyond physical limitations, such as slope of ramps and threshold grade changes, problems of identification of spaces for the blind and problems of orientation shall also be considered. A second type of consideration has to do with the characteristics of distance estimation and landmark identification by the handicapped during transit. A third area of consideration is dimensional tolerances for the convenience of the handicapped.

Safety and Security measures shall be designed into the structure in conformity with codes as applicable to educational spaces, places of assembly, etc. Special attention shall be paid to those sports activities with high hazard levels, such as gymnastics, weight rooms, and exercise rooms. Safety problems also exist in the hydrotherapy areas, and in areas containing heavy machinery. First aid stations and the medical areas of the athletics training room complex shall be made readily accessible to the activity spaces as well as outdoor fields. General security measures for the building shall be achieved through a combination of circulation design to allow ease of supervision and lack of hidden, dead-end spaces and of hardware and construction of doors and windows. Specific security precautions shall be taken for the business and sales offices, media equipped classroom, equipment rooms, trainers' and physicians' offices, storage areas, and other spaces equipped with expensive electronic items.

Parking Requirements for the building will be met by the existing UH parking facilities. It should be noted that both the existing parking structure (Phase I) and the planned parking structure (Phase II) will be located in the quarry area.<sup>1</sup> Six spaces for quick turnaround visitors parking shall be provided for the convenience of ticket purchasing, deliveries, etc. A loading dock area for athletic equipment shall be provided adjacent to the receiving room.

Site Contextural Consideration including the general character of surrounding structures and fields, view considerations for buildings mauka of Dole Street, and close coordination with the planned Mall shall be an integral part of the design process. Due to the limitations of the site area, proper design of this facility may require the inclusion of the Mall and Parking Structure II for consideration as one integrated structure. Otherwise building set-back requirements may create unsightly and unsafe canyons between the three structures.

Maintenance Consideration: Janitorial spaces shall be provided at convenient locations to insure ease of maintenance. Consideration for ease of maintenance should be exercised when selecting finish materials.

### C. STATEMENT OF OBJECTIVES AND HISTORIC PERSPECTIVE<sup>2</sup>

The general goal of the physical education and sports programs of the University of Hawaii is to promote the physical well-being of the individual students, and as such is an integral part of the overall educational policy of developing the student as a whole person.

To achieve this general goal, a diversified sports program is needed to respond to the varying levels of skill and desire which exist among the students.

1. Athletics: Athletic competition activities existed from the earliest days of the University history. In the early 1900's informal administration of these activities was undertaken by individuals associated with the Associated Students of the University of Hawaii (ASUH), or simply by individuals with UH connections. In 1945-46 the department was formalized under the direct jurisdiction of the Office of the President of UH. Early activities included football, basketball, baseball, volleyball, tennis, track and wrestling. From 1971, with the clear delineation between Manoa and Statewide function of the University, the direct jurisdiction of athletics fell under the sponsorship of the Manoa Chancellor's office. By 1973 the list of competitive sports grew to include swimming, soccer, gymnastics, golf, and sailing. The women's athletics program underwent several stages of growth. Active programs in the 1960's were reorganized in 1972 under the present format and include basketball, golf, gymnastics, soccer, softball, swimming and diving, tennis, track and cross-country, and volleyball.

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1 These structures and other parking facilities located throughout the campus are part of the total UH plans and are outside of the scope of this project.

2 Source: "Project Development Report for the University of Hawaii Physical Education Facilities."

There were 247 student athletes and 15 coaching and administrative staff in FY 1968-69. This number increased to 369 athletes and 37 full-time and 9 part-time staff in FY 1974-75. Present projections for FY 1978-79 are 525 athletes and 52 full-time and 15 part-time staff. These increases are based on the expansion of athletic programs in terms for more sport coverage and/or a move to a higher level of competition. For example, while it is public knowledge that men's football and basketball at UH have gained stature in recent years, it is less well known that the gymnastics, track and sailing teams, as well as the women's athletic teams in volleyball, track, golf and swimming have placed strongly in national meets. The number of highly skilled athletes attracted to UH increases with its reputation. And with this success comes increasing staffing needs to manage the more sophisticated department. Men's sports events include: football, basketball, baseball, golf, gymnastics, sailing, soccer, swimming, water polo, tennis, track, cross-country, volleyball, and wrestling. Women's sports events include or will include in the future: golf, soccer, softball, tennis, track, basketball, gymnastics, volleyball, and swimming.

New facilities for the Athletic Department, since the building of the Duke Kahanamoku Pool and locker buildings, have been limited to a move in 1970 from administrative space in what is now the Department of Health and Physical Education, College of Education, UH Manoa (HPE) Building to the three temporary buildings MC 13, 15 and 16. (See Figure 5.)

2. HPE: The classes for health and physical education, formerly under other names, were formalized as a department under the College of Education in 1946. The goals of the department have changed over the years, but have consistently included several aspects. The elementary instruction of students in the skills, conduct, and theory of each physical sport remains a primary purpose of HPE classes. More advanced education of potential physical education and health instructors to serve the community's secondary and elementary schools is another goal. Concentrators in the field could further select courses leading to advanced degrees, such as the M. Ed., from the department's offerings.

At different times in the University's history, courses in this department were required for the first degree. From 1965 through 1969, individual departments in the University were given the option of including or excluding this requirement from their programs. By 1969, all departments, except the College of Education, had opted to eliminate the HPE requirement.

In fiscal year 1964-65, the HPE Department offered a total of 25 courses with a total of 101 sections. In fiscal year 1973-74, 2,180 students enrolled in 180 sections covering 55 different courses. Although HPE courses are no longer required for other majors, there is an increased demand for classes in tennis, martial arts and ethnic dances.

Since 1956, Duke Kahanamoku Pool, several temporary office and classroom buildings and Building 152A were assigned to HPE.

3. Intramural Program: Intramural sports exist on all university campuses as an expression of the desire among students to test their skills in less formalized teams than full-fledged inter-collegiate competition. This program provides students, who do not have the capability to participate in

varsity competition or students who may have the capability but elect not to do so because of lack of time and/or interest, the opportunity to participate in team sports. Further, the program provides added activity for students living on campus.

Informally organized prior to 1963, the program was sometimes administered by the ASUH and sometimes by the HPE Department. With the impetus generated by Dr. Thomas H. Hamilton's report "Presidential Memorandum on Physical Education, Intramurals and Intercollegiate Athletics", October 17, 1963, reorganization and increased financial support for Intramurals began. At first the program was organized under the Athletics Department. Coordination was transferred as a separate budgeted program to the HPE Department in 1969.

From a participation level of 1,898 students in 1962, the increase in demand reached 4,000+ students in 1969, and an estimated 7,500 students in 1973. The full-time staff was increased from 1 person to 2 persons in 1970. It is projected that additional staff will be needed in the future.

The Intramurals Program will share the facilities used by HPE and Athletics during off hours. Severe shortage of facilities occur at the present, with the Klum Gymnasium scheduled as late as 1:00 a.m. and 2:00 a.m. Special problems exist during athletic team practice seasons, when the Intramurals Program may not be scheduled at all.

4. Recreation and Free-time Activities: At present, these activities exist on a precarious basis. The need for such activities to be accommodated is very high. Several types of recreation uses are common to universities of this size.

There is a distinct need for free-time use of sports facilities in conjunction with HPE classes, because students often wish to continue their sport or practice for it immediately before or after classes. Secondly, as the graduate population of a university increases, the number of people on campus without scheduled sports increases.

Several factors about recreational activities make them high level space users. First, recreational activities tend toward sports requiring a minimum of pre-organization; therefore, two or three or four people will sometimes want the use of entire courts. Secondly, the imitation tendency in most people makes them want to play basketball when the basketball team is making headlines. Lastly, the acoustic and control characteristics of recreational use conflicts with activities such as HPE classes or team practice. Separation of facilities is necessary.

5. Community Activities: The use of facilities financed publicly should benefit the public to the extent that it does not interfere with the proper function of the agency it is designed for. In the case of the sports facilities at UH, Manoa campus, frequent requests from community groups, such as Boy Scouts and others, have been denied because of lack of space. At present a small number of such activities are scheduled every year, but the number of requests turned away far exceeds those accommodated. In addition, there is no way to estimate the number of requests which were never voiced to the UH because of public understanding of lack of space. It is the general goal of the University to be the best of neighbors, and

providing use to the community of sports facilities is an excellent opportunity to reach that goal. Unlike science laboratories or humanities classrooms, these facilities embrace the kind of activities popular to all segments of society.

The present operation of Community activities is coordinated by the Intramurals Director, who is simply in charge of all facility times not used by HPE and Athletics. The future operation of this program will probably continue in the same manner.

6. Present Program Operations: At present, HPE, Athletics, and Intramurals are independently programmed with ad hoc coordination of facility usage. The Intramurals Director doubles in function as the Facilities Manager. In addition, Community and Recreation activities are coordinated by him in his role as Facilities Manager. In the future, possible separations of these last functions may occur.

Student users presently move directly to and from their activity spaces, sometimes through intermediate locker and equipment areas. In the larger proposed facility, more clearing house types of activity must be anticipated because of increased free-time usage.

Several types of areas, sports information office, resource center, multi-use classrooms, will have a public interface with other parts of the university or the community.

7. Existing PE Facilities: The five programs to be housed in the proposed structure are presently located in the makai campus quarry area. Offices and classrooms are scattered in temporary structure. The indoor activity spaces of Klum Gym complex and several ancillary structures are very inadequate.

The classrooms and offices of the HPE Department are presently housed in the PE building (#152A on the UH Facilities Management Map), the General Classroom Buildings #A and #B (#152C and D), MC11, MC12, and MC14, comprising approximately 14,000 ASF of space. In addition, approximately 9,700 ASF of locker and shower space and 2,100 ASF of martial arts and dance studio space is used by HPE. (See Figure 5.)

The offices and meeting rooms of the Athletics Department are presently located in structures MC13, MC15, and MC16, comprising approximately 4,200 ASF. In addition, the varsity locker and shower facilities, training rooms, equipment room, etc., are located Ewa of the Duke Kahanamoku Pool and comprise approximately 7,500 square feet of space.

The Intramurals Program is administered from Building 106, which is a one story house of 1,100 ASF. Large equipment is stored in 400 ASF of space in the Locker Building (#152B).

All of the programs use Klum Gym, which is a 110 x 200 foot area with attached storage and offices. The gym is used 16 to 18 hours a day with as many as four different sports scheduled at one time.

Interspersed through this area are temporary buildings housing the Dance and Drama Department, the Military Science and Aerospace Programs.

These programs should eventually be housed elsewhere on the Manoa campus.

#### D. USE OF PUBLIC FUNDS OR LANDS

State lands and monies will be utilized for the proposed project. As a part of the State's University of Hawaii system, the project will be funded by the State and administered by the University to enhance the overall educational goals of the University. As a secondary objective it will include student and community recreational needs whenever possible. The land (approximately eight acres) on which the proposed PE Facilities will be constructed is owned by the University of Hawaii.

Act 187, State Laws of Hawaii 1970, Item E-25 and Act 68, State Laws of Hawaii 1971, Item C-96 appropriate \$166,000 and \$306,000 respectively for the design of the subject facility. The University of Hawaii (UH), by letter of October 30, 1975, requested that the Department of Accounting and General Services (DAGS) undertake the task of designing and constructing the first phase of the subject project in the UH Makai Campus in Manoa, Honolulu, Oahu, Hawaii.

The Project Development Report prepared by Sam Chang Architect & Associates, Inc., provides the cost estimates in Table 2 and below:

The cost estimate for the new facility was prepared as of September 1975. Construction escalation, estimated at 0.4% per month, shall be added to bring the total cost up to date for bidding review purpose.

The site preparation and civil work cost estimate are itemized in the Project Development Report (Appendix Item 10.10). The landscaping allowance includes a sprinkler system and are part of the program requirements. Its cost estimate is assumed to be three (3) percent of the building cost.

The building cost estimate is based on the program area square foot calculation with additions for mechanical and electrical installation costs. The unit rate includes:

1. Construction
2. Piles
3. Bleachers at Gym A
4. Plumbing Fixtures
5. Circulation (including circulation, mechanical, electrical and structural spaces, +31%)

Mechanical and electrical installation cost equals: Total Area x \$23.60/S.F.

#### E. PHASING AND TIMING

Figure 4b shows the buildings and improvements to be made in Phase I. Construction for Phase I is expected to begin in September, 1978 and completed within 24 months.



Table 2

ESTIMATED PROJECT COST

	<u>Total Cost</u>	<u>Phase I Cost</u> <sup>3/</sup>
SITE PREPARATION & CIVIL WORK	\$1,455,742 <sup>1/</sup>	\$906,000
LANDSCAPE ALLOWANCE (3% of Bldg. Cost)	768,500	100,000
BUILDING CONSTRUCTION COST	<u>25,616,407</u>	8,494,000
CONSTRUCTION COST (9/75)	27,840,649	
TIME FACTOR (0.116)	<u>3,229,515</u>	
CONSTRUCTION COST (2/78)	31,070,164	9,500,000
USE	31,070,000	9,500,000
CONTINGENCY	615,000	255,000
DESIGN COST	1,718,000	662,000
INSPECTION COST	597,000	220,000
FURNITURE & EQUIPMENT (10% of Bldg. Cost)	2,561,690	500,000
WORKS OF ART (1% of Project Cost)	<u>369,310</u>	<u>112,000</u>
TOTAL ESTIMATED PROJECT COST	\$36,931,000	\$11,249,000

NOTE: Cost for the following will be considered under separate projects:

MALL

LOOP ROAD RELOCATION OR COMPLETION/PAVING

R.O.T.C.

<sup>1/</sup>Refer to Appendix Item 10.10

<sup>2/</sup>Refer to Appendix Item 10.11

<sup>3/</sup>Based on latest cost estimate

Source: Project Development Report, prepared by Sam Chang Architect and Associates, Inc. December, 1975.



The remaining buildings and improvements for Phases II & III will be initiated as funds become available.

## II. DESCRIPTION OF THE ENVIRONMENTAL SETTING

### A. GENERAL SITE CONDITIONS

As previously indicated, the project site is presently part of the UH Manoa Campus. It is located in an area commonly known as the "Quarry". The Quarry is apparently named so because prior to World War II, the area was used as a commercial quarry. This area is presently utilized by the existing PE facilities in various wooden temporary one-story structures, Klum Gym (partially on the site), the present swimming pool, ROTC programs, and Dance and Drama Department. Some unpaved parking areas are also found interspersed between buildings.

The vegetation consists of primarily cultivated plants and grasses, along with scattered exotic trees in the open areas. Weeds and koa haole were noted along the fringes of the quarry, and beneath and on the side of some buildings. Avifauna observed included mynah birds, sparrows, doves, and golden plovers.

Various student activities are predominant during weekdays. These include students walking to and from their classes (situated in the temporary buildings), and going to and from the outdoor field areas to the locker areas. Additionally, the quarry area also houses the parking structure (multi-level); during the day, an almost continual flow of traffic is found along the Lower Campus Road. During the evening and weekend periods, the area is still in use (although less intensive) with various active recreational activities being conducted individually or by groups. These include: tennis, jogging, running, baseball, softball, and depending on the season, other team sports.

### B. PHYSICAL GEOGRAPHY

The project site is located in the makai campus quarry area, Ewa of Cooke Field. The project is in the quarry area which is bordered to the north by a steep cliff averaging about 40 feet in height, and is surrounded by higher ground to the east and west.

The proposed project is accessible from the Lower Campus Road which is connected to Dole Street and University Avenue as a major thoroughfare, and from Varsity Circle toward University Avenue. (See Figure 6.)

The ground slope varies from 0.5% to 1.0% and is covered by coral pavement. The trade winds prevail mostly in a northeasterly direction with an average velocity of 15 to 25 MPH. The average annual rainfall is about 40 inches per year.

The site is presently occupied by a portion of Klum Gym, the Duke Kahanamoku Swimming Pool, temporary buildings MC-1 through MC-17, the ROTC buildings, and other miscellaneous buildings, and some parking areas. (See Figure 5.)

As previously mentioned, exotic plants are found in the area, more specifically these include (but are not limited to): plumeria trees, crotons, banyan trees, octopus (umbrella) trees, ti leaf plants, haole koa, redtop (grass), California grass, sandbur (weed), radiate fingergrass, bermuda grass, crabgrass, Hakonokono, spider lily plants, paper bark trees, and oleander plants.

Avifauna included cardinals, barred dove, spotted dove, mockingbird, mynah, golden plover, ricebird, house sparrow, and white eye. These birds are exotic; no known rare and indigenous species of birds are known to inhabit the area. Other types of fauna could include house mice, rats, and possibly mongooses.

It is noted that because of man's clearing, rehabilitation, and active use of the area, the plants and fauna observed on the site and the near vicinity consist primarily of exotic species.

#### C. ENVIRONMENTAL CONSIDERATIONS

Drainage and flood conditions are discussed under the infrastructures subsection.

Noise was noted in several forms in the quarry area where the proposed PE Facilities are located.<sup>1</sup> Sources of noise included construction noise created by the construction of the new swimming pool (see Figure 3), vehicular noise from passing vehicles traveling on the Lower Campus Road, and noise created by active field activities in the quarry. It was found that aside from the construction noise, the other two noise sources does not cause significant or major distraction to the individuals in the area.

Air quality has been studied in conjunction with the Environmental Impact Statement. Barry Root, a consultant on air quality, was retained to prepare an air quality impact analysis for the proposed project. It was felt that there was a need to determine air quality impact because of the proximity of the PE facilities site to the multi-level parking structure, and to major thoroughfares such as the H-1 Freeway, the Lower Campus Road, Dole Street, University Avenue, and King Street. Although the project will not be responsible for the creation of the traffic on these streets, the impact of air quality on the PE Facilities was of primary concern.

Regarding the existing air quality, Root stated:

*Since November, 1976, the State of Hawaii Department of Health (DOH) has been collecting periodic air samples at a monitoring station*

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<sup>1</sup> The discussion on noise is from an observer standpoint only. No noise studies or readings were undertaken for the preparation of the EIS.

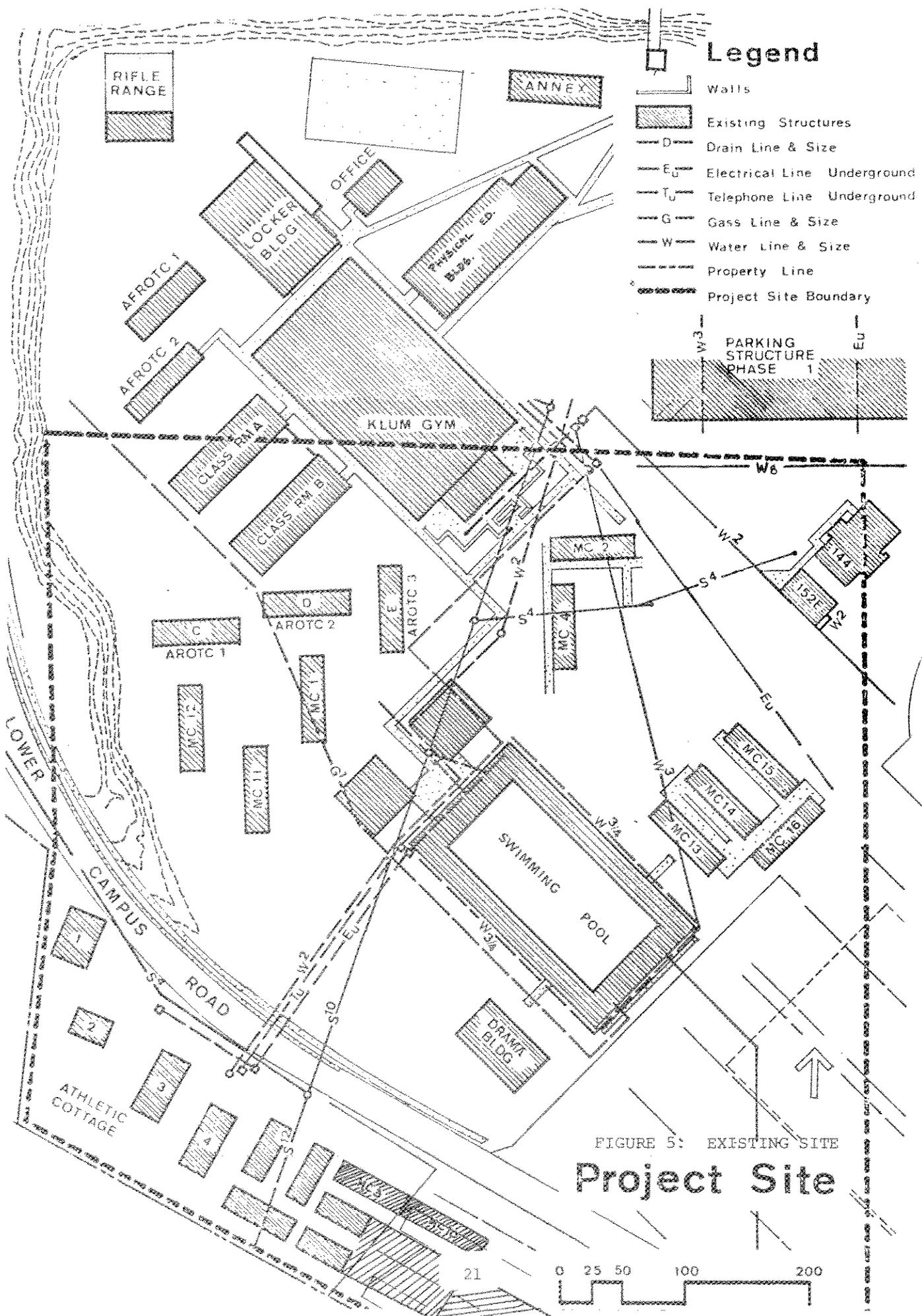


FIGURE 5: EXISTING SITE

**Project Site**

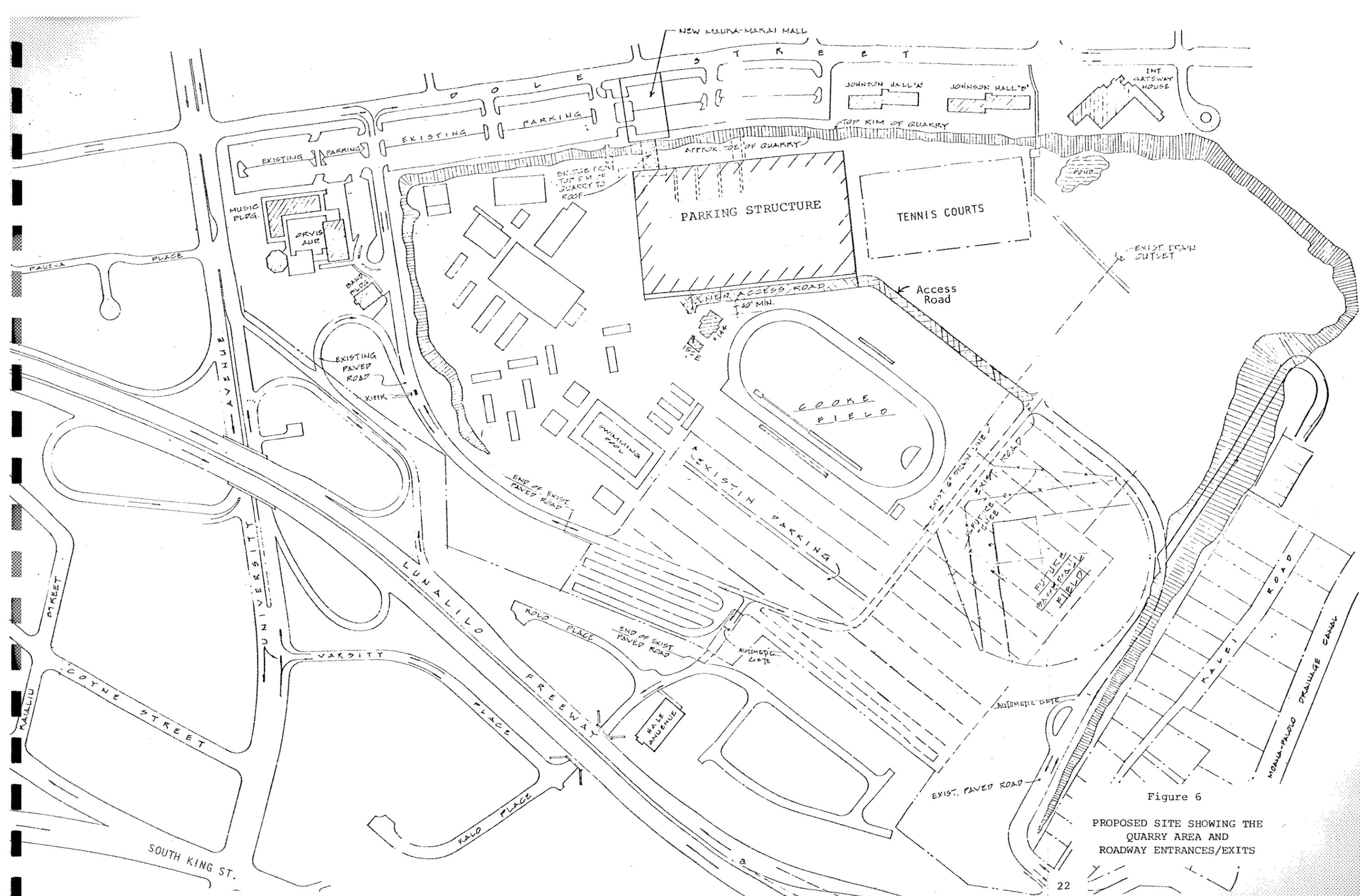


Figure 6  
 PROPOSED SITE SHOWING THE  
 QUARRY AREA AND  
 ROADWAY ENTRANCES/EXITS

near the University Avenue Freeway underpass...The maximum value measured was  $16.2 \text{ mg/m}^3$  for the 0800 to the 0900 period. This value agrees very well with the worst case concentrations predicted (see Root's study in Appendix A) for nearby sites 1 and 2 using the EPA estimation technique. The sampling data also shows that values of this magnitude are relatively infrequent (the average of 25 samples was only  $4.6 \text{ mg/m}^3$ ) indicating that the worst case conditions, leading to these concentrations are reasonably rare.

In viewing aesthetics it is emphasized that there is a high degree of subjectivity involved. From the standpoint of the existing quarry area, it is felt that the project site is not a aesthetically pleasing area. It is a scattering of single story wooden buildings with a few landscaped areas around or between the buildings. Its low profile and location in the lower quarry area makes the site unseen from the upper Manoa Campus buildings (except for the dormitories which fringes above the quarry). The quarry can be most prominently seen from the H-1 Freeway. From the Freeway, it is felt that the view of the existing PE facilities is not an "eyesore", the view depicts the usual large athletic field, swimming pool complex and various buildings.

The proposed project plans to create a much better view of the PE Facilities. The design of the buildings, landscaping, and the relationship of the athletic field to the structures are planned to be more attractive to the passing motorist or others who can view the PE Facilities from the makai direction.

#### D. INFRASTRUCTURES AND UTILITIES

Existing utilities include:

Water: 8" water main located adjacent to Parking Structure, Phase 1  
2" water service line  
fire hydrant

Sewer: 10" sewer main running between Klum Gym and the swimming pool

Drainage: 6" drain line

Gas: 1" gas service line at the swimming pool

Electric and telephone lines are also found onsite.

It is acknowledged that the existing drainage facilities are inadequate and do not constitute a drainage system as such. The site is subject to periodic flooding during heavy and/or continuous rainfall. A ponding area is located on the mauka, Diamond Head corner of the quarry. (See Figure 6.) However, the proposed Lower Campus Drainage System will alleviate the inadequate drainage situation. A portion of the drainage system, Phase I, is presently under construction. The balance of Phase I is expected to begin construction in the fall of 1979.

#### E. HISTORICAL/ARCHAEOLOGICAL SITES

Because of man's previous activities in this area (quarrying, clearing, and use as a campus), no historical and/or archaeological sites are known to exist in the proposed site or its vicinity. Additionally, the response

from Jane L. Silverman, Historic Preservation Officer (dated September 8, 1977, see Section XV) stated:

"The proposed undertaking will have no effect upon any known historic or archaeological site on or likely to be eligible for inclusion to the Hawaii and/or National Registers of Historic Places."

Table 3

MEASUREMENTS OF CARBON MONOXIDE ( $\text{mg}/\text{m}^3$ ) -  
0800 TO 0900 AT UNIVERSITY AVENUE MONITORING STATION<sup>a</sup>

<u>Date (1976)</u>	<u>CO</u>	<u>Date (1977)</u>	<u>CO</u>
11-1	5.4	1-4 <sup>b</sup>	4.6
11-5 <sup>b</sup>	4.3	1-8	4.9
11-9	2.6	1-28	16.2
11-13	1.3	2-16	10.5
11-17	2.1	2-5	3.4
11-21	.7	2-9	9.0
11-25	1.5	2-13	2.1
11-29 <sup>b</sup>	7.0	2-17	8.9
12-3	8.5	2-21 <sup>b</sup>	3.9
12-7	2.1	2-25	4.0
12-11	1.4	3-1 <sup>b</sup>	3.2
12-15	3.6		
12-19	3.1	Range: 0.7 to 16.2 $\text{mg}/\text{m}^3$	
12-27	1.2	Avg: 4.6 $\text{mg}/\text{m}^3$ (25 measurements)	

<sup>a</sup> Site 3, see Figure 4.

<sup>b</sup> No data for 0800 - 0900, preceding or following hour was used based on which value was highest.

Source: State of Hawaii Department of Health, March 1977.

III. THE RELATIONSHIP OF THE PORPOSED ACTION TO LAND USE PLANS, POLICIES, AND CONTROLS FOR THE AFFECTED AREA

A. LAND USE DESIGNATION AND ZONING

The project site is designated Urban by the State Land Use Commission. The surrounding area around the site is also in an Urban designation.

As stated in the Department of General Planning comments of September 6, 1977:<sup>1</sup>

"The project site, under the adopted General Plan Detailed Land Use Map (DLUM) for the Moiliili-University-McCully area, is designated for Public Facility (i.e., university) use. The proposed Physical Education Facilities, therefore, are consonant with the land use policy as expressed in the Detailed Land Use Map and the Development Plan (DP) for the area."

The proposed site is zoned R-6 Residential under the Comprehensive Zoning Code (CZC) of the City and County of Honolulu. Public uses are permitted within these districts; however, if all applicable zoning requirements cannot be met (heights, setbacks, etc.) a waiver from the Department of Land Utilization, City and County of Honolulu will be required.

The campus is well over the minimum lot area of 20,000 square feet required for R-6 uses other than dwellings. The maximum lot coverage of all buildings and structures shall not be more than fifty per cent. The project boundaries, with the exception of the makai edge, are not property lines and therefore are not subject to the setback requirements of the CZC.

CZC height regulations (Sec. 21-503) limits the structure to 25 feet "above the high point of the buildable area boundary line." The high point of the project site is EL. 69.00'+, limiting buildable height to EL. 94.00'+. Anticipated maximum building elevation will be EL. 66.5'+. The minimum level of the first floor has been designed for 15.5'. This is above the anticipated 50-year and maximum flood level.

B. PROPOSED PROJECTS IN THE SURROUNDING AREA

The Project Development Report outlines the adjacent facilities (which are described below). It is noted that these facilities have been proposed in conjunction with each other, and thus, are felt to be compatible with the proposed PE Facilities and the educational/recreational objectives of the PE programs delineated in Section I.

<sup>1</sup> Comment on the EIS, see page 67.

Adjacent facilities:

Cooke Field: Locker, shower, coaches' offices, medical and training areas, storage, and other general services.

Cooke Field

Bleachers: These proposed bleachers could potentially incorporate such facilities as the Field Sports Complexes and portions of the Swimming Pool, Baseball, Facilities Support, Training and Storage Complexes.

Swimming Pool

Complex: This new project (presently under construction) will include most required facilities, portions of which might be incorporated with the Cooke Field Bleachers.

Baseball

Complex: This project will include most required facilities. Some offices and training storage facilities will be incorporated into the Facilities Support, Training and Storage Complexes, and the Field Sports Complexes.

Playing

Fields: Baseball, soccer and football fields have been built. Same general services as with Cooke Field.

Tennis

Courts: Thirty-five to forty proposed in total.

Other Out-Door Play-

ing Areas: Outdoor basketball, volleyball and handball/racquetball courts are being considered.

Parking

Structure

Phase II: This structure forms the mauka boundary of the project site (see Figure 3). Due to the shortage of site area for this project, it is a certainty that this project will be built as close to the mauka boundary as possible. The result, once both structures are up, will be a steep, narrow canyon between the buildings. Therefore, it is desirable that architectural coordination, and even possible structural continuity of the two buildings be established.

The difficulty to be overcome if the latter approach were taken is the coordination of separate funding sources.

Military

Science and  
Aerospace  
Studies

Facilities: Proposed future facilities for these programs are tentatively slated for location within the Makai Campus, but separated from the PE facilities in structure. Approximately 27,500 sq. ft. of space will be required. A short rifle range and physical fitness practice course will also be required.

The Lower

Campus Road: A planned loop road entering the quarry area at the mauka end from Dole Street and cutting across the makai third of the project site in an Ewa-Diamond Head direction. The existing exit to Varsity Circle at the makai end of the quarry will be maintained. The loop road continues between the Baseball Diamond and Cooke Field, and serves as the entrance to the existing Parking Structure.

Mauka-Makai

Mall: A proposed major traffic corridor running between the future mass transit terminal near the makai end of the campus and the upper campus areas. This project is sited on a major portion of the Ewa edge of the Mall. For reasons of achieving visual and acoustical richness in the traveling experience, it is recommended that the

sports activities housed in the Main Building as well as activities on Cooke Field and Pool Complex be visible to the travelers on the Mall.

The Mall runs across the top level of the Parking Structure Phase I at elevation +57.5'. Elevators in the Parking Structure serve as a vertical connection to the Mall at the quarry area. The Mall then runs from the makai edge of the Parking Structure approximately 660' to the Lower Campus Road. The Mall must pass over the Lower Campus Road with 12' clear height for vehicular traffic.

It is anticipated that the Mall be capable of handling a limited number of people without steps, such as handicapped. This could be accomplished by connecting to the elevators directly at the quarry level.

Consideration should be given to the use of escalators for the majority of people perhaps by-passing the congestion caused by elevators and connecting directly to the top of the Parking Structure. This might be integrated in the design and structure of the new PE Facilities as recommended above.

Because the proposed PE Facilities have been planned in conjunction with these adjacent campus facilities, it is anticipated that the functions and structural compatibility of these future buildings/activities will be uniform, keeping in mind the aesthetic overview of the entire quarry area as well as their educational and movement relationships.

No other development (presently private residential/apartment area) outside (makai) of the quarry area are known.

#### IV. THE PROBABLE IMPACT OF THE PROPOSED ACTION ON THE ENVIRONMENT

##### A. IMPACT ON THE SITE'S PHYSICAL GEOGRAPHY

In general, the proposed PE Facilities are not anticipated to have a significant adverse impact on the site's physical geography. The present topography will not be significantly altered nor would the microclimate be affected.<sup>1</sup>

The project will alter the living patterns of some fauna, most notable, the avifauna (birdlife). However, as described in Section II, the avifauna and possible mammals on the project site are exotic. No rare or endangered

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<sup>1</sup> The extent of the project is negligible in comparison to the factors which cause local climatic conditions.

species are known to inhabit the area. Although there will be some loss of habitat for mammals avifauna on the site, it is felt that this loss is not significant and will not conflict with any known Federal or State objectives for wildlife. Because of the present existence of the PE Facilities along with a population of birds, it is anticipated that the birds will return to the area upon completion of construction.

#### B. IMPACT ON ENVIRONMENTAL QUALITY

The implementation of the PE Facilities will increase the surface water runoff. As stated in Section II, the drainage for the quarry area is inadequate. However, drainage improvements for the Lower Campus are to be constructed and are planned for completion before the end of 1980.

This planned drainage system was described and its impacts discussed in the "Environmental Impact Assessment and Negative Declaration of the Proposed Lower Campus Drainage System, University of Hawaii, Manoa Campus, DAGS Job. No. 02-31-0982.2."<sup>1</sup> Below portions of the Negative Declaration are quoted:

#### D. Project Description

*The subject drainage system is being proposed to alleviate flooding in the lower campus area of the University of Hawaii, Manoa Campus. It has been designed for 50-year storm flows.*

*The first part of this two-part gravity system involves the installation of an interceptor culvert along Dole Street to divert about 102 cfs of storm runoff from the mauka portion of the University Avenue plus 158 cfs of upper campus storm runoff to Manoa Stream.*

*The second part consists of a gravity collection system for the lower campus storm runoff (about 100 cfs) and a drain culvert system along Varsity Place to transport the collected runoff to the existing University Avenue drainage system. A flood basin will be designated for the storage of excess storm water runoff within the lower campus area.*

*A two-phase construction schedule is recommended. All essential offsite components and part of the onsite gravity collection system and flood basin will be completed in Phase I. Phase II will include the extension of the onsite components and necessary grading and filling.*

#### E. Description of Environmental Setting

*The lower campus is the site of the university's athletic and student parking facilities and some temporary buildings. The current master plan provides for increased usage and entails the construction of additional buildings and facilities.*

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<sup>1</sup> Prepared by Sunn, Low, Tom, & Hara, Inc. February 9, 1976.

F. Environmental Impact

By improving drainage, the overall environmental impact of the proposed system will be beneficial and will be in accord with present and planned usage of the lower campus area.

G. Adverse Impacts

Two potential long-term impacts have been identified: (1) the effects of diverting additional storm water to Manoa Stream and (2) the introduction of significant amounts of sediment and other materials into the University Avenue drainage system. Assessments of these two potential impacts have shown that they are not likely to be significant. Short-term impacts will be those associated with construction activities--dust, noise, and vehicle and pedestrian traffic inconveniences.

H. Mitigation Measures

Mitigation measures are proposed to minimize the adverse effects of the short-term impacts. These will include restricting major construction activities to nonpeak traffic hours during the day, compliance with the city's noise regulations, dust control, and wind and water erosion control measures at the job sites.

Additional information on the flood concerns have been addressed in the letter from M & E Pacific, Inc. (dated September 26, 1977), and the response provided to the Corps of Engineers. Both letters are found in Section XV.

Construction noise will be evident during the development of the PE Facilities. This type of noise will disturb some classroom activities and may possibly annoy the adjacent residential area makai of the quarry. The construction noise, however, will be limited to weekday work hours, and must comply with applicable Federal and State standards on construction noise. Aside from these limitations, construction noise will go unmitigated and for the most part, must be tolerated during the various construction periods.

The aesthetics of the proposed PE Facilities have been given careful consideration by the architectural consultants. In the "Design Rationale, Physical Education Facilities First Increment, University of Hawaii,"<sup>1</sup> the building mass, landscape, and mall are discussed in terms of design and aesthetics.

BUILDING MASS

As a visual element the mass and bulk of a building complex are critical because they can have a dehumanizing effect; they can be intimidating or friendly. This is especially crucial when designing a gym complex of this massive nature.

Most of the Gym Complexes built across the nation are enclosed in huge industrialized structures and massive rectalinear forms. This design conclusion results from several reasons: These buildings are usually set in the midst of vast open playfields and always located in the rear of the Campus layout, therefore the massive structures do not have a strong adverse visual impact. To meet the harsh winter conditions, it

<sup>1</sup> Prepared by MAG Architects, February, 1977.

is also logical to house all the activities within one complete structure.

Here at the University, the HPE Complex, however, is confronted by a totally different set of problems and opportunities. It will be viewed by many, because it is sited adjacent to Moilili town and along the freeway, as the foreground complex to the entire campus. More specifically:

1. To the motorist on the freeway and riders of the future mass-rapid transit system, this HPE Complex will be the most visible architectural element to be identified with the University.
2. To the pedestrians entering the campus by way of the Mauka Makai Mall, the HPE Complex will serve as the gateway. In terms of architecture, it serves a very important symbolic gesture.
3. It is sited within the bowl of the quarry and therefore is highly visible from a great distance and different locations, for instance it will be a dominant feature to the occupants of the Student Housing Complex.

To reduce the massing to a comfortable scale, the structures were articulated into individual components which are woven together by exterior corridors and open pathways as the unifying element. The total complex is also humanized by the network of open landscaped courtyards. Our climate condition allows us to function with this open system. Most important, this system of massing allows for a flexible future expansion.

#### LANDSCAPE

Landscaping materials adds more to architecture than most of us realize. The exterior spaces between buildings will be designed with as much care as the interior spaces of the buildings, hence, the potentials of these natural amenities will be fully capitalized. Besides adding to the sense of delight and comfort, it will be the unifying element that will visually link the total network of the HPE complex into an organized whole. It will provide a clear sense of orientation in identifying the connecting pathways as well as the courtyards as a "sense of place".

Trees and lawn will be the basic plant materials to be used. Land covering materials are to be kept to a minimum due to the maintenance problem. Trees between buildings will be vertical in character while in the courts, shade trees will be introduced. Benches and pavers will also be incorporated to provide places for milling and sitting. These amenities will add much to making this complex a delightful place to be in.

#### MAUKA MAKAI MALL

The objective of the Mauka-Makai Mall Master Plan is to provide a safe and delightful pedestrian walkway connecting the core of Campus (Varney Circle) to Moilili Town (Puck's Alley). This mall is designed as an integral part of the HPE Complex with prime design consideration given to enhance the objective spelled out in its master plan.

The mall is constructed on the Second Level and spans about 550'-0" beginning from the new Swimming Pool and eventually ramping up the third level of the parking garage. The average width of the Mall is about 15'-0" and the entire mall meets the specification to make it accessible and usable to the physically handicapped.

To maximize safety, the activities that are scheduled to be used till late in the evening such as the intramural offices are situated along the Mall. This is to enliven the mall and to ensure surveillance. Blind corners are avoided and the alignment is set at a most direct and lineal manner. To heighten the pedestrian's visual experiences a series of landscaped courtyards are integrated along the mall and views to the distant vistas are also carefully framed. The entire length is protected from the rain and direct sun exposure. This shaded walkway will be generously incorporated with street furnitures, lighting and graphics.

#### ENERGY CONSERVATION

Concerned with the energy crisis, a serious design consideration is given to capitalize on the natural sources of energy.

The vast roof surfaces of the gym is slanted towards the south to gain maximum exposure to the path of the sun. Solar collector plates on these roofs have the potential to convert solar energy for both the domestic hot water heating and the air-conditioning system. Federal grant is being sought to implement this solar collecting system.

The slanting roof over the gym also provides opening to gain maximum natural light without direct exposure to the sun. It also captures the prevailing northeast tradewind to naturally ventilate the gym spaces.

Sun angles were calculated to determine the appropriate shape and location of the sun shades over the windows to reduce heat gain into the offices and classrooms while maintaining the views for the occupants.

Each room is to have an operable window including the air conditioned rooms. This allows the occupants of the offices to work on off-hours without depending on the central air conditioning system.

Consultants will make comparative studies of the different lighting and mechanical systems to identify the lowest expenditure of money and energy while maintaining an acceptable standard or quality for the users. Factors to be examined are the initial cost of the System and its energy and maintenance costs. For example; a recommendation of a System may be made even if the initial cost of the equipment is higher but the pay-back period is reasonable based on lower energy and maintenance cost.

As indicated earlier, Root's entire "Air Quality Impact Analysis" report<sup>1</sup> is included as Appendix A of this EIS. Therefore, to restate Root's methodology and findings would be repetitive and unnecessary. However, Root's summary and conclusion on the impact on air quality is provided below:

The project under consideration here involves construction of new physical education facilities on the Makai Campus of the University of Hawaii at Manoa. Except for "fugitive dust" generated for a short time in the

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1. Prepared April, 1977.

immediate area during actual construction, no direct point source emissions of air pollutants are expected from the site once the project has been completed. The project could cause an indirect increase in sulfur dioxide emission from off-site oil-fired power plants supplying electrical energy to the complex. This increase is not expected to be significant.

Student enrollment at UH-Manoa is growing very slowly and this project is not likely to cause any significant increase in vehicular traffic. Carbon monoxide concentrations at sites in or near the project area presently exceed permissible State of Hawaii limits under worst case conditions, but by 1990 these levels are expected to be reduced significantly by the imposition of stringent Federal automobile-emission controls even if traffic on adjacent roadways increases to roadway capacities.

#### C. IMPACT ON INFRASTRUCTURES AND UTILITIES

As indicated above, the existing drainage facilities are inadequate and do not constitute a drainage system as such. The site is subject to periodic flooding during heavy and/or continuous rainfall. The proposed Lower Campus Drainage System will alleviate the inadequate drainage situation. Phase I of the drainage system is expected to begin construction in the fall of 1979 and completion scheduled one year later.

In addition to better drainage facilities, the proposed building will require a 2" gas line in place of the existing 1" line. University informed the architect's consultant that a 4" line will be brought into the site from the main gas lines on University Avenue or Dole Street.

The proposed building will require a 4" sewer lateral and an 8" water line. The 10"-12" sewer main will have to be relocated if the proposed structure is sited over it. The 8" water line will be connected to the existing 8" water line adjacent to the parking structure.

Existing infrastructures and utilities (except for the drainage system) are available to the site. With the improvements proposed above, the planned PE Facilities can be adequately accommodated without adverse impact on these present systems and their present services to others in the area.

#### D. IMPACT ON PARKING AND TRAFFIC

UH Parking Plan: The University Master Parking Plan has far in excess of the minimum CZC requirements. The major parking on the Campus will be accommodated in the Phase I Parking Structure.

The present parking structure accommodates approximately 1,800 cars.

The overall master plan calls for a campus which will be pedestrian oriented with internal road systems primarily for delivery, and emergency traffic only, with the major traffic located on the outer perimeter of the campus.

The proposed Physical Education Facilities parking stall requirements are part of the University parking system.

The maximum number of people at a sporting event (e.g. baseball) is expected to be 4,000. Such events are not scheduled during normal class hours, thus the parking structure would be available to accommodate vehicles generated by a major sport event at the University. Therefore, the parking needs are expected to be met.

CZC Parking Requirements: CZC minimum parking stall requirements for this type of facility would be based on one parking stall per five seats in the spectator Gymnasium "A". Gymnasium "A" shall be designed for 3,000 seat capacity. This would require, according to CZC requirements, 600 parking stalls.

Off-Street Loading: Under normal conditions, this facility would require five off-street loading spaces, according to the CZC. Since this project is totally within University property, and public access will not be hindered, this should not be a requirement. However, there shall be six parking stalls provided on the project site adjacent to the facility for smaller truck pick-up and delivery, also for visiting dignitaries' convenience.

In evaluating the traffic impact of this project, it is important to note that total student enrollments at UH-Manoa were actually higher in 1972 than they are projected to be by 1982 (see Table 4). Student enrollments through the next decade at least are expected to grow very slowly with rates of increase of no more than 2% per year. It is possible, however, that a somewhat disproportionate share of the increased traffic will be attracted to the area bordering on the physical education complex because a large parking structure is located there. It is also expected that the facilities will be made available for community use which might also serve to increase traffic in the area although this use is likely to be scheduled for times that do not conflict with prime student use. On the other hand, some outdoor spaces now used for student parking will be converted to building space thus tending to decrease traffic demand in those areas. Given these offsetting trends and the fact that total student enrollments are increasing at a very small rate, it is reasonable to assume that only slight changes in traffic volume and flow will be caused by the construction of these facilities.

Additionally, the energy crisis is expected to continue, and the eventual result of this crisis will be the increased use of other modes of transportation (e.g. walking, bicycling, mass transit). This will be an important factor in decreasing the use of the private automobile, thus decreasing the traffic volume and flow to and from the University area.

#### E. SOCIOECONOMIC IMPACT

Construction of this new facility will require the ROTC Program and Dance and Drama Department Activities to be relocated away from this site. The present facilities for HPE, Athletics, Intramural and the ROTC programs should be relocated near the site in coordination with the phasing of construction.

The displacement of these buildings are not expected to have an adverse impact on their programs. These programs will be housed (permanently or temporarily) elsewhere on the campus; in some cases the present programs located in the quarry are temporary housing for these programs.

More importantly, the proposed PE Facilities will have a beneficial impact on the educational goals established by the State and University Board of Regents. The objectives identified in Section I will be met and the students as

TABLE 4

FALL SEMESTER REGULAR SESSION HEADCOUNT ENROLLMENT - MANOA CAMPUS  
UNIVERSITY OF HAWAII

	<u>Actual Counts:</u> <sup>1</sup>							
	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>			
Undergraduate	16,900	17,403	17,201	16,509	15,872			
Graduate	5,161	4,968	5,071	5,017	5,215			
Total	22,061	22,371	22,272	21,526	21,087			
	<u>Projected:</u> <sup>2</sup>							
	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	
Undergraduate	15,360	15,030	15,140	15,400	15,650	15,890	16,150	
Graduate	5,320	5,390	5,440	5,490	5,540	5,590	5,640	
Total	20,680	20,420	20,580	20,890	21,190	21,480	21,790	

<sup>1</sup> Student Information System Reports

<sup>2</sup> Analytical Studies Office, April, 1976.

Source: Enrollment Projections, 1976-1982  
Prepared by Analytical Studies Office, April, 1976.

well as the surrounding community will be able to benefit from utilizing the proposed PE Facilities.

Because most of the site is already in use for PE administrative coursework, or other student activities found in this area will continue. The difference may be that because of the expansion of and improvement of the PE Facilities there will be a greater usage of the area (more intense activity) than present.

Employment will be generated from work necessary for the design and construction of the facilities. Additional staff will be required when the facilities become operational to accommodate the projected student enrollment increase.

Maintenance and operation of the facilities and grounds are presently performed by the U.H. Manoa personnel. This practice will continue with possibly additional maintenance personnel.

Land will not be removed from the tax base.

Families and business will not be displaced.

Public facilities and parks will not be replaced by the proposed projects.

#### V. ANY PROBABLE ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

Construction will cause a number of adverse environmental impacts. These impacts include: noise generated by construction equipment and building activity; dust from land clearing and grading activities; erosion potential during the land clearing activities affecting the water quality; and traffic congestion when heavy trucks, construction light and heavy equipment vehicles travel along the roadway to and from the project site. These construction impacts will be local and temporary. The State and County has established standards which must be met by the contractor.

The rationale for proceeding with the proposed project in view of these adverse construction impacts is primarily based on the long term socioeconomic benefits described in Section IV. E. It is felt that the attainment of the educational goals and their benefits far outweigh the short term "nuisances" caused by the PE Facilities' construction periods.

#### VI. ALTERNATIVES TO THE PROPOSED ACTION

##### A. SITE ALTERNATIVES

The PE Facilities has been located in the quarry area for over 15 years. Subsequently, the growth of the Manoa Campus and the limited availability of

lands adjacent to the Campus, makes the acquisition and/or relocation of the PE Facilities very unlikely. Therefore, although other site alternatives may potentially exist, it is unlikely that an alternative site study will be conducted.

#### B. ALTERNATIVE SPACE PROGRAMS

The Project Development Report discussed alternative space programs for gymnasiums and studios:

*To develop an Ultimate Space Program for the proposed UH Physical Education Facilities, the users' requested space program was first collected and analyzed, and in some cases, adjusted, added to, subtracted from, or up-dated by the Architect and the University.*

Alternative Space Programs For Gymnasiums and Studios: *To determine the number of gymnasiums and studios required, in addition to the Gymnastics Gym which has a specific use, the following factors were considered:*

1. Athletics, HPE, Intramural and Community usage demands
2. Scheduling
3. Recreational use
4. Maintenance time

*Three Alternate Space Programs were developed on different scheduling policies.*

Alternate I: 4 Gyms B + Gym A; 5 studios  
Based on present scheduling policy

Alternate II: 3 Gyms B + Gym A; 3 studios  
Based on possible revised scheduling policy

Alternate III: 2 Gyms B + Gym A; 2 studios  
Based on scheduling all users together flexibly

- Note 1. Add Gymnastics Gym C to overall program  
2. See Appendix 10.8 for detailed discussion and calculations of the above alternates.

#### Considerations and Selection:

Alternate I incurs 55%+ vacancy rates during certain times of the day. Alternate I adds approximately 30,000 square feet to the indoor space. Alternate II requires a change in scheduling policy by the UH. Alternate III present obstacles for the coordination of HPE scheduling with university-wide scheduling. Alternate III conflicts with the general performance requirement of making the facilities accessible to the entire population of the university. Alternate III will incur heavy overhead for the effort of scheduling on such a tight basis. Alternate III presents certain physical design problems in requiring too many multiple lines on the same gym floor. Legibility for each sport will be sacrificed.

Selection of Alternate I was made by the University of Hawaii.



Optional Indoor Space: Tennis courts and Handball courts were listed as nine options for inclusion indoors. Each of the options represented the following amount of indoor space to be added to the net totals for the above Alternates. (T=tennis court, Hb=handball court)

Option I:	6T,	8 Hb indoors	47,360 sq. ft.
Option II:	3T,	8 Hb indoors	28,160 sq. ft.
Option III:	6T,	4 Hb indoors	42,880 sq. ft.
Option IV:	3T,	4 Hb indoors	23,680 sq. ft.
Option V:		8 Hb indoors	8,960 sq. ft.
Option VI:		4 Hb indoors	4,480 sq. ft.
Option VII:	6T,	indoors	38,400 sq. ft.
Option VIII:	3T,	indoors	19,200 sq. ft.
Option IX:		(none)	0 sq. ft.

The problem of adopting which of the nine indoor/outdoor options hinges on two issues. Inclusion of indoor tennis courts would enhance the competitive position of UH athletes when they match up with their peers on clay, wood or artificial surfaces. Inclusion of indoor handball courts represents a nod in the direction of recreational users of the facilities, because two person sports are more easily arranged. Although outdoor handball courts are common, shadows cast on the court and fatiguing hard surfaces make them distinctly inferior to indoor courts.

Selection: Option V was selected by the University of Hawaii.<sup>1</sup>

Other options for inclusion indoors were listed in order of preference as:

- 2nd choice: Option VI
- 3rd choice: Option II
- 4th choice: Option I
- 5th choice: Option IV
- 6th choice: Option III
- 7th choice: Option VIII
- 8th choice: Option VII
- 9th choice: Option IX

These alternative space programs were reviewed in more detail, and for future information, the reviewer should consult the Appendix (10.8) of the Project Development Report.

The selection of a specific space program was based primarily on the reasons indicated on page 36. As such, no building design/configuration for each space program was considered. Under this circumstance, no detailed environmental impact evaluation can be prepared for these alternative space programs. However, it is felt that if the other alternates were selected, the PE Facilities' configuration would probably remain the same, and the major impacts comparable to the impacts described in this Revised EIS.

#### C. NO ACTION

If the project is not implemented, the existing buildings and uses will continue. Additionally, the objectives of the PE Facilities will not be fulfilled. In the future, the PE Facilities, if this project is not implemented, will probably require "piecemeal" type improvement.

<sup>1</sup> Revised to 7 handball courts.

VII. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES  
OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND  
ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The proposed action is expected to enhance the long-term productivity of the University of Hawaii at Manoa. The property on which the site is located is owned by the State. Therefore, the property is not expected to affect land value or revenue.

The present existing usage of the site and the quarry is for PE Facilities, classrooms, play fields, etc. The planned PE Facilities is consistent with the University of Hawaii's plans for the quarry area and more importantly, for the Manoa Campus.

The project site is presently in an educational use, and will continue to be in this use after the project's implementation. Therefore, the present and long-term productivity of the site is and will continue to be for higher educational facilities.

The proposed action, the proposed PE Facilities, complies with the State's higher educational goals and the educational objectives set forth by the University's Board of Regents. Therefore, the primary long-term productivity of the project will be reflected in the State's goal to make available higher education facilities to the community.

VIII. MITIGATION MEASURES PROPOSED TO MINIMIZE IMPACT

The State Department of Accounting and General Services has incorporated environmental protection measures into the construction plans for each project. These standard mitigation measures are provided in Appendix B.

In addition to these mitigation measures (which are primarily for the short-term construction impact), the Design Rationale study also provides guidelines which will avoid or reduce detrimental impact on the physical environment based on design aspects. In terms of aesthetics, the landscaping and views of the campus from the adjacent areas will be carefully considered to provide a conformity of design in relationship to the building's function.

Where necessary, other control measures, unique to the specific building and site, can be included as part of the contractor's special provisions or plans.

The proposed project will comply with the applicable State and County standards, statutes, rules and regulations, ordinances, and codes relating to environmental protection and construction and safety.

Additionally, the proposed PE facilities shall be designed in conformance with the following:

Uniform Building Code  
Building Code of the City and County of Honolulu  
Housing Code of the City and County of Honolulu  
Comprehensive Zoning Code of the City and County of Honolulu  
Rules and Regulation of the Fire Marshall, State of Hawaii  
Life Safety Code  
Uniform Plumbing Code  
Plumbing Code of the City and County of Honolulu  
National Electrical Code  
Electrical Code of the City and County of Honolulu  
Public Health Regulations, State of Hawaii (Department of Health)  
Occupational Safety and Health Act (OSHA)  
American Standard Specifications for Making Buildings and Facilities  
Accessibly To and Usable by the Physically Handicapped  
Hawaiian Electric Company  
Honolulu Gas Company  
Hawaiian Telephone Company

Additionally, the State Department of Health commented that the proposed project should adhere to the following regulations:

1. Construction activities must comply with the provisions of the conditional use of permit as stated in Public Health Regulations, Chapter 44B, and the conditions of the permit.
2. Traffic noise from heavy vehicles traveling to and from construction site must be minimized to not affect a particular residential area and must comply with the provisions of Public Health Regulations, Chapter 44A, Vehicular Noise Control for Oahu.
3. The provisions of Public Health Regulations, Chapter 44B, Community Noise Control for Oahu must be considered in the design of the building. Equipment and activity noises must be attenuated to meet the allowable levels of the regulations.

IX. ANY IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF  
RESOURCES THAT WOULD BE INVOLVED IF THE  
PROPOSED ACTION SHOULD BE IMPLEMENTED

It is anticipated that the construction of the proposed PE facilities will utilize construction materials and human resources in form of planning, designing, landscaping, and construction labor. Some of the construction materials could be reused when the buildings are demolished. However, at the present time and state of our economy, reuse of these materials would be restricted. The human resources consumed to implement this project will not be retrievable, but can be compensated. Upon completion of the buildings of the PE facilities, labor in form of instructional, administrative, and maintenance, will also be utilized on a long-term continual basis.

In terms of resources, it is noted that there are no known resources on the project site which can be economically extracted.

X. AN INDICATION OF WHAT OTHER INTERESTS AND CONSIDERATIONS  
OF GOVERNMENTAL POLICIES ARE THOUGHT TO OFFSET THE  
ENVIRONMENTAL EFFECTS OF THE PROPOSED ACTION

The proposed PE Facilities will be consistent with the State land use designation (Urban) and the City and County of Honolulu's zoning of the project site.

During the EIS review period, it was noted that there was a conflict in the location of the PE Facilities and the proposed rapid transit station/route. This conflict was resolved by the minor shifting of one or two proposed buildings and the moving of the rapid transit alignment. The representatives of the three agencies involved in these discussions, the Department of Transportation Services, the Department of Accounting and General Services, and the University of Hawaii concurred that the revised alignment be used. The letter (dated September 20, 1977) from the Department of Transportation Services summarizes these discussions (a copy of this letter is provided in Section XV).

## XI. ORGANIZATIONS AND PERSONS CONSULTED

A total of twenty-two (22) agencies were consulted in the preparation of the Environmental Impact Statement. These agencies (identified below) received a copy of the EIS Preparation Notice and were requested to review and provide comments on the Preparation Notice. A total of 12 agencies responded (agencies responding are asterisked and the date of their response is in parenthesis below).

### Federal Agencies

\*Soil Conservation Service (January 8, 1976)  
Environmental Protection Agency  
\*U.S. Army Corps of Engineers (December 29, 1975)  
Department of the Air Force  
Department of the Army (ROTC Program)

### State Agencies

\*Department of Health (December 17, 1975)  
Department of Land and Natural Resources  
\*Department of Planning and Economic Development (December 24, 1975)  
Office of Environmental Quality Control  
\*Department of Education (December 15, 1975)  
University of Hawaii

### County Agencies

Fire Department  
\*Department of General Planning (December 12, 1975)  
\*Department of Public Works (December 9, 1975)  
\*Board of Water Supply (December 24, 1975)  
Building Department  
\*Department of Land Utilization (December 19, 1975)  
\*Department of Transportation Services (December 30, 1975)

### Public Utilities

Hawaiian Electric Company  
\*Hawaiian Telephone Company (December 30, 1975)  
GASCO, Inc.

### Other

\*St. Louis Heights Community Association (January 10, 1976)

The EIS Preparation Notice for the proposed PE facilities was reported in the EQC Bulletin of December 8, 1975 (Volume I, Number 12). Deadline for requests to be consulting parties was January 7, 1976. There were no requests by any agency or individual to become consulting parties.

XII. REPRODUCTION OF COMMENTS AND RESPONSES MADE  
DURING THE CONSULTATION PROCESS

Pages 42 through 64 are copies of the comments received from the twelve (12) agencies during the consultation period. After each comment, the written response sent back to the agency (by the Department of Accounting and General Services) is provided. Those agencies, indicated by an asterisk (\*) provided responses indicating no comments (at this time) would be provided. Therefore, no responses were made to these agencies.

The agencies commenting and the order in which they are shown in this section are provided below.

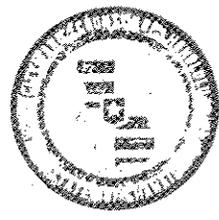
1. Department of Public Works
- \*2. Department of General Planning
- \*3. Department of Education
- \*4. Department of Health
5. Department of Land Utilization
- \*6. Board of Water Supply
- \*7. Department of Planning and Economic Development
8. Department of the Army, U.S. Army Engineer District
9. Hawaiian Telephone Company
10. Department of Transportation Services
- \*11. Soil Conservation Service, U.S. Department of Agriculture
12. St. Louis Heights Community Association

DEPARTMENT OF PUBLIC WORK  
**CITY AND COUNTY OF HONOLULU**  
 650 SOUTH KING STREET  
 HONOLULU, HAWAII 96813

*Any*

RECEIVED  
 DEC 12 9 30 AM '75  
 PUBLIC WORKS DIV.  
 DAGS

KAZU HAYASHIDA  
 DIRECTOR AND CHIEF ENGINEER



FRANK F. FASI  
 MAYOR

ENV 75-434

December 9, 1975

Department of Accounting and  
 General Services  
 State of Hawaii  
 P. O. Box 119  
 Honolulu, Hawaii 96810

Gentlemen:

Subject: Environmental Impact Analysis for  
 Physical Education Facilities,  
 University of Hawaii Manoa Campus  
 (URLTR P2542.5)

We expect a discussion on grading, drainage, solid waste disposal and wastewater disposal in the EIS since these are areas of our responsibility. With respect to wastewater disposal, the enclosed form, "Information For Sewer Connection," should be prepared and submitted to the Public Contact Branch, Division of Sewers, telephone number 523-4408.

Very truly yours,

*Kazu Hayashida*  
 for KAZU HAYASHIDA  
 Director and Chief Engineer

Enc.

DIVISION OF PUBLIC WORKS	
TO:	INITIAL FOR YOUR:
<input checked="" type="checkbox"/> State P. W. Engr.	Approval
<input type="checkbox"/> P. W. Secy.	Sign.
<input checked="" type="checkbox"/> Staff Serv. Br.	Info.
<input checked="" type="checkbox"/> Planning Br.	File
<input type="checkbox"/> Proj. Mgmt. Br.	See me
<input type="checkbox"/> Design Br.	Comments.
<input type="checkbox"/> Insp. Br.	Invest. &
<input type="checkbox"/> Qual. Cont. Engr.	Rpt.

(7-24-75)

DIVISION OF SEWERS  
City and County of Honolulu

INFORMATION FOR SEWER CONNECTION

(Items 1 to 10 to be filled by Applicant)

1. Project Name: \_\_\_\_\_
2. Address or Location: \_\_\_\_\_
3. Tax Map Key: \_\_\_\_\_
4. Type Development: PD-H \_\_\_\_\_ Cluster \_\_\_\_\_ Subdiv. \_\_\_\_\_  
Apt. \_\_\_\_\_ Other: \_\_\_\_\_
5. Total No. of Units: \_\_\_\_\_ (Give breakdown below)  
Studio \_\_\_\_\_ 1 Bdrm. \_\_\_\_\_ 2 Bdrm. \_\_\_\_\_ 3 Bdrm. \_\_\_\_\_  
4 Bdrm. \_\_\_\_\_ Other: \_\_\_\_\_
6. Sewer Connection Work Desired: (Give length, size, depth, etc.)  
\_\_\_\_\_  
\_\_\_\_\_
7. Approximate Date Connection is Required: \_\_\_\_\_
8. Number and Type of Existing Structures on Property: \_\_\_\_\_  
(Check One: Structures to Remain \_\_\_\_\_ To be Demolished \_\_\_\_\_)
9. Remarks: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
10. Information Provided By:  
Name: \_\_\_\_\_ Date: \_\_\_\_\_  
Firm: \_\_\_\_\_ Phone: \_\_\_\_\_  
Address: \_\_\_\_\_  
Street City Zip

(Items 11 to 15 to be filled by Division of Sewers)

11. Present Zoning: \_\_\_\_\_ General Plan: \_\_\_\_\_
12. Sewers: Adequate \_\_\_\_\_ Inadequate \_\_\_\_\_ Not Available \_\_\_\_\_  
Other: \_\_\_\_\_  
\_\_\_\_\_
13. Charges: Yes \_\_\_\_\_ No \_\_\_\_\_  
a. Sewer Assessment \_\_\_\_\_ X \_\_\_\_\_ sq. ft.. \$ \_\_\_\_\_  
Rate Area  
b. Sewer Connection Work..... \$ \_\_\_\_\_  
c. Total Estimated Charge..... \$ \_\_\_\_\_
14. Remarks: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
15. Information Given by: \_\_\_\_\_ Date: \_\_\_\_\_

TAX MAP KEY: \_\_\_\_\_

GEORGE R. ARIYOSHI  
GOVERNOR



HIDEO MURAKAMI  
COMPTROLLER

MIKE N. TOKUNAGA  
DEPUTY COMPTROLLER

STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
P. O. BOX 118, HONOLULU, HAWAII 96810

LETTER NO. PM-0712.7

JUL 13 1977

Mr. Wallace Miyahira  
Director and Chief Engineer  
Department of Public Works  
City and County of Honolulu  
650 South King Street  
Honolulu, Hawaii 96813

Dear Mr. Miyahira:

Subject: Environmental Impact Analysis for  
Physical Education Facilities  
University of Hawaii at Manoa

Attached is a copy of your letter of December 9, 1975, regarding the above-mentioned project. We will soon be submitting the Environmental Impact Statement for the Physical Education Facilities. We have considered your concerns on grading, drainage, solid waste disposal and wastewater disposal.

In regards to grading, we expect to comply with the Grading Ordinance and will also use various prescribed methods of dust control during grading. Drainage improvements are to be constructed and are planned for completion on a phased schedule to be determined. This drainage proposal was submitted by Sunn, Low, Tom and Hara, Inc. for the Lower Campus Drainage System Phase I. Solid waste generated by the Physical Education Facilities will be disposed of by a private refuse collection and disposal firm. The sewage collection and disposal will be discussed with appropriate City and State agencies to insure compliance and the recommendations will be included in the Environmental Impact Statement.

Thank you for your comments to this project.

Very truly yours,

HIDEO MURAKAMI  
State Comptroller

Attach.

DEPARTMENT OF GENERAL PLANNING  
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET  
HONOLULU, HAWAII 96813

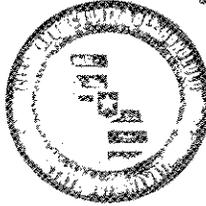
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PUBLIC WORKS DIV.  
DAGS

ROBERT R. WAY  
CHIEF PLANNING OFFICER

DGP12/75-3061 (BN)

FRANK F. FASI  
MAYOR



DEC 12 1975

Mr. Hideo Murakami, State Comptroller  
Department of Accounting and  
General Services  
State of Hawaii  
P. O. Box 119  
Honolulu, Hawaii 96810

DIVISION OF PUBLIC WORKS	
TO:	INITIAL FOR YOUR:
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<input type="checkbox"/> Insp. Br.	<input type="checkbox"/> Invest. &
<input type="checkbox"/> Qual. Cont. Engr.	<input type="checkbox"/> Rpt.

Dear Mr. Murakami:

EIS Preparation Notice for the Physical  
Education Facilities at the University  
of Hawaii Manoa Campus

We are acknowledging receipt of the above-mentioned.  
Upon receipt of the Draft EIS, we will be pleased to give  
it thorough review.

Sincerely,  
  
ROBERT R. WAY  
Chief Planning Officer

RRW:fmt



STATE OF HAWAII  
DEPARTMENT OF EDUCATION

P. O. BOX 2360  
HONOLULU 4, HAWAII

OFFICE OF THE SUPERINTENDENT

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DEC 19 2 47 PM '75  
PUBLIC WORKS D.V.  
DAGS

December 15, 1975

MEMO TO: Honorable Hideo Murakami, State Comptroller  
Department of Accounting and General Services

F R O M: Albert H. Miyasato, Acting Superintendent  
Department of Education

SUBJECT: University of Hawaii  
Physical Education Facilities  
Environmental Impact Analysis

The Department of Education has no objection or recommendation  
in regard to the subject Environmental Impact Statement.

DIVISION OF PUBLIC WORKS  
INITIAL FOR YOUR:

TO: \_\_\_\_\_

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GEORGE R. ARIYOSHI  
GOVERNOR OF HAWAII

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PUBLIC WORKS DIV.  
DAGS



STATE OF HAWAII  
DEPARTMENT OF HEALTH  
P.O. Box 3378  
HONOLULU, HAWAII 96801

December 17, 1975

*Henry*  
*KA*

GEORGE A. L. YUEN  
DIRECTOR OF HEALTH  
ANDREW W. MERTZ, M.D., M.P.H.  
Deputy Director of Health  
HENRY N. THOMPSON, M.A.  
Deputy Director of Health  
JAMES S. KUMAGAI, Ph.D., P.E.  
Deputy Director of Health

In reply, please refer to:  
File: EPHS - SS

Mr. Hideo Murakami  
State Comptroller  
Department of Accounting & General Services  
P. O. Box 119  
Honolulu, Hawaii 96810

Dear Mr. Murakami:

Subject: Request for Comments on Proposed Environmental Impact  
Statement (EIS) for Physical Education Facilities, University  
of Hawaii Manoa Campus

Thank you for allowing us to review and comment on the subject  
proposed EIS. Please be informed that we have no comments or objections  
to this project at this time.

We realize that the statements are general in nature due to  
preliminary plans being the sole source of discussion. We, therefore,  
reserve the right to impose future environmental restrictions on the  
project at the time final plans are submitted to this office for review.

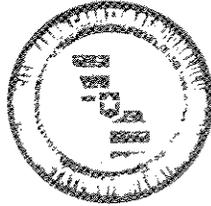
Sincerely,

*James S. Kumagai*  
JAMES S. KUMAGAI, Ph.D.  
Deputy Director for  
Environmental Health

DIVISION OF PUBLIC WORKS	
TO:	INITIAL FOR YOUR:
<u>1</u> State P. W. Eng. <i>KA</i>	Approval <input type="checkbox"/>
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DEPARTMENT OF LAND UTILIZATION  
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET  
HONOLULU, HAWAII 96813



FRANK F. FASI  
MAYOR

GEORGE S. MORIGUCHI  
DIRECTOR

EIS (LU12/75-3759)  
(BAM)

December 19, 1975

Mr. Hideo Murakami  
State Comptroller  
Department of Accounting and  
General Services  
P. O. Box 119  
Honolulu, Hawaii 96810

DIVISION OF PUBLIC WORKS  
TO: INITIAL FOR YOUR

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<input type="checkbox"/> Qual. Cont. Engr.	<input type="checkbox"/> Rpt.

Dear Mr. Murakami:

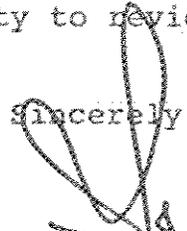
Environmental Impact Statement Preparation Notice  
Physical Education Facilities, U of H Manoa Campus

We have reviewed the above and have some general comments to offer as follows:

1. The proposed site is zoned R-6 Residential and A-2 Apartment Districts. Public uses are permitted within these districts; however, if all applicable zoning requirements cannot be met (heights, setbacks, etc.) a waiver from this department would be required.
2. We note that potential visual impact is apparently considered significant. More information is needed. What is the effect likely to be, what is proposed in the way of mitigating measures or alternatives, etc.?
3. Traffic is the other potentially major impact, as acknowledged in the Notice. The EIS should include an appropriate impact analysis.

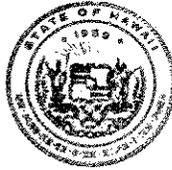
Thank you for referring this matter to us for comments. We would appreciate the opportunity to review the EIS when completed.

Sincerely,

  
WILLIAM E. WANKET  
Deputy Director

WEW:rh

GEORGE R. ARIYOSHI  
GOVERNOR



HIDEO MURAKAMI  
COMPTROLLER  
  
MIKE N. TOKUNAGA  
DEPUTY COMPTROLLER

STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
P. O. BOX 119, HONOLULU, HAWAII 96810

LETTER NO. PM-0701.7

JUL 12 1977

Mr. George S. Moriguchi  
Director  
Department of Land Utilization  
City and County of Honolulu  
650 South King Street  
Honolulu, Hawaii 96813

Dear Mr. Moriguchi:

Subject: Environmental Impact Statement Preparation  
Notice, Physical Education Facilities,  
University of Hawaii at Manoa

Attached please find a copy of your department's letter of December 19, 1975, regarding the above-mentioned subject. We note that the Environmental Impact Statement will be submitted to the Office of Environmental Quality Control in the near future and that in its preparation, we have considered your comments of December 19, 1975.

More specifically, we would like to respond to your three items:

1. At this time, no waiver from the applicable zoning requirements is anticipated.
2. In our preparation of the Environmental Impact Statement, we have considered the aesthetic/visual impact of the project. These concerns were addressed in the document prepared by the architectural consultants entitled "Design Rationale, Physical Education Facilities, First Increment, University of Hawaii." The building mass, landscape and mall are discussed in terms of design and aesthetics. For your information, these aspects are enclosed.
3. The traffic was considered in the stages of the proposed project as a potential impact. However, in consideration of the entire contribution of

Mr. George S. Moriguchi  
Letter No. PM-0701.7  
Page 2

the University to the traffic, it was determined that the Physical Education Facilities, as part of the University complex, will not generate a significant amount of traffic to peak hour conditions. The present and planned traffic circulation and parking areas for the University will be adequate to accommodate the needs for the Physical Education Facilities. We have taken into consideration the air quality impact that traffic would have on the Physical Education Facilities and a Carbon Monoxide impact analysis estimate was conducted and will be included in the Environmental Impact Statement.

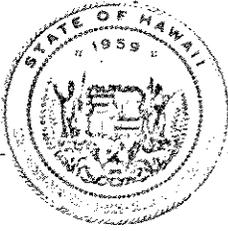
Thank you for your comments to this project.

Very truly yours,



HIDEO MURAKAMI  
State Comptroller

Encl.



DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT

Kamamalu Building, 250 South King St., Honolulu, Hawaii • Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

GEORGE R. ARIYOSHI  
Governor

RECEIVED  
HIDEITO KONO  
Director

FRANK SKRIVANEK  
Deputy Director

DEC 29 1 20 PM '75

PUBLIC WORKS DIV.  
DAGS

December 24, 1975

Ref. No. 6185

The Honorable Hideo Murakami, State Comptroller  
Department of Accounting and General Services  
State of Hawaii  
P.O. Box 119  
Honolulu, Hawaii 96810

Dear Mr. Murakami:

Subject: Environmental Impact Statement Preparation Notice for  
Physical Education Facilities, University of Hawaii,  
Manoa Campus

Thank you for your letter of December 3, 1975, requesting our  
comments regarding the subject EIS Preparation Notice.

Given this brief presentation of the proposed development, it is  
difficult to relate all of the concerns of this department at this time.  
Conceivably, the final statement may contain other information important  
to this agency's plans or programs. Accordingly, we would like to reserve  
the privilege of commenting further, if deemed appropriate, at such time when  
the final statement is available for review.

Sincerely,

*Frank Skrivaneck*  
for HIDEITO KONO

DIVISION OF PUBLIC WORKS	
TO:	INITIAL FOR YOUR:
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9 24 AM '75

DEPARTMENT OF THE ARMY  
U. S. ARMY ENGINEER DISTRICT, HONOLULU  
BLDG. 230, FT. SHAFTER  
APO SAN FRANCISCO 96558

*Harry*

PUBLIC WORKS DIV.  
DAGS

29 December 1975

Mr. Hideo Murakami, State Comptroller  
Department of Accounting and General Services  
State of Hawaii  
P. O. Box 119  
Honolulu, Hawaii 96810

DIVISION OF PUBLIC WORKS	
TO:	INITIAL FOR YOUR:
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Dear Mr. Murakami:

The environmental impact statement preparation notice for Physical Education Facilities, University of Hawaii Manoa Campus, was received on 8 December 1975. We have reviewed the notice and offer the following comments.

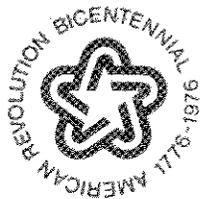
a. The project description should provide sufficient detail to explain what structures or facilities will be replaced by the proposed project. Impacts on the availability of physical education services and facilities during the construction period should be addressed.

b. Based on available flood information studies of the area, the project site lies within a flood-prone area. Consideration should be given to floodproofing of the proposed structures.

Thank you for the opportunity to participate in the consultation process. We would appreciate a copy of the statement when it is available.

Sincerely yours,

*[Signature]*  
KISUK CHEUNG  
Chief, Engineering Division



GEORGE R. ARIYOSHI  
GOVERNOR



HIDEO MURAKAMI  
COMPTROLLER

MIKE N. TOKUNAGA  
DEPUTY COMPTROLLER

STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
P. O. BOX 118, HONOLULU, HAWAII 96810

LETTER NO. PM-0714.7

JUL 13 1977

Mr. Risuk Cheung  
Chief  
Engineering Division  
U.S. Army Engineer District, Honolulu  
Department of the Army  
Building 230, Fort Shafter  
APO San Francisco 96558

Dear Mr. Cheung:

Subject: Environmental Impact Statement Preparation  
Notice, Physical Education Facilities,  
University of Hawaii at Manoa

Attached is a copy of your letter of December 29, 1975, regarding the above-mentioned project. The Environmental Impact Statement for this proposed project will be submitted to the Environmental Quality Commission in the near future.

We have reviewed your comments of December 29, 1975, and offer the following responses:

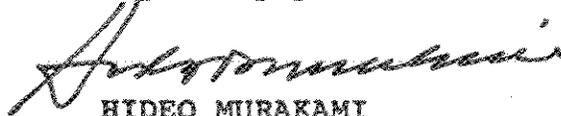
- Item a. We have provided detailed information regarding the structures to be replaced by the proposed project. We have also discussed the local, short-term construction impacts of the Physical Education Facilities. These have been incorporated into the Environmental Impact Statement. If you or your staff during the review of the EIS desire additional technical information, please contact our department.
- Item b. We note that Sunn, Low, Tom and Hara, Inc. prepared a report entitled "The Lower Campus Drainage System Phase I." The Lower Campus Drainage System will provide adequate drainage facilities which would serve the proposed project. Additionally, this system is expected to be constructed and is planned for completion on a phased schedule to be determined. The

Mr. Kisuk Cheung  
Letter No. PM-0714.7  
Page 2

proposed drainage system was evaluated and, as a result, a Negative Declaration was filed with the State Environmental Quality Commission for the Lower Campus Drainage System. Portions of the Negative Declaration are reproduced in our Environmental Impact Statement and are attached for your review.

Thank you for your comments on this project.

Very truly yours,



HIDEO MURAKAMI  
State Comptroller

Attach.

This planned drainage system was described and its impacts discussed in the "Environmental Impact Assessment and Negative Declaration of the Proposed Lower Campus Drainage System, University of Hawaii, Manoa Campus, DAGS Job. No. 02-31-0982.2."<sup>1</sup> Below portions of the Negative Declaration are quoted:

D. Project Description

The subject drainage system is being proposed to alleviate flooding in the lower campus area of the University of Hawaii, Manoa Campus. It has been designed for 50-year storm flows.

The first part of this two-part gravity system involves the installation of an interceptor culvert along Dole Street to divert about 102 cfs of storm runoff from the mauka portion of the University Avenue plus 158 cfs of upper campus storm runoff to Manoa Stream.

The second part consists of a gravity collection system for the lower campus storm runoff (about 100 cfs) and a drain culvert system along Varsity Place to transport the collected runoff to the existing University Avenue drainage system. A flood basin will be designated for the storage of excess storm water runoff within the lower campus area.

A two-phase construction schedule is recommended. All essential offsite components and part of the onsite gravity collection system and flood basin will be completed in Phase I. Phase II will include the extension of the onsite components and necessary grading and filling.

E. Description of Environmental Setting

The lower campus is the site of the university's athletic and student parking facilities and some temporary buildings. The current master plan provides for increased usage and entails the construction of additional buildings and facilities.

---

<sup>1</sup> Prepared by Sunn, Low, Tom, & Hara, Inc. February 9, 1976.

F. Environmental Impact

By improving drainage, the overall environmental impact of the proposed system will be beneficial and will be in accord with present and planned usage of the lower campus area.

G. Adverse Impacts

Two potential long-term impacts have been identified: (1) the effects of diverting additional storm water to Manoa Stream and (2) the introduction of significant amounts of sediment and other materials into the University Avenue drainage system. Assessments of these two potential impacts have shown that they are not likely to be significant. Short-term impacts will be those associated with construction activities--dust, noise, and vehicle and pedestrian traffic inconveniences.

H. Mitigation Measures

Mitigation measures are proposed to minimize the adverse effects of the short-term impacts. These will include restricting major construction activities to nonpeak traffic hours during the day, compliance with the city's noise regulations, dust control, and wind and water erosion control measures at the job site.

# HAWAIIAN TELEPHONE COMPANY

*Army*

P.O. BOX 2200 • HONOLULU, HAWAII 96841 • TELEPHONE (808) 546-7733 • CABLE: TELHAWAII

December 30, 1975

HERMAN S. L. HU  
ENGINEERING DIRECTOR

Mr. Hideo Murakami  
State Comptroller  
State of Hawaii  
Department of Accounting &  
General Services  
P.O. Box 119  
Honolulu, Hawaii 96810

Dear Mr. Murakami:

Request for Comments  
Physical Education Facilities  
University of Hawaii Manoa Campus  
Environmental Impact Analysis

We have reviewed your preparation notice regarding the above subject. Presently, Hawaiian Telephone Company has overhead and underground cables providing service to existing University of Hawaii facilities located in the project boundary (TMK 2-8-29-1). Please consider the need for possible relocation of these cables if the older structures are to remain and telephone service must be maintained during construction of the new facilities.

If you have any questions or need more information, please call George Kaneko of our Land and Buildings Section at 546-2689.

Sincerely,



H. S. L. Hu

Engineering & Construction Director

DIVISION OF PUBLIC WORKS	
TO:	INITIAL FOR YOUR:
<input checked="" type="checkbox"/> State P. W. Engr.	<i>[Signature]</i> Approval
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GEORGE R. ARIYOSHI  
GOVERNOR



STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
P. O. BOX 119, HONOLULU, HAWAII 96810

HIDEO MURAKAMI  
COMPTROLLER  
MIKE N. TOKUNAGA  
DEPUTY COMPTROLLER

LETTER NO. PM-0702.7

JUL 13 1977

Mr. H. Hu  
Engineering and Construction  
Director  
Hawaiian Telephone Company  
P. O. Box 2200  
Honolulu, Hawaii 96841

Dear Mr. Hu:

Subject: Environmental Impact Statement Preparation  
Notice, Physical Education Facilities,  
University of Hawaii at Manoa

Attached is a copy of your letter of December 30, 1975, regarding the above-mentioned project. We have reviewed your comments on overhead and underground cables providing services to the University of Hawaii Physical Education Facilities located within the project site. Our architectural consultant is aware of the location of these cables.

We will continue to work with your staff and the Land and Building Section to insure that the relocation or replacement of telephone cables meets with your company's approval and regulations.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Hideo Murakami".

HIDEO MURAKAMI  
State Comptroller

Attach.

DEPARTMENT OF TRANSPORTATION SERVICES  
**CITY AND COUNTY OF HONOLULU**  
 HONOLULU MUNICIPAL BUILDING  
 650 SOUTH KING STREET  
 HONOLULU, HAWAII 96813

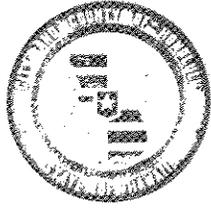
*Henry*

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PUBLIC WORKS DIV.  
 GEORGE C. VILLEGAS  
 DAGS DIRECTOR

FRANK F. FASI  
 MAYOR



December 30, 1975

Mr. Hideo Murakami, Comptroller  
 Department of Accounting and  
 General Services  
 465 South King Street  
 Honolulu, Hawaii 96813

TO:	INITIAL FOR YOUR:
<input checked="" type="checkbox"/> State P. W. Engr.	<i>[Signature]</i> Approval
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<input type="checkbox"/> Insp. Br.	Invest. &
<input type="checkbox"/> Qual. Cont. Engr.	Rept.

Dear Mr. Murakami:

Subject: Physical Education Facilities, U of H, Manoa Campus

We have no objections to the subject project; however, please be apprised of and take into consideration the City's proposed Honolulu Rapid Transit System's alignment and station location in the planning of the P.E. Facilities. The proposed rapid transit system's alignment through this area was selected after numerous meetings with the University and interested community groups. It is requested that the planning of the P.E. Facilities be coordinated with us to insure compatibility.

Attached for your use and file are copies of the plan and profile of the rapid transit alignment through the University Campus (sheets C-49, 50) and the University Station Site Plan (Sheet C-94).

Should you have any questions or require more copies of the plans, please call Mr. Richard Yoshimura of my staff at 523-4156.

Sincerely,

*[Signature]*  
 KE NAM KIM  
 Acting Director

RKY: ek

Attachments

cc: Kenneth Hirata w/o attachs.

GEORGE R. ARIYOSHI  
GOVERNOR



HIDEO MURAKAMI  
COMPTROLLER  
  
MIKE N. TOKUNAGA  
DEPUTY COMPTROLLER

STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
P. O. BOX 119, HONOLULU, HAWAII 96810

LETTER NO. PM-0838.7

AUG 12 1977

Mr. Kazu Hayashida  
Director  
Department of Transportation Services  
City and County of Honolulu  
650 South King Street  
Honolulu, Hawaii 96813

Dear Mr. Hayashida:

Subject: Environmental Impact Statement  
Preparation Notice  
Physical Education Facilities  
University of Hawaii at Manoa

Please disregard our letter of July 12, 1977 (PM-0703.7), regarding erroneous comments on the proposed rapid transit facility's alignment and station location within the quarry site and the proposed facilities. Discussions subsequent to our July 12th letter reveal that the current rapid transit alignment infringes on three proposed buildings in the Physical Education Facilities.

We wish to furnish for your information, the current condition that exists as the result of the rapid transit alignment as it relates to our future physical planning within the quarry site. As you know, the University of Hawaii at Manoa has a need to expand its Physical Education Facilities in keeping with an enrollment of 23,000 students. These space requirements have been planned to be constructed in the quarry and the total Master Plan requirements call for 309,900 gross square feet to be developed in phases. In addition to these additional facilities, the retention of the existing Duke Kahanamoku Pool and Klum Gymnasium during the construction of the earlier phases are paramount to provide minimal services to the current student body. Also, the parking structure that has been designed and built imposes additional constraints on the design since it is in close proximity to Klum Gym.

Secondly, the visual impact of massing these rather large buildings in such close proximity to each other presents constraints of an aesthetic nature since the project site is

Mr. Kazu Hayashida  
Letter No. PM-0838.7  
Page 2

readily visible to passing traffic on Lunalilo Freeway and from the top of the parking structure. To reduce as much as possible this problem of massing, the proposed structures are designed into individual components and physically separated by open, landscaped courts as much as possible. It should be noted that the intended use of each structure predicated the physical site and mass; e.g., the dimensions for a basketball court or a number of physical exhibition gymnasiums which cannot be realistically broken up.

Finally, the site restrictions do not permit the usual planning flexibility one sees in Division I universities across the mainland where land limitations are not imposed on the planners. The quarry site, with its existing facilities, the recently completed parking structure, existing loop road and the rapid transit alignment, add up to an extremely difficult planning situation to achieve a satisfactory end product. The mauka-makai mall is also vital to the overall plan for the site and its relationship to the parking structure and the rapid transit facility must be maintained.

All of this results in a potential conflict with our planned facilities. A meeting has, therefore, been held to discuss and attempt to resolve this potentially serious conflict between the planned physical education facilities and the proposed rapid transit facility alignment. Based on the programmed and physical constraints noted hereinbefore, including the rapid transit alignment, we have restudied the physical education facilities and find that major redesign of the complex will impose serious adverse effect on the overall planning of the facilities.

We will continue working with your department and are confident that a solution to these problems can be found.

Very truly yours,



RIKIO NISHIOKA  
State Public Works Engineer

UNITED STATES DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE

*Stacy A.B.*  
RECEIVED

440 Alexander Young Building, Honolulu, Hawaii 96813

JAN 12 10 43 AM '76

January 8 1976  
SUPERVISOR'S DIV.  
DACS

Mr. Hideo Murakami  
State Comptroller  
Dept. of Accounting and  
General Services  
P. O. Box 119  
Honolulu, HI 96810

Dear Mr. Murakami:

SUBJECT: Request for Comments - Physical Education Facilities  
University of Hawaii Manoa Campus Environmental Impact Analysis

We have reviewed the above-mentioned notice and have no comments to offer. Thank you for the opportunity to review this notice.

Sincerely,

*Francis C. H. Lum*  
Francis C. H. Lum  
State Conservationist

DIVISION OF PUBLIC WORKS	
TO:	INITIAL FOR YOUR:
___ State P. W. Engr. ___	Approval ___
___ P. W. Secy. ___	Sign. ___
___ Staff Serv. Br. ___	Info. ___
<input checked="" type="checkbox"/> Planning Br. ___	File ___
___ Proj. Mgmt. Br. ___	See me ___
___ Design Br. ___	Comments. ___
___ Insp. Br. ___	Invest. & ___
___ Qual. Cont. Engr. ___	Rept. ___



*Sherry*



**ST. LOUIS HEIGHTS COMMUNITY ASSN.**

HONOLULU, HAWAII

*"Community Betterment Our Duty"*

January 10, 1976

HIDEO MURAKAMI, Comptroller  
State of Hawaii  
Dept. of Accounting and  
General Services  
P. O. Box 119  
Honolulu, Hawaii 96810

Dear Sir:

This letter is to inform you that we wish to comment on the proposed Physical Education Facilities, University of Hawaii. We notice that you are moving Cooke Field to be along Dole Street, which could add to the heavy traffic load at Dole St. and St. Louis Dr. As you may be aware, this intersection can get very congested. If you plan to use Cooke Field for spectator attended sports events, this would add to the parking along Dole St.

We are hopeful that the increased facilities for the students would reduce the load on the facilities at Kanewai Field which has to serve the residents of St. Louis Heights, several outside groups, students and faculty.

We are looking forward to seeing your plans and the E.I.S. for this project.

Mahalo,

W. P. Burton, President  
S.L.H.C.A.

Comptroller .....  
 3 State P.W. Eng. ....  
 P.W. Secty. ....  
 Staff Serv. ....  
 4.2 Planning Br. ....  
 Proj. Mgmt. Br. ....  
 Design Br. ....  
 Inspec. Br. ....  
 Contracts .....  
 Fiscal Off. ....  
 Pers. Off. ....  
 Pre-Audit .....  
 1- [Signature] .....  
 (P) 1105.6

JAN 30 1976

Mr. Walter P. Burton  
 President  
 St. Louis Hts. Community Assn.  
 1528 Bertram Street  
 Honolulu, Hawaii 96816

Dear Mr. Burton:

Subject: Physical Education Facilities  
 University of Hawaii, Manoa Campus

This is to acknowledge receipt of your January 10, 1976 letter informing us of your wish to comment on the plans and E.I.S. for the proposed University of Hawaii Physical Education Facilities project. The consultant for this project will be contacting your agency during the preparation of the E.I.S. However, since we are presently in the process of selecting a consultant to prepare the plans and E.I.S., the contact will probably take place several months from now. In regard to review of the plans, we suggest that you contact Mr. Walter Muraoka (Phone 948-8216) of the University of Hawaii on this matter since they are the User Agency.

Please be advised that Cooke Field will not be relocated from its present location in the quarry. To avoid any future misinterpretation, the old Cooke Field along Dole Street as shown in the Notice of Determination Project Location Map will be deleted.

Very truly yours,

RIKIO NISHIOKA  
 State Public Works Engineer

HY:btj  
 cc: R. Chang  
 W. Muraoka

### XIII. SUMMARY OF UNRESOLVED ISSUES

There are no known unresolved issues at this time. There is a potential for issues to arise on the design, engineering, or construction phase. In such cases, the regulating agency or authority will be consulted and the issue resolved by the approving line agency or authority at that point in time.

### XIV. LIST OF NECESSARY APPROVALS

The approvals/permits to be required relate to actual construction rather than special district or zoning approvals. If the CZC is not complied with appropriate waivers must be obtained from the Department of Land Utilization, City and County of Honolulu.

Construction related permits/approvals include:

Sewer and Drainage Master Plans. These plans must be developed by the project engineers and approved by the Department of Public Works.

Grading Permit. Issued by the Department of Public Works.

Building Permit. Issued by the Building Department.

It is also noted that other State agencies such as the Department of Health and the Department of Transportation must review and accept the sewage and transportation access aspects prior to the construction permits.

XV, REPRODUCTION OF COMMENTS AND RESPONSES MADE DURING THE EIS REVIEW PROCESS

Pages 67 through 90 are copies of the comments received from twenty-five agencies during the EIS review process. After each comment, the written response sent back to the agency (by the Department of Accounting and General Services) is provided. Those agencies indicated by an asterisk (\*) did not provide any comments, therefore, no responses were made to these agencies.

The agencies commenting, with the date of their comments in parentheses, and the pages on which the copies appear are provided below:

	<u>Page</u>
<u>City and County of Honolulu</u>	
*Department of Housing and Community Development (8/25/77)	67
Department of General Planning (9/6/77)	67
Department of Public Works (9/6/77)	68
Department of Land Utilization (9/9/77)	69
Board of Water Supply (9/14/77)	70
Department of Parks and Recreation (9/19/77)	72
Department of Transportation Services (9/20/77)	74
<u>State</u>	
*Department of Agriculture (8/25/77)	75
*Department of Defense (8/25/77)	76
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Department of Land and Natural Resources (8/26/77)	77
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<u>University of Hawaii</u>	
*Water Resources Research Center (9/8/77)	86
<u>Federal</u>	
*United States Army Support Command, Hawaii, Department of the Army, Headquarters (8/25/77)	86
*Headquarters, Fourteenth Naval District (8/29/77)	87
*Department of the Air Force (9/8/77)	87
*United States Coast Guard, Department of Transportation (9/15/77)	87
Corps of Engineers, Honolulu District, Department of the Army (9/16/77)	88
*Fish and Wildlife Service, United States Department of the Interior (9/16/77)	90
*Soil Conservation Service, United States Department of Agriculture (9/21/77)	90



GEORGE R. ARIYOSHI  
GOVERNOR



STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
DIVISION OF PUBLIC WORKS  
P. O. BOX 110, HONOLULU, HAWAII 96810

HIDEO MURAKAMI  
COMPTROLLER  
MIKE N. TOKUNAGA  
DEPUTY COMPTROLLER

LETTER NO. EM-1035.7

DEPARTMENT OF PUBLIC WORKS  
CITY AND COUNTY OF HONOLULU  
RECEIVED  
650 SOUTH KING STREET  
HONOLULU, HAWAII 96813



SEP 9 10 13 AM '77  
CITY OF PUBLIC WORKS  
DACS

WALLACE MIYAHIRA  
DIRECTOR AND CHIEF ENGINEER  
ENV 77-455

FORWARDED TO:  
Mr. Tolson  
Mr. DeLoach  
Mr. Mohr  
Mr. Bishop  
Mr. Casper  
Mr. Callahan  
Mr. Conrad  
Mr. Felt  
Mr. Gale  
Mr. Rosen  
Mr. Sullivan  
Mr. Tavel  
Mr. Trotter  
Tele. Room  
Miss Holmes  
Miss Gandy

September 6, 1977

Mr. Ramon Duran  
Acting Chief Planning Officer  
Department of General Planning  
City and County of Honolulu  
650 South King Street  
Honolulu, Hawaii 96813

Dear Mr. Duran:

Subject: Environmental Impact Statement  
Physical Education Facilities  
University of Hawaii at Manoa

Thank you for your letter of September 6, 1977, regarding the Environmental Impact Statement for the proposed Physical Education Facilities, University of Hawaii at Manoa. We have reviewed your comments and offer the following dispositions:

1. DLUM for the project site. The information on the General Plan Detailed Land Use Map (DLUM) for the project site will be included in the Revised Environmental Impact Statement.
2. Page 17. The reference to Figure 6 on page 17 will be changed to correctly reflect Figure 4B.

We appreciate the information and comments provided and hope that we have adequately responded to your comments.

Very truly yours,

*Teuane Tomimaga*  
TEUANE TOMINAGA  
Acting State Public Works Engineer

JN/si  
cc: Environmental Quality Commission  
MAG Architects  
Environmental Communications, Inc.  
Office of Physical Planning & Constr., UI

Office of Environmental Quality Control  
State of Hawaii  
550 Halekauwila Street, Room 301  
Honolulu, Hawaii 96813

Gentlemen:

Subject: Environmental Impact Statement for the  
Proposed Physical Education Facilities  
University of Hawaii, Manoa Campus,  
Honolulu, Hawaii

We have reviewed the subject EIS and have the following comments.

1. Wastewater flows generated by the proposed facilities should be submitted to the Division of Sewers on form provided earlier. This information is needed to determine the adequacy of the existing sewer lines. Otherwise, there will be no assurance that a sewer connection will be granted when the facilities are constructed.
2. As indicated on page 32 of the EIS, the existing drainage facilities in the lower campus quarry areas are totally inadequate. The lower campus flows will be allowed to enter the University Avenue drain, on the condition that the upper campus flows are diverted to Manoa Stream as stated on page 28. Until the upper campus drainage facilities are constructed, the flow restriction device at the inlet of the University Avenue drain will have to be maintained. The City is concerned with the rather slow progress that is being made with the implementation of the two-phase construction program of the proposed drainage system.

Very truly yours,

*Wallace Miyahira*  
WALLACE MIYAHIRA  
Director and Chief Engineer

cc: 7 DACS  
Div. of Engineering (Drainage Section)  
Div. of Sewers (Public Contact Section)

R

GEORGE R. ARIYOSHI  
GOVERNOR



STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
DIVISION OF PUBLIC WORKS  
P. O. BOX 118, HONOLULU, HAWAII 96810

LETTER NO. PM-1037.7

HIDEO MURAKAMI  
COMPTROLLER  
MIKE N. TOMINAGA  
DEPUTY COMPTROLLER

DEPARTMENT OF LAND UTILIZATION  
**CITY AND COUNTY OF HONOLULU**  
650 SOUTH KING STREET  
HONOLULU, HAWAII 96813



SEP 12 9 49 AM '77  
FRANK P. FARM  
SAGOR  
DIV. OF PUBLIC WORKS  
DACS

GEORGE S. MORIGUCHI  
DIRECTOR  
L08/77-5791 (JW)  
77/EC-2

September 9, 1977

LETTER OF TRANSMITTAL  
TO: Mr. Miyahira  
FROM: Mr. Murakami  
SUBJECT: Environmental Impact Statement  
Physical Education Facilities, UH/Manoa, Oahu

Mr. Wallace Miyahira  
Director and Chief Engineer  
Department of Public Works  
City and County of Honolulu  
650 South King Street  
Honolulu, Hawaii 96813

Dear Mr. Miyahira:

Subject: Environmental Impact Statement  
Physical Education Facilities  
University of Hawaii at Manoa

We have reviewed your comments of September 6, 1977, on the Environmental Impact Statement for the proposed Physical Education Facilities, University of Hawaii at Manoa, and provide the following dispositions:

1. At this time, the retained consultants and our staff are filling out the information needed on your form, "Information for Sewer Connection." As soon as this form is completed, we will be submitting it to the Division of Sewers of your Department.
2. The proposed drainage system for the Lower Campus quarry areas is anticipated to have funding available by 1979. Plans call for construction to begin in the fall of 1979 and completion of the project in one year.

We hope that these responses adequately address your comments. We will be incorporating the information on the construction schedule for the proposed drainage system into the Revised Environmental Impact Statement.

Very truly yours,

*Teuane Tominaga*

TEUANE TOMINAGA  
Acting State Public Works Engineer

JN/si  
cc: Environmental Quality Commission  
MAG Architects  
Environmental Communications, Inc.  
Office of Physical Planning & Constr., UH

Mr. Hideo Murakami, Comptroller  
Department of Accounting & General Services  
State of Hawaii  
Honolulu, Hawaii

Dear Mr. Murakami:

Environmental Impact Statement  
Physical Education Facilities, UH/Manoa, Oahu

In our review of the above, we note an apparent conflict between the proposed project and current plans for the rapid transit corridor. In light of the significance this conflict might have, we feel the EIS could discuss alternative site plans or other possible solutions to this problem. In particular, the relationship between the need for additional parking facilities and the proximity of the future rapid transit station should be given more thorough treatment.

Should you have any questions, please contact Mr. John Whalen of our staff at 523-4256.

Very truly yours,

*George S. Moriguchi*  
GEORGE S. MORIGUCHI  
Director of Land Utilization

GSM:ey

cc: Office of Environmental Quality Control

R

FRANK F. FASI, Mayor  
 YOSHIE H. FUJIMAKA, Chairman  
 STANLEY S. TAKAHASHI, Vice Chairman  
 EDWARD F. C. LAU  
 TERESITA R. JOJINSKY  
 E. ALVEY WRIGHT  
 Wallace S. Miyahira  
 Fred Dailey  
 EDWARD Y. HIRATA  
 Manager and Chief Engineer

BOARD OF WATER SUPPLY  
 CITY AND COUNTY OF HONOLULU  
 630 SOUTH KEEBTANIA  
 HONOLULU, HAWAII 96813

September 14, 1977

HIDEO MURAKAMI  
 COMPTROLLER  
 MIKE A. TOKUNAGA  
 DEPUTY COMPTROLLER

LETTER NO. PM-1042.7



STATE OF HAWAII  
 DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
 DIVISION OF PUBLIC WORKS  
 P. O. BOX 119 HONOLULU, HAWAII 96819

Mr. George S. Moriguchi  
 Director  
 Department of Land Utilization  
 City and County of Honolulu  
 650 South King Street  
 Honolulu, Hawaii 96813

Dear Mr. Moriguchi:

Subject: Environmental Impact Statement  
 Physical Education Facilities  
 University of Hawaii at Manoa

Thank you for your comments of September 9, 1977, on the Environmental Impact Statement for the proposed Physical Education Facilities, University of Hawaii at Manoa. Below, we provide dispositions to your comments.

We have met with the staff of the Department of Transportation Services, City and County of Honolulu. Briefly, the conflicts relating to the buildings' location and the rapid transit alignment have been resolved. This is reflected in the Department of Transportation Services' letter of September 20, 1977, to the Department of Accounting and General Services. This letter is attached for your information and will be incorporated into the Revised Environmental Impact Statement.

As indicated on page 32, the Physical Education Facilities parking stall requirements are part of the overall University of Hawaii at Manoa parking system. The maximum number of people at a major sporting event (e.g. baseball) is expected to be 4,000. Such events do not occur during normal class hours; thus, the parking structure is capable of accommodating the vehicles generated by a major sport event.

We hope that we have adequately responded to your comments.

Very truly yours,

*T. Tomiyama*

TEUANE TOMINAGA  
 Acting State Public Works Engineer

JN/si  
 Attach.  
 cc: Environmental Quality Commission  
 MAG Architects  
 Environmental Communications, Inc.  
 Office of Physical Planning & Constr., OH

Dr. Richard E. Marland  
 Director  
 Office of Environmental  
 Quality Control  
 550 Halekauwila Street  
 Room 301  
 Honolulu, Hawaii 96813

Dear Mr. Marland:

Subject: Environmental Impact Statement for  
 Proposed Physical Education Facilities,  
 University of Hawaii, Manoa Campus

We have reviewed the impact statement on the proposed project and have the following comments:

1. A water master plan for the U of H, Manoa Campus, must be developed and submitted prior to any approval of construction plans after October 1977.
2. The anticipated water demand for the proposed facility should be stated in the impact statement.
3. The 6-inch waterline for the proposed facility should be connected to the University's existing 8-inch waterline located adjacent to the Parking Structure, Phase I.
4. The construction plans for the proposed facility should be submitted to us for review and approval.



GEORGE R. ARIYOSHI  
GOVERNOR



HIDEO MURAKAMI  
COMPTROLLER  
MIKE N. TOKUNAGA  
DEPUTY COMPTROLLER

Dr. Richard E. Marland -2- September 14, 1977

STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
DIVISION OF PUBLIC WORKS  
P. O. BOX 118, HONOLULU, HAWAII 96810

LETTER NO. PM-1050.7

5: The U of H, Manoa Campus will be required to pay its pro-rata share of water development costs.

Our departmental contact is Lawrence Whang at 548-5221, if further information is needed.

Very truly yours,

Edward Y. Hirata  
Manager and Chief Engineer

cc: Mr. Hideo Murakami, Comptroller  
Department of Accounting and  
General Services

Mr. Edward Y. Hirata  
Manager and Chief Engineer  
Board of Water Supply  
City and County of Honolulu  
630 South Beretania Street  
Honolulu, Hawaii 96813

Dear Mr. Hirata:

Subject: Environmental Impact Statement  
Physical Education Facilities  
University of Hawaii at Manoa

We have received your letter dated September 14, 1977, on the Environmental Impact Statement for the proposed Physical Education Facilities, University of Hawaii at Manoa. We would like to note that this letter was received on September 29, 1977, seven days after the end of the EIS review period. Although this letter is late, we have provided dis-positions to your comments:

1. A water master plan will be developed and will be submitted to your department for review and approval as requested.
2. Based on the engineering calculations, it is estimated that approximately 9,400 gallons per day will be required for the total PE facilities' daily use.
3. The water line proposed for the PE Facilities has been changed to an 8" line (rather than a 6" line) and will be connected to the University's 8" water line adjacent to the parking structure, Phase I, as indicated in your comment.
4. The construction plans will be submitted at the appropriate time for your department's review and approval.

R

DEPARTMENT OF PARKS AND RECREATION  
CITY AND COUNTY OF HONOLULU

830 SOUTH KING STREET  
HONOLULU, HAWAII 96813



FRANK F. FARH  
MAYOR

YOUNG SUK KO  
DIRECTOR

September 19, 1977

Mr. Edward Y. Hirata  
Letter No. PM-1050.7  
Page 2

5. The University of Hawaii, Manoa Campus, will pay its pro rata share of water development cost as determined through negotiations with your department.

We hope that we have adequately responded to your comments. Your letter and our response will be incorporated into the Revised EIS.

Very truly yours,

TEUANE TOMINAGA  
Acting State Public Works Engineer

Environmental Quality Commission  
550 Halekauwila Street  
Room 301  
Honolulu, Hawaii 96813

Gentlemen:

JN/si

cc: Environmental Quality Commission  
MAG Architects  
Environmental Communications, Inc.  
Office of Physical Planning & Constr., UH

SUBJECT: COMMENTS ON UNIVERSITY OF HAWAII -  
PHYSICAL EDUCATION FACILITIES

Thank you for allowing us to comment on the subject proposal EIS. The proposed project is not anticipated to adversely affect our recreation facilities in the area but would rather "reduce the recreation load" on the facilities at Kanewai Field.

For your information, the Department of Parks and Recreation is proposing the expansion of Kanewai Field with Capital Improvement Funds earmarked for additional tennis courts and parking spaces for Fiscal Year 1977-1978. We would anticipate that most of your major sport complexes; gymnasiums, play courts and exercise areas would be partially or fully in use by 1978. We realize this coordinative effort is difficult but hope that this could be accomplished.

Thank you for referring this matter to us for comments.

Sincerely,

  
For YOUNG SUK KO, DIRECTOR

R



GEORGE R. RYKOSHI  
GOVERNOR

STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
DIVISION OF PUBLIC WORKS  
P. O. BOX 119, HONOLULU, HAWAII 96810

HIDEO MURAKAMI  
COMPTROLLER  
MIKE N. TOKUNAGA  
DEPUTY COMPTROLLER

LETTER NO. PM-1052.7

Mr. Young Suk Ko  
Director  
Department of Parks and Recreation  
City and County of Honolulu  
650 South King Street  
Honolulu, Hawaii 96813

Dear Mr. Ko:

Subject: Environmental Impact Statement  
Physical Education Facilities  
University of Hawaii at Manoa

We have received your letter dated September 19, 1977, regarding the Environmental Impact Statement for the proposed Physical Education Facilities, University of Hawaii at Manoa. We would like to note that your letter was received on September 29, 1977, seven days after the end of the EIS review period. Although your letter was received late, we would like to provide the following information.

At this time, we do not anticipate that the recreational load on other public recreational facilities in the area will be significantly reduced. As indicated in the EIS, community use of the PE Facilities will be allowed whenever student use schedules permit. In many cases, because of the intensive use of the PE Facilities by the University students and University-related activities, the amount of time and space available to the community is unknown. As you know, many of the current intramural programs are forced to take place well after midnight due to the heavy student use load factor. These facilities have been designed to alleviate and hopefully eliminate this situation. We would like to note that the proposed Phase I will not be completed until 1980; however, there are presently areas within the quarry which are sometimes used by the community.

Mr. Young Suk Ko  
Letter No. PM-1052.7  
Page 2

We hope that we have adequately addressed your comments. Your letter and our response will be incorporated into the Revised EIS.

Very truly yours,

*A. Tomiyaga*

TEUANE TOMINAGA  
Acting State Public Works Engineer

JN/si  
cc: Environmental Quality Commission  
MAG Architects  
Environmental Communications, Inc.  
Office of Physical Planning & Constr., UH

R



GEORGE R. ARIYOSHI  
GOVERNOR



JOHN FARIAS, JR.  
CHAIRMAN, BOARD OF AGRICULTURE  
YUKIO KITAGAWA  
DEPUTY TO THE CHAIRMAN

BOARD MEMBERS:

IRVING M. HIGASHI  
MEMBER - AT-LARGE  
ERNEST F. WORGADO  
MEMBER - AT-LARGE  
KALFRED K. YEE  
MEMBER - AT-LARGE  
SHIZUTO KADOTA  
HAWAII MEMBER  
STEPHEN O. LAU  
HAWAII MEMBER  
FRED M. DEGAWARA  
MAUI MEMBER

STATE OF HAWAII  
DEPARTMENT OF AGRICULTURE  
1428 SO. KING STREET  
HONOLULU, HAWAII 96814

August 25, 1977

MEMORANDUM

To: Environmental Quality Commission  
Subject: Environmental Impact Statement for Physical Education Facilities, University of Hawaii, Manoa Campus, Honolulu, Hawaii

The Department of Agriculture has reviewed the subject EIS and has no comments to offer.

The EIS is herewith returned for your further use.

JOHN FARIAS, JR.  
Chairman, Board of Agriculture

cc: Department of Accounting and General Services

HIDEO MURAKAMI  
COMPTROLLER

MIKE N. TOKUNAGA  
DEPUTY COMPTROLLER

LETTER NO. EM-1038-7



STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
DIVISION OF PUBLIC WORKS  
P. O. BOX 118, HONOLULU, HAWAII 96810

Mr. Kazu Hayashida  
Director  
Department of Transportation Services  
City and County of Honolulu  
650 South King Street  
Honolulu, Hawaii 96813

Dear Mr. Hayashida:

Subject: Environmental Impact Statement  
Physical Education Facilities  
University of Hawaii at Manoa

We have reviewed your comments on the Environmental Impact Statement for the proposed Physical Education Facilities, University of Hawaii at Manoa. The detailed description of the events leading to the concurrence on the potential problem of alignment conflict has been resolved and we appreciate your cooperation on this matter.

Very truly yours,

  
TEUANE TOMINAGA  
Acting State Public Works Engineer

JN/si  
cc: Environmental Quality Commission  
MAG Architects  
Environmental Communications, Inc.  
Office of Physical Planning & Constr., UH

R

CHARLES G. CLARK  
SUPERINTENDENT

RECEIVED

SEP 2 12 37 PM '77  
DIV. OF PUBLIC WORKS  
DACS



STATE OF HAWAII  
DEPARTMENT OF EDUCATION  
P. O. BOX 5740  
HONOLULU, HAWAII 96809

August 25, 1977

GEORGE R. ARIYOSHI  
GOVERNOR

VALENTINE A. BIEFERMANN  
MAJOR GENERAL  
ADJUTANT GENERAL



STATE OF HAWAII  
DEPARTMENT OF DEFENSE  
OFFICE OF THE ADJUTANT GENERAL  
FORT RUSSEL, HONOLULU, HAWAII 96816

25 AUG 1977

HLRNG

OFFICE OF THE SUPERINTENDENT

Dr. Richard E. Marland, Director  
Office of Environmental Quality Control  
550 Halekauwila Street, Room 301  
Honolulu, Hawaii 96813

Dear Dr. Marland:

Physical Education Facilities  
University of Hawaii, Manoa Campus, Honolulu, Hawaii

Thank you for sending us a copy of the "Physical Education Facilities"  
Environmental Impact Statement. We have received the publication and  
have no comments to offer.

Yours truly,

WAYNE R. TOMOYASU  
Captain, CE, HARRNG  
Contr & Engr Officer

Enclosure

MEMO TO: Office of Environmental Quality Control  
550 Halekauwila Street, Room 301

Department of Accounting & General Services  
P. O. Box 119

Charles G. Clark, Superintendent  
Department of Education

SUBJECT: Environmental Impact Statement (EIS)  
Physical Education Facilities  
University of Hawaii

The Department of Education has no comment regarding the subject EIS.

cc: Office of Instructional Services w/EIS

BUREAU OF PUBLIC WORKS  
SUPERINTENDENT  
1000 Kalia Road, Honolulu, Hawaii 96813  
Mr. Tolson \_\_\_\_\_  
Mr. DeLoach \_\_\_\_\_  
Mr. Mohr \_\_\_\_\_  
Mr. Bishop \_\_\_\_\_  
Mr. Casper \_\_\_\_\_  
Mr. Callahan \_\_\_\_\_  
Mr. Conrad \_\_\_\_\_  
Mr. Felt \_\_\_\_\_  
Mr. Gale \_\_\_\_\_  
Mr. Rosen \_\_\_\_\_  
Mr. Sullivan \_\_\_\_\_  
Mr. Tavel \_\_\_\_\_  
Mr. Trotter \_\_\_\_\_  
Tele. Room \_\_\_\_\_  
Miss Holmes \_\_\_\_\_  
Miss Gandy \_\_\_\_\_

R

GEORGE R. ARIYOSHI  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
P. O. BOX 821  
HONOLULU, HAWAII 96808

W. Y. THOMPSON, Chairman  
BOARD OF LAND & NATURAL RESOURCES

EDGAR A. HAMASU  
DEPUTY TO THE CHAIRMAN

DIVISIONS:  
HUNTING, TRAPPING,  
FISH AND GAME  
FORESTRY  
LAND MANAGEMENT  
STATE PARKS  
WATER AND LAND DEVELOPMENT

August 26, 1977

Environmental Quality  
Commission  
State of Hawaii  
550 Halekaunila Street  
Honolulu, HI 96813

Gentlemen:

We have reviewed the EIS for the UH Athletic Complex at  
Manoa.

Figure 4a is illegible. The goal stated on page 13 does  
not appear to be closely related to the assignments appearing  
in Table 1.

The section on traffic does not explicitly state what  
the maximum traffic for major sporting events will be. Inter-  
sectional capacities are not discussed. Parking accommodations  
for buses are not discussed. The total number of unassigned  
auto parking stalls available for sporting events is not stated.

Otherwise, the EIS appears to be well organized and  
thorough.

Very truly yours,

*W. Y. Thompson*  
W. Y. THOMPSON  
Chairman of the Board

GEORGE R. ARIYOSHI  
GOVERNOR



STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
P. O. BOX 118 HONOLULU, HAWAII 96809

LETTER NO. PM-1036.7

SEP 30 1977

Honorable William Y. Thompson  
Chairman  
Department of Land and  
Natural Resources  
State of Hawaii  
P. O. Box 621  
Honolulu, Hawaii 96809

Dear Mr. Thompson:

Subject: Environmental Impact Statement  
Physical Education Facilities  
University of Hawaii at Manoa

Thank you for your letter of August 26, 1977, regarding  
the Environmental Impact Statement for the proposed Physical  
Education Facilities, University of Hawaii at Manoa. We would  
like to provide the following responses to your comments:

1. Figure 4A will be enlarged and will be made legible.
2. The objectives, as stated on pages 13, 14, 15 and 16 are general goals which are more objectively reflected in terms of space programs summarized in Table 1. The translation of these general objectives to the more specific space requirements was a lengthy and tedious process which was conducted and is written up in the project development plan. We feel that the objectives and Table 1 are consistent with each other.
3. As indicated on page 32, the Physical Education Facilities parking stall requirements are part of the overall University of Hawaii at Manoa parking system. The maximum number of people at a sporting event (e.g. baseball) is expected to be 4,000. Such events do not occur during normal class hours, thus the parking structure

R

ANDREW I. T. CHANG  
DIRECTOR OF SOCIAL SERVICES & HOUSING



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STATE OF HAWAII  
DEPARTMENT OF SOCIAL SERVICES AND HOUSING  
P. O. Box 339  
Honolulu, Hawaii 96809

August 31, 1977

MEMORANDUM

TO: Environmental Quality Commission  
550 Halekauwila St., Room 301  
Honolulu, Hawaii 96813

FROM: Andrew I. T. Chang, Director  
Department of Social Services and Housing

SUBJECT: Environmental Impact Statement - Physical Education Facilities,  
University of Hawaii, Manoa Campus, Honolulu, HI

Subject EIS has been reviewed for its impact on departmental programs.

We have no comment to make regarding this project.

We are returning the EIS for your usage.

Thank you for the opportunity to review and comment.

Attachment  
cc: Governor, State of Hawaii (Office EIS)  
Dept. of Accounting & General Services

*Andrew I. T. Chang*  
Acting Director

Mr. Tolson	
Mr. DeLoach	
Mr. Mohr	
Mr. Bishop	
Mr. Casper	
Mr. Callahan	
Mr. Conrad	
Mr. Felt	
Mr. Gale	
Mr. Rosen	
Mr. Sullivan	
Mr. Tavel	
Mr. Trotter	
Tele. Room	
Miss Holmes	
Miss Gandy	

R

Honorable William Y. Thompson  
Letter No. PM-1036.7  
Page 2

is capable of accommodating the vehicles gener-  
ated by a major sport event. Therefore, we feel  
that the parking requirements will be met.

Thank you again for your comments and we hope that we  
have adequately responded to your comments.

Very truly yours,

*Hideo Murakami*  
HIDEO MURAKAMI  
State Comptroller

cc: Environmental Quality Commission  
MAG Architects  
Environmental Communications, Inc.  
Office of Physical Planning & Constr., UH

GEORGE D. ANDERSON, VICE  
DIRECTOR

SEP 5 3 34 PM '77  
DIV. OF PUBLIC WORKS  
DAGS



STATE OF HAWAII  
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

OFFICE OF THE GOVERNOR

550 HALEKALANUA ST  
HONOLULU, HAWAII 96813

September 2, 1977

RICHARD E. MARLAND, PH.D.  
DIRECTOR

TELEPHONE NO.  
548-4915

Page 2

7) P.35. Alternatives. The alternative space programs section does not discuss the environmental impacts of the various alternatives. This could include energy requirements and aesthetic impacts of the various schemes.

8) Unresolved issues. The location of the proposed rapid transit system's alignment and station location appears to be in conflict with the proposed project. This is reflected in the consultation correspondence. Since no indication is given in the EIS as to the proposed alignment of the rapid transit, it is hard to assess the potential conflict. We suggest that more information be provided, including what portion of the plans conflict, how they might be resolved, or what overriding reasons there are for proceeding without resolving the conflict.

The EIS Regulations allow the accepting authority or his authorized representative to consider responses received after the fourteen day response period. This Office will exercise the option and will consider responses after the fourteen day period.

Thank you for allowing us to review the subject EIS.

Attachment

TO: Hideo Murakami, State Comptroller  
Department of Accounting and General Services

FROM: Richard E. Marland, Director *[Signature]*  
Office of Environmental Quality Control

SUBJECT: Environmental Impact Statement for the Proposed Physical  
Education Facilities, University of Hawaii at Manoa

We have reviewed the subject environmental impact statement. To date we have received six (6) comments from other agencies as shown on the attached list. We wish to offer the following comments for your consideration:

- 1) No summary sheet is provided in the EIS.
- 2) P.5. Figure 4a is illegible.
- 3) The inclusion of drawings or more details on the heights of the structures would aid in reviewing the potential aesthetic impacts of the proposed project.
- 4) P.17. The citation under Phasing and Timing for Figure 6 appears incorrect. Perhaps the correct reference is for figure 4B.
- 5) P.20. The statement, "There is (sic) no stream or other water bodies in the immediate area of the project site (within the quarry)," is incorrect. There is a pond within the quarry, near the base of the cliff Gateway House.
- 6) P.22. The statement that air quality will improve in the future by the imposition of stringent Federal automobile-emission controls even with increased traffic may not hold true. The recent action by Congress to relax emission control deadline may happen again. Therefore the lack of more stringent emission control requirements may cause air quality in the area to continue to exceed the State's standards under worst case conditions.

R

List on commentators on the EIS for the Proposed PE Facilities at the University of Hawaii at Manoa (DAGS) (as of September 1, 1977)

Agency

	<u>Common date</u>
U.S. Navy	Aug. 29, 1977
U.S. Army - DAPE	Aug. 25, 1977
State Dept. of Agriculture	Aug. 25, 1977
State Dept. of Defense	Aug. 25, 1977
State Dept. of Land and Natural Resources	Aug. 26, 1977
City and County Dept. of Housing and Community Development	Aug. 25, 1977

GEORGE R. ARITOSHI  
GOVERNOR



STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
P. O. BOX 116 HONOLULU, HAWAII 96810

HIDEO MURAKAMI  
COMPTROLLER

MIKE W. TORUMAGA  
DEPUTY COMPTROLLER

LETTER NO. PH-1043-7

SEP 30 1977

Dr. Richard E. Marland  
Director  
Office of Environmental Quality Control  
Room 301  
550 Halekauwila Street  
Honolulu, Hawaii 96813

Dear Dr. Marland:

Subject: Environmental Impact Statement  
Physical Education Facilities  
University of Hawaii at Manoa

Thank you for your comments of September 2, 1977, on the Environmental Impact Statement for the proposed Physical Education Facilities, University of Hawaii at Manoa. We have reviewed your comments and would like to provide the following dispositions:

1. The omission of a summary sheet was an oversight. A summary sheet will be provided in the Revised Environmental Impact Statement. For your further information, we are enclosing the summary sheet which will be appearing in the Revised Environmental Impact Statement.
2. Figure 4A will be enlarged so that the wording will be legible.
3. The proposed structures will all be lower than the existing parking structure. As stated on page 25, the anticipated maximum building elevation will be E.L. 66.5'+. For your additional information, a set of preliminary drawings indicating the height of the structures is enclosed.
4. Page 17. The reference to Figure 6 will be corrected to reflect the correct figure (Figure 4B).

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5. Page 20. The statement on this page is incorrect and the pond, as pointed out in your comment and as shown on Figure 6, page 22, will be identified in the Revised Environmental Impact Statement.
6. The air pollution consultant has reviewed your comment on the air quality. His response on this subject is provided below:

"At the time the air quality impact of this particular project was being assessed, Congress had not yet decided how the Clean Air Laws were going to be amended. The 1990 carbon monoxide emission figures used in this study were thus based on Table D.7-1 of EPA's Compilation of Air Pollutant Emission Factors. This table shows projected 1990 vehicle fleet emission estimates assuming imposition of strict emission controls beginning in 1975. Congress has now delayed stricter auto emission controls until 1980 (about a five-year slippage in projected timetables as envisioned in the original 1970 Clean Air Amendments).

"While it is true that Congress may decide to delay these standards again, there is no reason to assume such a pessimistic outlook right now. After all, if we are going to assume that Congress is committed to a perpetual roll back of the implementation timetable for the Clean Air Act then we might as well assume the eventual repeal of the National Environmental Policy Act is also inevitable (making any further debate on the subject meaningless).

"For the present, however, it seems reasonable to assume a total delay of five years in achievement of stringent vehicular emission controls. This means a 1975 to 1990 CO emission reduction factor of 0.26 instead of the 0.18 figure used for this project. Then to correct 1990 CO concentration estimates contained in the Air Quality tables of this study one need only multiply the values shown by a factor of 1.44. This yields results that indicate continued exceedence of the State of Hawaii one hour CO ambient air quality standard through 1990 for

some sites near the project. It is important to note, however, that even with the five year implementation delay of emission controls expected CO concentrations from 1990 traffic in the project area will be lower than current levels.

"It can also be argued that the State of Hawaii one hour CO standard (four times more stringent than the comparable Federal limit) is set at an unrealistically low level."

7. Alternatives. We note that the alternatives space program reflect alternatives from a design/space standpoint. These alternatives were reviewed at an earlier stage of the project. As noted on page 37, the project development report provides detailed evaluation of these alternatives space programs. Because of your concern, we will include additional information on the space program alternatives.
8. We have met with the staff of the Department of Transportation Services, City and County of Honolulu. Briefly, the conflicts relating to the buildings' location and the rapid transit alignment has been resolved. This is reflected in the Department of Transportation Services' letter of September 20, 1977, to the Department of Accounting and General Services. This letter is attached for your information and will be incorporated into the Revised Environmental Impact Statement.

Lastly, we note that your office has indicated that:

"The EIS Regulations allow the accepting authority or his authorized representative to consider (sic) responses received after the fourteenth day response period. This Office will exercise the option and will consider responses after the fourteen day period."

Based on the "EIS Regulations," the reviewers, which include the Office of Environmental Quality Control, are given 30 days to review the EIS and provide comments. This 30-day period ended on September 23, 1977. The "EIS Regulations" provide

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GEORGE R. ARIYOSHI  
GOVERNOR OF HAWAII



DIVISIONS:  
CONFERENCE  
FISH AND GAME  
FORESTRY  
LAND AND NATURAL RESOURCES  
STATE PARKS  
WATER AND LAND DEVELOPMENT

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
DIVISION OF STATE PARKS  
P. O. BOX 921  
HONOLULU, HAWAII 96809

September 8, 1977

Dr. Richard E. Marland  
Letter No. PM-1043.7  
Page 4

14 days after the review period for responses to the comments received and the revision of the EIS. We will adhere to the "EIS Regulations."

We hope that we have adequately responded to your comments and should you have any questions, please contact us.

Very truly yours,

HIDEO MURAKAMI  
State Comptroller

Encl. (Summary Sheet and Department of Transportation Services' Letter of 9/20/77.  
cc: Environmental Quality Commission  
MAG Architects  
Environmental Communications, Inc.  
Office of Physical Planning & Constr., UH

Environmental Quality Commission  
Office of the Governor  
550 Halekauwila Street  
Room 301  
Honolulu, Hawaii 96813

Dear Sir:

Subject: Physical Education Facilities, University of Hawaii, Manoa Campus, Honolulu, Hawaii

Thank you for the opportunity to comment on the final EIS for the subject undertaking.

The proposed undertaking will have no effect upon any known historic or archaeological site or likely to be eligible for inclusion to the Hawaii and/or National Registers of Historic Places.

Sincerely yours,

Jane L. Silverman  
Historic Preservation Officer  
State of Hawaii

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 DIV. OF PUBLIC WORKS  
 DAGS



GEORGE ARIYOSHI  
 GOVERNOR

STATE OF HAWAII  
 DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
 DIVISION OF PUBLIC WORKS  
 P. O. BOX 118, HONOLULU, HAWAII 96810

LETTER NO. PM-1040-7

HIDEO MURAKAMI  
 COMPTROLLER  
 MIKE N. TOMINAGA  
 DEPUTY COMPTROLLER

SEP 30 1977

September 19, 1977

MEMORANDUM

To: Environmental Quality Commission  
 Office of the Governor

From: Deputy Director for Environmental Health

Subject: Environmental Impact Statement (EIS) for the Proposed Physical  
 Education Facilities, University of Hawaii, Manoa Campus

Thank you for allowing us to review and comment on the subject EIS.  
 On the basis that the project will comply with all applicable Public Health  
 Regulations, please be informed that we have no objections to this project.

We submit the following comments for your consideration:

1. The following corrections must be made to the Appendix B, Environmental  
 Protection Measures.
  - a. Construction activities including pile driving operations, which  
 emit noise in excess of 95 dBA at or beyond the property line of  
 the construction site, shall be restricted to the hours between  
 9:00 a.m. and 5:30 p.m. of the same day, Monday through Friday.
2. Construction activities must comply with the provisions of the  
 conditional use of permit as stated in Public Health Regulations,  
 Chapter 44B, and the conditions of the permit.
3. Traffic noise from heavy vehicles travelling to and from construction  
 site must be minimized to not affect a particular residential area and  
 must comply with the provisions of Public Health Regulations,  
 Chapter 44A, Vehicular Noise Control for Oahu.
4. The provisions of Public Health Regulations, Chapter 44B, Community Noise  
 Control for Oahu must be considered in the design of the building.  
 Equipment and activity noises must be attenuated to meet the allowable  
 levels of the regulations.

We realize that the statements are general in nature due to preliminary  
 plans being the sole source of discussion. We, therefore, reserve the right to  
 impose future environmental restrictions on the project at the time final plans  
 are submitted to this office for review.

*James S. Kumagai*  
 JAMES S. KUMAGAI, Ph.D.

CC: DAGS

Dr. James S. Kumagai  
 Deputy Director  
 Environmental Health  
 Department of Health  
 P. O. Box 3378  
 Honolulu, Hawaii 96808

Dear Dr. Kumagai:

Subject: Environmental Impact Statement  
 Physical Education Facilities  
 University of Hawaii at Manoa

Thank you for your comments of September 19, 1977, on the  
 Environmental Impact Statement for the proposed Physical  
 Education Facilities, University of Hawaii at Manoa. We have  
 reviewed your comments and provide the following dispositions:

1. Your suggested correction to Appendix B,  
 Environmental Protection Measures, will be  
 included.
2. Your items 2, 3 and 4 will be incorporated into  
 Section VIII of the Revised Environmental Impact  
 Statement. As you realize, the contractor(s)  
 selected to implement the project must adhere to  
 all applicable regulations and standards of the  
 Federal, State and City and County governments.

We appreciate your concerns and hope that we have ade-  
 quately addressed them.

Very truly yours,

*Teuane Tomimaga*

TEUANE TOMINAGA  
 Acting State Public Works Engineer

JN/si  
 cc: Environmental Quality Commission  
 MAG Architects

Environmental Communications, Inc.  
 Office of Physical Planning & Constr., UH





DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT

Kamamalu Building, 250 South King St., Honolulu, Hawaii

GEORGE R. ARIYOSHI Governor

HIDETO KONO Director

FRANK SKRIVANEK Deputy Director



GEORGE R. ARIYOSHI GOVERNOR

September 20, 1977

MEMORANDUM

STATE OF HAWAII DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES

P. O. BOX 118, HONOLULU, HAWAII 96810

LETTER NO. FM-1039.7

Ref. No. 4498

MEMORANDUM

TO: The Honorable Hideo Murakami, State Comptroller
FROM: Hideto Kono, Director
SUBJECT: Environmental Impact Statement for the Proposed Physical Education Facilities, University of Hawaii, Manoa Campus

We have reviewed the subject EIS and find that, in general, it has adequately assessed the major environmental impacts which can be anticipated to result from the proposed project.

In view of the ample recreational opportunities to be offered by the proposed facilities, we suggest that due consideration be given to community use of the facilities, to the extent that normal university functions are not infringed upon.

Thank you for the opportunity to review and comment on this environmental impact statement.

Honorable Hideto Kono
Director
Department of Planning and Economic Development
250 South King Street
Honolulu, Hawaii 96813

Dear Mr. Kono:

Subject: Environmental Impact Statement
Physical Education Facilities
University of Hawaii at Manoa

Thank you for your memorandum of September 20, 1977, regarding the Environmental Impact Statement for the proposed Physical Education Facilities, University of Hawaii at Manoa.

We find that your comment regarding community use of the Physical Education Facilities was covered in the text of the Environmental Impact Statement. Specifically, pages 15 and 16 address your concerns regarding community activities. As indicated in the Environmental Impact Statement, community use of the facilities will be included in the total use. This use, however, will be based on available time and space.

We appreciate your concern on this matter and hope that we have adequately responded to your comment.

Very truly yours,

[Signature]

HIDEO MURAKAMI
State Comptroller

CC: Environmental Quality Commission
MAG Architects
Environmental Communications, Inc.
Office of Physical Planning & Constr., UH

Table with 2 columns: DIVISION OF PUBLIC WORKS and INITIAL FOR YOUR. Rows include State P. W. Engr., P. W. Engr., Staff Engr., Planning Engr., Insp. Engr., and Qual. Cont. Engr.

R

GEORGE R. ARIYOSHI  
GOVERNOR



HIDEO MURAKAMI  
COMPTROLLER  
MINE N. TORUNAGA  
DEPUTY COMPTROLLER

STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
P. O. BOX 118, HONOLULU, HAWAII 96810

LETTER NO. FM-1051.7

STP 8.4482

September 26, 1977

OCT 4 1977

Office of Environmental  
Quality Control  
550 Halekaunila St., Rm. 301  
Honolulu, Hawaii 96813

Gentlemen:

Subject: Environmental Impact Statement  
Physical Education Facilities  
University of Hawaii, Manoa Campus

Thank you very much for giving us the opportunity to review the above-captioned document.

We wish to inform the proposing party that the University Interchange will be redesigned and there is a possibility that the direct access from the off-ramp to the makai campus quarry area may be eliminated.

Sincerely,

/s/ E. ALVEY WRIGHT

E. ALVEY WRIGHT  
Director

ALK:jk

cc: LT-P  
DAGS

NOTE: This letter has been re-typed due to the illegible copy received.

Honorable E. Alvey Wright  
Director  
Department of Transportation  
869 Punchbowl Street  
Honolulu, Hawaii 96813

Dear Mr. Wright:

Subject: Environmental Impact Statement  
Physical Education Facilities  
University of Hawaii at Manoa

We have reviewed your letter of September 26, 1977, regarding the Environmental Impact Statement for the proposed Physical Education Facilities, University of Hawaii at Manoa. This letter was received in our office on September 29, 1977, seven days after the end of the EIS review period. However, we wish to acknowledge the information provided by your department.

We feel that it would be premature to discuss the impact of redesign of the University interchange at this time. Additionally, normal procedure will call for coordination of your project with our department and the University of Hawaii at the appropriate time. We also feel that the University interchange will not likely affect the location and configuration of the proposed Physical Education Facilities.

We appreciate your concern on this matter and hope that you will keep us informed of the University interchange project as it is being redesigned.

Very truly yours,

*Hideo Murakami*  
HIDEO MURAKAMI  
State Comptroller

cc: Environmental Quality Commission  
MAG Architects  
Environmental Communications, Inc.  
Office of Physical Planning & Constr., UH

R

UNIVERSITY OF HAWAII

Water Resources Research Center



DEPARTMENT OF THE ARMY  
HEADQUARTERS UNITED STATES ARMY SUPPORT COMMAND, HAWAII  
XXXXXXXXXXXXXXXXXXXX XXXXXX  
FORT SHAFTER, HAWAII 96858

Office of the Director

September 8, 1977

AF2V-YE-EE

25 AUG 1977

Office of Environmental Quality Control  
550 Halekaunila Street, Rm. 301  
Honolulu, Hawaii 96813

State of Hawaii  
Environmental Quality Commission  
550 Halekaunila Street  
Honolulu, Hawaii 96813

Dear Sirs:

Subject: Environmental Impact Statement: Physical  
Education Facilities

We have reviewed the above EIS and have no critical comment.  
We appreciate the opportunity to participate in this EIS review.

Sincerely,

00

Reginald H. Young  
Asst. Director, WRRC

RHFY:jmm

Gentlemen:

Environmental Impact Statement (EIS) for the Proposed Physical Education  
Facilities, University of Hawaii, Manoa Campus, has been reviewed and we  
have no comments.

The document is returned in accordance with your request. The opportunity  
to review the EIS is appreciated.

Sincerely,

CARL P. ADOLPH  
Colonel, CE  
Director of Facilities Engineering

1 Incl  
As stated

Copy furnished: (no incl)  
State of Hawaii  
Dept of Accounting and General Services  
P. O. Box 119  
Honolulu, Hawaii 96810

R

HEADQUARTERS  
FOURTEENTH NAVAL DISTRICT  
BOX 110  
SAN FRANCISCO 94110

IN REPLY REFER TO:  
002A: FND: 2800  
Ser 1717

20 AUG 1977

DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS 15TH AIR BASE WING (PACAF)  
HICKAM AIR FORCE BASE, HAWAII 96813



8 SEP 1977

REF: DEEE (Mr. Nakashima, 4492158)

SUBJECT: Environmental Impact Statement (EIS) for the Proposed Physical Education Facilities, University of Hawaii, Manoa Campus, Honolulu, Hawaii

TO: Governor, Office of Environmental Quality Control  
550 Halekauwila Street  
Room 301  
Honolulu, Hawaii 96813

1. This headquarters has reviewed the subject EIS and has no comment to render relative to the proposed project.
2. We greatly appreciate your cooperative efforts in keeping the Air Force apprised of your project and thank you for the opportunity to review the EIS.

Environmental Impact Statement for the Proposed  
Physical Education Facilities  
University of Hawaii, Manoa Campus

The Environmental Impact Statement for the proposed Physical Education Facilities University of Hawaii, Manoa Campus has been reviewed, and the Navy has no comments. As requested by your letter of 22 August 1977, the EIS is returned.

Thank you for the opportunity to review the EIS.

Sincerely,

R. P. MYSTEDT  
CAPTAIN, USN  
DISTRICT CIVIL ENGINEER  
BY DELECTION OF THE COMMANDANT

Encl

Cy to: Dept. of Accounting and General Services  
P. O. Box 119  
Honolulu, Hawaii 96810

ROBERT Q. K. CHING  
Chief, Engrg & Constr Div  
Directorate of Civil Engrg

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DIVISION OF PUBLIC WORKS	
INTERNAL CONTROL	
Mr. Tolson	
Mr. DeLoach	
Mr. Mohr	
Mr. Bishop	
Mr. Casper	
Mr. Callahan	
Mr. Conrad	
Mr. Felt	
Mr. Gale	
Mr. Rosen	
Mr. Sullivan	
Mr. Tavel	
Mr. Trotter	
Tele. Room	
Miss Holmes	
Miss Gandy	



DEPARTMENT OF TRANSPORTATION  
UNITED STATES COAST GUARD

COMMANDER (in)  
Fourteenth Coast Guard District  
Prince Kalaonianaʻoli Federal Bldg.  
300 Ala Moana Blvd.  
Honolulu, Hawaii 96850

Phone: 808-546-7510

16475  
15 SEP 1977

Governor, State of Hawaii  
Office of Environmental Quality Control  
Room 301  
550 Maikowala Street  
Honolulu, Hawaii 96813

Dear Sir:

The U. S. Coast Guard has no comment on the Environmental Impact Statement for the University of Hawaii, Manoa Campus Physical Education Facility.

The opportunity to review and comment on this statement is appreciated.

*J. W. Caffrey*  
J. W. CAFFEY  
Chief of Staff

Copy to:  
Dept. of Accounting & General Services  
COMDT (G-KEP-7)

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DACS

DEPARTMENT OF PUBLIC WORKS  
DIVISION OF PUBLIC WORKS

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F. V. Insp. \_\_\_\_\_  
Chief Comm. Br. \_\_\_\_\_  
Planning Br. \_\_\_\_\_  
File \_\_\_\_\_  
Eng. Insp. Br. \_\_\_\_\_  
Comm. Br. \_\_\_\_\_  
Inv. C. \_\_\_\_\_  
Qual. Cont. Engr. \_\_\_\_\_  
Rept. \_\_\_\_\_



DEPARTMENT OF THE ARMY  
HONOLULULU DISTRICT, CORPS OF ENGINEERS  
BLDG 236, FT. SHAFTER  
APO SAN FRANCISCO 96358

RECEIVED

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DIV. OF PUBLIC WORKS  
DACS

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Mr. Hideo Murahami, State Comptroller  
Department of Accounting and General Services  
State of Hawaii  
P. O. Box 119  
Honolulu, Hawaii 96810

DEPARTMENT OF PUBLIC WORKS  
DIVISION OF PUBLIC WORKS

12. \_\_\_\_\_ Approved \_\_\_\_\_  
F. V. Insp. \_\_\_\_\_  
Chief Comm. Br. \_\_\_\_\_  
Planning Br. \_\_\_\_\_  
File \_\_\_\_\_  
Eng. Insp. Br. \_\_\_\_\_  
Comm. Br. \_\_\_\_\_  
Inv. C. \_\_\_\_\_  
Qual. Cont. Engr. \_\_\_\_\_  
Rept. \_\_\_\_\_

Dear Mr. Murahami:

We have reviewed the Environmental Impact Statement (EIS) for the Proposed Physical Education Facilities, University of Hawaii, Manoa Campus as requested in your letter dated 22 August 1977. We have the following comment to offer for your consideration:

The Physical Education facility is currently located in an area of Special Flood Hazard (100-year flood) on the Flood Hazard Boundary Maps of the Federal Insurance Administration (FIA). Relineation of the Special Flood Hazard Area may be revised by the FIA in the future. However, at present, the Federal Insurance Administration guidelines pertain to flood damage prevention measures for a 100-year flood. As such, actuarial rates for buildings with a first floor elevation lower than the 100-year flood elevation would be substantially higher than those where the first floor elevation is above the 100-year flood elevation. The City and County of Honolulu is currently in the interim phase of the Flood Insurance program and based upon the current schedule, floor elevations will be required to be at or above the 100-year flood level. We suggest that floodproofing of the proposed structures be considered at the present time.

Sincerely yours,

*W. J. Matthews*

WM. J. MATTHEWS  
Acting Chief, Engineering Division



R

GEORGE R. ARIYOSHI  
GOVERNOR



STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
DIVISION OF PUBLIC WORKS  
P. O. BOX 118, HONOLULU, HAWAII 96810

HIDEO MURAKAMI  
COMPTROLLER  
MIKE N. TOKUNAGA  
DEPUTY COMPTROLLER

LETTER NO. EM-1041.7

Mr. William J. Matthews  
Acting Chief, Engineering Division  
Honolulu District, Corps of Engineers  
Department of the Army  
Building 230, Fort Shafter  
APO San Francisco 96558

Dear Mr. Matthews:

Subject: Environmental Impact Statement  
Physical Education Facilities  
University of Hawaii at Manoa

Thank you for your letter of September 16, 1977, regarding the Environmental Impact Statement for the proposed Physical Education Facilities, University of Hawaii at Manoa. We have reviewed the information relating to the Special Flood Hazard (100-year flood area) and have discussed this matter with the engineers (M&E Pacific, Inc.) for the Lower Campus Drainage Study. We are enclosing a letter from Mr. James Young, M&E Pacific, Inc., to Herbert Matsumura and Associates, Inc., dated September 26, 1977, which elaborates on the establishment of the flood elevation. The architect has designed the first floor building level to be about 15.5 feet. For this reason, we feel that flood-proofing of the buildings will not be required.

We appreciate your concerns and hope that we have adequately responded to your comments.

Very truly yours,

TEUANE TOMINAGA  
Acting State Public Works Engineer

JN/si  
Encl.  
cc: Environmental Quality Commission  
MAG Architects  
Environmental Communications, Inc.  
Office of Physical Planning & Constr., UI

**M&E Pacific, Inc.**  
Environmental Engineers

September 26, 1977

Herbert Matsumura & Associates, Inc.  
871 Kapiolani Boulevard, Room 2  
Honolulu, Hawaii 96813

ATTENTION: Mr. Herbert Matsumura  
University of Hawaii  
Lower Campus Drainage Study

Storms for a 50-year occurrence interval were used for the design of the Lower Campus drainage facilities. We did not evaluate a 100-year flood in our studies. Based on our 50-year flood, the maximum flood elevation was established at elevation 12 feet from mean sea level.

For your information, the lowest "rim" elevation of the Lower Campus area is elevation 15 as obtained from aerial photo contour maps. It can, therefore, be surmised that no storm waters can rise higher than 15 feet as the waters will overflow at elevation 15 feet and flow "downhill" to the Ala Wai Canal.

We trust that this will substantiate your proposed floor elevation of 15.5 feet as being at or above the 100-year flood level as requested by the Department of the Army, Honolulu District, Corps of Engineers.

  
JAMES S. S. YOUNG  
Vice President

gk





APPENDIX A

AIR QUALITY IMPACT ANALYSIS

University of Hawaii

at Manoa

Physical Education Facilities

Honolulu, Hawaii

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## PROJECT DESCRIPTION

Present physical education facilities of the University of Hawaii at Manoa are deemed to be inadequate for projected needs. The University of Hawaii has therefore requested that the Department of Accounting and General Services (DAGS) undertake the task of designing and constructing new facilities. The first phase of this construction project will consist of approximately 129,484 gross square feet located in the University of Hawaii Makai Campus, Manoa, Honolulu, Oahu, Hawaii, more specifically identified as parcel TMK: 2-8-29:1 (Figure 1). The project will ultimately include at least three phases with building layouts as shown in Figure 2. Existing structures and detailed land use with current roadways are shown in Figure 3. The start of the project and ensuing construction schedule will depend on legislative appropriation of funds.

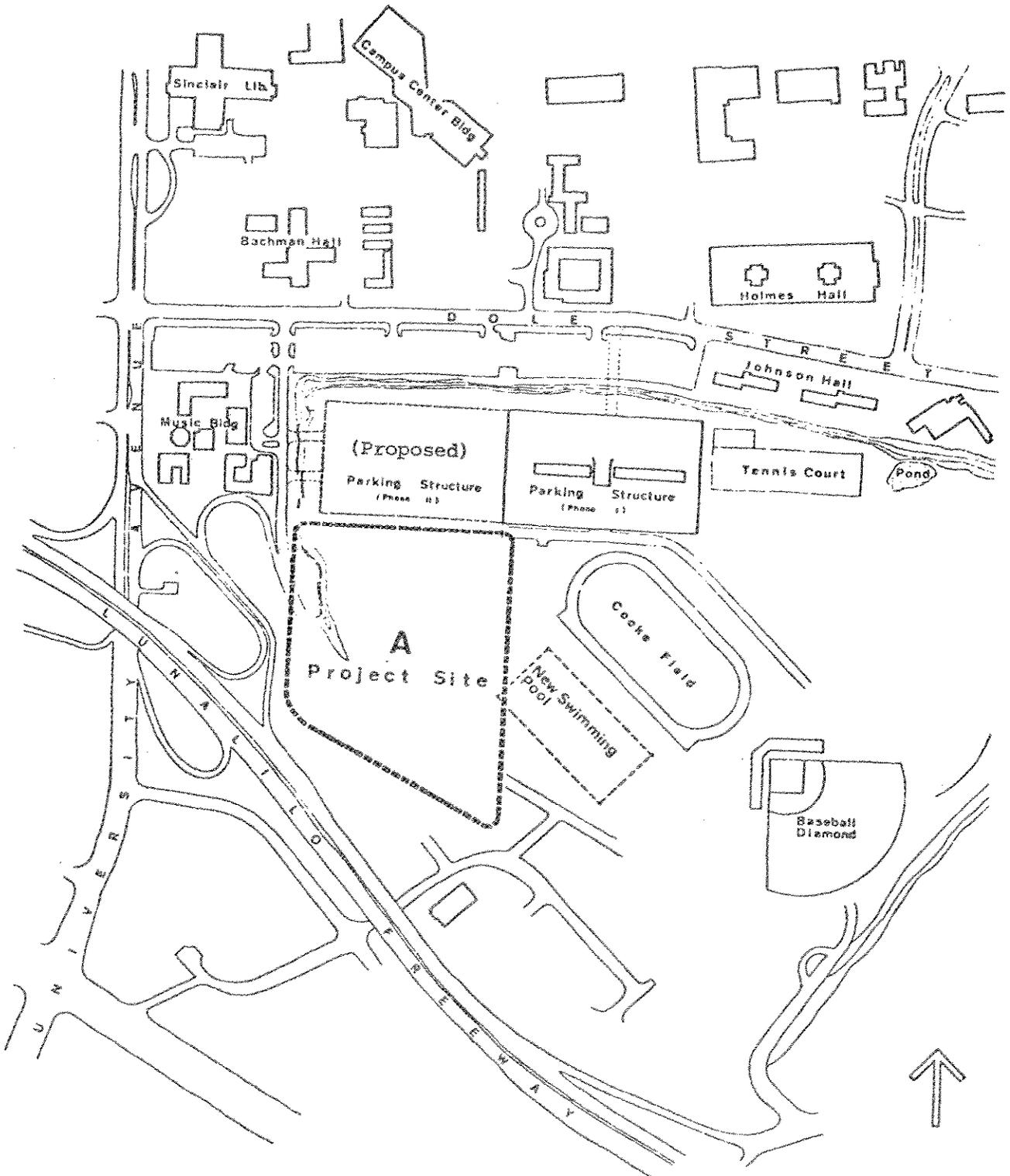
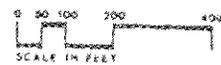


FIGURE 1

LOCATION MAP

TAX MAP KEY : 2 - 8 - 2 9



## AIR QUALITY CONSIDERATIONS

### Point Sources

The proposed new physical education facilities on the Makai Campus of the University of Hawaii at Manoa (UH-Manoa) are not in themselves expected to be direct sources of atmospheric pollutants. Activities associated with the construction of these facilities will cause a certain amount of "fugitive dust". The adverse impact on air quality created by this construction will be both local and temporary. Chapter 43 of the State of Hawaii Department of Health Rules and Regulations stipulates the kinds of control measures that are required to mitigate this impact. Primary control measures include frequent wetting down of loose soil in dust-producing areas with either water or oil, or even fabrication of dust-catching barricades if nearby recipients are being subjected to airborne particulate levels above the State of Hawaii limit of  $100 \mu\text{g}/\text{m}^3$  for any 24-hour period.

Once major construction is completed, however, there will be no point sources of air pollution within the physical education facilities complex. Yet the new facilities will require a certain amount of energy input, mostly in the form of electrical energy. In this respect, the project will serve as an indirect source of air pollutant emissions since an off campus electrical power plant will necessarily have to create some air pollution in the process of providing this electricity. Careful architectural design with scrupulous attention to the energy intensiveness of the proposed structures could result in some reductions in energy consumption per square foot, but the increased building space will no doubt mean increased power consumption for the project as a whole. Thus the power plant in downtown Honolulu, or one elsewhere in the Oahu electrical grid, can be expected to have slightly higher emissions of sulfur dioxide because of

the construction and utilization of these facilities. Fortunately, sulfur dioxide concentrations in the urban Honolulu airshed rarely approach the levels set as ambient air quality standards and this slight increase is not likely to cause any measurable threat to Honolulu's air quality insofar as sulfur dioxide is concerned.

#### Mobile Sources

The new physical education complex can also be considered to be an indirect source of air pollutants because it will attract automobiles and other motor vehicles which are major sources of carbon monoxide, hydrocarbons, and nitrogen oxides. When these pollutants react together in the presence of sunlight, a combination of pollutants called photochemical oxidants is produced.

In evaluating the impact of this project, it is important to note that total student enrollments at UH-Manoa were actually higher in 1972 than they are projected to be by 1982 (see Table 1). Student enrollments through the next decade at least are expected to grow very slowly with rates of increase of no more than 2% per year. It is possible, however, that a somewhat disproportionate share of the increased traffic will be attracted to the area bordering on the physical education complex because a large parking structure is located there. It is also expected that the facilities will be made available for community use which might also serve to increase traffic in the area although this use is likely to be scheduled for times that do not conflict with prime student use. On the other hand, some outdoor spaces now used for student parking will be converted to building space thus tending to decrease traffic demand in those areas. Given these off setting trends and the fact that total student enrollments are increasing at a very small rate, it is reasonable to assume that only slight changes in traffic volume and flow will be caused by the construction of these facilities.

TABLE 1

FALL SEMESTER REGULAR SESSION HEADCOUNT ENROLLMENT  
UNIVERSITY OF HAWAII BY CAMPUS

	ACTUAL <sup>1/</sup>					PROJECTED <sup>2/</sup>						
	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
TOTAL	36,159	38,506	39,470	40,274	41,417*	44,710	46,140	47,890	50,020	52,020	53,840	55,100
Manoa	22,961	22,371	22,272	21,526	21,087	20,680	20,420	20,580	20,890	21,180	21,480	21,790
Undergraduate	16,900	17,403	17,201	16,509	15,872	15,360	15,030	15,140	15,400	15,680	15,890	16,150
Graduate	5,161	4,968	5,071	5,017	5,215	5,320	5,390	5,440	5,490	5,540	5,590	5,640
West Side	--	--	--	--	--	300	400	500	950	1,400	1,750	2,100
UH at Hilo	2,255	2,594	2,760	2,954	3,181	3,680	4,000	4,350	4,680	5,080	5,280	5,600
Hilo College **	1,297	1,446	1,499	1,576	1,712	1,880	2,070	2,300	2,520	2,790	3,000	3,130
Hawaii CC	968	1,148	1,261	1,378	1,668	1,890	1,930	2,050	2,160	2,290	2,380	2,470
Community College System	11,833	13,541	14,438	15,794	18,949	20,050	21,320	22,460	23,500	24,350	25,230	25,610
Oahu	10,029	11,295	12,263	13,551	16,214	17,080	18,170	19,120	19,970	20,650	21,380	21,620
Honolulu CC	2,161	2,523	2,731	3,266	3,982	4,300	4,640	4,940	5,270	5,370	5,880	6,020
Kapiolani CC	2,746	3,001	3,476	3,597	4,307	4,500	4,700	4,890	5,140	5,370	5,560	5,650
Leeward CC	5,122	5,236	5,237	5,678	6,790	6,990	7,430	7,790	7,950	7,990	8,090	7,990
Windward CC	--	535	819	1,010	1,135	1,290	1,400	1,500	1,610	1,720	1,850	1,960
MauI CC	1,081	1,311	1,241	1,278	1,554	1,680	1,790	1,890	2,000	2,110	2,200	2,270
Kauai CC	723	935	934	965	1,181	1,290	1,360	1,450	1,530	1,590	1,650	1,720

\* Excludes concurrent students at Manoa (173), Hilo (374)

<sup>1/</sup>Student Information System Reports.

<sup>2/</sup>Analytical Studies Office, April 1976.

\*\*Includes College of Agriculture enrollment.

Source: Enrollment Projections, 1976-1982  
Prepared by Analytical Studies Office, April, 1976.

## CARBON MONOXIDE IMPACT ANALYSIS

Of the major ambient air pollutants produced by motor vehicles, carbon monoxide (CO) is the most abundant and the most stable. The other automobile-generated pollutants react with each other in such a way that it is extremely difficult to predict ambient air concentrations of any one of them using currently available atmospheric diffusion models. For carbon monoxide, however, a relatively straightforward technique for estimating ambient air concentrations based on traffic data alone is presented in a publication by the U.S. Environmental Protection Agency titled Guidelines for Air Quality Maintenance Planning and Analysis, Vol. 9: Evaluating Indirect Sources. There are several assumptions inherent in the estimation procedure:

1. Motor vehicle emission rates are based on a 1975 vehicle mix containing 88% automobiles, with 20% of all vehicles operating under "cold start" conditions at low altitude with outside air temperatures between 68 and 86 degrees F.
2. A worst case wind direction and low wind speed (1 m/sec) with atmospheric stability category D are assumed for diffusion calculations. From an air quality standpoint, these are the least favorable meteorological conditions that are likely to occur in the day time in an urbanized area such as Honolulu.
3. Final CO concentrations are estimated using a set of graphs. The degree of accuracy in interpreting these graphs limits precision of the reported results to about  $\pm 0.5$  mg/m<sup>3</sup>.

In analyzing the potential carbon monoxide impact of vehicular traffic, it is important to consider the worst case traffic situation that is likely to occur. Traffic counts for the UH-Manoa Makai Campus area indicate that peak

hour morning rush (0800 - 0900) is likely to be the time of greatest traffic volume.

Two receptor sites were selected for analysis: Site 1 at the intersection of Dole Street and Lower Campus Road and Site 2 within the Makai Campus Project Area (see Figure 4). Most of the traffic entering the Makai Campus Area enters via the Lower Campus Road. During the 0800 to 0900 morning rush hour period about 600 cars enter the Makai campus via this route while about 100 leave. On the four lanes of Dole Street there are about 500 cars traveling westbound and about 1350 eastbound. Traffic at the intersection is regulated by a stop sign on Lower Campus Road.

Assuming a consistent background CO concentration of  $2 \text{ mg/m}^3$ , and using a CO emission reduction factor of 0.8 times 1975 values, the 1977 CO concentration at Site 1 (10 meters from the intersection) was estimated to be about  $18 \text{ mg/m}^3$  under worst case conditions (Table 2). This figure also assumes a capacity of 1000 vehicles per hour per lane for both streets at level of service E. If, by 1990, traffic on Dole Street increases to this capacity level (a 48% increase) and traffic on the Lower Campus Road increases proportionately the estimated CO concentration is still expected to decrease because by then CO emissions from motor vehicles are expected to be controlled to about 0.18 times 1975 values. The 1990 CO value of  $8.2 \text{ mg/m}^3$  at Site 1 also includes a  $2 \text{ mg/m}^3$  background value. Thus although CO concentrations at this site are likely to be in excess of the State of Hawaii one-hour standard of  $10 \text{ mg/m}^3$  under worst case conditions in 1977, by 1990 this should no longer be the case.

For Site 2, in the middle of the proposed project, the major source of CO other than individual automobiles operating in the immediate area, will be traffic on the H-1 Freeway. For 1975 average daily traffic on the Freeway was 42,358 east bound and 45,423 westbound. Capacity of this 6 lane divided highway

Table 2

MORNING PEAK HOUR CARBON MONOXIDE CONCENTRATIONS (mg/m<sup>3</sup>)

UNDER WORST CASE CONDITIONS AT SELECTED RECEPTOR SITES<sup>a</sup>

<u>Site</u>	<u>1977</u>	<u>1990</u>	<u>State of Hawaii 1-Hr. Standard</u>	<u>Federal 1-Hr. Standard</u>
1	17.9	8.2	10	40
2	10.6	5.5	10	40

should be 2000 vehicles per hour per lane at level of service E. Assuming that traffic volume is increasing at the rate of 1.5% per year from then until 1977 and that peak hour volume is 10% of average daily values then the contribution of freeway emissions to CO concentrations in the project area under worst case conditions in 1977 would be estimated to be 8.6 mg/m<sup>3</sup>. Assuming a 2 mg/m<sup>3</sup> background value gives a current CO concentration in the project area of 10.6 mg/m<sup>3</sup> -- slightly higher than the State one hour standard. Assuming that by 1990 the Freeway is filled to capacity (6000 vehicles in each direction), expected reductions in CO emissions would result in reducing the Freeway contribution to only 3.5 mg/m<sup>3</sup>, or the total to 5.5 mg/m<sup>3</sup>, if the 2 mg/m<sup>3</sup> background value is included.

Since November, 1976, the State of Hawaii Department of Health (DOH) has been collecting periodic air samples at a monitoring station near the University Avenue Freeway underpass. This location is designated Site 3 in Figure 4 and is located on the opposite side of the Freeway from the project area. Available results from the DOH Sampling site are presented in Table 3. The maximum value measured was 16.2 mg/m<sup>3</sup> for the 0800 to the 0900 period. This value agrees very well with the worst case concentrations predicted for nearby sites 1 and 2 using the EPA estimation technique. The sampling data also shows that values of this magnitude are relatively infrequent (the average of 25 samples was only 4.6 mg/m<sup>3</sup>) indicating that the worst case conditions, leading to these concentrations are reasonably rare.

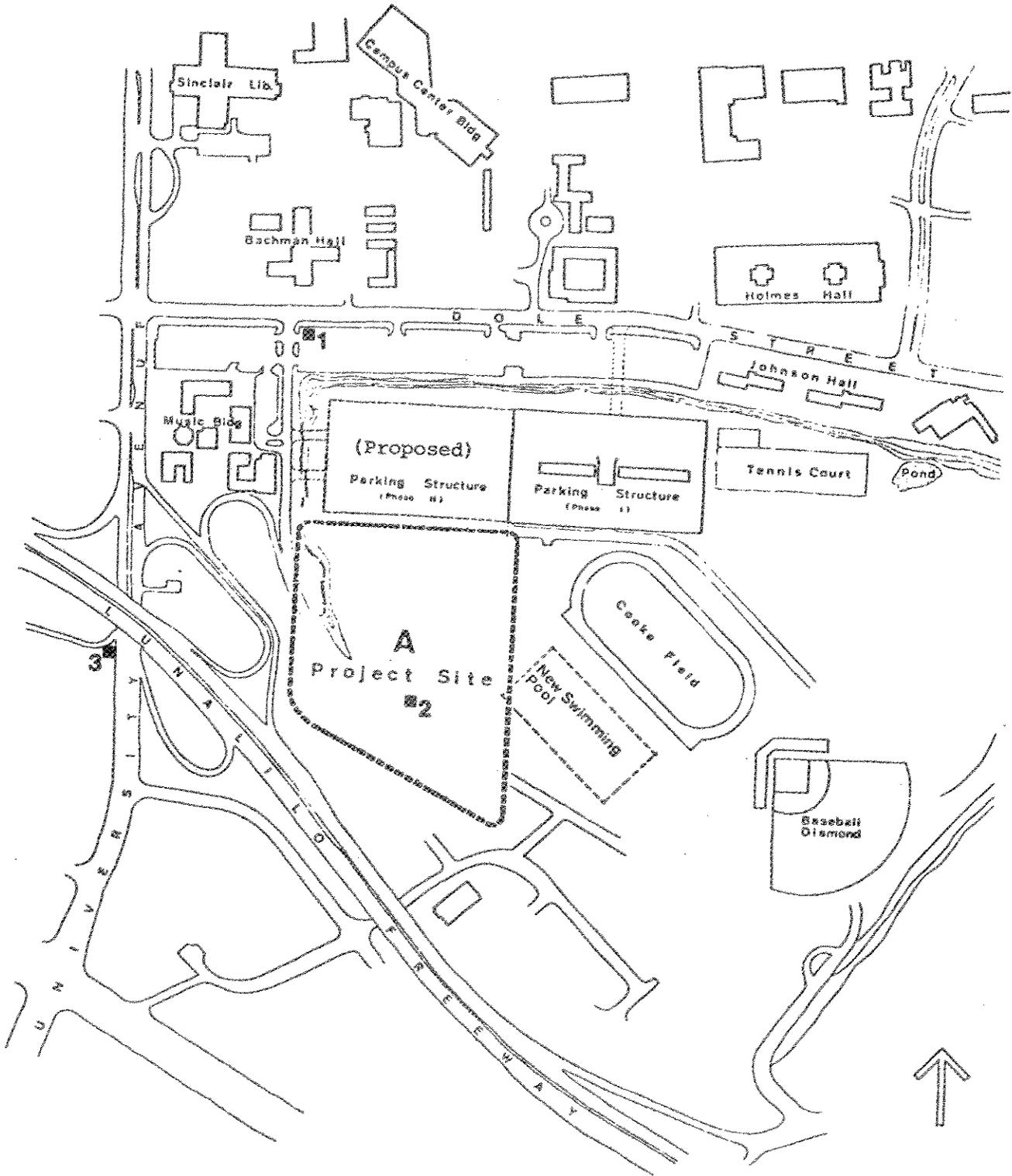


Figure 4

RECEPTOR SITES  
 TAX MAP KEY : 2 - 8 - 2 9



Table 3

MEASUREMENTS OF CARBON MONOXIDE ( $\text{mg}/\text{m}^3$ ) -  
0800 TO 0900 AT UNIVERSITY AVENUE MONITORING STATION<sup>a</sup>

<u>Date (1976)</u>	<u>CO</u>	<u>Date (1977)</u>	<u>CO</u>
11-1	5.4	1-4 <sup>b</sup>	4.6
11-5 <sup>b</sup>	4.3	1-8	4.9
11-9	2.6	1-28	16.2
11-13	1.3	2-16	10.5
11-17	2.1	2-5	3.4
11-21	.7	2-9	9.0
11-25	1.5	2-13	2.1
11-29 <sup>b</sup>	7.0	2-17	8.9
12-3	8.5	2-21 <sup>b</sup>	3.9
12-7	2.1	2-25	4.0
12-11	1.4	3-1 <sup>b</sup>	3.2
12-15	3.6		
12-19	3.1	Range: 0.7 to 16.2 $\text{mg}/\text{m}^3$	
12-27	1.2	Avg: 4.6 $\text{mg}/\text{m}^3$ (25 measurements)	

<sup>a</sup> Site 3, see Figure 4.

<sup>b</sup> No data for 0800 - 0900, preceding or following hour was used based on which value was highest.

Source: State of Hawaii Department of Health, March 1977.

## SUMMARY AND CONCLUSIONS

The project under consideration here involves construction of new physical education facilities on the Makai Campus of the University of Hawaii at Manoa. Except for "fugitive dust" generated for a short time in the immediate area during actual construction, no direct point source emissions of air pollutants are expected from the site once the project has been completed. The project could cause an indirect increase in sulfur dioxide emission from off-site oil-fired power plants supplying electrical energy to the complex. This increase is not expected to be significant.

Student enrollment at UH-Manoa is growing very slowly and this project is not likely to cause any significant increases in vehicular traffic. Carbon monoxide concentrations at sites in or near the project area presently exceed permissible State of Hawaii limits under worst case conditions, but by 1990 these levels are expected to be reduced significantly by the imposition of stringent Federal automobile-emission controls even if traffic on adjacent roadways increases to roadway capacities.

REFERENCE

U.S. Environmental Protection Agency, Guidelines for Air Quality Maintenance Planning and Analysis Volume 9: Evaluating Indirect Sources, January, 1975.

APPENDIX B

ENVIRONMENTAL PROTECTION MEASURES

DIVISION 1 - GENERAL

SECTION 1G - ENVIRONMENTAL PROTECTION

The Contractor shall comply with the following requirements for pollution control in performing all construction activities:

1. RUBBISH DISPOSAL

- A. No burning of debris and/or waste materials shall be permitted on the project site.
- B. No burying of debris and/or waste material except for materials which are specifically indicated elsewhere in these specifications as suitable for backfill shall be permitted on the project site.
- C. All unusable debris and waste materials shall be hauled away to an appropriate off-site dump area. During loading operations, debris and waste materials shall be watered down to allay dust.
- D. No dry sweeping shall be permitted in cleaning rubbish and fines which can become airborne from floors or other paved areas. Vacuuming, wet mopping or wet or damp sweeping is permissible.
- E. Enclosed chutes and/or containers shall be used for conveying debris from above to ground floor level.
- F. Cleanup shall include the collection of all waste paper and wrapping materials, cans, bottles, construction waste materials and other objectionable materials, and removal as required. Frequency of cleanup shall coincide with rubbish producing events.

2. DUST

- A. Dust shall be kept within acceptable levels at all times including non-working hours, weekends and holidays in conformance with Chapter 43 - Air Pollution Control, as amended, of the State Department of Health Public Health Regulations.
- B. The method of dust control and all costs incurred therefor shall be the responsibility of the Contractor.
- C. The Contractor shall be responsible for all damage claims in accordance with Section 7.16 - "Responsibility for Damage Claims", of the General Conditions.

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### 3. NOISE

- A. Noise shall be kept within acceptable levels at all times in conformance with Chapter 44B - Community Noise Control for Oahu, State Department of Health, Public Health Regulations. The Contractor shall obtain and pay for community noise permit from the State Department of Health when the construction equipment or other devices emit noise at levels exceeding the allowable limits.
- B. All internal combustion engine-powered equipment shall have mufflers to minimize noise and shall be properly maintained to reduce noise to acceptable levels.
- C. No blasting and use of explosives will be permitted without prior approval of the Engineer.
- D. Pile driving operations shall be confined to the period between 8:00 a.m. and 5:30 p.m., Monday through Friday. Pile driving will not be permitted on weekends and legal State and Federal holidays.

In the event the Contractor's operations require the State's inspectional and engineering personnel to work overtime, the Contractor shall reimburse the State for the cost of such services in accordance with Section 7.9 of the General Conditions.

- E. Starting up of on-site vehicular equipment meeting allowable noise limits shall not be done prior to 6:45 a.m. without prior approval of the Engineer. Equipment exceeding allowable noise limits shall not be started up prior to 7:00 a.m.

### 4. EROSION

During interim grading operations the grade shall be maintained so as to preclude any damages to adjoining property from water and eroding soil. Temporary berms, cut-off ditches, and other provisions which may be required because of the Contractor's method of operation shall be installed at no cost to the State. Drainage outlets and silting basins shall be constructed and maintained as shown on the plans to minimize erosion and pollution of waterways during construction.

### 5. OTHERS

- A. Wherever trucks and/or vehicles leave the site and enter surrounding paved streets, the Contractor shall prevent any material from being carried onto the pavement. Waste water shall not be discharged into existing streams, waterways, or drainage systems such as gutters and catch basins unless treated to comply with Department of Health water pollution regulations.
- B. Trucks hauling debris shall be covered as required by PUC Regulation. Trucks hauling fine materials shall be covered.

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- C. No dumping of waste concrete will be permitted at the job site unless otherwise permitted in the Special Provisions.
- D. Except for rinsing of the hopper and delivery chute, and for wheel washing where required, concrete trucks shall not be cleaned on the job site.
- E. Except in an emergency, such as a mechanical breakdown, all vehicle fueling and maintenance shall be done in a designated area. A temporary berm shall be constructed around the area when runoff can cause problems.
- F. When spray painting is allowed under Section 9A - Painting, such spray painting shall be done by the 'airless spray' process. Other types of spray painting will not be allowed.

6. SUSPENSION OF WORK

Violation of any of the above requirements or any other pollution control requirements which may be specified in the Technical Specifications herein shall be cause for suspension of the work creating such violation. No additional compensation shall be due the Contractor for remedial measures to correct the offense. Also, no extension of time will be granted for delays caused by such suspensions.

If no corrective action is taken by the Contractor within 72 hours after a suspension is ordered by the Engineer, the State reserves the right to take whatever action is necessary to correct the situation and to deduct all costs incurred by the State in taking such action from monies due the Contractor.

The Engineer may also suspend any operations which he feels are creating pollution problems although they may not be in violation of the above mentioned requirements. In this instance, the work shall be done by force account as described in Subsection 4.2a "ADDITIONAL WORK" of the General Conditions and paid for in accordance with Subsection 8.4b "FORCE ACCOUNT WORK" therein. The count of elapsed working days to be charged against the contract in this situation shall be computed in accordance with Subsection 7.18 "CONTRACT TIME" of the General Conditions.

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