

JOHN WAIHEE  
GOVERNOR



RUSSEL S. NAGATA  
COMPTROLLER  
ROBERT P. TAKUSHI  
DEPUTY COMPTROLLER

STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
DIVISION OF PUBLIC WORKS

LETTER NO. PM-1037.2

P. O. BOX 119, HONOLULU, HAWAII 96810

FEB 4 1992

RECEIVED

'92 FEB -7 P1:22

OFFICE OF ENVIRONMENTAL  
QUALITY CONTROL

Mr. Brian J. J. Choy  
Director  
Office of Environmental  
Quality Control  
220 South King Street, 4th Floor  
Honolulu, Hawaii 96813

Dear Mr. Choy:

Subject: Negative Declaration  
Special Events Arena and  
Athletic Support Facilities  
University of Hawaii at Manoa  
D.A.G.S. Job No. 12-31-5000

Pursuant to Chapter 343, HRS, and Title 11, DOH Administrative Rules, Chapter 200, we have reviewed the Environmental Assessment for the Special Events Arena and Athletic Support Facilities, University of Hawaii at Manoa, and have determined that this project will have no significant impact and, therefore, request publication of a negative declaration notice.

Form 91-1, Document for Publication in the OEQC Bulletin, is enclosed for your use.

Very truly yours,

  
TEUANE TOMINAGA  
State Public Works Engineer

MM/si  
Encl.

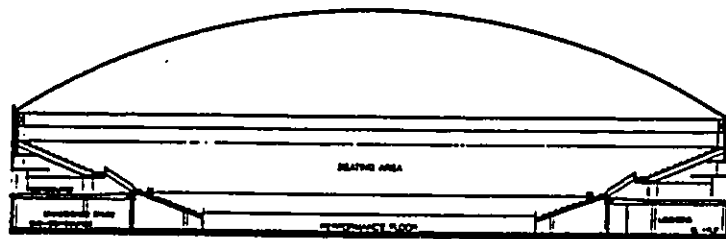
1992-02-23-DA- FEA- UH Special Events Arena

**FILE COPY**

**SPECIAL EVENTS ARENA,  
PHASE IIA PARKING STRUCTURE  
AND APPURTENANT FACILITIES  
ENVIRONMENTAL ASSESSMENT**

January 1992

**UNIVERSITY OF HAWAII  
SPECIAL EVENTS ARENA,  
PHASE 2A PARKING STRUCTURE  
AND APPURTENANT FACILITIES  
ENVIRONMENTAL ASSESSMENT**



January 1992



Group 70 Limited • Architects • Planners • Interior Designers • 924 Belbel Street • Honolulu, HI 96813 • Phone (808) 523-5866 • FAX (808) 523-5874

**SPECIAL EVENTS ARENA AND PHASE IIA PARKING FACILITY  
ENVIRONMENTAL ASSESSMENT**

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**EXHIBITS**

**EXHIBIT**

- A Long-Range Development Plan for the Site
- B Preliminary Design Concept
- C Roadway Improvements
- D University CIP Program
- E Commuter Program
- F Traffic Improvement Supplemental Reports

**SPECIAL EVENTS ARENA,  
PHASE IIA PARKING STRUCTURE  
AND APPURTENANT FACILITIES  
ENVIRONMENTAL ASSESSMENT**

**I INTRODUCTION**

The University of Hawaii's Long Range Development Plan (UHLRDP) approved by the Board of Regents in 1987 had projected a 4000 seat indoor arena in the complex of facilities related to the Physical Education Phase II project. A re-evaluation of the needs of the basketball program and the possible benefits of a larger facility led to a November 1989 study of alternative facility sizes and locations for a larger indoor arena. The proposed project is the result of discussions and decisions reached after extensive studies by the University of Hawaii, Group 70 International and a team of consultants: Austin Tsutsumi and Associates, Gray, Hong, Bills and Associates, Y. Ebisu & Associates, Root & Neal, Community Resources, Inc., and Dames & Moore. To incorporate this change a UHLRDP amendment was approved by the University's Board of Regents in September 1991. The major difference between the earlier LRDP plans and the current proposal is the arena's capacity. The earlier concept called for a 4,000 seat facility to accommodate physical education programs while the current plan calls for a 10,000 seat facility for special events and multiple uses.

The Phase IIA parking structure is also being planned concurrently with the development of the arena. Although the Parking Structure IIA is a project in itself, this assessment will review both and discuss the impact and relationship of each facility to the other. Each facility addresses different issues and concerns but they overlap on certain functions such as parking, circulation and phasing of development.

This assessment will briefly review the City's plans for a rapid transit line and station interfacing with the proposed Arena and the University in general.

The facilities described in this assessment are all located in the vicinity of the Makai Campus of the University of Hawaii at Manoa; also known as the "Quarry". (Figure 1)



The "Quarry" houses the offices and facilities of the University's Athletic Departments, the Health Physical Education and Recreation (HPER) programs, Reserve Officers Training Corps (ROTC) and various miscellaneous offices, student dormitories and private apartments around Varsity Circle. The facilities under consideration in this environmental assessment are located in Tax Map Key 2-8-29-1. (Figure 2)

## II. IDENTIFICATION OF PARTIES INVOLVED

### A. Applicant

The Applicant is the Department of Accounting and General Services

### B. Agencies and Parties Consulted

University of Hawaii Facilities Planning and Management Office

State of Hawaii, Office of Environmental Quality Control

State of Hawaii, Department of Transportation

City and County of Honolulu, Department of Land Utilization

City and County of Honolulu, Department of Public Works

City and County of Honolulu, Board of Water Supply

City and County of Honolulu, Department of Transportation Services

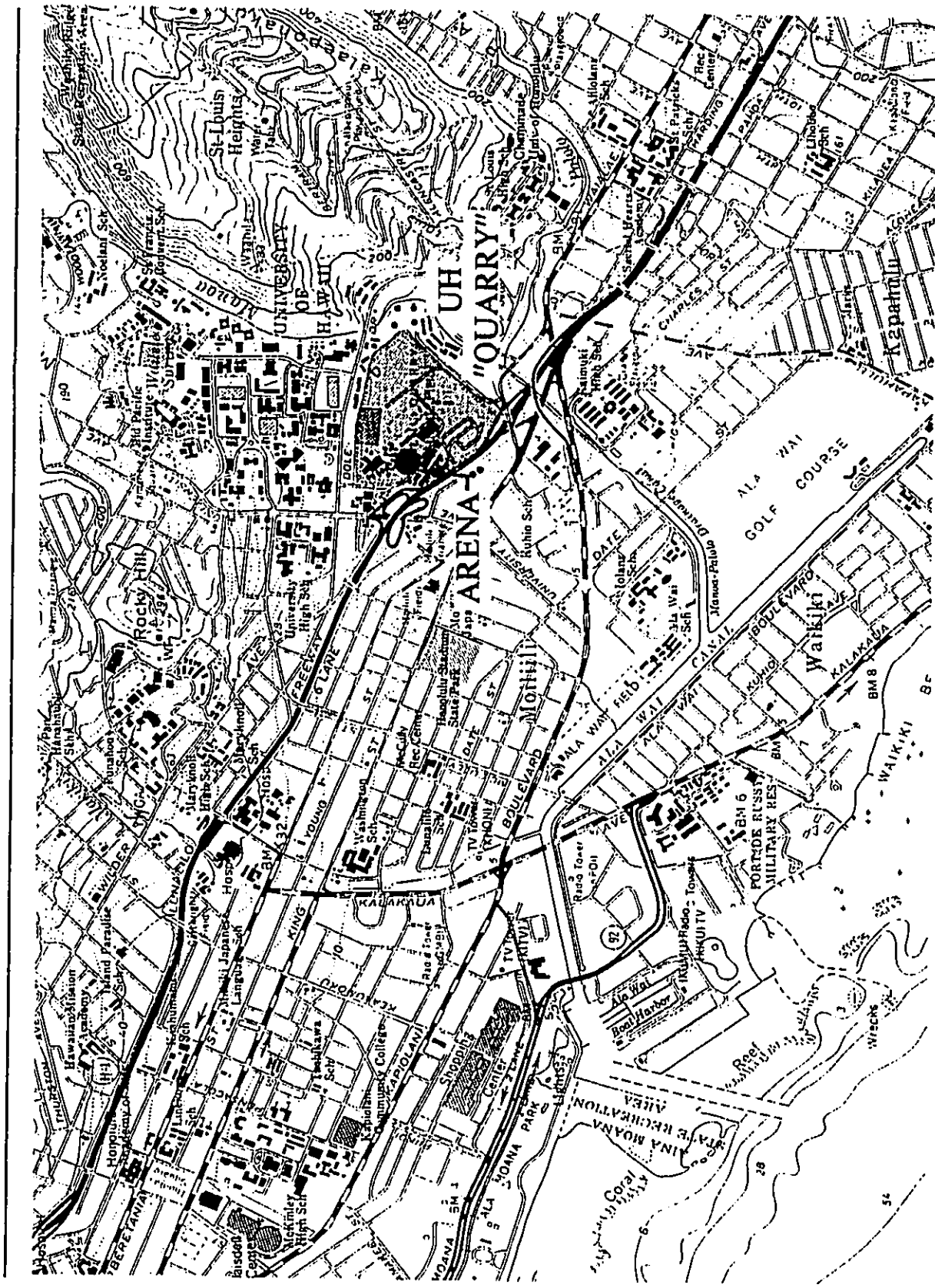
City and County of Honolulu, Oahu Rapid Transit

## III. OBJECTIVES

### A. Special Events Arena

The purpose of the proposed action is to develop a 10,000 seat multi-use indoor arena large enough to house the HPER Program's facilities and events such as Men's basketball and volleyball, Women's basketball and volleyball, commencement exercises, banquets, and musical performances.

The project will replace the existing 2,000 seat Klum Gym which is old and dilapidated. Present uses at Klum Gym include men and women's volleyball, women's basketball games and intramurals. Klum Gym is too small for activities such as men's basketball



SOURCE: USGS, 1983

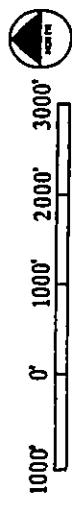
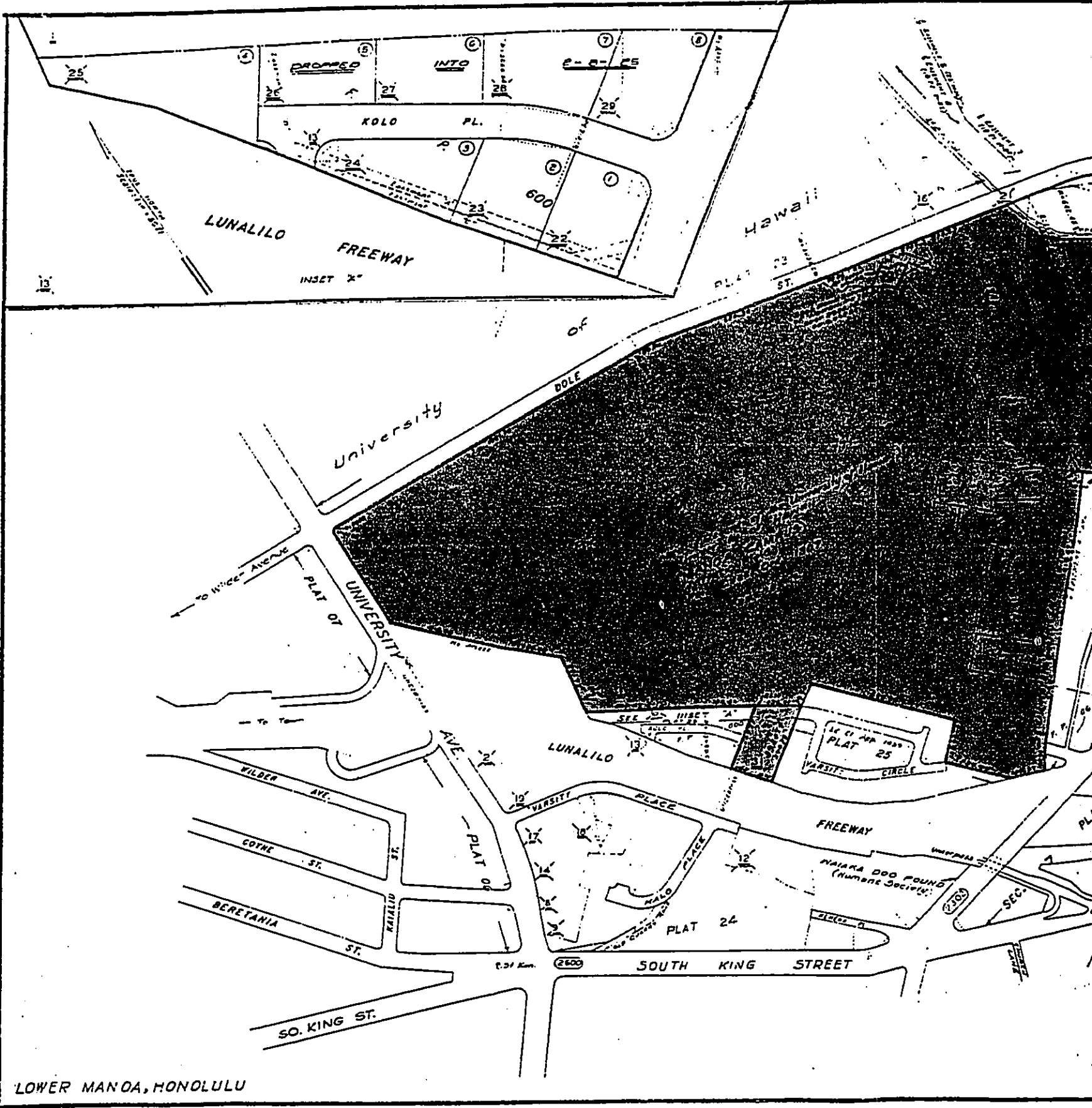


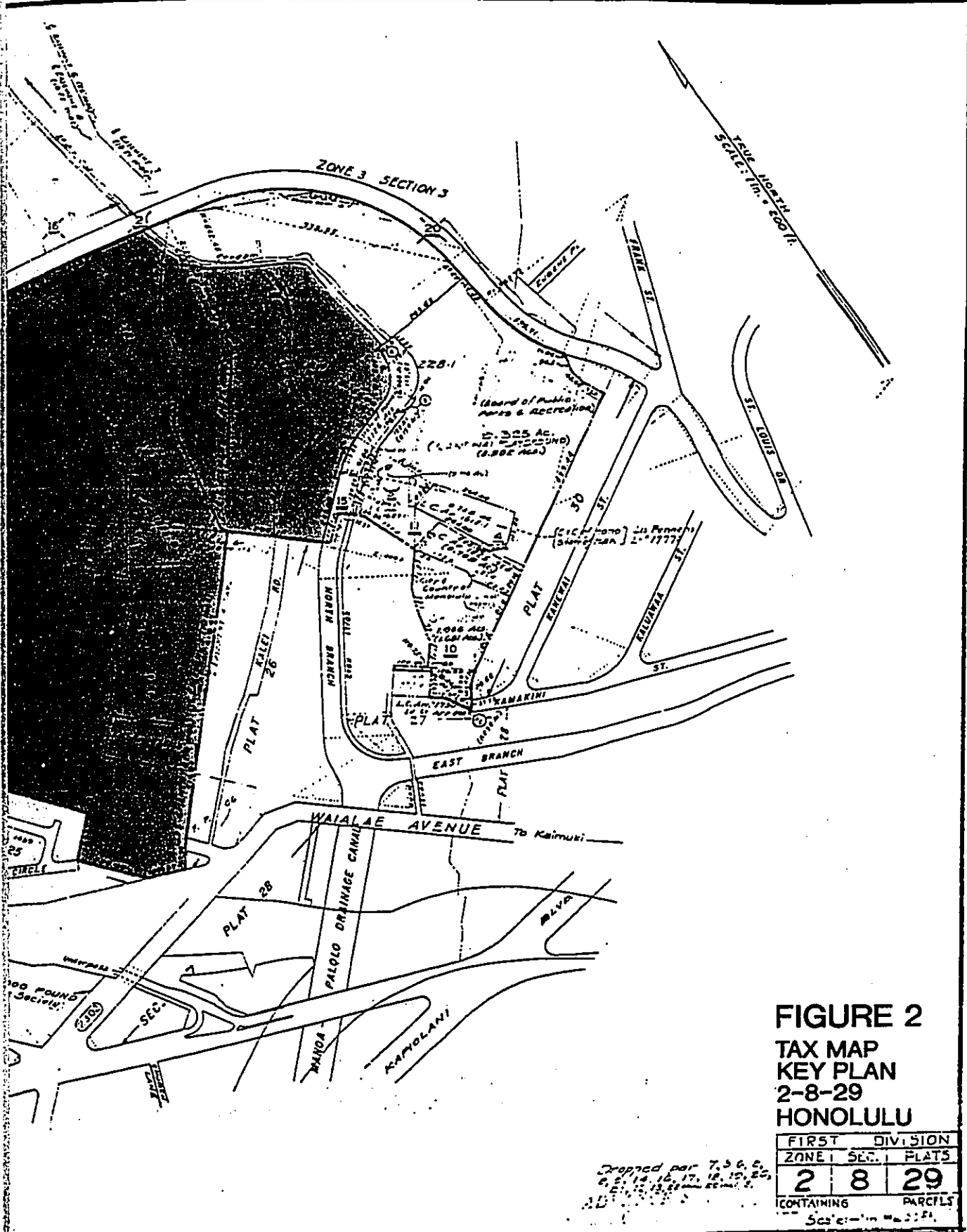
FIGURE 1

Location Map  
SPECIAL EVENTS ARENA



Div. No. 1013  
 By: J.A.N. - November 2, 1932  
 Sources: Tax Maps Bureau.  
 Bishop Estate

LOWER MANDA, HONOLULU



games and commencements. Currently these and similar activities are generally held at the Neal Blaisdell Center Arena, Orvis Auditorium or the Baseball Stadium. However, scheduling problems at the Blaisdell Center, the exposure to the elements at the Baseball Stadium and the smallness of Orvis Auditorium make these alternatives less than ideal. Accommodating programs and functions in facilities that are inadequately sized or inappropriately designed creates logistical problems, increases inefficiency and results in an unwanted waste of time and resources.

The proposed special events arena will provide an indoor arena large enough to accommodate these activities in all weather conditions, increase the chances of post season play, provide new facilities for UH programs and replaces existing inadequate facilities.

B. Phase IIA Parking Facility

Parking is in short supply at the Manoa campus and the surrounding neighborhoods. The 900 stall Phase IIA Parking structure is planned to relieve some of this overall shortage. Parking will be available for special events as well as regular daytime use. The main benefit will be increased capacity for existing daytime users of the Manoa campus. Even without the arena the University currently experiences a major daytime parking shortfall. With regard to the arena, as long as major events are not held simultaneously in the quarry, the current inventory of 2,611 stalls in the area considered the makai campus is sufficient to meet the City's Land Use Ordinance (LUO) requirements of one stall per five seats. The Makai campus includes the land within the quarry itself and the area on the perimeter of the quarry makai of Dole Street. The 900 stall phase IIA parking facility is part of the larger overall phase II structure (1800 stalls) which will ultimately be built in the quarry.

Design and phasing of the parking structure will be coordinated with the development schedule of the special events arena and the relocation of existing facilities and programs in the area around Klum Gym.

The demolition of Klum Gym will be deferred till the new arena is completed. The programs and events currently held at Klum will then have a place to relocate to and the Gym can be demolished.

#### IV. PROPOSED ACTION

##### A. Special Events Arena

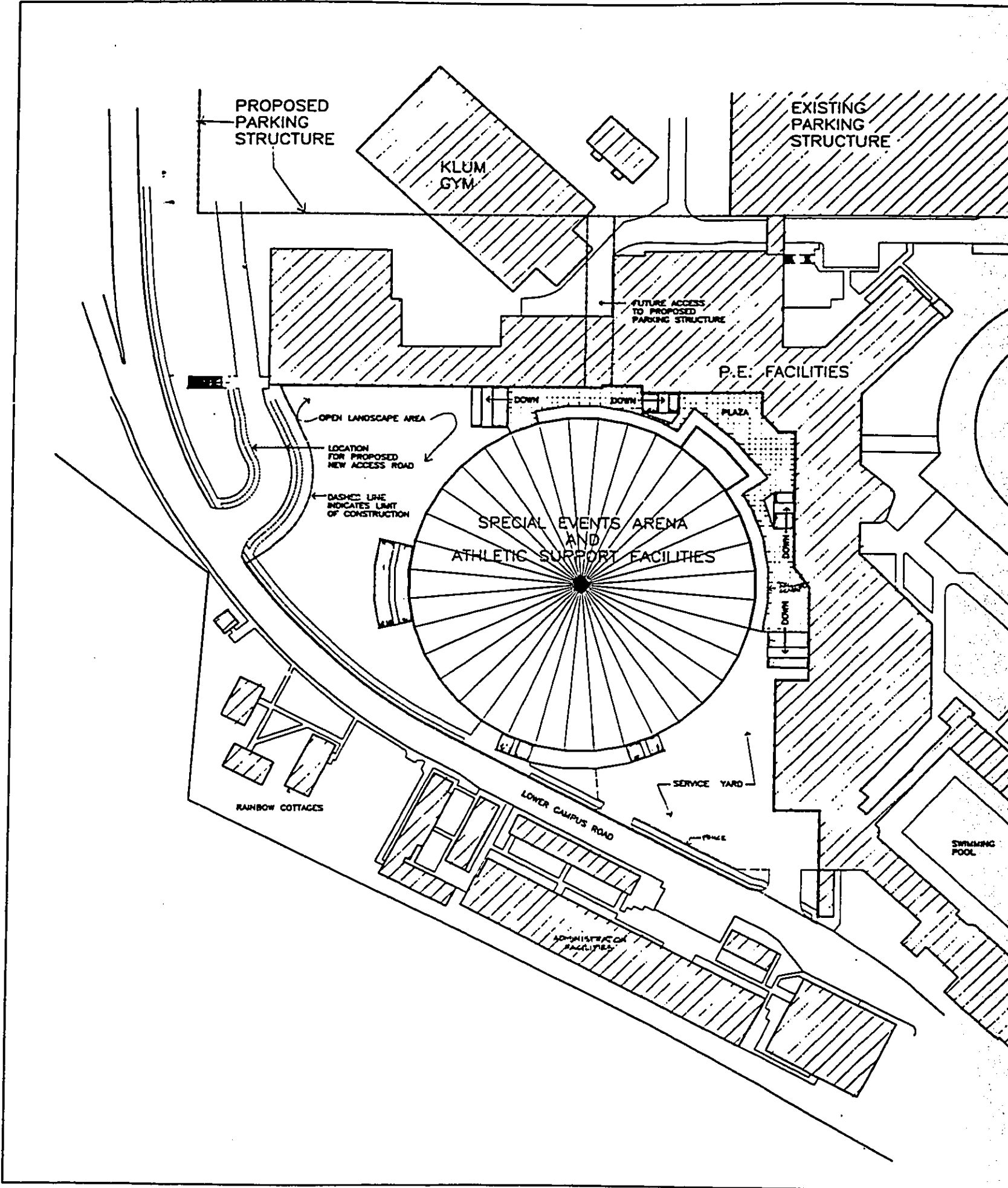
This facility is projected to be a 10,000 seat indoor arena designed to accommodate the basketball program, HPER programs and offices, commencements, musical concerts and other similar activities. Located on a site previously designated for a 4,000 seat arena for HPER programs and activities the present project will accommodate those programs as well as the larger athletic and commencement programs and activities.

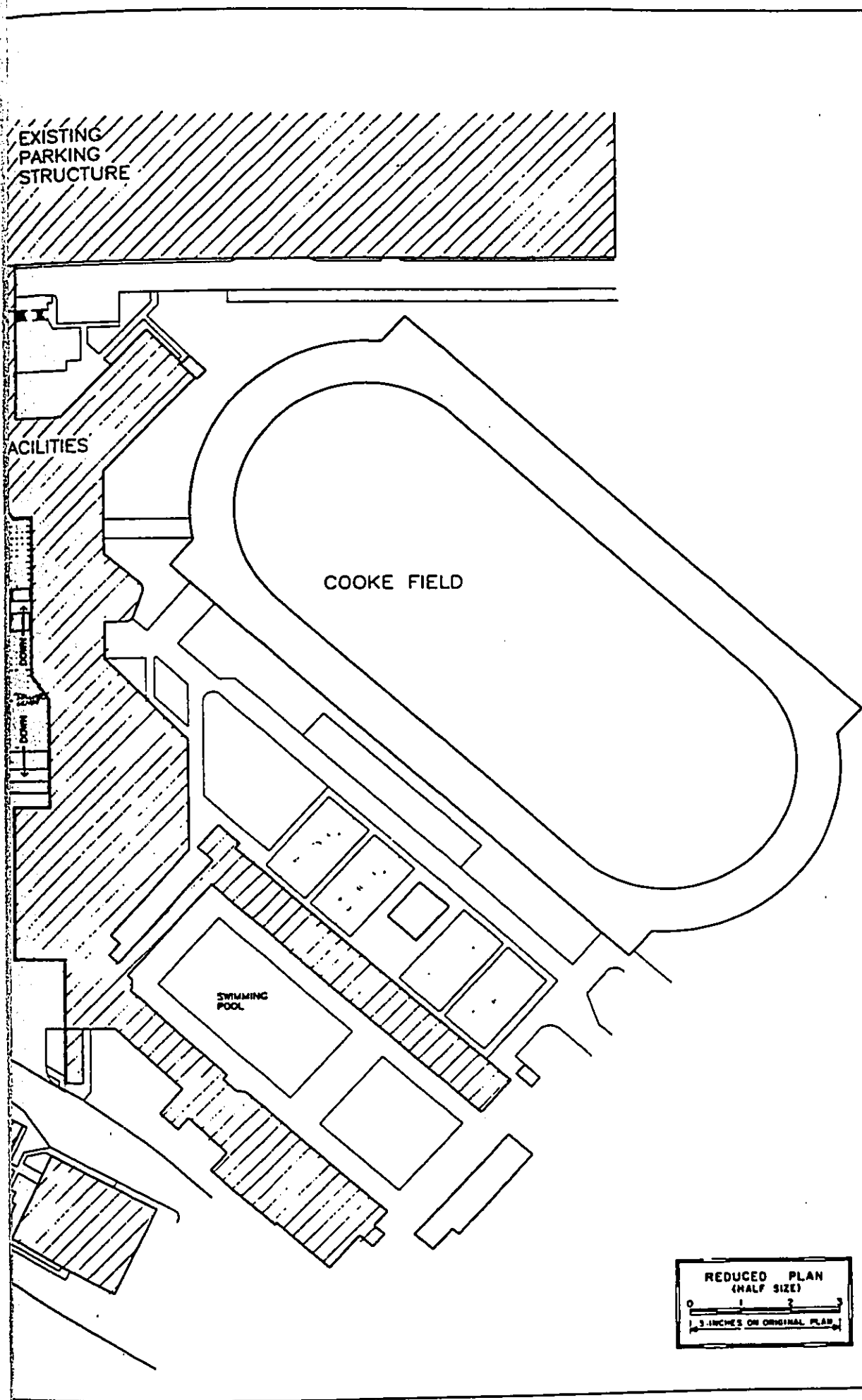
The Arena will be integrated with the surrounding facilities. It will be designed to tie into the Mauka Makai mall as described in the LRDP that will traverse the campus. A Physical Education (PE) Plaza is planned for a location connecting the arena to the Mauka Makai Mall. Along with the PE Plaza, the arena will complement the HPER facilities that are part of the complex around the site. Figure 3 shows the proposed site plan for the arena. Because the project will be pursued on a design build basis, the specific profile of the facility has not yet been defined. Figure 4 shows a possible conceptual configuration of the arena. The LRDP provides the following general design guidelines for the development of the Makai campus.

"In summary, the primary design objectives for the Makai Campus and its facilities are:

- a. To continue the area's athletic emphasis.
- b. To integrate student and spectator needs.
- c. To view the Makai Campus as a landscaped area within which facilities are situated, rather than as a cluster of compounds separated by landscaping.
- d. To create visibly active rather than passive environment.
- e. To minimize as much as possible, conflicts between vehicles and pedestrians."

The normal hours of operation for the Arena are projected to be as follows:





**GROUP 70**  
 ARCHITECTS  
 PLANNERS  
 INTERIOR DESIGNERS

924 Bethel Street  
 Honolulu, Hawaii 96813  
 Phone (808) 523-5866  
 Fax (808) 523-5874

CA Architects, Inc.

**FIGURE 3**  
**SPECIAL EVENTS**  
**ARENA SITE PLAN**

PROJECT TITLE  
**SPECIAL EVENTS**  
**ARENA &**  
**ATHLETICS**  
**SUPPORT**  
**FACILITY**

UNIVERSITY OF HAWAII AT MANOA

DACS JOB NO. 12-31-0000

DRAWING TITLE  
**SITE PLAN**

SCALE 1"=40'-0"

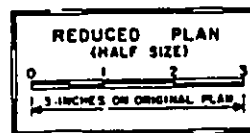
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PROJECT NO.  
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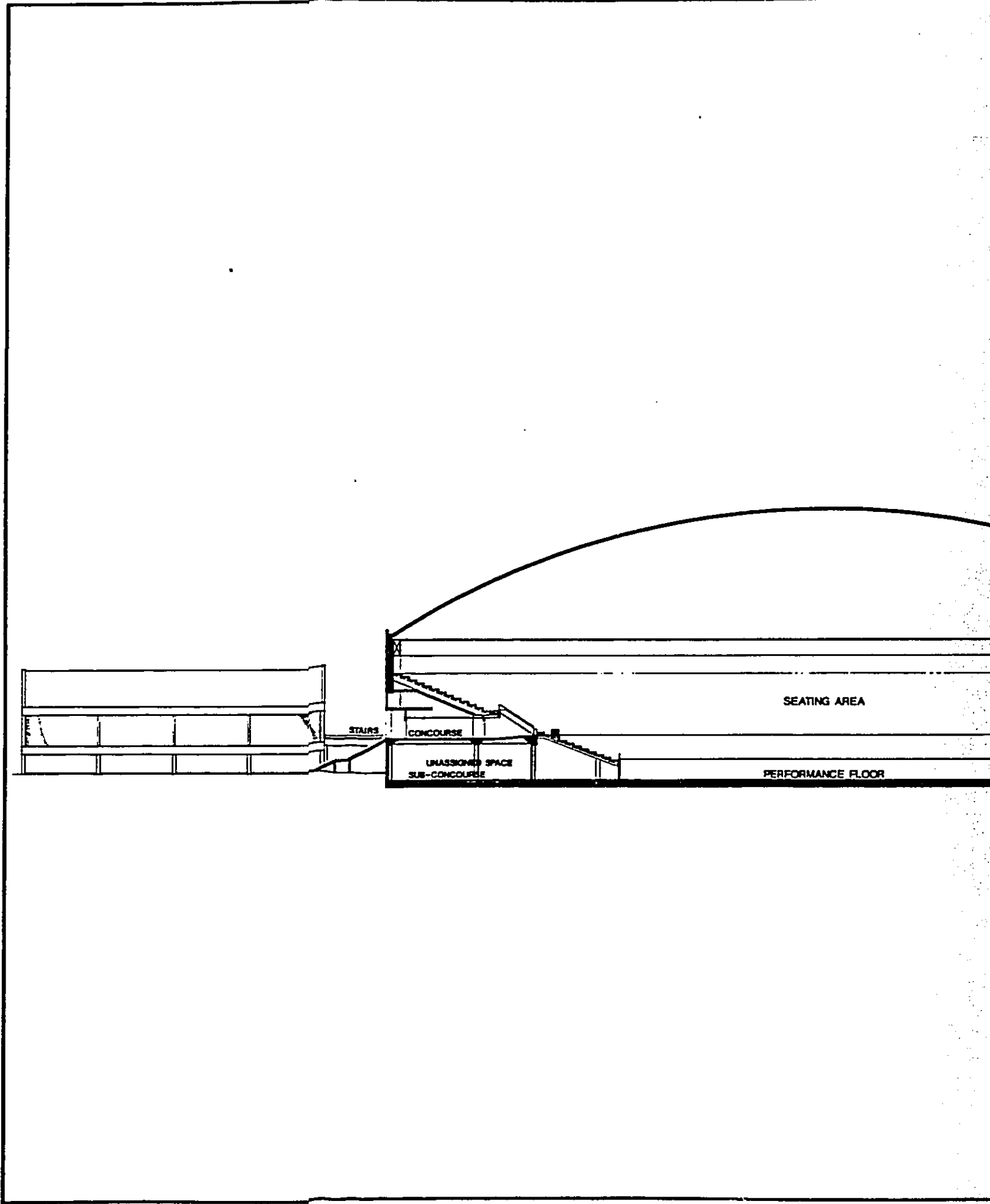
DATE  
 3 OCT 81

DRAWING NO.

**A-1**





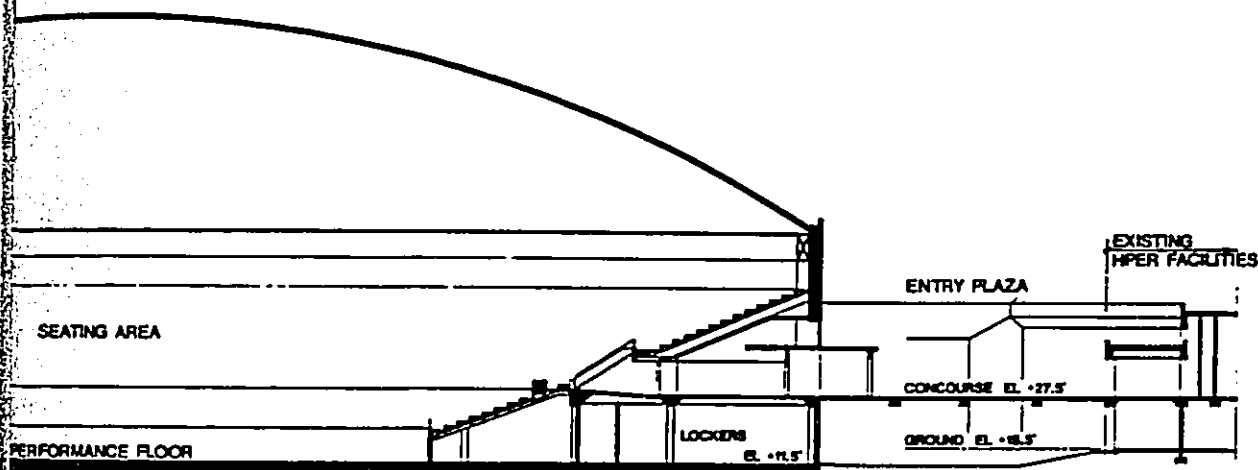




**GROUP 70**  
ARCHITECTS  
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924 Bethel Street  
Honolulu, Hawaii 96813  
Phone (808) 523-5866  
Fax (808) 523-5874

CA



**FIGURE 4**  
**ARENA CONCEPTS**

PROJECT TITLE

**SPECIAL EVENTS  
ARENA &  
ATHLETICS  
SUPPORT  
FACILITY**

UNIVERSITY OF HAWAII AT MANOA

DACS JOB NO. 12-31-8000

DRAWING TITLE

**FULL  
BUILDING  
SECTION**

SCALE 1"=18'-0"

DRAWN BY

CHECKED BY

PROJECT NO.  
81007-11

DRAWING NO.

**A-6**

DATE  
3 OCT 81

Arena (No scheduled athletic event):

Daily:	7:30 a.m. to 3:30 p.m.	Instruction
	3:30 p.m. to 7:30 p.m.	Team Practice
	7:30 p.m. to 11:30 p.m.	Intramurals
Sat/Sun	7:30 a.m. to 11:30 p.m.	Intramurals & Free Play

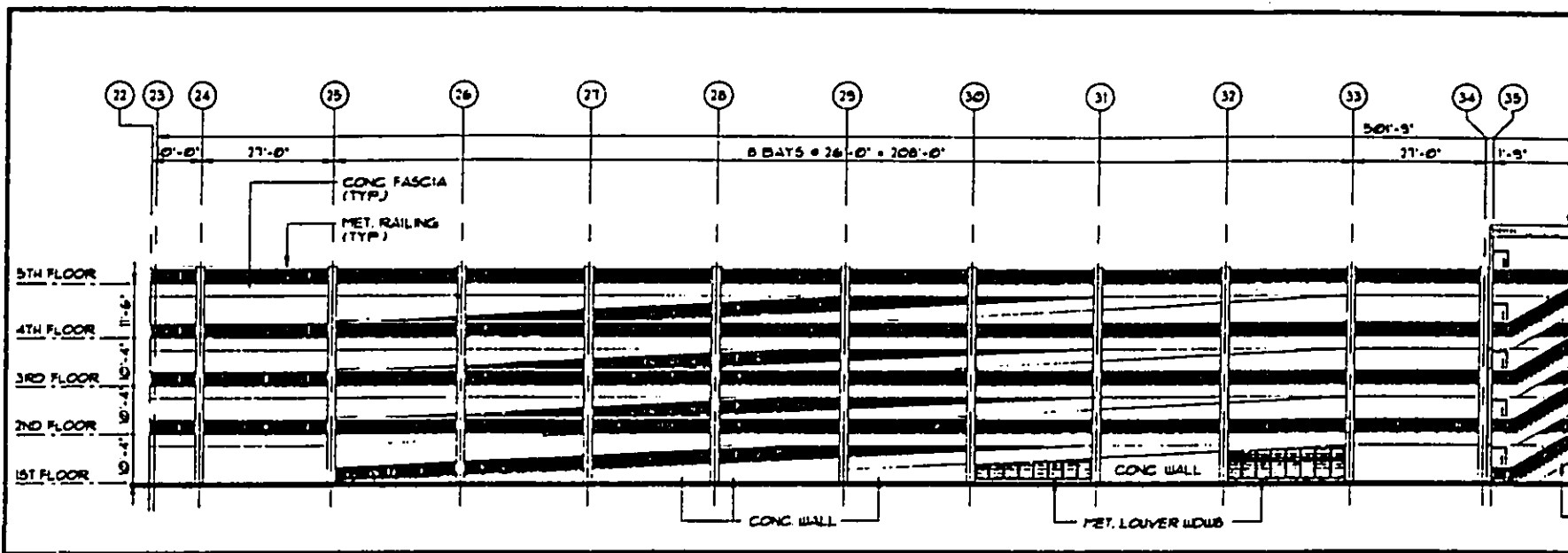
Arena (Scheduled athletic event)

Daily:	Same as above	
Game Day:	7:30 a.m. to 3:30 p.m.	Instruction
	3:30 p.m. to 5:30 p.m.	Game Prep
	5:30 p.m. to 10:30 p.m.	Warm-up and Game*
	10:30 p.m. to 12:30 p.m.	Clean-up
Saturday:	7:30 p.m. to 3:30 p.m.	Intramurals & Free Play
	3:30 p.m. to 5:30 p.m.	Game Prep
	5:30 p.m. to 10:30 p.m.	Warm-up and Game*
	10:30 p.m. to 12:30 p.m.	Clean-up
Sunday:	Same as above	

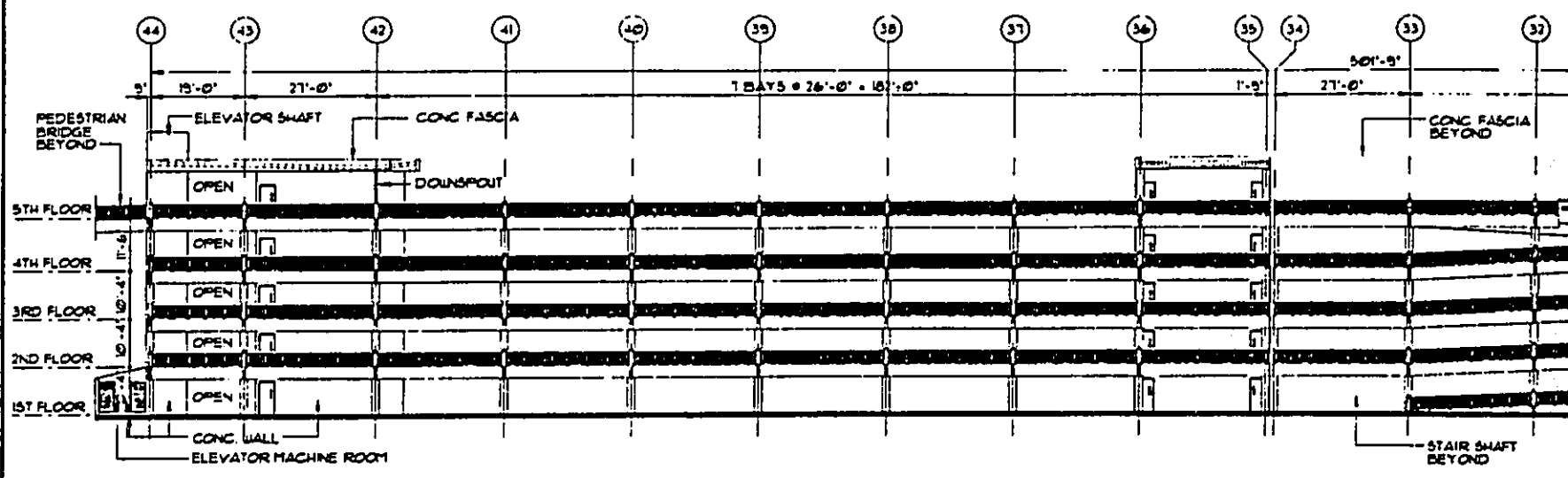
\* Single game only. When tournaments are held, the entire day may be allocated for tournament games.

B. Phase II Parking Facility

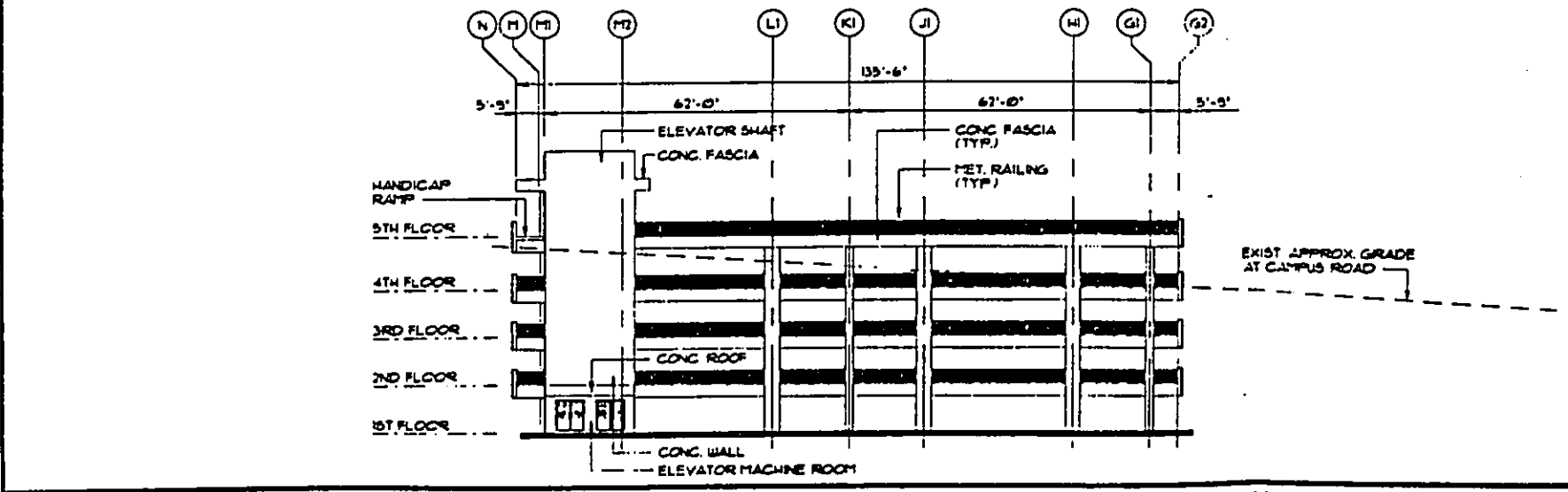
Development of the Phase II parking structure will be divided into two phases; IIA and IIB. Each phase will provide approximately 900 parking stalls for a total of 1800 stalls. Figure 5 shows the conceptual design for Phase IIA. Because of initial funding limitations and the need to keep Klum Gym open phase IIA will be built first. After the arena is built, Klum Gym can be removed to allow development of Phase IIB which will essentially be a mirror image of Phase IIA. The facility is located next to the existing quarry parking facility (See Figure 6).



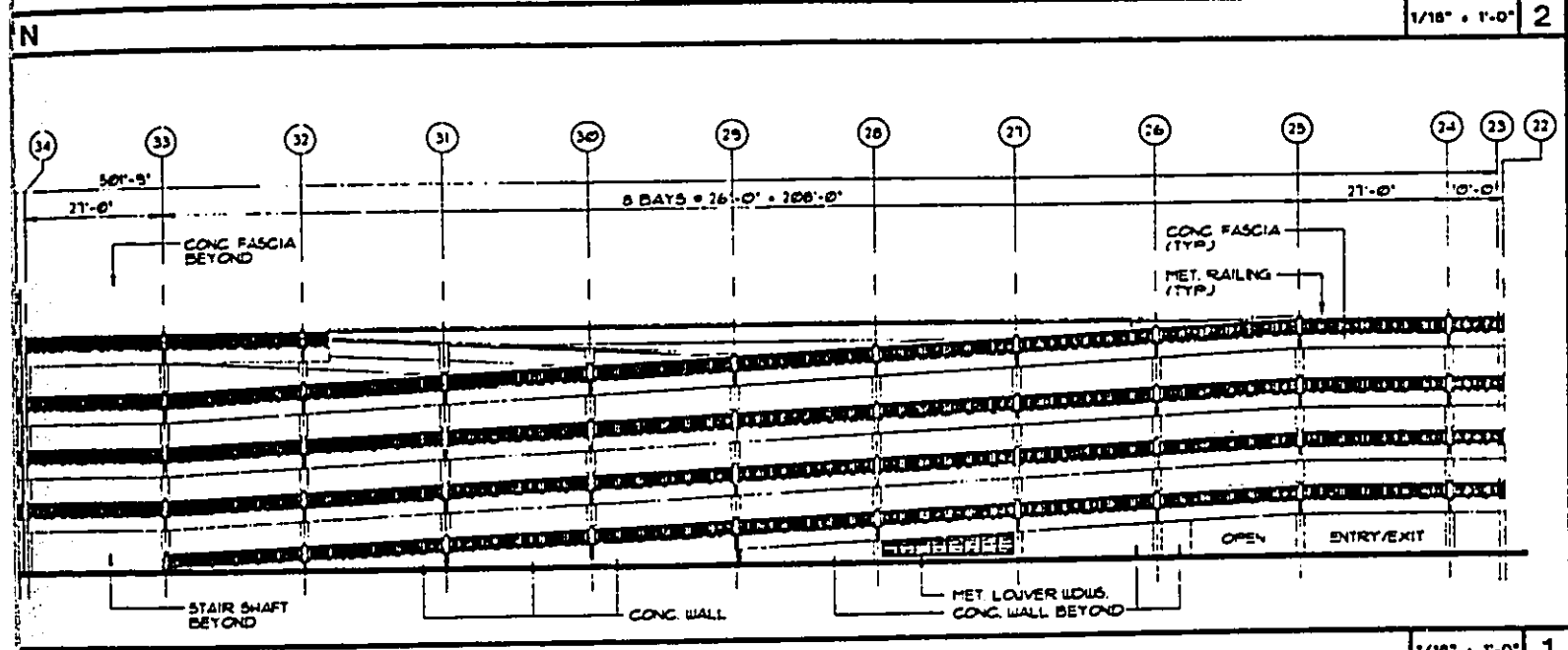
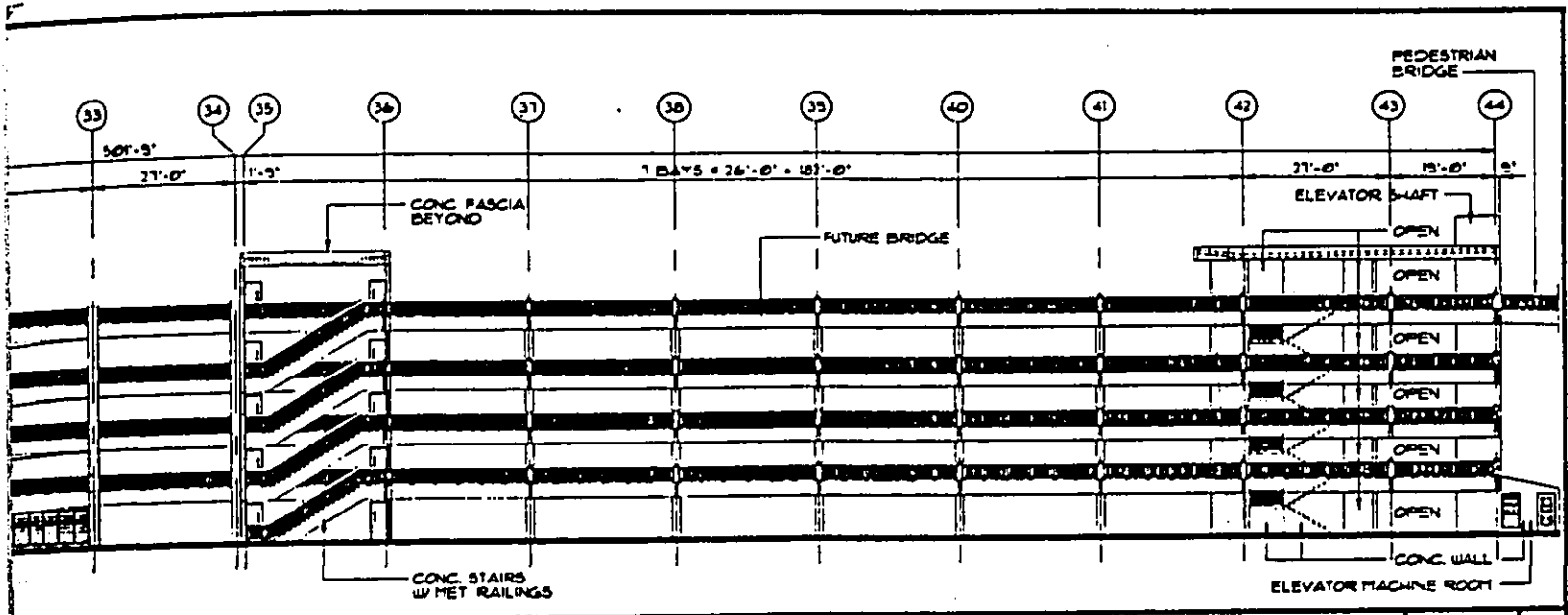
NORTH ELEVATION



SOUTH ELEVATION



WEST ELEVATION



**FIGURE 5  
PHASE IIA CONCEPT**

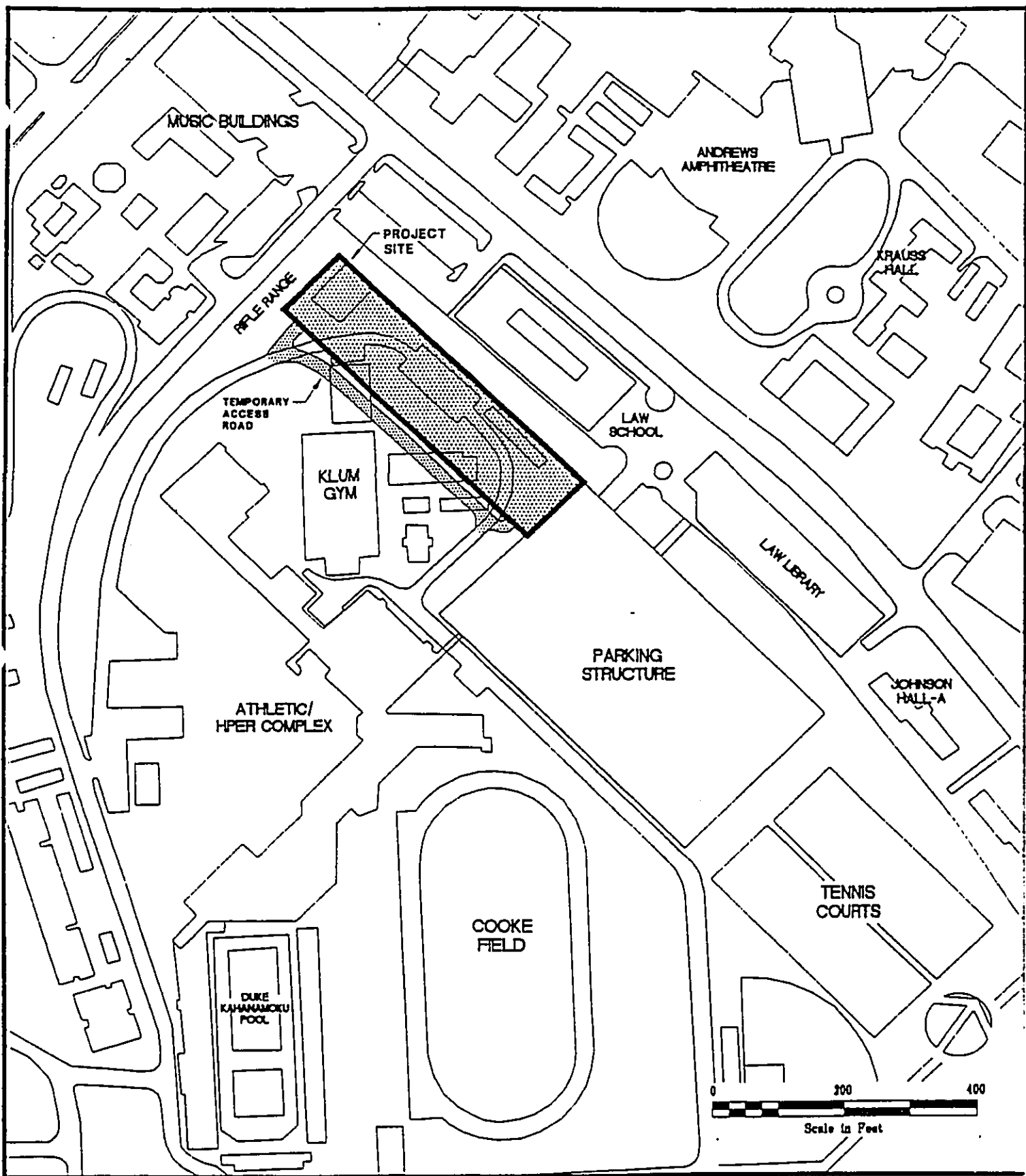
1ST APPROX. GRADE  
CAMPUS ROAD

DATE	00/00/91
REVISION	
APPROVED BY	
DEPT. OF ACCOUNTING & GENERAL SERVICES BUREAU OF PUBLIC WORKS STATE OF HAWAII	
PHASE I-A PARKING STRUCTURE UNIVERSITY OF HAWAII AT MANOA HONOLULU, HAWAII	
BUILDING ELEVATIONS - PHASE I-A	
DESIGNED BY	DATE
DRAWN BY	12-31-91
CHECKED BY	1A3.1
DATE	DEC 31, 1991



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY SUPERVISION.

1/16" = 1'-0" 7



First Increment  
 University of Hawaii  
 Parking Structure; Phase II

**FIGURE 6**  
**LOCATION MAP**

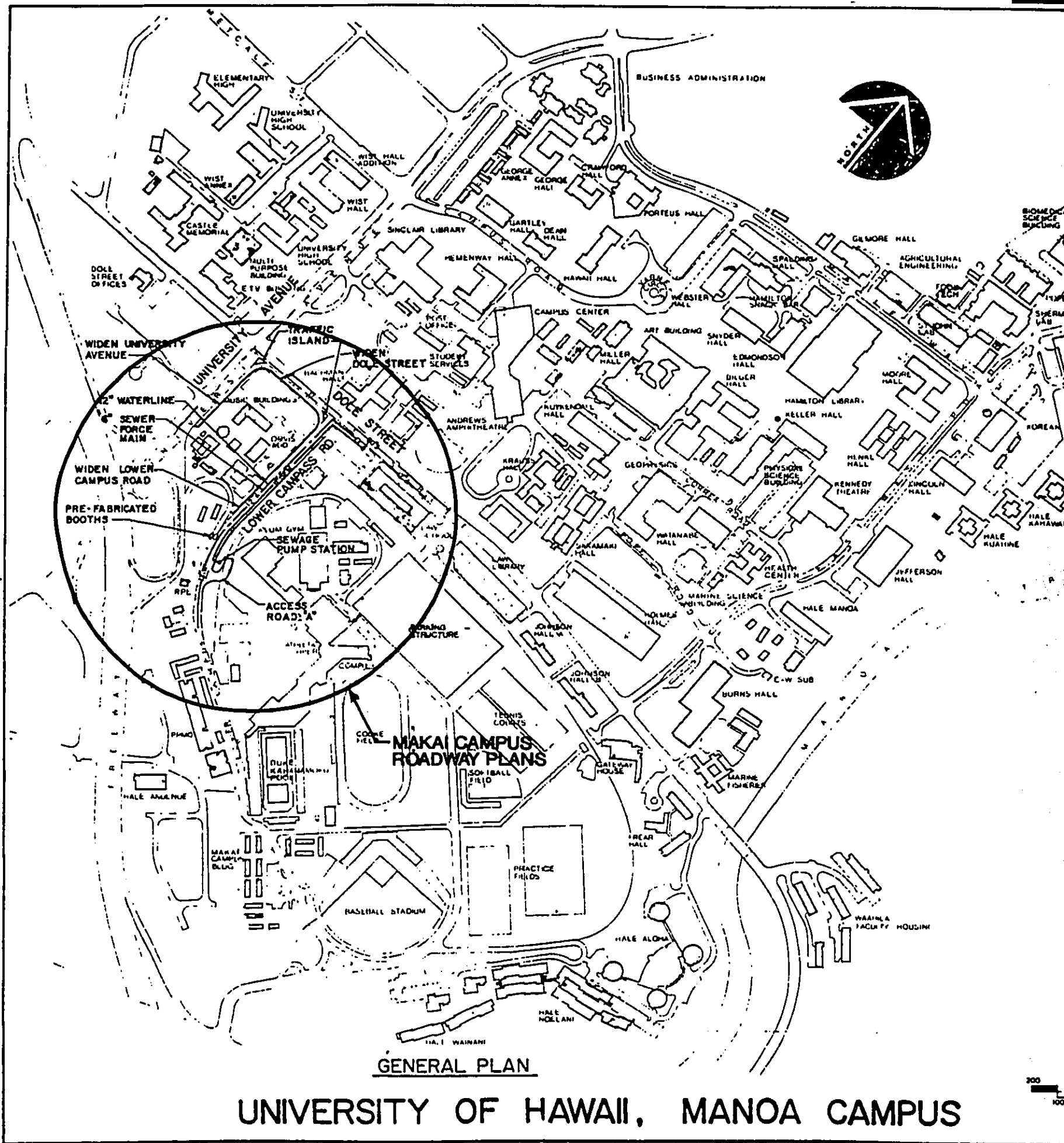
Prepared by :  
 Wilson Okamoto  
 & Associates, Inc.

### C. Associated Improvements

Several infrastructure and facility improvements are being planned or programmed in conjunction with the Arena and the parking structure. Although these improvements are planned with the Arena and the parking facility specifically in mind they are also part of an overall campus development plan based on various projects in the University's Capital Improvement Program. The improvements of note are the on-site and off-site roadway improvements, the new electrical substation, and related sewer, water, drainage and electrical utility improvements.

The roadway improvements presently under design are the widening of University Avenue from the H-1 freeway off ramp to Dole Street with intersection improvements, the widening of Dole Street to Lower Campus Road with intersection improvements, and the widening of the upper and kiosk portion of Lower Campus Road (Figure 7). These projects will improve circulation in and around the makai campus area and also have an overall beneficial impact on the broader Manoa campus area. These improvements will help the regular daytime traffic congestion and will accommodate traffic generated by special events held in the makai campus facilities. They were planned independent of the arena as projects in themselves although the timing of their development is related.

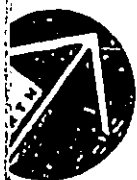
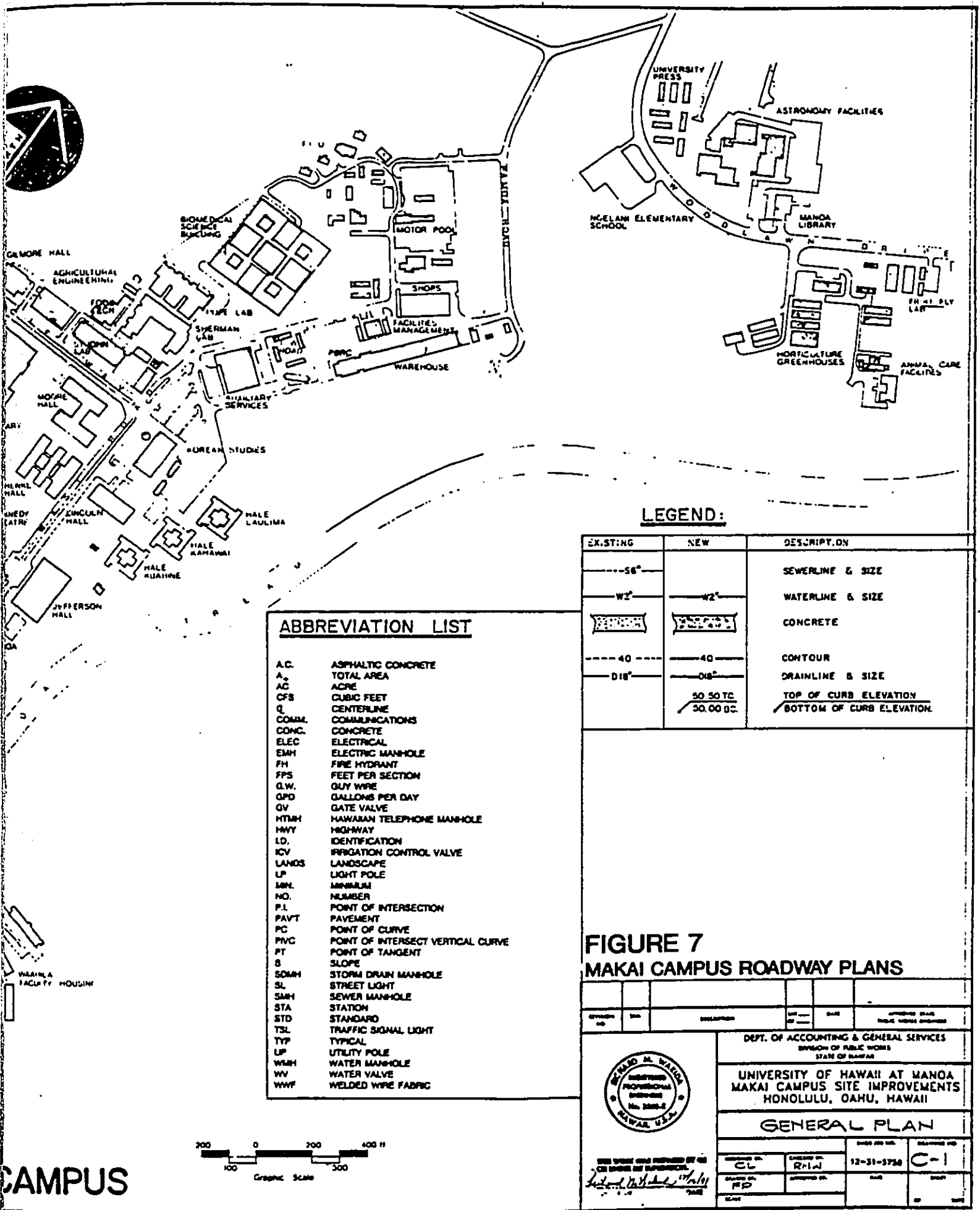
A new electrical substation is planned adjacent to the ROTC facilities. (Figure 8) Assessments of existing electrical loads and projected loads from the University's programmed projects show a need for a new substation within the next two to three years as various University projects such as the POST building or the College of Education improvements come on line. The arena is one of the projects adding to this pending shortage of power. Present capacity can accommodate only some of the upcoming projects currently under various phases of development. This new substation will service the entire Manoa campus and handle overloads that cannot be accommodated with the existing system and the East West Center substation.



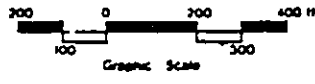
**GENERAL PLAN**

**UNIVERSITY OF HAWAII, MANOA CAMPUS**





CAMPUS



**ABBREVIATION LIST**

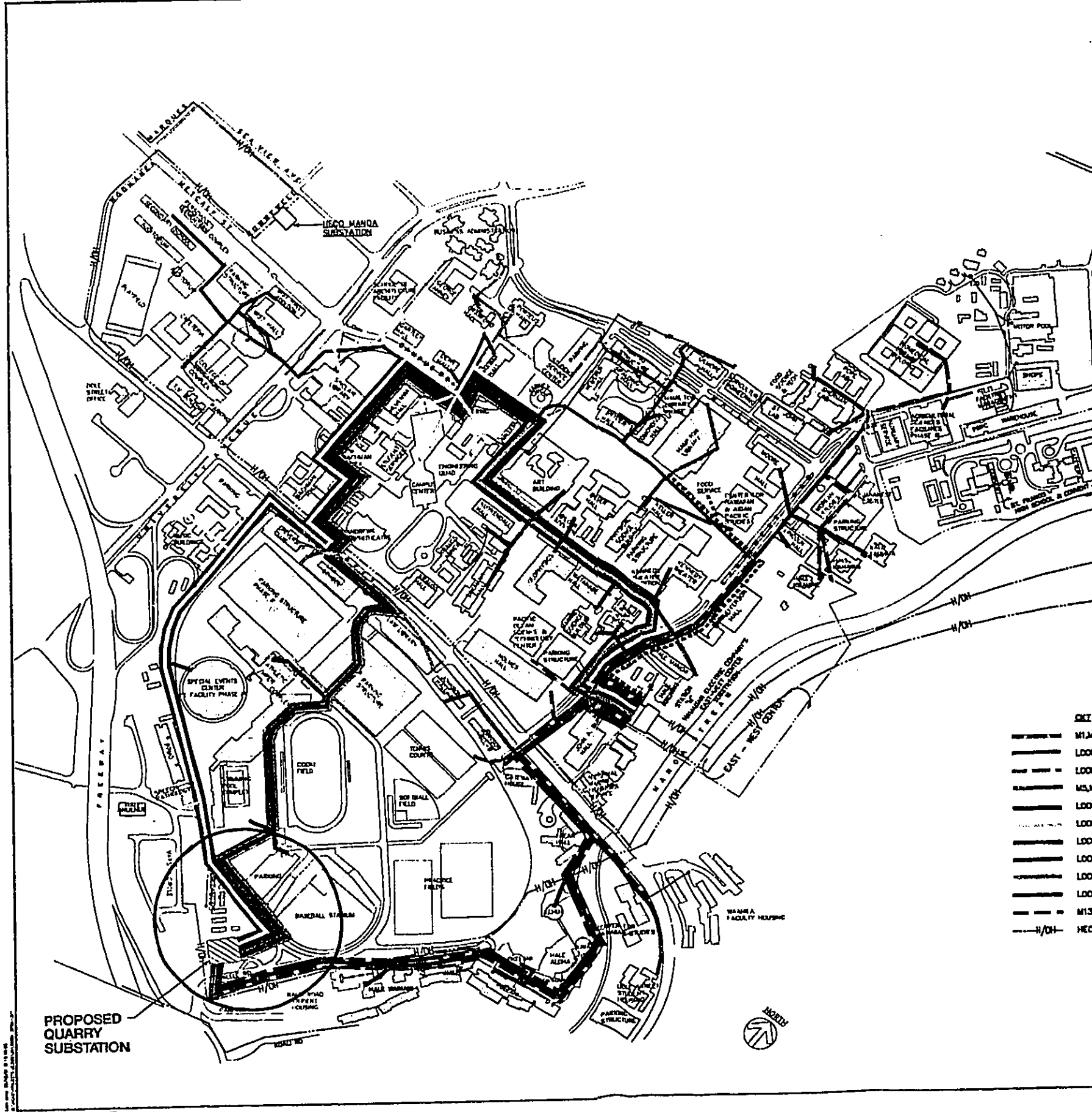
A.C.	ASPHALTIC CONCRETE
A <sub>T</sub>	TOTAL AREA
AC	ACRE
CFS	CUBIC FEET
Q	CENTERLINE
COMM.	COMMUNICATIONS
CONC.	CONCRETE
ELEC.	ELECTRICAL
EMH	ELECTRIC MANHOLE
FH	FIRE HYDRANT
FPS	FEET PER SECTION
G.W.	GUY WIRE
GPD	GALLONS PER DAY
GV	GATE VALVE
MTMH	HAWAIIAN TELEPHONE MANHOLE
HWY	HIGHWAY
I.D.	IDENTIFICATION
ICV	IRRIGATION CONTROL VALVE
LANDS	LANDSCAPE
LP	LIGHT POLE
MIN.	MINIMUM
NO.	NUMBER
P.I.	POINT OF INTERSECTION
PAVT	PAVEMENT
PC	POINT OF CURVE
PVC	POINT OF INTERSECT VERTICAL CURVE
PT	POINT OF TANGENT
S	SLOPE
SOMH	STORM DRAIN MANHOLE
SL	STREET LIGHT
SMH	SEWER MANHOLE
STA	STATION
STD	STANDARD
TSL	TRAFFIC SIGNAL LIGHT
TYP	TYPICAL
UP	UTILITY POLE
WMH	WATER MANHOLE
WV	WATER VALVE
WWF	WELDED WIRE FABRIC

**LEGEND:**

EX. STING	NEW	DESCRIPTION
---S6"		SEWERLINE & SIZE
---W2"	---W2"	WATERLINE & SIZE
		CONCRETE
---40	---40	CONTOUR
---D18"	---D18"	DRAINLINE & SIZE
	50.50 TC	TOP OF CURB ELEVATION
	50.00 BC	BOTTOM OF CURB ELEVATION

**FIGURE 7  
MAKAI CAMPUS ROADWAY PLANS**

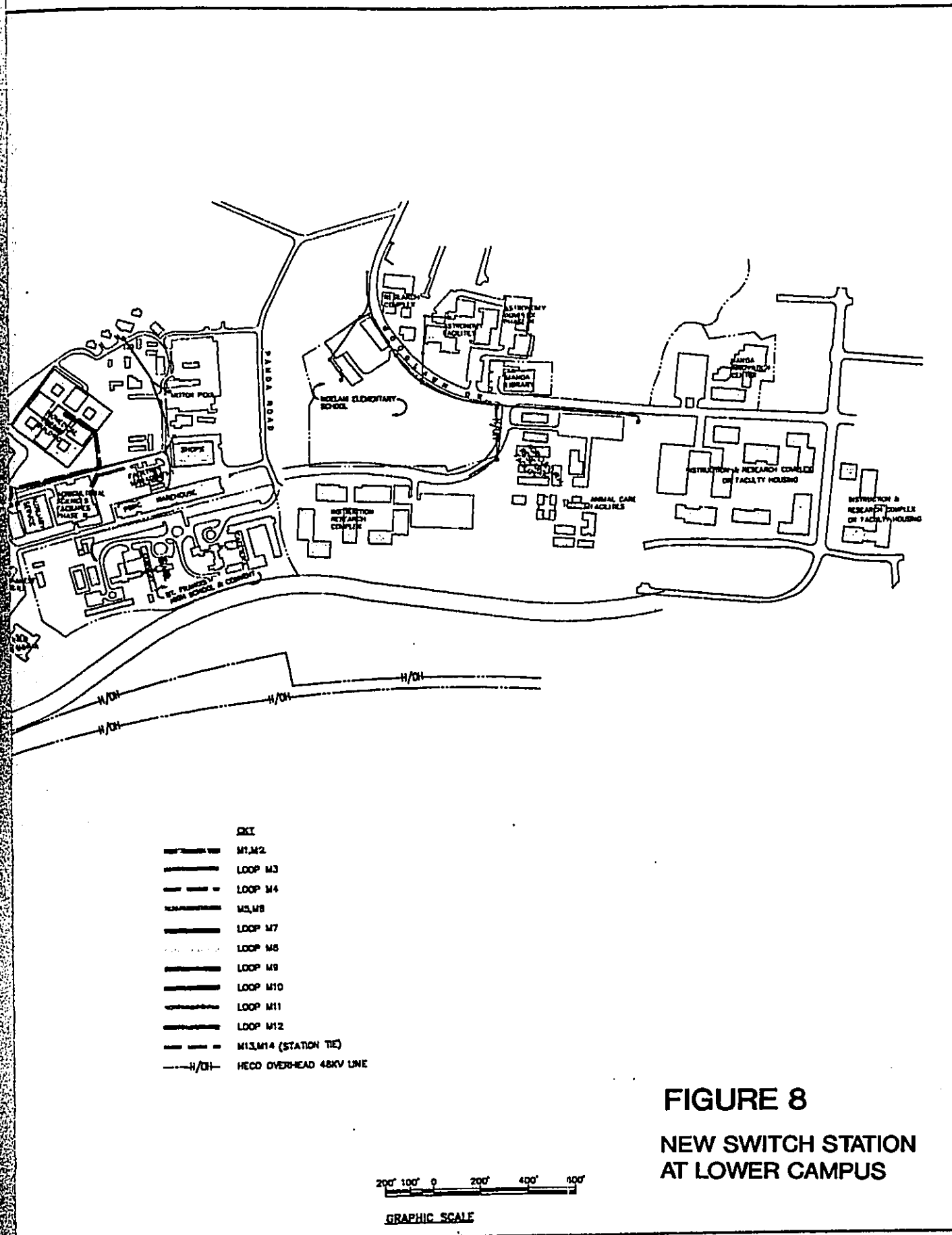
	<p>DEPT. OF ACCOUNTING &amp; GENERAL SERVICES DIVISION OF PUBLIC WORKS STATE OF HAWAII</p> <p>UNIVERSITY OF HAWAII AT MANOA MAKAI CAMPUS SITE IMPROVEMENTS HONOLULU, OAHU, HAWAII</p> <p><b>GENERAL PLAN</b></p>
<p>DESIGNED BY: CL</p> <p>CHECKED BY: R-L-J</p> <p>DRAWN BY: R-P</p>	<p>DATE FOR SET: 12-31-5758</p> <p>SCALE: C-1</p>



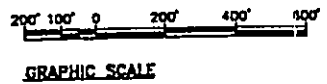
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- M99
- M100

PROPOSED  
QUARRY  
SUBSTATION





- SXT
- M1, M2
- LOOP M3
- LOOP M4
- M5, M6
- LOOP M7
- LOOP M8
- LOOP M9
- LOOP M10
- LOOP M11
- LOOP M12
- M13, M14 (STATION TIE)
- H/OH — HECO OVERHEAD 48KV LINE



**FIGURE 8**  
**NEW SWITCH STATION**  
**AT LOWER CAMPUS**

1. UTILITIES SYSTEMS

A. Existing Utility Systems

1. Water Supply System

The existing Board of Water Supply system is adequate to serve the Arena and parking facility. The proposed water connections for the area are shown on Figure 9.

2. Sewer System

The existing City system running through Kolo Place is inadequate to carry the flows estimated for the Arena, Phase IIA Parking Structure and related improvements. These include the new comfort station adjacent to Klum Gym.

Alternative plans have been evaluated to meet system flow requirements to allow permit connection of the Arena project to the City sewer system.

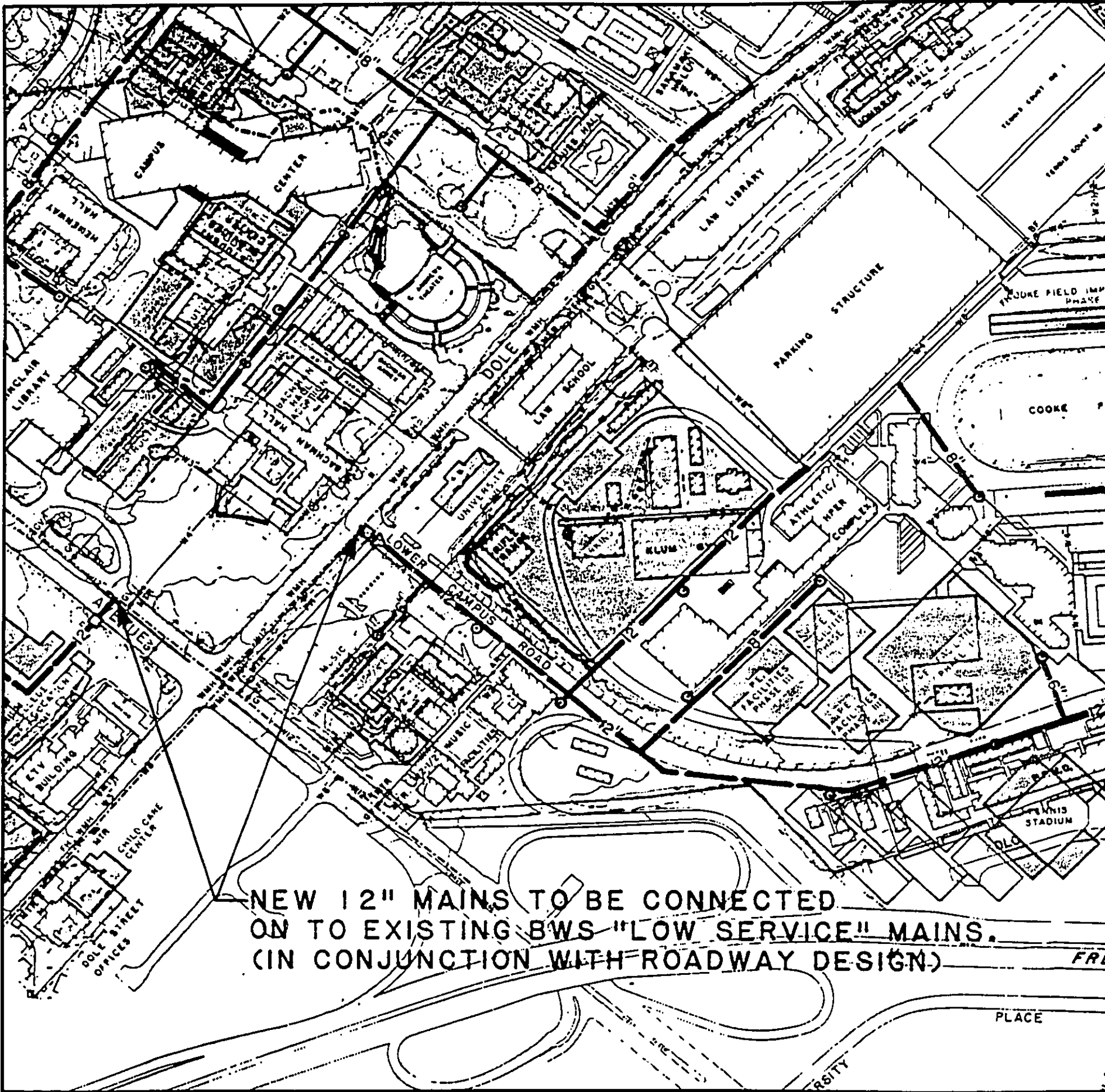
A current sewer study prepared by R. M. Towill Corp. will enable the City to analyze the sewer system under existing and future flows. The study proposes the selection of an alternative acceptable to the City which will be implemented with the other Makai Campus developments.

The proposed sewer improvements for the area are shown on Figure 10.

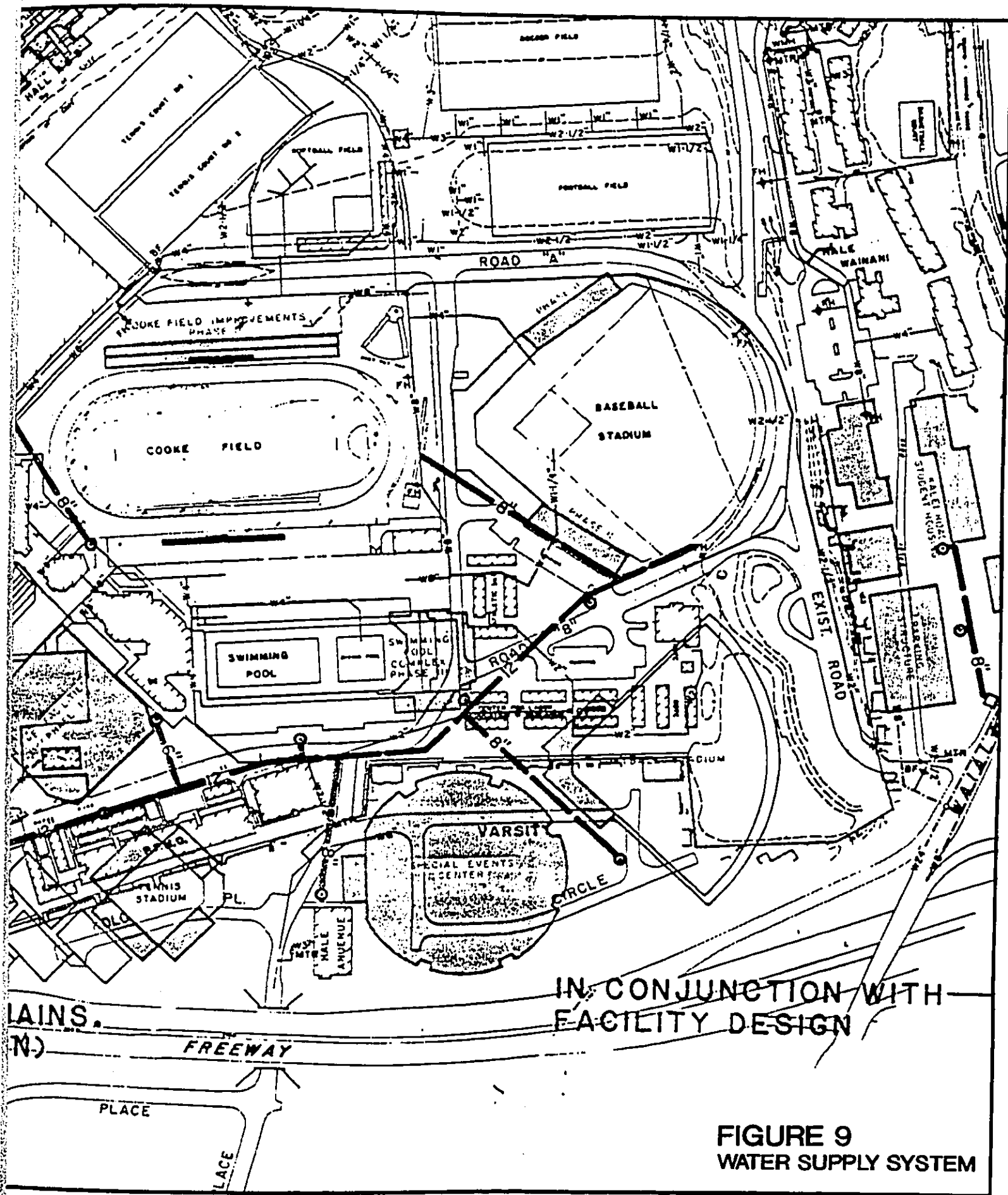
3. Drainage System

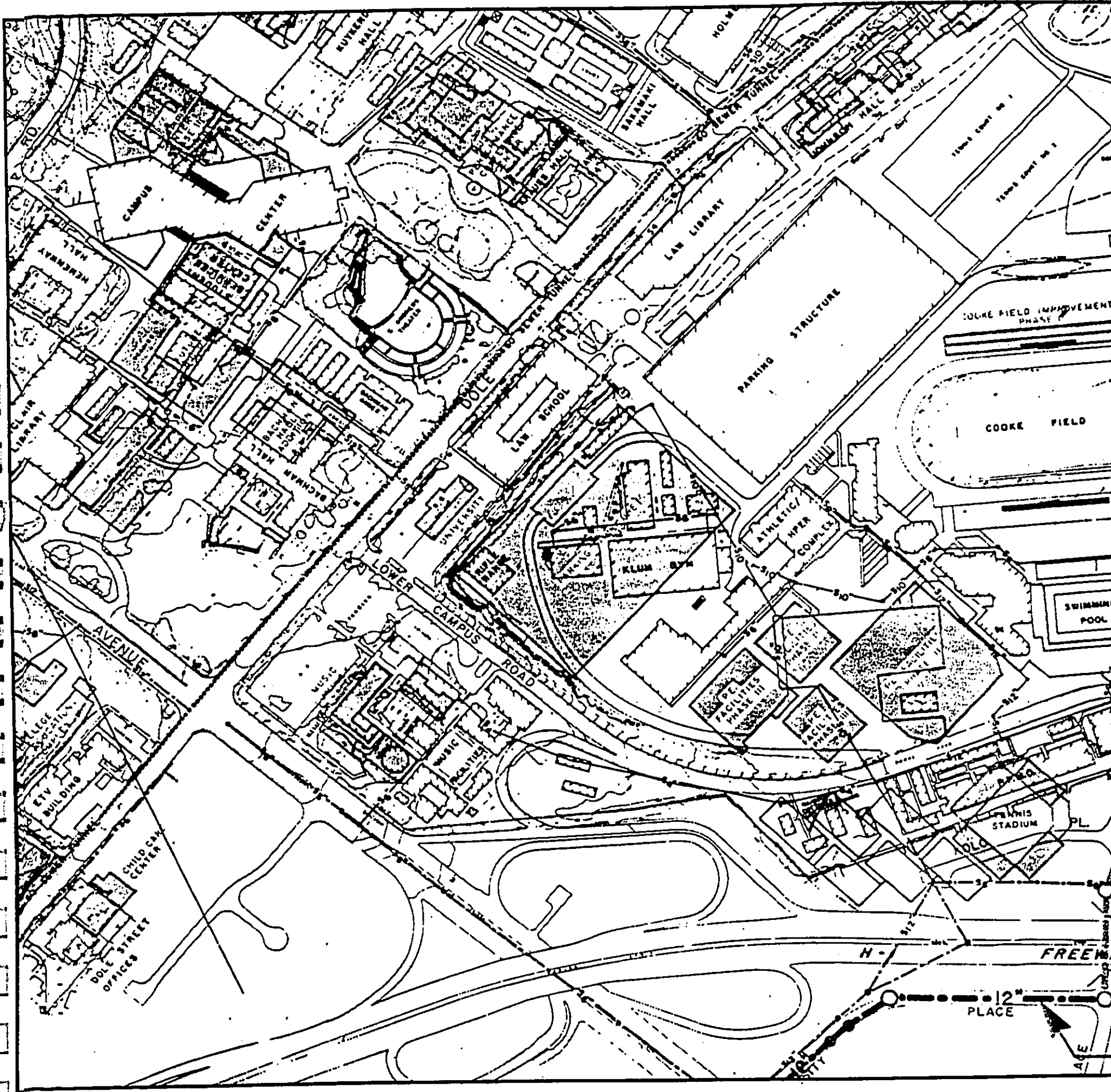
The completion of the Dole Street interceptor drain (Drainage Improvements, Phase 3) from Andrews Amphitheater to University Avenue, a project separately programmed, will enable the completion of the Makai Campus drainage system -- a portion of which is now partially blocked by a weir under Varsity Place to limit flows into the city system.

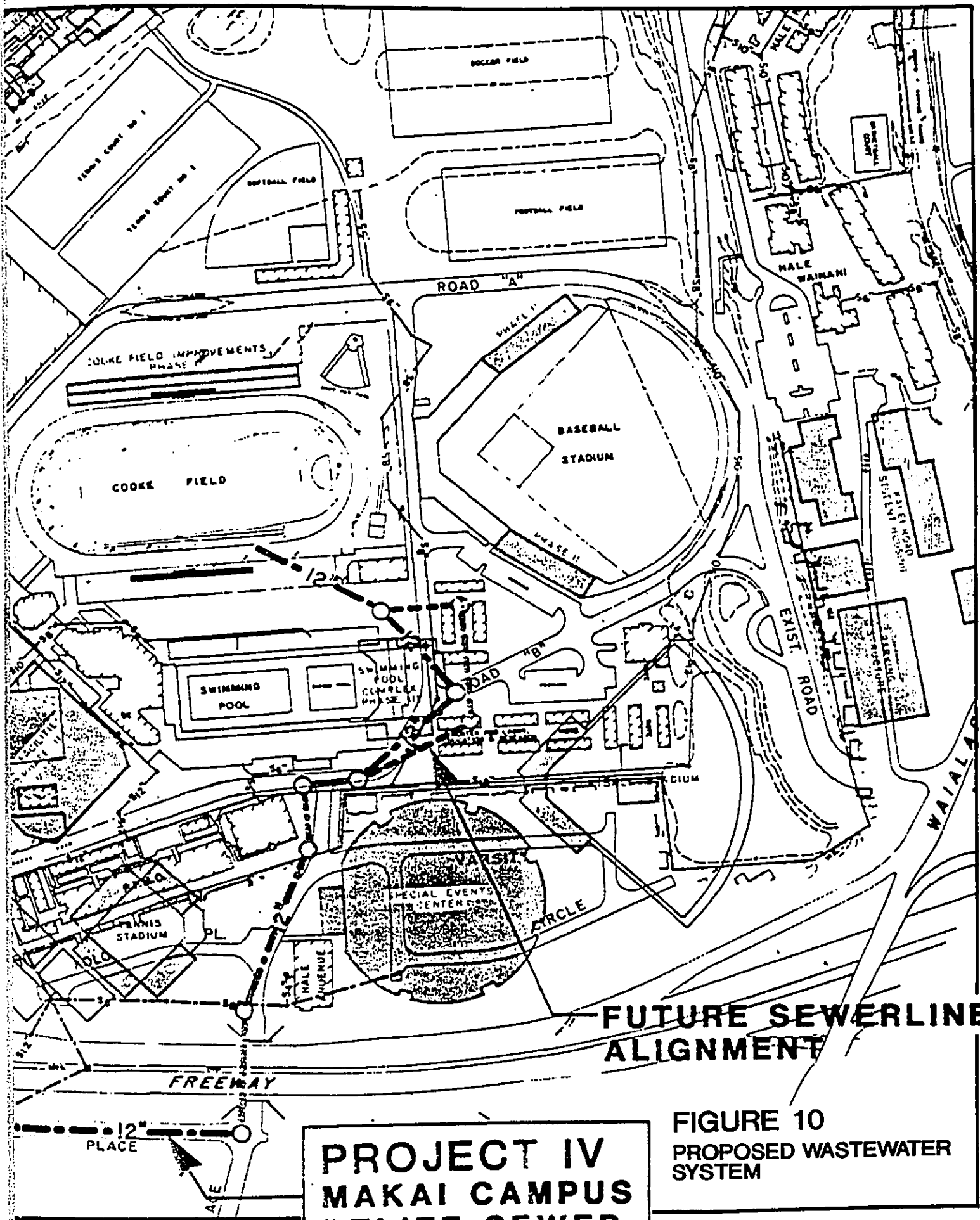
The proposed drainage connections are shown on Figure 11.



NEW 12" MAINS TO BE CONNECTED  
ON TO EXISTING BWS "LOW SERVICE" MAINS.  
(IN CONJUNCTION WITH ROADWAY DESIGN)





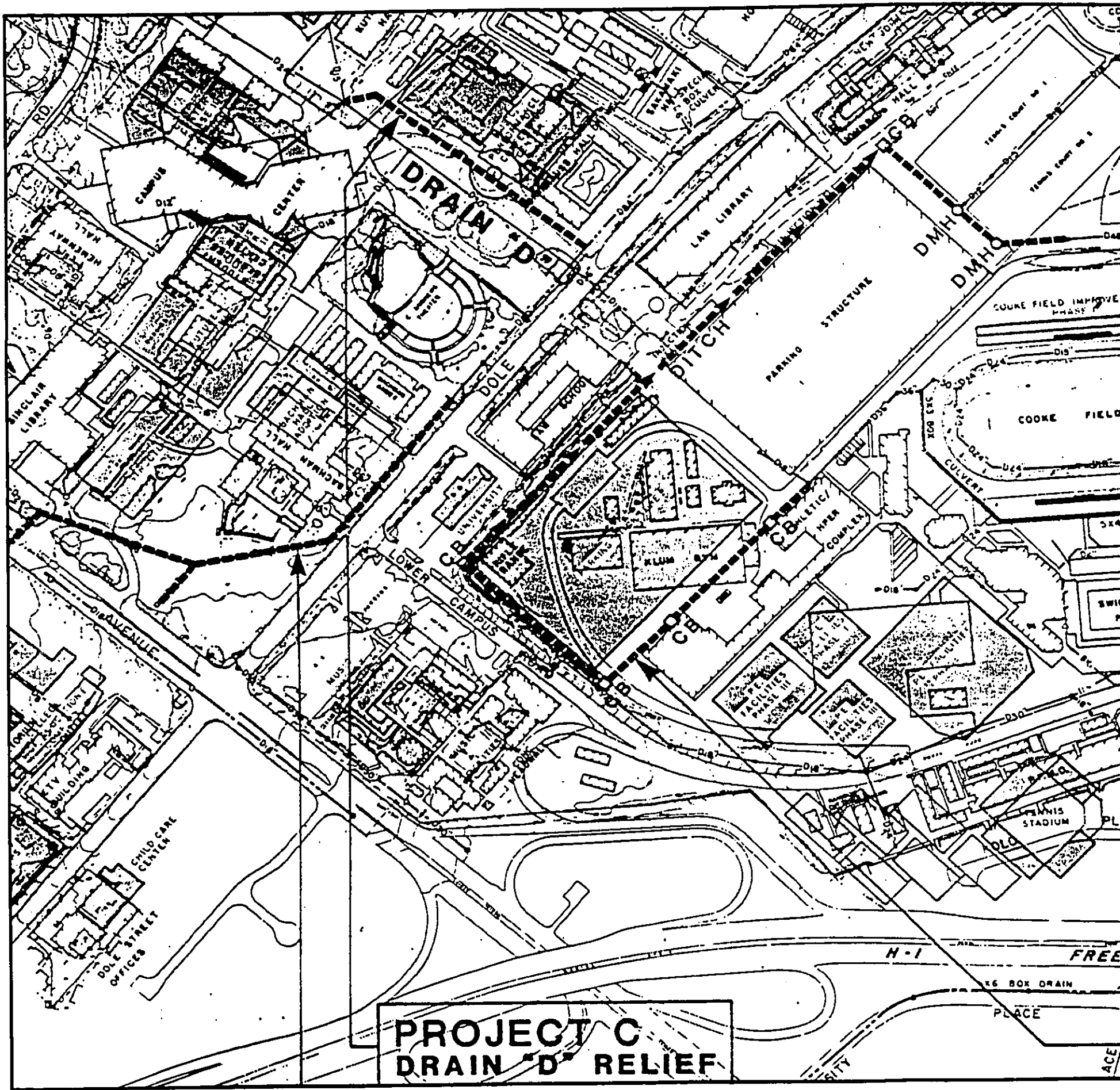


**FUTURE SEWERLINE ALIGNMENT**

**PROJECT IV  
MAKAI CAMPUS  
RELIEF SEWER**

**FIGURE 10  
PROPOSED WASTEWATER  
SYSTEM**





**PROJECT C  
DRAIN "D" RELIEF**



D. Development Schedule and Costs

The development schedule and cost estimates for the Special Events Arena and related projects are as follows:

<u>Project</u>	<u>Project Cost Estimate \$</u>	<u>Start Construction</u>	<u>Complete Construction</u>
Special Events Arena	\$34,000,000	12/1992	8/1994
Parking Structure IIA	\$29,200,000	8/1992	3/1994
Roadway and Utilities Improvements	\$2,700,000	5/1992	12/1992
Electrical Substation	\$5,500,000	1/1993	8/1994

\*Source: State Department of Accounting and General Services which administers the University's Capital Improvements Program.

V. DESCRIPTION OF AFFECTED ENVIRONMENT

The University of Hawaii at Manoa is situated on approximately 304 acres of land surrounded by residential neighborhoods, schools, and small commercial areas. The campus has a daytime population of approximately 27,000 people of which 19,000 are students. The Manoa campus is the major campus of the University of Hawaii's multi-campus system and conducts educational, research and public service programs for the State, country and the international community. It has a close association with the East West Center which is an international institution funded by the United States State Department. The Makai campus is largely situated in an old abandoned quarry. The quarry area encompasses approximately 88 acres on the southwestern side of the campus.

Average daily minimum and maximum temperatures range from the low 60's (degrees Fahrenheit) to the low 90's, depending upon the time of day and the season. Daily temperatures vary by about 6.5 degrees between winter and summer seasons, and 15 to 20 degrees between day and night.

Precipitation is definitely seasonal. The adjusted median annual rainfall for this location amounts to approximately 30 inches. The months of December through April typically have the most rainfall.

The Makai campus lands are designated public facility on the City and County of Honolulu's Development Plan Land Use Map. The underlying zoning is R-5 residential. The lands surrounding the makai campus are predominantly single family residential with some A-1 apartment use near Varsity Circle and B-2 commercial parcels towards King Street. The proposed arena is located towards the middle of the makai campus so that there is some horizontal separation between it and adjacent residences. The phase IIA parking facility is also separated from surrounding residences.

A. Terrestrial Environment

1. Special Events Arena Site

Most of the proposed arena site is currently a surface parking lot located between Lower Campus Road and the existing HPER facilities. The only structure presently located on the site is the dance studio. Although the studio is planned to be ultimately housed next to Kennedy Theatre, development of the arena will require an earlier relocation. Existing trees on the site include: Eucalyptus sp., Brassia actinophylla, kukui (*Aleurites moluccana*), wiliwili (*Erythrina* sp.) Banyons (*Ficus retusa*), and some ornamentals. These trees will be retained where possible and/or relocated to other parts of the campus. Underlying soils in the area are generally introduced fill. (Figure 12) Since the site is already developed and in the middle of an urban environment it is not an important wildlife habitat. Threatened or endangered species will not be jeopardized. There are no known archaeological sites on the project area and none are anticipated because of the prior history of the site as a quarry.

2. Phase IIA Parking Facility

The Parking structure site is located adjacent to the existing quarry parking structure next to the quarry wall. Several older temporary and permanent structures currently



occupy the site: Klum Gym, offices in temporary buildings, and the ROTC rifle range. The issues concerning Klum Gym were discussed earlier. The relocation plan for the other facilities is shown on Figure 13.

There are eight existing buildings which will be affected: 1-Intramurals Building, 2-Makai Campus 2, 3-Klum Annex, 4-Martial Arts, 5-Varsity Building, 6-Locker Building, 7-Old PE and 8-Rifle Range.

The vegetation on the site is mixed. Along the quarry wall one finds weedy specimens of Castor (*Ricinus communis*) and California grass (*Brachiaria mutica*). Around Klum Gym and the adjacent buildings there are a variety of introduced species: Plumeria, Mahogany (*Swietenia sp.*), Royal poinciana (*Delonix regia*), monstera, and croton. A large date palm and several ornamental palms and ti plants are scattered throughout the site. The facility will be sited immediately adjacent to the quarry wall similar to the Phase I structure. The Phase IIA structure will be connected to the existing parking structure. The site is not considered an important wildlife habitat and has no known significant archaeological sites.

### 3. University Avenue Improvements

The widening of University Avenue will include the section of the present street from the Freeway off-ramp to the intersection with Dole Street. (Exhibit C) The street will be widened 11.0 feet from the present pavement expanding the present right of way from 70.0 feet to 81.0 feet to accommodate the increased number of cars entering the quarry. An additional lane will be provided to create an exclusive right turn lane with the present right turn lane becoming an optional right turn lane. The predominant vegetation along this expansion area are the monkeypod trees (*Samanea saman*) that line the street in this area. There are no endangered species along this corridor. All trees affected by this improvement will be relocated to other parts of the campus as much as practicable.

### 4. Dole Street Improvements

The Dole street widening will involve the section between University Avenue and the intersection with Lower Campus Road. The roadway pavement will be widened from

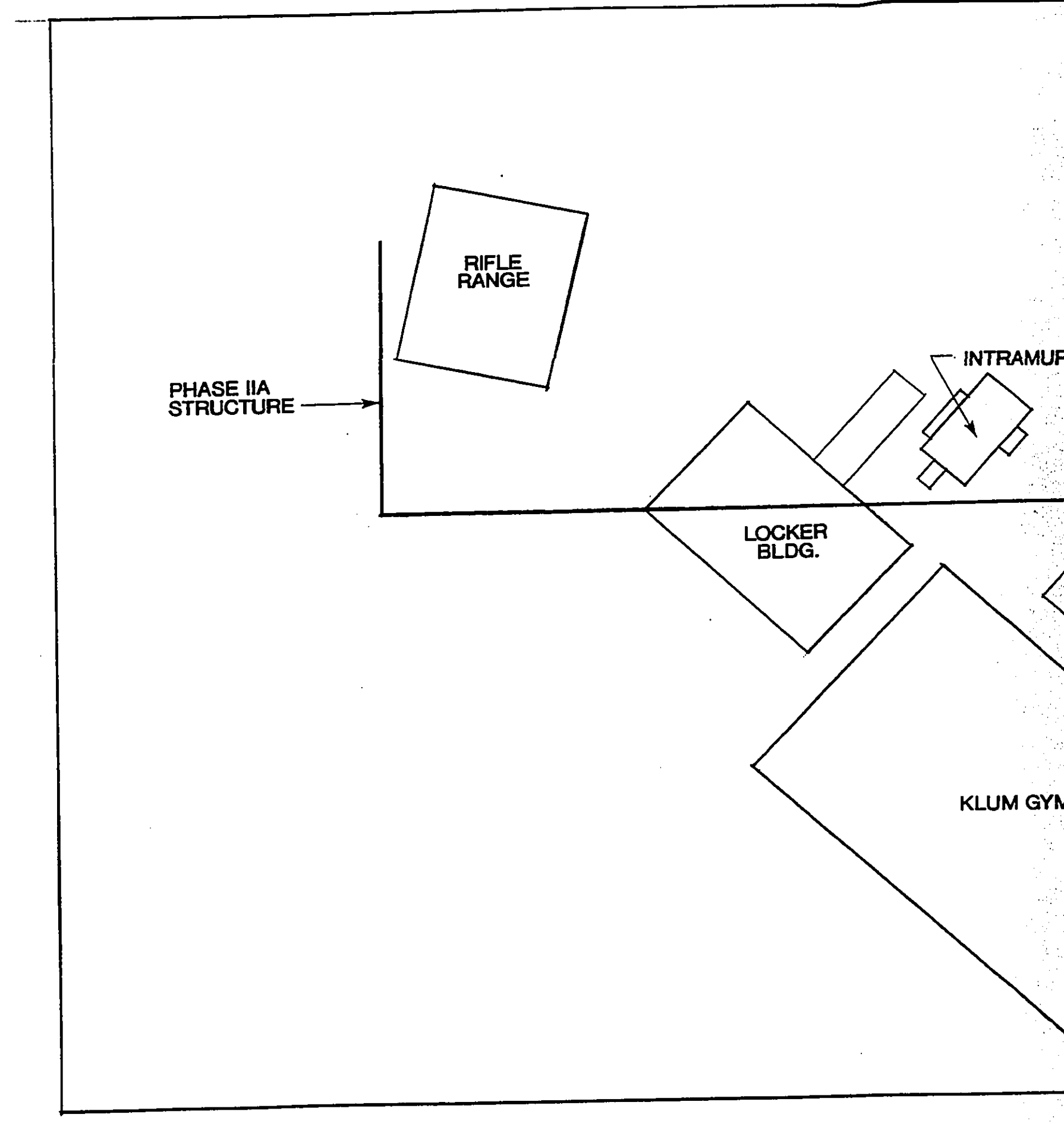
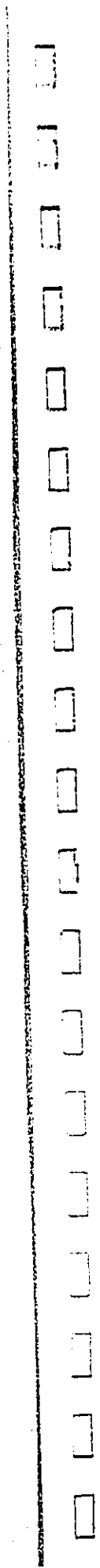
RIFLE RANGE

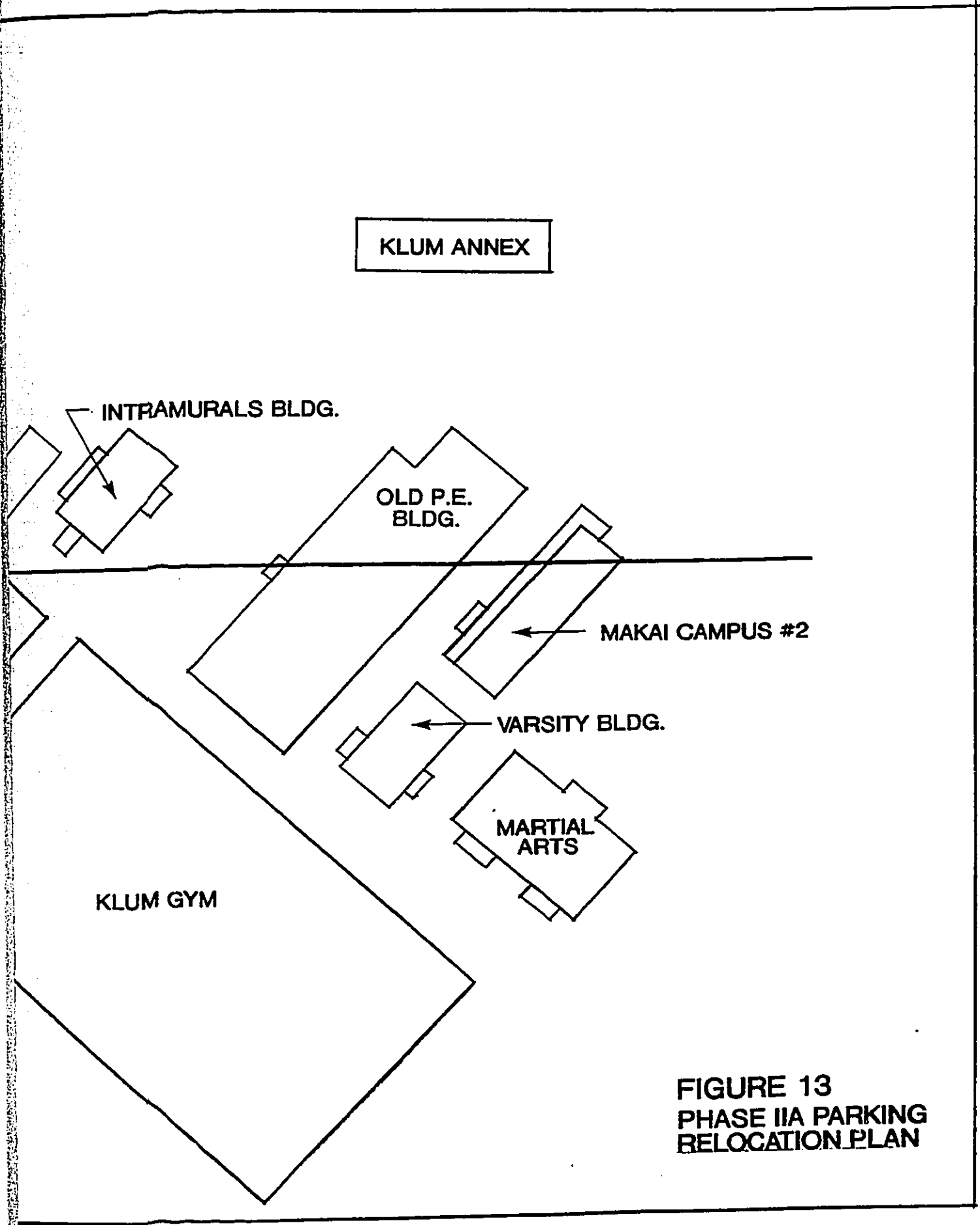
PHASE IIA  
STRUCTURE

INTRAMUR

LOCKER  
BLDG.

KLUM GYM





**FIGURE 13  
PHASE IIA PARKING  
RELOCATION PLAN**



48.0 feet to 58.0 feet along the makai side of the road to create an exclusive right turn lane. (Exhibit C) Presently this land is a landscape strip with sidewalks. Pink Tecoma trees (*Tabebuia pentaphylla*) line the sidewalk along the Street. These trees will be relocated either along the new roadway edge or elsewhere on the campus. New sidewalk landscaping will be planted. The expansion area will involve the sidewalk area and the Orvis Auditorium parking lot.

#### 5. Lower Campus Road Widening

The Lower Campus Road between Dole Street and the parking attendant kiosk area will be widened to four lanes to provide two lanes in each direction. (Exhibit C) Present use of the strip is sidewalk and landscaping. The road will be widened from 26.0 feet to 37.0 feet at the kiosk location. The widening will allow an increased number of ticket kiosks to speed traffic flow through Lower Campus Road. A turnaround area rerouting traffic back out of the quarry is included. Also included in this improvement is the connection to the access road from the new Phase IIA Parking Facility. The prominent vegetation is bouganvillea and banyon (*Ficus ritusa*). Eucalyptus sp. and monkey pods also line a section of the edge of the road. This part of Lower Campus Road descends from the top of the mauka rim of the quarry down to the quarry floor. There are no known endangered species in this area.

#### 6. Electrical Substation

The electrical substation is proposed next to the existing ROTC facilities and the siltation basin along the base of the kokohead, makai side of the quarry. Presently there are no structures on the site except for some utility lines. There is a slight slope at the base of the cliff. Vegetation is highly mixed due to human intervention. They include: Haole koa (*Leucaena glauca*), Formosan koa (*Acacia confusa*), Opiuma (*Pithecellobium dulce*), Christmasberry (*Schinus terebinthifolius*), Williwili (*Erythrina* sp.), monkey pod (*Samanea saman*), and gooseberry (*Phyllanthus acidus*). Groundcover is mostly weedy introductions such as Castor beans and California grass. There are no endangered species on the site. The site is roughly a half acre and located adjacent to the drainage siltation basin. Part of the site is part of the roadway prism for the Old Waiālae Road exit out of the Makai Campus.

B. Related Environmental Factors

The quarry floor elevation varies due to different levels of fill, but is, on average, approximately 12 feet above mean sea level at the Arena site. The quarry rim on the mauka side is roughly 55-60 feet above mean sea level. The majority of site drainage is via a system of storm drains discharging into the Dole Street or University Avenue drains. Some site runoff flows into the siltation basin at the southern corner of the quarry.

According to the U.S. Soil Conservation Service the soils around the University of Hawaii are mainly Makiki stony clay loam (MIA) soils. The quarry site is mostly a mixture of clayey silts and miscellaneous fill material. Borings of the arena site generally show 6 - 8 feet of fill material underlain with basaltic flows or coralline formations. (UH-HPE Facility Alternatives Study) The coralline reef formations appear in a honeycomb fashion. Cavities are often found in these formations and may be encountered during future test borings. Stream alluvium generally exist below the coralline reef formations.

Underground stream channels are known to exist in the quarry site although none were encountered in the evaluation of test borings for the alternatives study. Manoa Stream flows past the site just outside the southern and eastern rim of the quarry. Groundwater seeps out of the quarry wall below the Hale Aloha dorms and flows into a small pond in the quarry. These aquatic environments will not be affected by any of the proposed projects.

VI. PROJECT CHARACTERISTICS

A. Special Events Arena

The proposed facility is a 10,000 seat indoor arena for multi-purpose uses. The arena will have approximately 185,000 gross square feet under roof housing a number of uses. As the project will be constructed on a design/build basis the detailed designs will be developed by the winning contractor. Design parameters are in the bid documents. The maximum height of the building will be 125 feet above finished grade. Minimum setback from the Lower Campus Road will be 5 feet. The contractor must meet the

**TABLE 1**

**SPECIAL EVENTS ARENA & ATHLETIC SUPPORT FACILITIES  
(PHYSICAL EDUCATIONAL FACILITIES, PHASE II)**

**SPACE PROGRAM**

Comparison of Original and Revised Space Programs  
31 December 1991

<u>Type of Space</u>	<u>Original*</u> (PE II)	<u>Revised</u> (SP Ev Ar)	<u>Difference</u>
<b>I DEPARTMENT OF HEALTH, PHYSICAL EDUCATION &amp; RECREATION</b>			
A. Classrooms and Laboratories	17,850 sf	16,000 sf**	-1,850 sf
B. Performance Instructional Compl.	10,602	10,000 **	- 602
C. Locker/Shower/Toilet Rooms	3,309	0	- 3,209
<b>TOTALS</b>	<b>31,661 sf</b>	<b>26,000 sf</b>	<b>- 5,661 sf (-18%)</b>
<b>2. KLUM GYMNASIUM REPLACEMENT</b>			
A. Public Spaces			
Seating Bowl	48,070 sf	80,400 sf	+32,330 sf
Lobby, Concession, Etc.	18,262	10,560	-7,702
B. Team Spaces	11,542	6,950	-4,952
C. Ticket Office/Management Offices	1,737	1,725	-12
D. Press Room	474	800	+326
E. Hospitality Room	2,330	3,500	+1,170
F. Others			
Mechanical Spaces	4,726		-4,726
Support Spaces	—	12,490	+12,490
Unassignable Area*	—	42,728	+42,728
<b>TOTALS</b>	<b>87,141 sf</b>	<b>159,153 sf</b>	<b>+72,012 sf</b>
<b>GRAND TOTALS</b>	<b>118,802 sf</b>	<b>185,153 sf</b>	<b>+66,551 sf (+56%)</b>

\* Includes corridors, stairs, elevators, janitors closets, electrical/mech. rooms, etc.  
\*\* Loft spaces under Arena project.

NOTE: This report for general comparison purposes only. Space Programs for the P. E. Facilities, Phase II and Special Events Arena projects were not calculated in a similar manner in reports available.

programmatic and performance requirements in the bid documents. The space requirements are shown in Table 1. All the necessary building code requirements will be adhered to. The facility will have concourse and subconcourse levels. It will open into the PE plaza and connect to the Mauka Makai mall. The City and County of Honolulu is also designing a rapid transit station on the makai side of Lower Campus Road. State and City representatives have met and will continue meeting to discuss ways in which the station can be integrated with the arena design.

B. Phase IIA Parking

As mentioned previously the facility will be a 900-stall parking structure which is phase one of a two phase development. The circulation plan is shown in Figure 14.

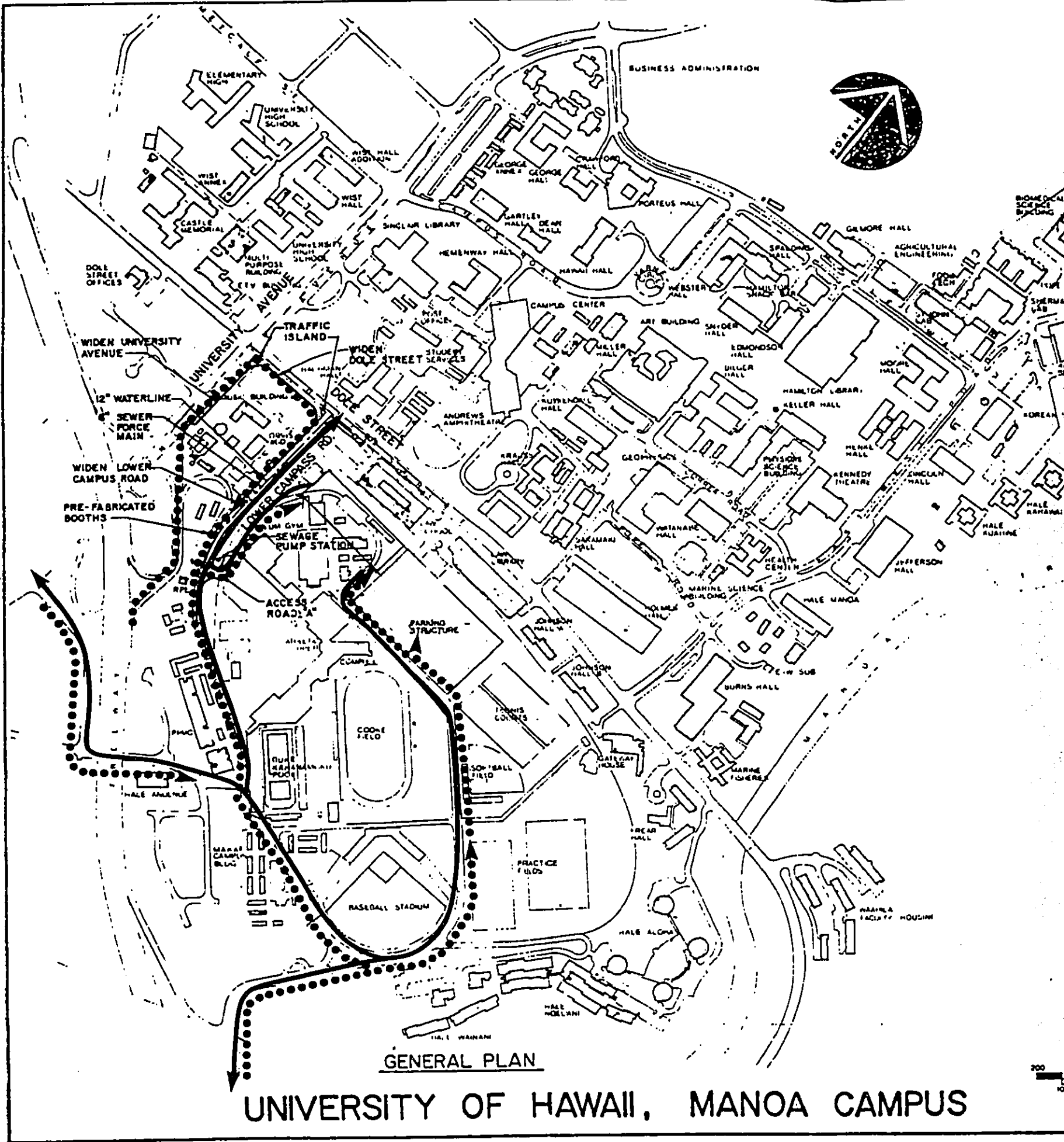
The parking structure will be accessed by a combination elevator-escalator, stair and ramp system tied to the Mauka-Makai Mall.

C. University Avenue Improvements

The University Avenue improvements will extend from the H-1 freeway westbound off ramp to the intersection with Dole Street. One exclusive right turn lane and one optional right turn lane will be created. Roadway pavement width will increase by 11.0 feet. The optional right turn lane will include space for a bike lane all the way to the intersection.

D. Dole Street Improvements

The Dole street widening will involve expansion on the makai side of the road. There will be an exclusive right turn lane from University Avenue to Lower Campus Road. The R.O.W. expansion will maintain the existing bikeway by placing it between the first and second lanes on the makai side. At the intersection with Lower Campus Road a traffic island will be created on the pavement for pedestrian safety as they cross the exclusive right turn lane; stop and then cross Lower Campus Road.





E. Lower Campus Road Improvements

Lower Campus Road will be widened to a 4 lane 40 foot pavement width with 11 foot outside lanes and 9 foot interior lanes. The widening will begin at the Dole Street intersection and continue down to the ticket kiosk location. Designs will allow two to three ticket kiosks near the base of the road as it approaches the quarry floor. The Design will be coordinated to allow an off ramp exit lane from the Phase IIB parking structure to the outbound lanes of Lower Campus Road. The intersection with Dole Street will have an exclusive right and an exclusive left turn lane exiting the makai campus.

F. Electrical Substation

The quarry station will be the second substation on the Manoa campus. The first station is located by the East West Center. The new substation will be located next to the ROTC buildings. The substation will have two basic sections. The first section is a fenced in gravel pad area for the Hawaiian Electric Company. This is the area where their equipment will connect to the 46 KV lines coming in from their easement. This pad area will be 116 feet by 100 feet. Adjacent to this area will be the University of Hawaii's substation building. It will house the University's electrical equipment. This building will be 25 feet by 100 feet. Access to both parts will be from Lower Campus Road. This electrical building will be set back from the quarry wall to avoid humidity and moisture. The entire site will be fenced and screened with landscaping. A water line will be connected to the University's Electrical Building.

VII. IMPACTS AND MITIGATION MEASURES

A. Socio-Economic

1. Economic Impacts

No clear residential or commercial property value impacts can be demonstrated as directly related to the arena construction. There is some potential for a decline in property values if the market sees the arena as an undesirable nuisance. However, some people prefer the convenience of proximity to a multi-purpose arena. Properties near the Aloha Stadium have not shown any significant declines in value. If anything they have kept pace with islandwide percentages of increase.

The availability of a larger indoor arena is likely to attract post season play as well as more musical concerts and other large group functions. The elimination of the rental fee for the use of the Neal Blaisdell Center arena will reduce operating costs for the UH basketball program. Increased activities and the revenues generated by the arena are seen as positive benefits. The availability of a large indoor arena may also stimulate conventions and conferences affiliated with the University of Hawaii.

## 2. Employment

Arena construction employment could support 500 to 1500 jobs per year during the construction phase of the project. The construction timetable for this project is 2-3 years. Long term direct employment will range from 15 to 20 full time positions. Temporary workers such as ushers and concession attendants will vary with the events being held.

## 3. Impacts on Public Services

Refuse generated by arena activities will be disposed by University personnel or private contractors hired by the University. Fire protection will be provided by the Honolulu Fire Department. The makai campus is readily accessible to a number of fire stations. Fire hydrants are located along Lower Campus road and the facilities will be built to code. Routine patrols and surveillance will be by the University's campus security force. The Honolulu Police Department will be called when backup is needed or during special events to facilitate traffic flow and maintain additional security. The proximity of Kapiolani Medical Center, Straub Clinic and Queens Medical Center allow for prompt treatment of emergency patients.

## 4. Displacement of People, Resources and Functions

The development of the arena on the proposed site will require the relocation of the dance studio. The long range location of the dance studio is planned for the Kennedy Theater Expansion but funds for that development have not yet been appropriated. A relocation plan is being prepared for the dance studio. The majority of the site is a surface parking lot. The 125 stalls that will be lost will be offset by the 900 stalls in the Phase IIA Parking structure which is being developed at the same time. The large existing trees on the site will be relocated to other parts of the campus where practicable.



The development of the Phase II parking structure will require the relocation of programs from Klum Gym, some miscellaneous offices and program spaces, and storage areas, and the ROTC rifle range. The rifle range will relocate to Schofield Barracks. The miscellaneous offices and storage spaces will be accommodated in a relocation plan prior to demolition and construction on the site. The phase II parking structure is being developed in two phases to accommodate the functions currently housed at Klum Gym. The Gym will remain in place while phase IIA, the mauka half of the parking facility, is developed. Klum Gym will not be demolished until the special events arena is constructed. When the new arena is complete it will accommodate the functions and programs currently housed at Klum Gym. At that time, assuming funding is available, Klum will be demolished and the Phase IIB portion of the parking structure will commence.

Eight existing buildings will be affected by the construction of the Phase IIA parking structure. The development plan calls for the following actions:

1. Intramural Building - Demolish
2. Makai Campus #2 - Relocate
3. Klum Annex - Demolish or relocate
4. Martial Arts - Demolish
5. Varsity Building - Retain
6. Locker Building - Demolish. Move container next to building.
7. Old PE Building - Demolish. Functions go to HPER loft.
8. Rifle Range - Demolish, program moving to Schofield.

All displaced programs will be accommodated in other facilities.

The various roadway widenings will require the relocation of some trees along University Avenue, Dole Street and Lower Campus Road. All significant trees will be relocated to other areas on the campus. The removal or relocation of major trees require the approval of the President of the University of Hawaii.

The construction of the electric substation will require the relocation of an 8 inch sewer line. The line will be upgraded to a 12-inch line as needed and realigned to accommodate the substation.

5. Recreational and Programatic Impacts

The University's basketball program has had scheduling difficulties due to the demand for the Blaisdell Center Arena. Existing University facilities are inadequate to meet its needs. Commencement exercise are held at the baseball stadium but because that facility is unprotected heavy Manoa rains often pose an inconvenience or unpleasant experience for these exercises. There is a shortage of HPER spaces for programmatic needs Klum Gym which accommodates much of the functions which the proposed arena will replace is an old facility with roof leaks, poor ventilation and inadequate capacity. Development of the arena will make many of these conditions and experiences a thing of the past. It will have a positive effect on these conditions.

6. Parking

Although the University's parking count meets code requirements the number is inadequate to meet existing demand. As a result, efforts to alleviate this situation have been ongoing. The development of the phase II parking structure is a major part of this program. The design of several other smaller parking structures are in progress. The planned parking improvements are included in the University updated CIP list (Exhibit D).

In addition, the University has been working on several Transportation System Management (TSM) programs. A commuter Program has been developed. (See Exhibit E) The program includes: carpooling, rerouting of City bus services, shuttlebus services and other facility improvements and Management Programs.

The change in the student population mix to greater numbers of nontraditional students has also helped alleviate the situation somewhat as these students do not arrive on campus at the same time as other students.

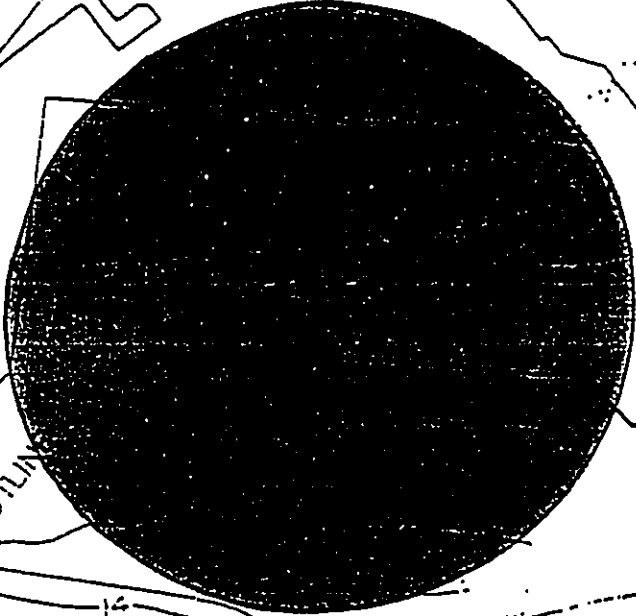
The 10,000 seat arena should not materially affect the daily parking situation at the Manoa campus. Events held there would not occur during the same time as the normal student class periods. As long as major simultaneous events are not programmed in the quarry the existing inventory of parking is sufficient to meet the LUO requirement of one parking stall for five seats.

## 7. Mass Transit

The University has always supported the use of mass transit. Currently the City and County of Honolulu is developing a rapid transit system that is projected to have its interim eastern terminus at the Makai campus. The University is cooperating with the City to develop a mutually acceptable station and alignment plan that will service the University. If successful the rapid transit system will assist in relieving the parking situation around the University by lessening the need and demand for cars. Figure 15 shows the planned alignment of the line and station in the Makai Campus.

## 8. Traffic and Circulation

A special events arena will generate increased levels of traffic at non-peak hours. It is estimated that a 10,000 seat arena will generate 3,300 trips in the one and a half hour period prior to an event. Evaluation of traffic flows indicate the demand can be met by a series of improvements and operational practices that are currently being developed. The associated roadway improvements are designed to address two separate needs: existing everyday congestion during the normal workday and traffic management during special events. The exclusive right turn lane from the freeway off ramp to the Lower Campus Road will provide a long storage capacity for traffic entering the makai campus. The additional optional right turn lane that may be coned off during special times at the intersection of Dole and Lower Campus Road is designed to accelerate circulation during special events. The widening of Lower Campus Road to accommodate additional lanes and increased ticket kiosks are designed to speed traffic flow through the site for special events or during daytime peak hours of operation. The exit ramp from the proposed Phase IIA parking structure is also designed to accelerate the movement of vehicles leaving the makai campus. Operational practices such as directing more traffic out of the Waialae gate will also facilitate circulation and movement. Assessments made during the evaluation of various arena alternatives indicate that the proposed improvements will reasonably mitigate any adverse impacts that may be generated by the development of the arena or the Phase II parking facility. A more detailed assessment of traffic and transportation impacts is given in a supplemental traffic study in Exhibit F.



U OF H SWIMMING  
POOL COMPLEX

SPECIAL EVENTS ARENA

AERIAL GUIDEWAYS

OUTLINE

LOWER

CAMPUS QUARRY STATION  
U.H. QUARRY STATION

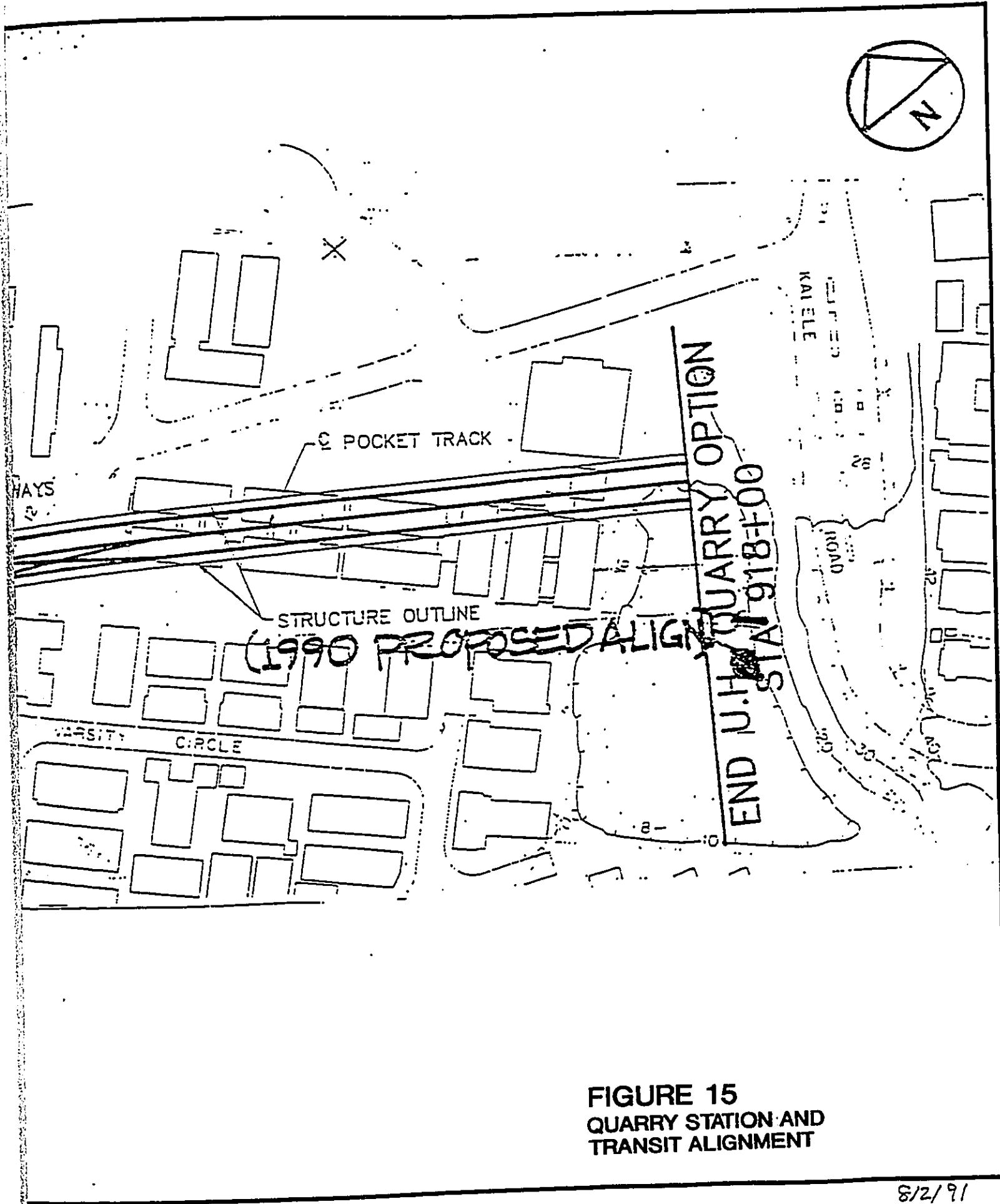
910+00

KALO

UNIVERSITY

PLACE

560+00



**FIGURE 15  
QUARRY STATION AND  
TRANSIT ALIGNMENT**

8/2/91  
11/12/8

B. Environmental Impact

Any large development will impact the area in which it is located. The issue is whether the impacts are significant and whether there are ways to mitigate any negative impacts.

1. Visual

The special events arena will be a large structure. Its 125 foot height and overall bulk will result in a loss of some views from some locations; particularly well traveled areas from which the facility will be visible are the H-1 freeway, Mauka-Makai Mall and nearby apartments and dormitories. An assessment of views was made in the initial alternatives study done in 1989. Although view impacts are significant, because the site is a developed area the impact is partially mitigated by the fact that there are other large structures in the quarry such as the baseball stadium and the parking structure. Also, because the facility is located in the quarry the effect of its height and bulk is minimized to some extent by its placement in a depression. However, because of its size impacts on views are unavoidable. This impact needs to be weighed against the benefits provided by the facility. The university feels the benefits vastly outweigh the potentially negative view impacts. From a visual and contextural sense the facility is compatible with other existing facilities in the quarry.

2. Air Quality

According to an assessment done by Barry D. Root and Barry C. Neal some locations in the University may already exceed the State AAQS for carbon monoxide during periods of traffic congestion and poor meteorological conditions. This is true whether the arena or Phase IIA Parking Structure is developed or not. According to Root and Neal the probability of this happening is very low and would only occur in worst case meteorological conditions combined with peak morning traffic. Most events in the arena will occur in the evenings. Under the vast majority of cases these carbon monoxide hot spots will not occur. The study concludes that for air quality reasons the quarry location is better than other locations considered for siting a large arena.

Mitigating measures to reduce the risk of violating air quality standards would involve measures such as express bus services, appropriate event scheduling, mass transit and TSM measures that improve traffic circulation.

### 3. Noise

Y. Ebisu and Associates studied the noise impacts of the arena in their October 1989 study. Ambient noise levels were measured at 55 dBA or less. Noise sensitive receptors in the immediate vicinity are the apartments between the Makai Campus and the H-1 Freeway. These apartments also receive noise from the freeway. Bid requirements will condition the design/build contractor to build a structure which can contain interior noises to acceptable limits. The more likely sources of noise will be the cooling towers for the air conditioning of the facility and the outdoor PA systems. On the whole, because this will be an enclosed structure with specific noise performance requirements, noise impact is expected to be well within acceptable limits.

Vehicular traffic also generates noise. However, because vehicles will be traveling at low speeds, (below 30 mph) noise generation from traffic sources is expected to be minor. Federal and State noise standards will probably not be violated.

Electrical substations also generate noise in the 50 to 60 dBA range. Although this may be a nuisance in the evening, the location of the substation places enough distance between the facility and the nearest residences that the State DOH Guideline for 45 dBA at nights in residential areas is expected to be met.

### 4. Light and Air

Placement of the arena on the HPE site will not measurably deprive adjoining residential areas of light and air. The distance of the facility from the nearest residences is approximately 190 feet. This distance is sufficient to preserve sunlight and air movement for the apartments.

### 5. Archaeological Sites

The makai campus is the site of a former quarry. As such the area has been heavily impacted and degraded in historic periods. No archaeological sites have been found in this area.

6. Water Quality

Site drainage is by the City's Storm drain system and collection basins in the quarry. No toxic substances will be disposed on site. No surface or groundwater sources will be affected by the arena or parking structure.

7. Utilities

The location, capacity and alignments of existing and proposed structures and utility improvements are shown in Figures 8, 9, 10 and 11. Water pressure is low and current electrical capacity will be inadequate if all projects presently underway are completed. The proposed utility master plans will adequately address any deficiencies in utility requirements.

**VIII. COMPATIBILITY WITH PUBLIC POLICIES**

The UHLRDP has always shown gym/arena facility in the Makai Campus. The specific location of the proposed arena had previously shown a 4,000 seat facility on the proposed site. The Phase II Parking Facility has been planned for its proposed location since before the adoption of the UHLRDP. The University's Board of Regents recently amended the UHLRDP to reflect a 10,000 seat facility on the HPE site. The proposed arena is compatible with University Policy.

The City's Development Plan land Use Map identifies the site as public facility. Colleges and Universities are standard uses in this land use designation. Public arenas and parking structures are also normal uses in this category. The proposed actions are compatible with the City's Development Plans.

The existing zoning is R-5. Public Facility uses are allowed in any zone and therefore the Arena may be developed in the district.

The University's proposed six-year plan has been approved by the City via Plan Review Use (PRU) Resolution No. 89-411, CD-2. Because the exhibit referenced in the PRU shows a 4,000 seat facility, an amendment application is being prepared to revise the number to 10,000. This is to make it consistent with the policy adopted by the Board of Regents. X



## IX. ALTERNATIVE ACTIONS

Several alternatives were evaluated in the planning for the arena; including the "no build" options. Facility sizes ranged from 4000 to 18,000 seats. Three off campus and three on campus sites were evaluated. The review of these options are found in the report entitled University of Hawaii, Manoa Campus Health and Physical Education (HPE) Facility Alternative Study, November 1989. Ultimately, the present proposal was chosen on the basis that it was economically acceptable, would meet a broad range of needs and minimize disruptions on other University facilities and programs.

## X. SUMMARY OF IMPACTS

The construction of the Special Events Arena is not expected to have any significant adverse environmental impacts. An environmental impact statement, therefore, is not necessary.

The project would not destroy any important natural or cultural resources.

The range of beneficial uses of the surrounding environment would not be curtailed.

There are no conflicts with the State's long-term environmental standards and goals.

On balance the arena will have a positive economic and social impact on the welfare of the community.

The time and materials used for development would be the only significant irrevocable or irretrievable commitment of resource.

The public health would not be adversely affected.

A substantial degradation of environmental quality is not expected.

Significant negative secondary impacts are not expected.

A commitment to larger actions would not be required, nor are cumulative impacts from the project expected.

Rare, threatened, or endangered species are not affected.

Environmentally sensitive areas, such as flood plains, tsunami inundation zones, erosion prone areas, and pristine coastal waters, would not be affected as none exist on the sites.

#### ENVIRONMENTAL EFFECTS DURING CONSTRUCTION

Approximately 125 parking stalls will be lost during construction. A temporary parking phasing plan is being developed to mitigate this impact.

Noise levels would increase during construction. The community noise code will be followed to minimize impacts.

Erosion and sedimentation would increase during construction. Standard erosion control measures will be used.

Dust would increase and air quality would worsen during construction. Standard dust control measures will be implemented to minimize impacts.

#### LONG-TERM ENVIRONMENTAL EFFECTS

Aside from the possibility of microclimatic changes and the need to relocate several mature trees, no major adverse, long-term environmental effects are expected. The site would be replanted in accordance with a landscape plan. The loss of some view channels is a long term effect. Appropriate landscaping and location in the quarry will help minimize adverse impacts.

EXHIBIT A

**EXHIBIT A**

**LONG-RANGE DEVELOPMENT  
PLAN FOR THE SITE**

ATTACHMENT A

**40 PE PLAZA**

A plaza should be developed in the open area created between PE Facilities Phase 1 and the Arena (Figure C.20). It may be a multiple-level plaza, providing a physical connection between the floor levels of the Arena with the two floor levels of the PE Facilities. A portion of the Mauka-Makai Mall will delineate the Koko Head edge of this plaza. During the day, the PE Plaza will serve as a gathering space for students attending classes or participating in athletic activities. It will also serve as a place for athletic rallies or for outdoor forums.

The PE Plaza will also be located directly mauka of the proposed 10,000-seat Arena. In the evenings, the plaza will provide a pre-function gathering space for events to be held in the Arena.



FIGURE C.20: PE PLAZA SITE

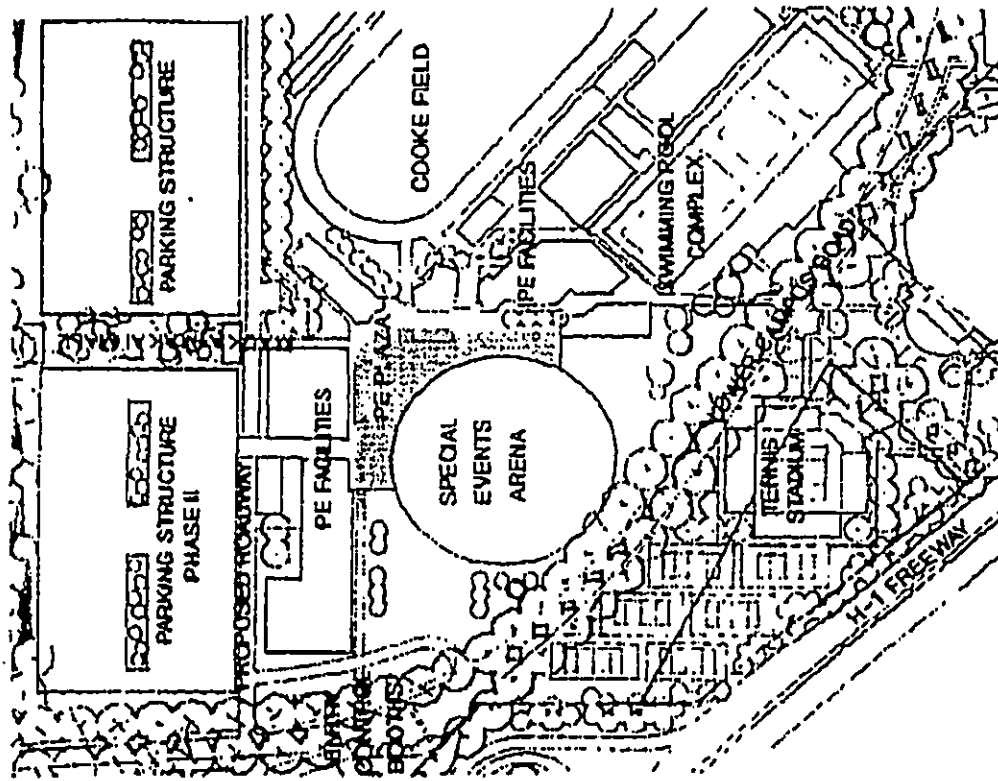


FIGURE C.21 PE PLAZA PLAN

Design Criteria:

- a. The PE Plaza should be designed to be primarily a paved plaza with a minimum of obstructions to pedestrian movement. The plaza should be completely open, physically and visually, to the Mauka-Makai Mall (Figure C.21). An open stairway should connect the Plaza's levels with each other and those of the Mauka-Makai Mall.
- b. An open, landscaped court with shade trees and bench-type seating should be provided within the PE Plaza to permit maximum natural light to penetrate each Plaza level. The plaza will provide a public space for people to congregate before and after events. Exterior areas for meeting and lounging, and landscaping should add interest to pedestrian areas adjacent to the Arena.
- c. The plaza should include within its landscape design a paved circulation corridor to the future Parking Structure Phase II (the site presently occupied by Klum Gym) at the second story level of the existing PE Facilities Phase I building mauka of the Arena (Figure C.21).

JAN- 2-92 THU 15:58

UH VP FINANCE

FAX NO. 8089569212

P. 10



RENDERING TO BE INSERTED

C-29

- d. The plaza should provide safe and convenient access for the physically challenged and allow access for emergency and service vehicles. Bicycles, mopeds, and motor scooters should not be allowed on the plaza.
- e. The plaza should have night lighting, telephones, and waste receptacles.
- f. There should be consistent graphics (directories and directional signage) throughout the plaza.



## 5.0 BUILDINGS

### 5.1 Special Events Arena

The Arena will provide the university a large assembly space for sporting events (primarily basketball and volleyball), commencement, and other special events (Figure C.23). A new Arena will include: permanent seating for 10,000 people, a playing floor for basketball and volleyball, and a 10,000 square foot weight room, and support facilities including lockers, showers, a kitchen and concession space, training rooms, and hospitality room. Re-alignment of the Lower Campus Road will be necessary to accommodate a facility of this size.

The existing PE Facilities (Phase I) consist of: two gymnasiums (which provide basketball, badminton and volleyball courts); studios for wrestling, dance and martial arts; administrative and staff offices; lecture hall, and support facilities such as lockers, showers, storage areas, weight rooms, and training rooms.

Older existing permanent athletic facilities may not be removed during the development of the Arena. Klum Gym may be demolished after the completion of the arena to allow the construction of Parking Structure Phase II.



FIGURE C.23: SPECIAL EVENTS ARENA SITE

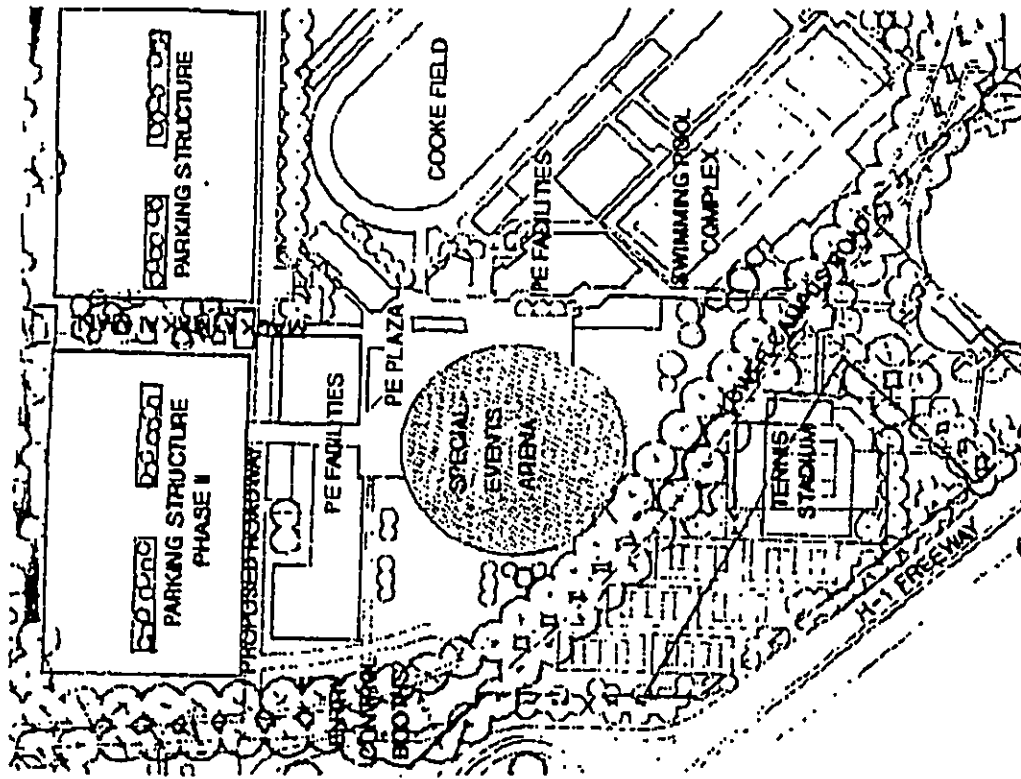


FIGURE C-24: SPECIAL EVENTS ARENA

Design Criteria:

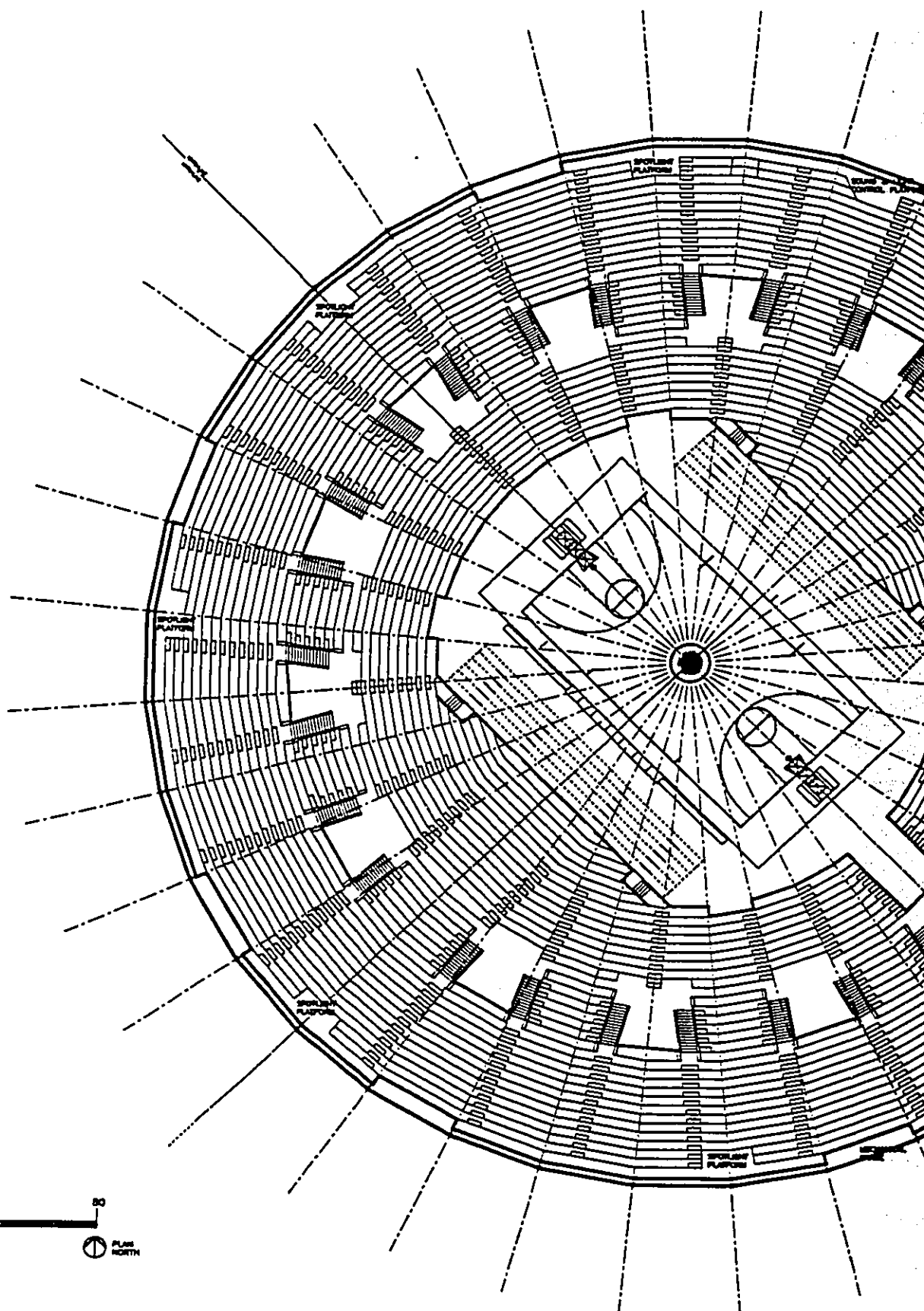
- a. The apparent bulk of the facility should be minimized by utilization of appropriate design elements, such as articulation of the building mass, color, texture, and fenestration. Extensive landscaping should be utilized, as well, to mitigate the perception of the building's mass, both vertically and horizontally. The exterior wall materials and treatment should be visually compatible with the existing Physical Education facilities on the Makai Campus.
- b. The seating capacity of the Arena and the need for a long clear span will probably require the height of the arena to exceed the height of the mauka cliff of the Makai Campus (approximately 50 feet), thus impacting views from the Upper Central Campus. The building height should be minimized as much as it is structurally practical, such as by depressing grades and interior floor levels, and by minimizing the rise of the main structural dome. The building's roof should not rise above a maximum elevation of 125 feet above mean sea level.

# CORRECTION

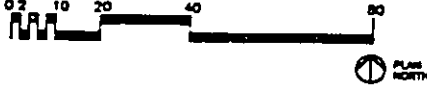
THE PRECEDING DOCUMENT(S) HAS  
BEEN REPHOTOGRAPHED TO ASSURE  
LEGIBILITY  
SEE FRAME(S)  
IMMEDIATELY FOLLOWING

- c. The roof will be a very visible feature of the Arena from the cliff along the mauka portion of the Makai Campus and the upper levels of the Mauka-Makai Mall. The roof's contours, texture, color, and weatherability must be visually attractive for its lifetime, and yet be visually compatible with the existing Physical Education facilities on the Makai Campus.
- d. For users, ceiling heights, walkways widths, and walls should be human-scale along the Mauka-Makai Mall. Interesting surface treatments, exterior areas for meeting or lounging, and landscaping should be used to add interest to pedestrian areas.
- e. The Arena's interior and exterior design should provide for both day and night use of facilities. The arena will generally be used for physical education classes during the day, and for intramural and University team play in the evenings.
- f. The construction of the Arena should include the development of the PE Plaza.
- g. The construction of the Arena should include integration with the City's mass transit line which is proposed to extend into, and terminate at, the Makai Campus.
- h. Clear and consistent signage should be installed throughout the facilities.
- i. Access for the physically challenged should be provided throughout. Wherever possible, level changes should be accomplished with ramps rather than stairs or elevators. However, elevator access to all levels should be provided.

EXHIBIT B

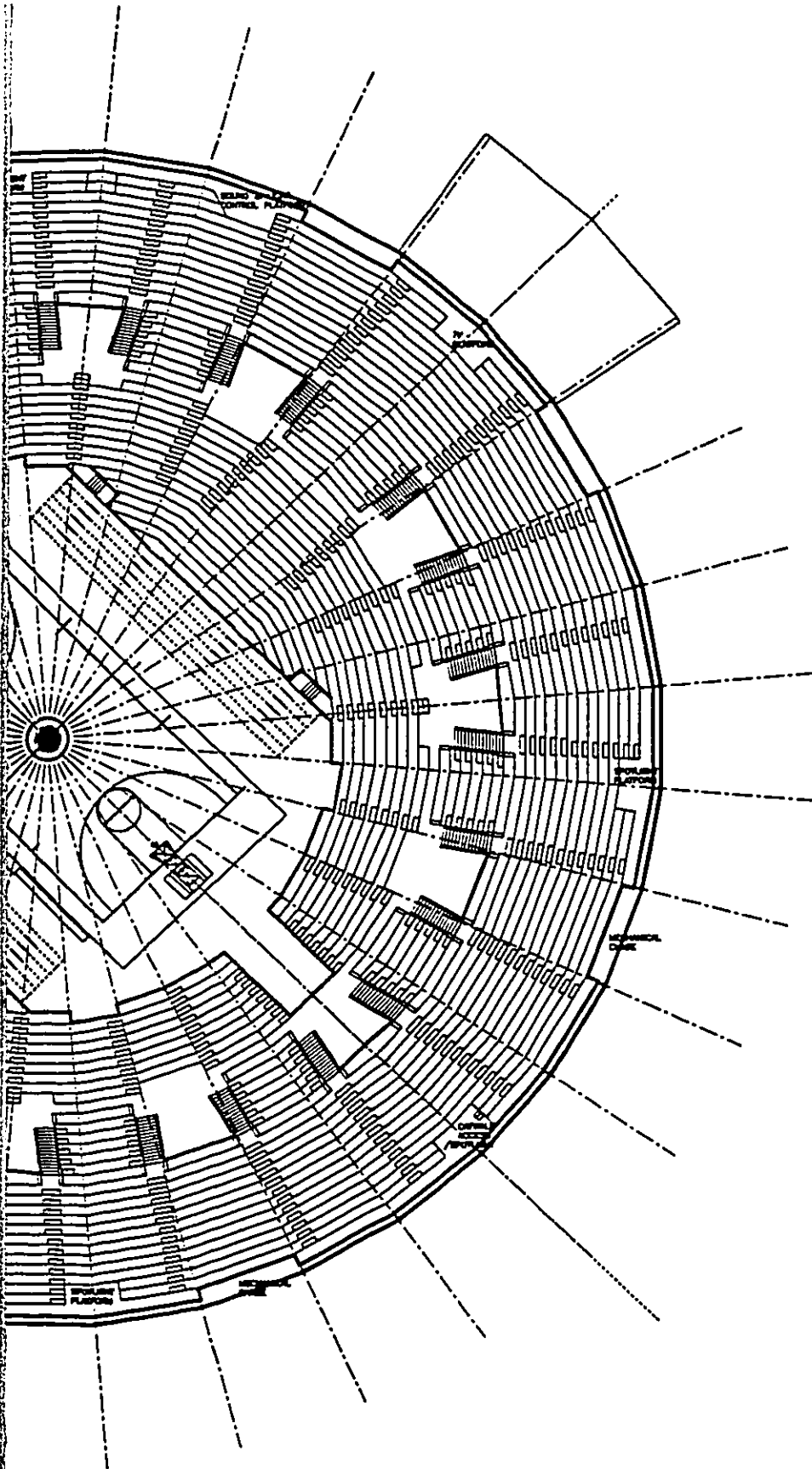


1. SEATING BOWL



General Notes

TOTAL SEAT COUNT 8750



**GROUP 70**  
ARCHITECTS  
PLANNERS  
INTERIOR DESIGNERS

924 Bethel Street  
Honolulu, Hawaii 96813  
Phone (808) 523-5666  
Fax (808) 523-5874

CA Architects, Inc.

PROJECT TITLE

**SPECIAL EVENTS  
ARENA &  
ATHLETICS  
SUPPORT  
FACILITY**

UNIVERSITY OF HAWAII AT MANA

DACS JOB NO. 12-31-3000

DRAWING TITLE

**FLOOR PLAN  
SEATING BOWL**

SCALE: 1"=18'-0"

DRAWN BY:

CHECKED BY:

PROJECT NO.

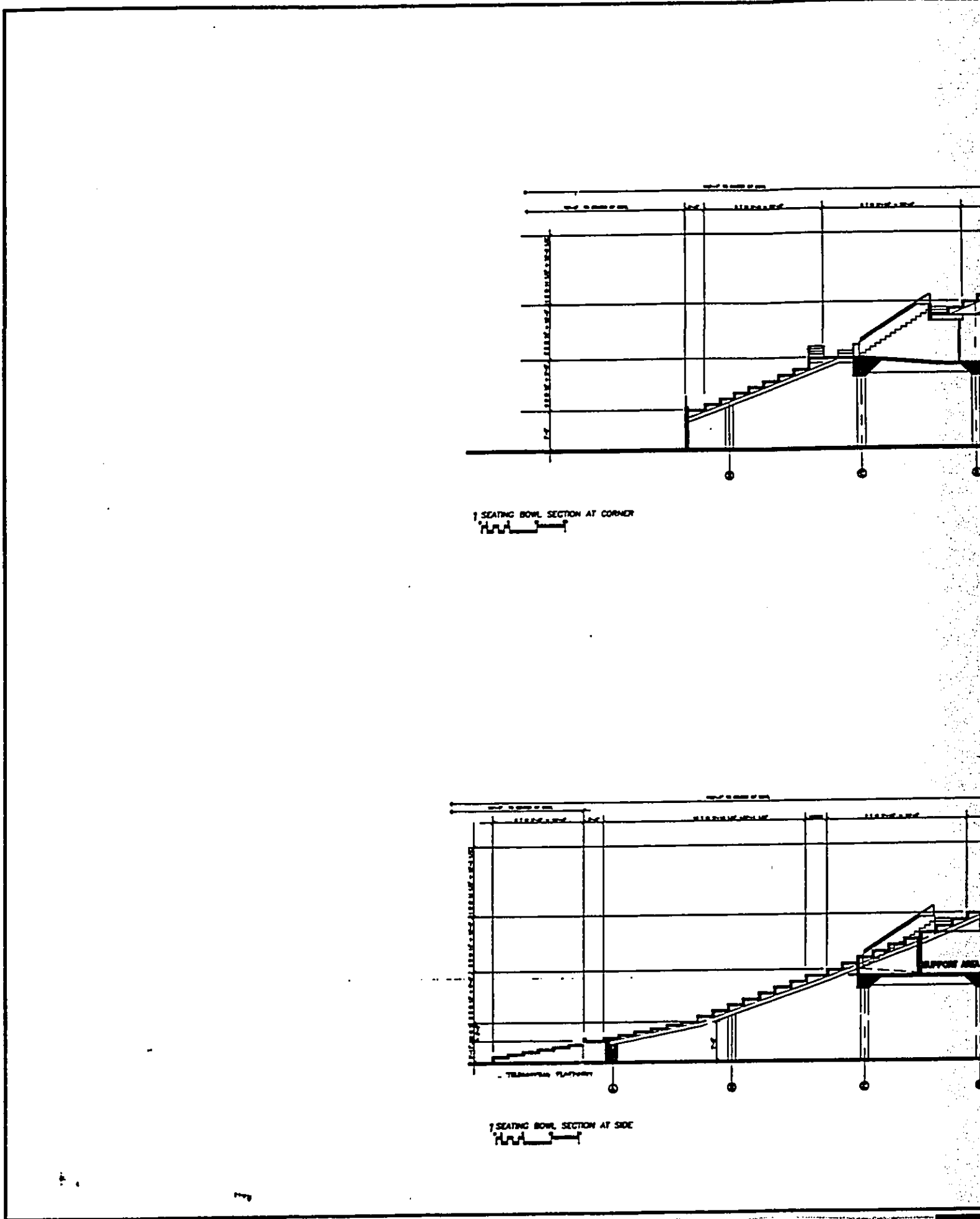
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DRAWING NO.

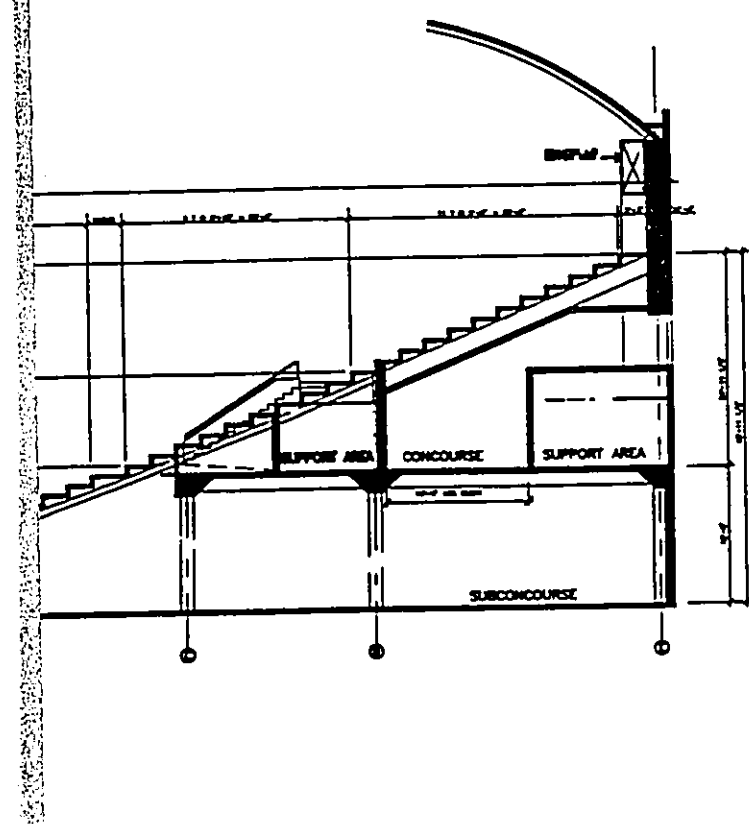
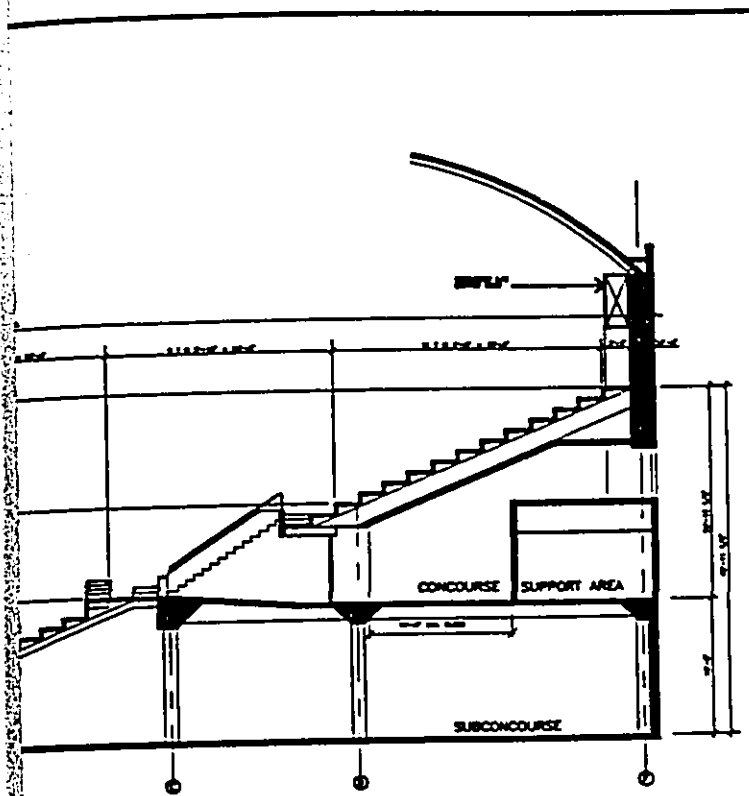
A-4

DATE

3 OCT 81







**GROUP 70**  
 ARCHITECTS  
 PLANNERS  
 INTERIOR DESIGNERS

924 Bethel Street  
 Honolulu, Hawaii 96813  
 Phone (808) 523-5864  
 Fax (808) 523-5874

CA Architecture

PROJECT TITLE  
**SPECIAL EVENTS  
 ARENA &  
 ATHLETICS  
 SUPPORT  
 FACILITY**  
 UNIVERSITY OF HAWAII AT MANOA  
 DACS JOB NO. 12-31-8000

DRAWING TITLE  
**PARTIAL  
 BUILDING  
 SECTIONS**

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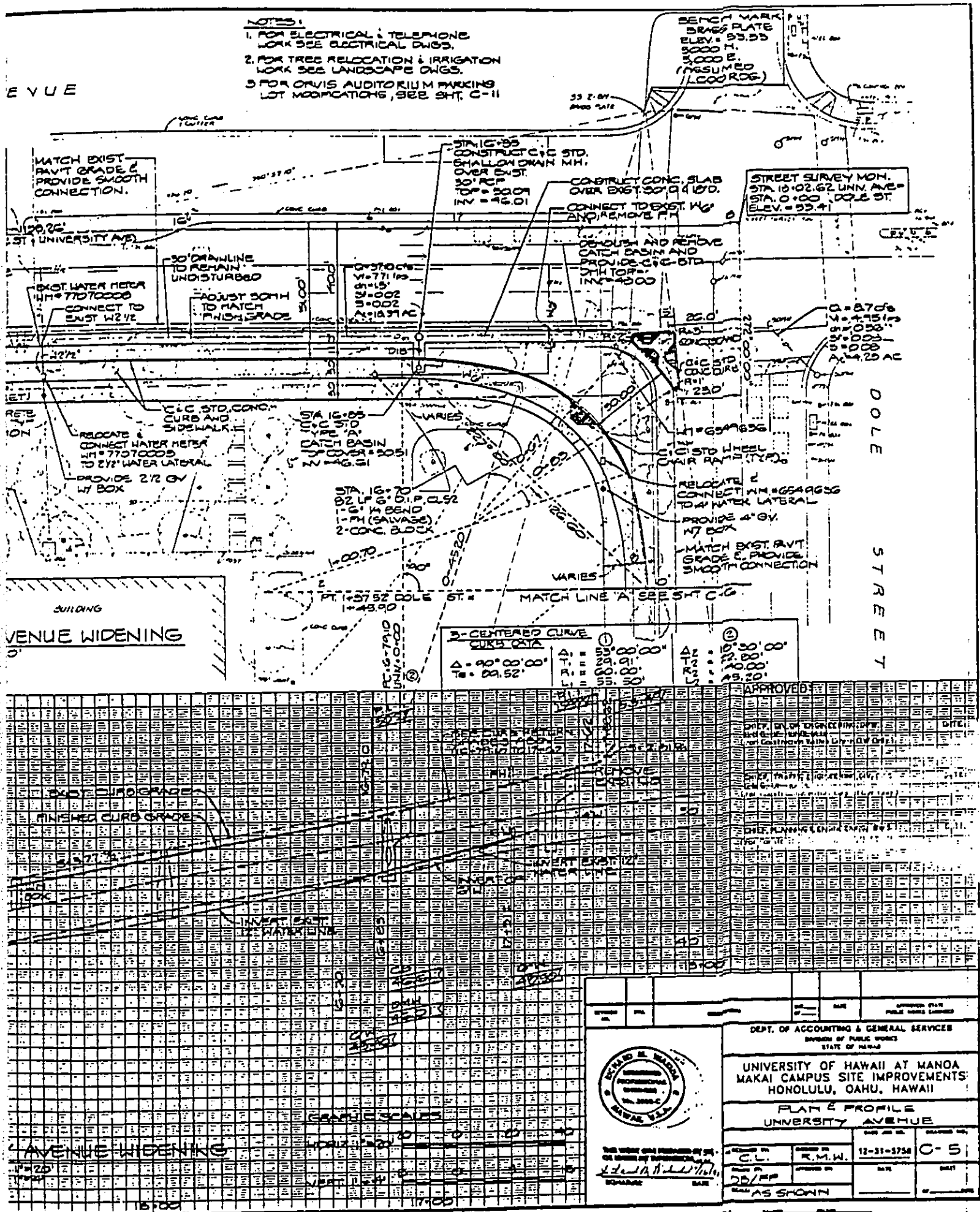
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DATE 3 OCT 81	

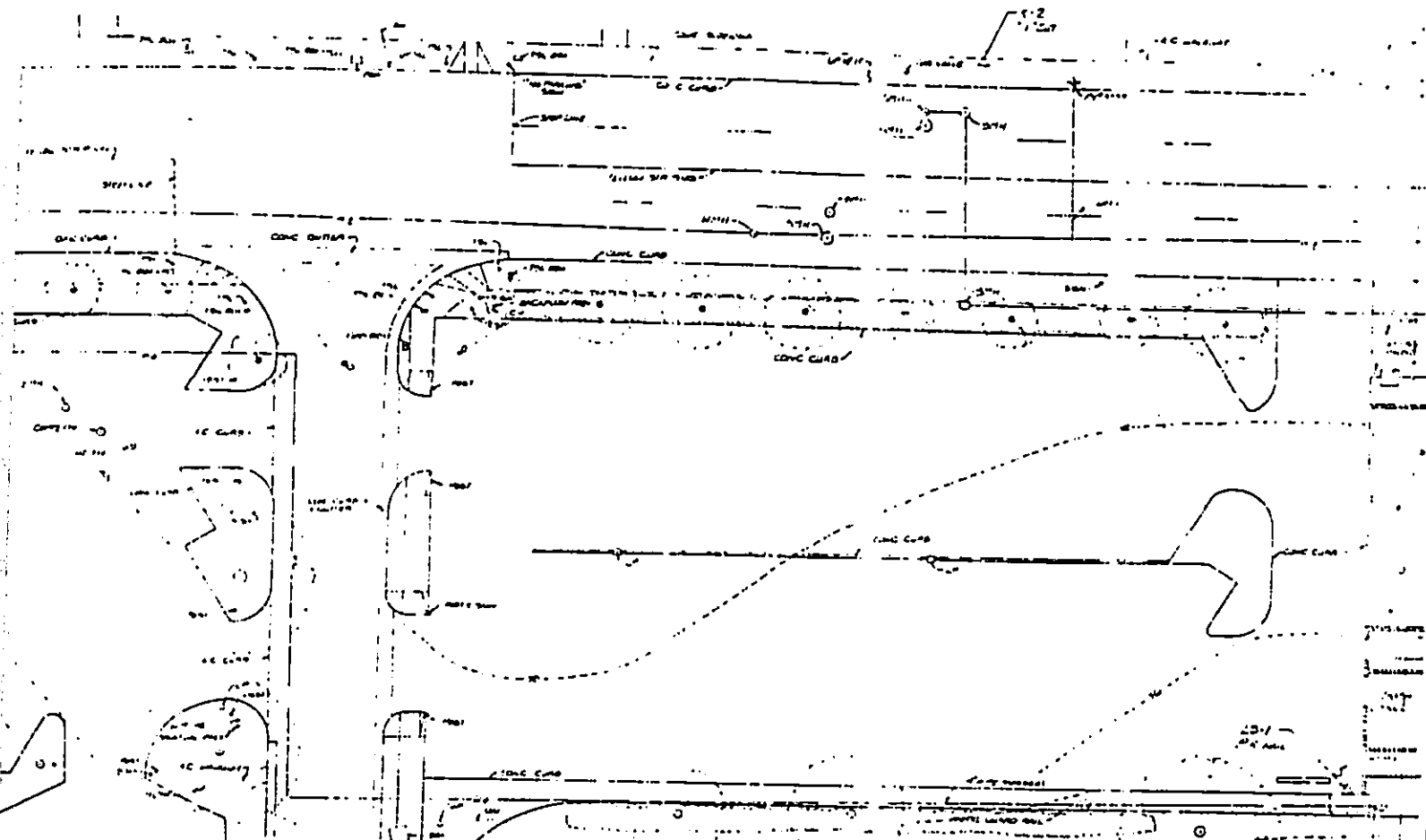
EXHIBIT C



DOCUMENT CAPTURED AS RECEIVED



STREET



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APPROVED

CHIEF, DIV. OF ENGINEERING & CONSTRUCTION  
 (For Construction - Manoa Dry Run, Dist.)

CHIEF, DIV. OF ENGINEERING & CONSTRUCTION  
 (For Construction - Manoa Dry Run, Dist.)

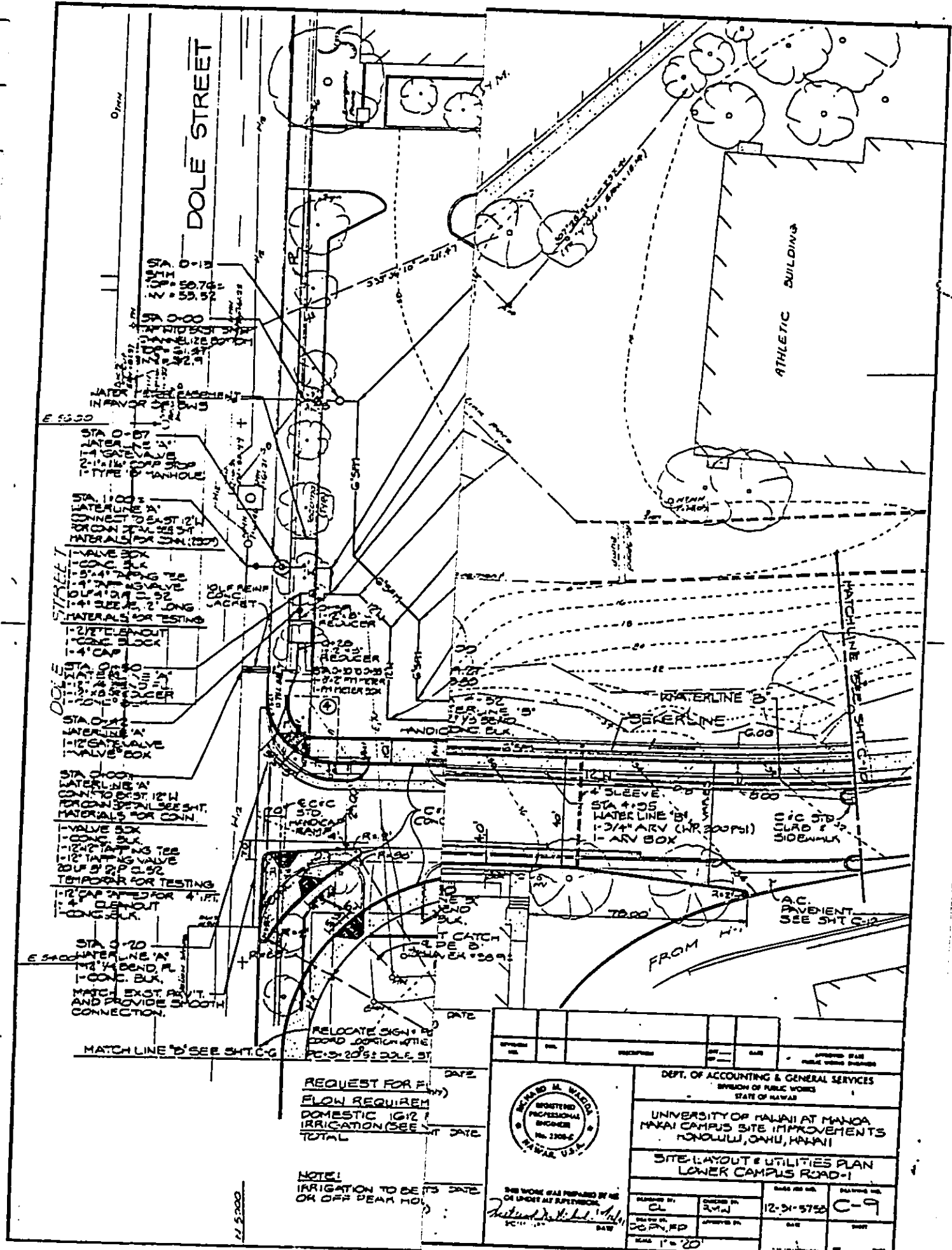
CHIEF, DIV. OF ENGINEERING & CONSTRUCTION  
 (For Construction - Manoa Dry Run, Dist.)

DATE

NO.	DATE	DESCRIPTION	BY	DATE	APPROVED BY
DEPT. OF ACCOUNTING & GENERAL SERVICES DIVISION OF PUBLIC WORKS STATE OF HAWAII					
UNIVERSITY OF HAWAII AT MANOA MAKAI CAMPUS SITE IMPROVEMENTS HONOLULU, OAHU, HAWAII					
PLAN & PROFILE - DOL & STREET					
DESIGNED BY	CHECKED BY	DATE	SCALE	DATE	SCALE
CM	AMJ	12-31-5754	C-G		
DRAWN BY	APPROVED BY	DATE	SCALE	DATE	SCALE
EP					



EDWARD M. WAIWAI  
 LICENSE NO. 12345  
 STATE OF HAWAII



DOLE STREET

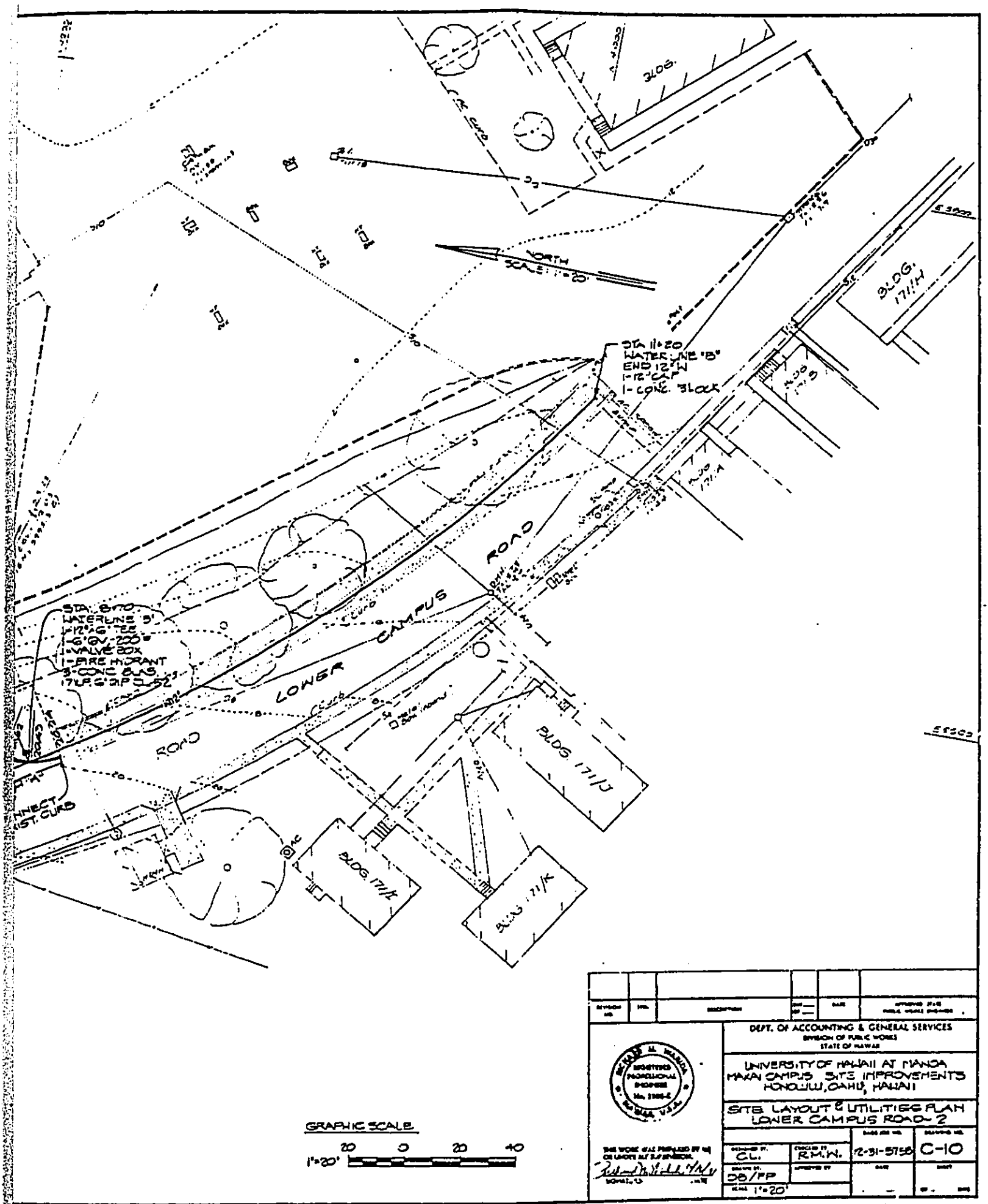
ATHLETIC BUILDING

STA 0+00  
 WATERLINE 'A'  
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 MATERIALS FOR CONN.  
 1-VALVE BOX  
 1-CONC. BUX.  
 1-12" TAPPING TEE  
 1-12" TAPPING VALVE  
 20' 9" 2" 2" 2" 2"  
 TEMPORARY FOR TESTING  
 1-12" CAP TAPPED FOR 4" INT.  
 1-4" DEMOUNT  
 LONG CON. BUX.

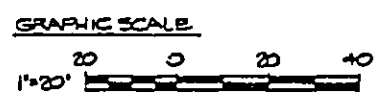
REQUEST FOR FLOW REQUIREMENT  
 DOMESTIC IRRIGATION (SEE SHT C-10)  
 TOTAL

DATE	12-21-57
RELOCATE SIGN TO EXIST. LOCATION AT THE INTERSECTION OF DOLE ST. & HATCHLINE	
NOTE: IRRIGATION TO BE IN PLACE ON OFF PEAK HOURS	
	DEPT. OF ACCOUNTING & GENERAL SERVICES DIVISION OF PUBLIC WORKS STATE OF HAWAII UNIVERSITY OF HAWAII AT MANOA MAKAI CAMPUS SITE IMPROVEMENTS HONOLULU, OAHU, HAWAII SITE LAYOUT & UTILITIES PLAN LOWER CAMPUS ROAD-1
DRAWING NO. CL CHECKED BY R.M.J. DESIGNED BY C.P.N./E.P. SCALE 1"=20'	DATE FOR SET 12-21-57 DRAWING NO. C-9





DATE	REVISION	BY	CHKD	APP'D	APPROVING STATE PUBLIC WORKS ENGINEER
DEPT. OF ACCOUNTING & GENERAL SERVICES DIVISION OF PUBLIC WORKS STATE OF HAWAII					
UNIVERSITY OF HAWAII AT MANOA MAKA CAMPUS SITE IMPROVEMENTS HONOLULU, OAHU, HAWAII					
SITE LAYOUT & UTILITIES PLAN LOWER CAMPUS ROAD 2					
DESIGNED BY	CHECKED BY	DATE	SCALE	PROJECT NO.	DRAWING NO.
CL	R.M.W.	2-31-57	1"=20'	57502	C-10
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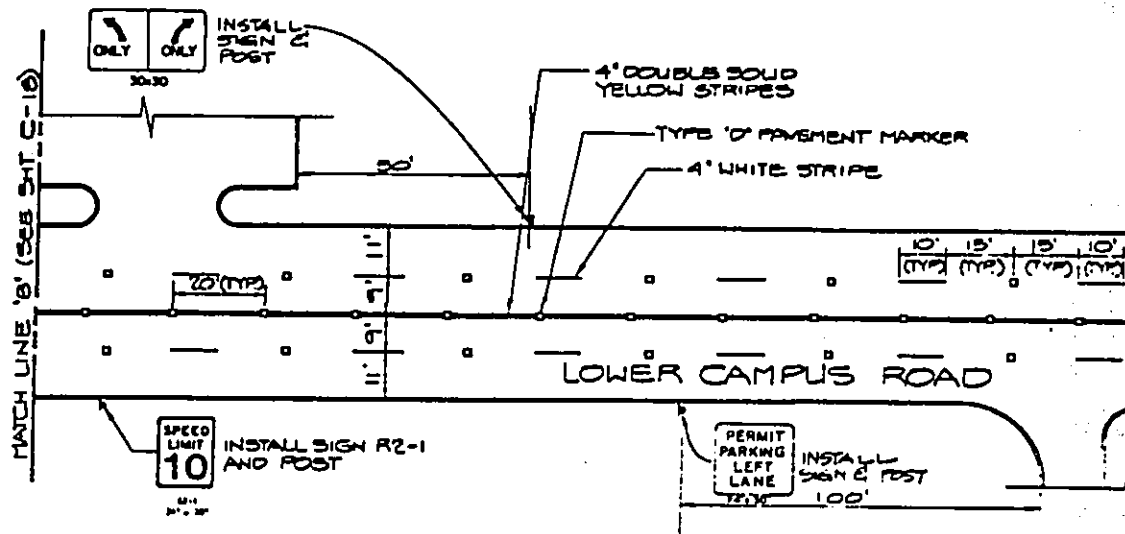


THE WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION  
*Robert M. Williams*  
 ENGINEER  
 HONOLULU, O.

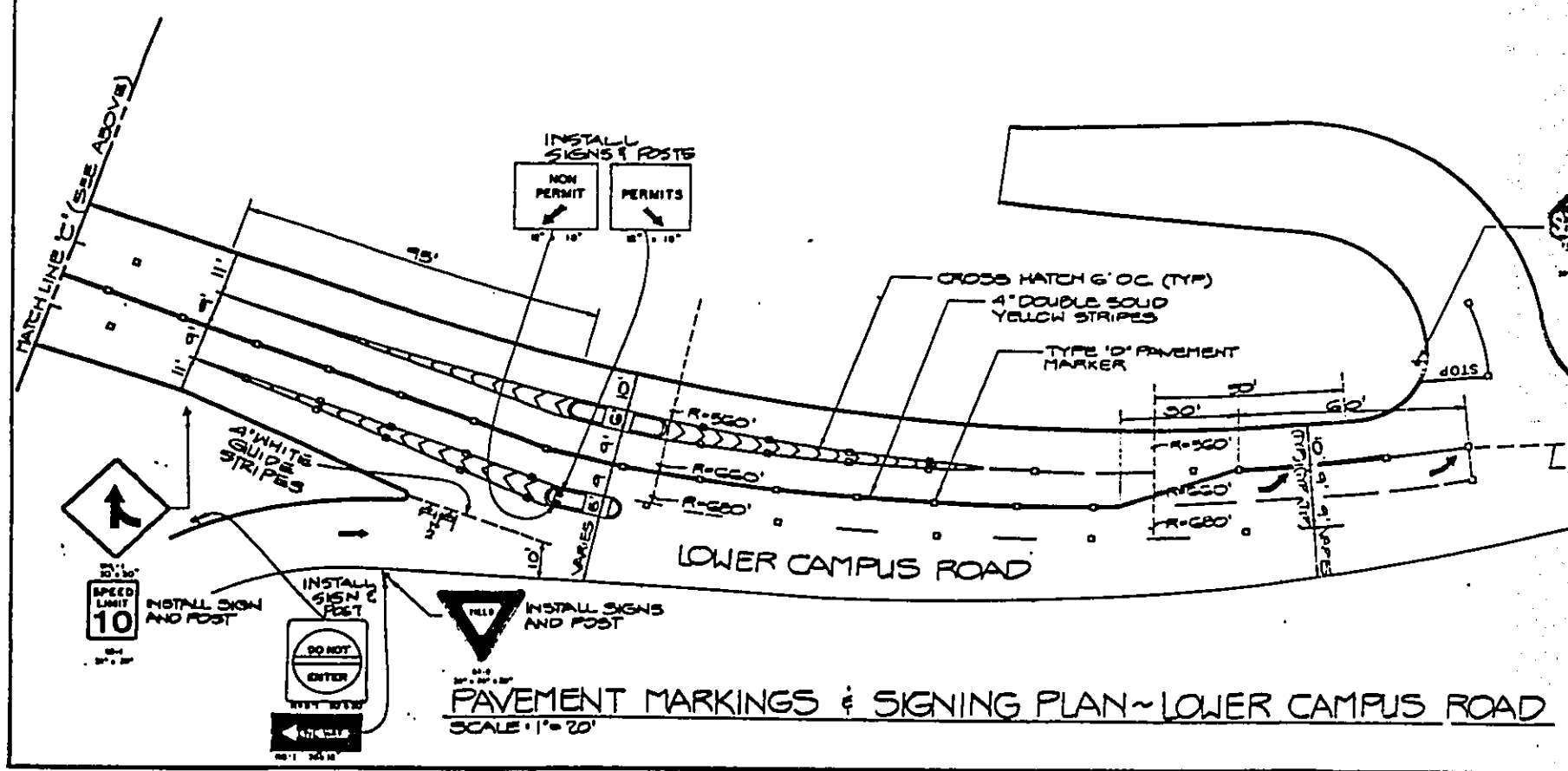






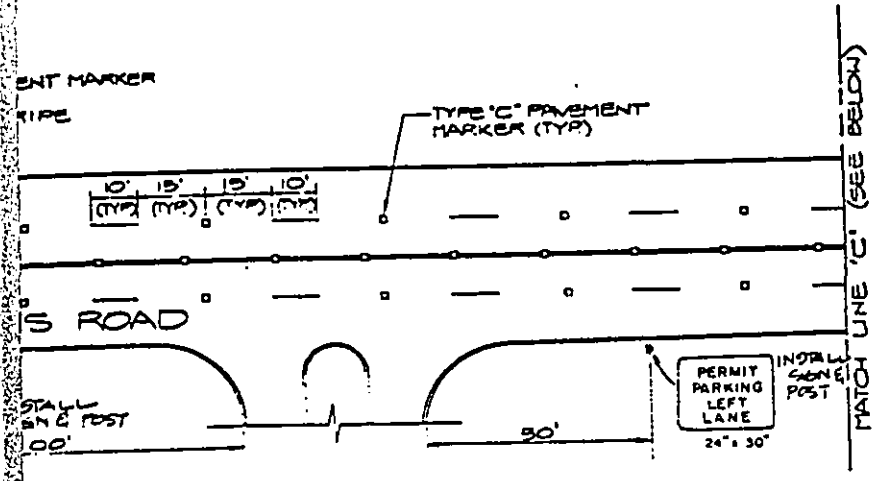


PAVEMENT MARKINGS & SIGNING PLAN ~ LOWER CAMPUS ROAD  
SCALE: 1" = 20'



PAVEMENT MARKINGS & SIGNING PLAN ~ LOWER CAMPUS ROAD  
SCALE: 1" = 20'

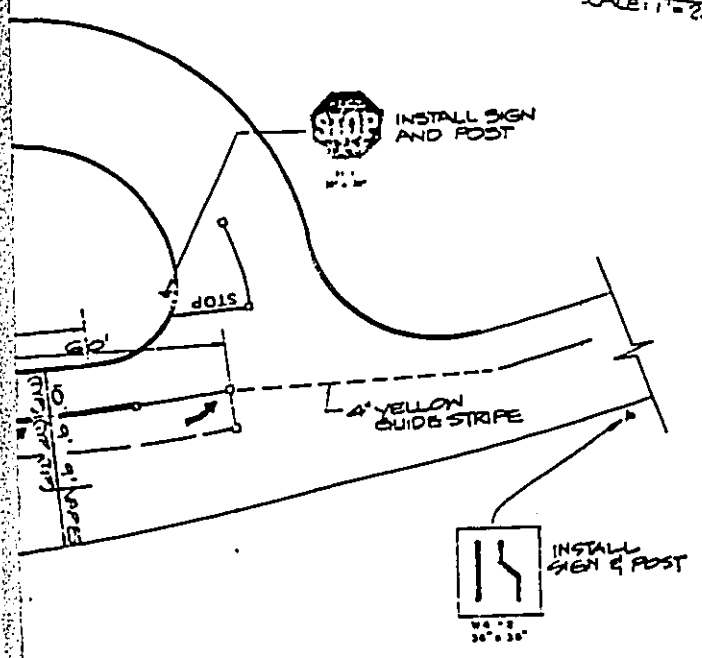
TRUE NORTH  
SCALE 1" = 20'



NOTE:  
CONTRACTOR TO REMOVE ANY EXIST. STRIPING THAT CONFLICTS WITH THIS PLAN'S MARKINGS.

PLAN - LOWER CAMPUS ROAD

TRUE NORTH  
SCALE 1" = 20'



CAMPUS ROAD

NO.	DATE	DESCRIPTION	BY	DATE	APPROVED BY
DEPT. OF ACCOUNTING & GENERAL SERVICES DIVISION OF PUBLIC WORKS STATE OF HAWAII					
UNIVERSITY OF HAWAII AT MANOA MAKAI CAMPUS SITE IMPROVEMENTS HONOLULU, OAHU, HAWAII					
PAVEMENT MARKINGS & SIGNING PLAN LOWER CAMPUS ROAD					
		DRAWN BY <b>CL</b>	CHECKED BY <b>RMW</b>	SCALE AND JOB NO. 12-31-5750	DRAWING NO. <b>C-19</b>
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. <i>Ronald M. Wilson</i> SIGNATURE DATE		MADE BY <b>OB/PP</b>	APPROVED BY DATE	SHEET NO.	OF SHEETS
SCALE 1" = 20'					

EXHIBIT D

EXHIBIT "S" (continued)  
Amended 1/13/92

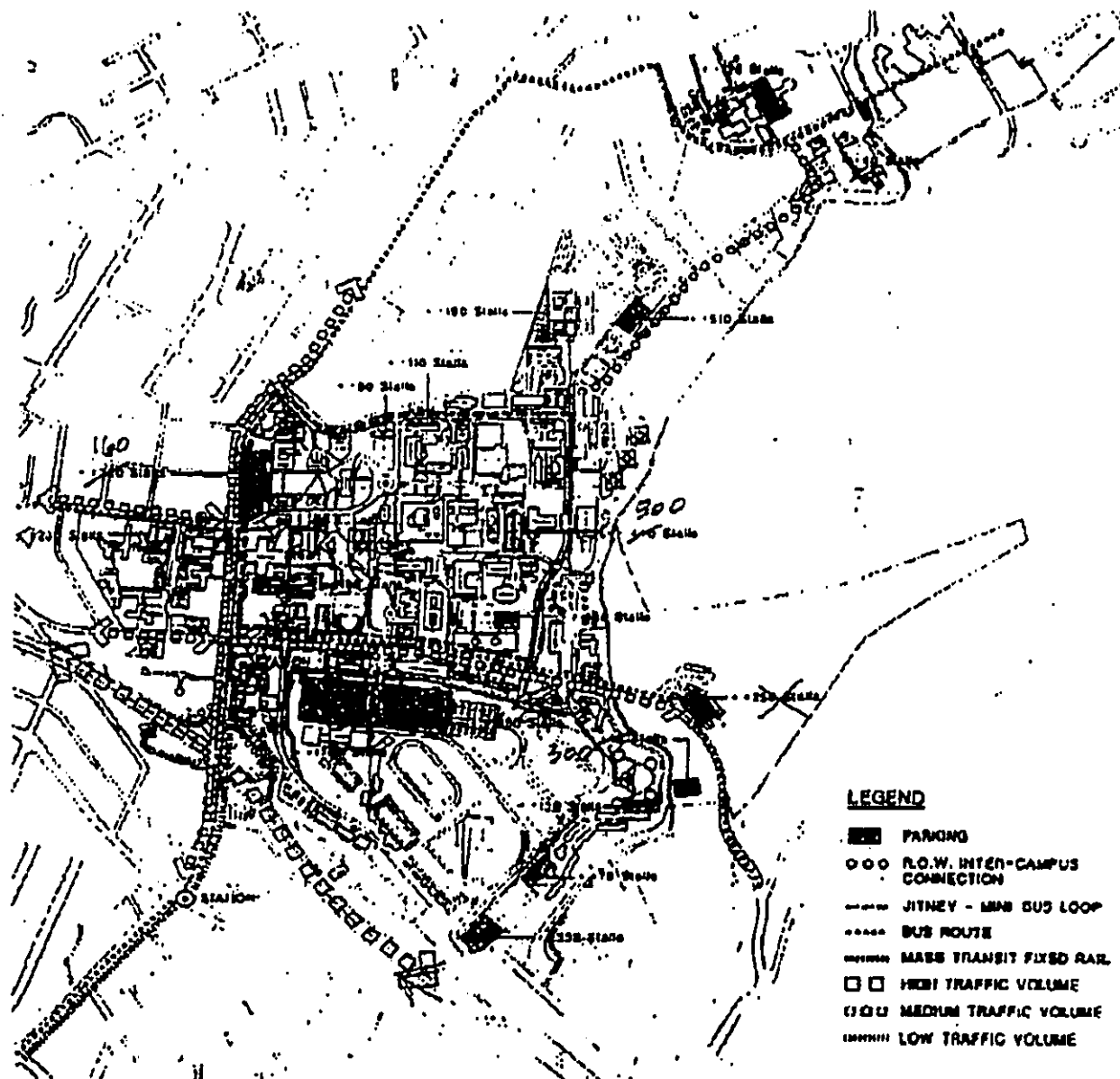
## ON-SITE LUO PARKING REQUIREMENTS

Project	Parking Standard	Est. Gross Area (Sq. Ft.)	Est. Admin. Office Space (Sq. Ft.)	LUO Parking Requirements
1. School of Architecture with parking	1 space per 400 sq. ft. of Admin. Office Space	35,000	10,000	25
2. Student Housing (150 Units)	.75 space per unit	84,000	--	113
3. Student Services Center	1 space per 400 sq. ft. of Admin. Office Space	103,000	30,000	75
4. Center for Hawaiian Studies	1 space per 400 sq. ft. of Admin. Office Space	20,000	10,000	25
5. Pacific Ocean Science & Technology Center	1 space per 400 sq. ft. of Admin. Office Space	225,000	30,000	75
6. School for Hawaiian, Asian and Pacific Studies	1 space per 400 sq. ft. of Admin. Office Space	120,000	30,000	75
7. Kennedy Theater Addition	1 space per 400 sq. ft. of Admin. Office Space	123,000	20,000	50
8. College of Education Complex, Phase I	1 space per 400 sq. ft. of Admin. Office Space	75,000	13,000	33
9. Special Events Arena (10,000 seats)	1 space per 5 seats	--	--	2,000
10. Agricultural Science Facilities, Ph. III	1 space per 400 sq. ft. of Admin. Office Space	90,000	20,000	50
11. Manoa Innovation Center	1 space per 400 sq. ft. of Admin. Office Space	50,000	25,000	63

EXHIBIT "G" (continued)  
Amended 1/13/92

ON-SITE LUD PARKING REQUIREMENTS

Project	Parking Standard	Est. Gross Area (Sq. Ft.)	Est. Admin. Office Space (Sq. Ft.)	LUD Parking Requirements
12. Food Service Facility	1 space per 400 sq. ft. of Admin. Office Space	27,000	400	1
13. Hamilton Library, Phase III	1 space per 300 sq. ft. of library space	153,000	--	510
14. Faculty Housing (180 Units)	1-1/2 spaces per unit	235,000	--	270
15. University Club	1 space per 400 sq. ft. of Admin. Office Space	18,000	400	1
Total:				<u>3,366</u>
Total required under LUD				3,366
Total proposed:				1,948
Total existing:				<u>5,128</u>
Total provided:				<u>7,076</u>



- LEGEND**
- ▬ PARKING
  - ⋯⋯ R.O.W. INTER-CAMPUS CONNECTION
  - - - - JITNEY - MASS BUS LOOP
  - ⋯⋯⋯ BUS ROUTE
  - ⋯⋯⋯ MASS TRANSIT FIXED RAIL
  - ▬▬▬ HEAVY TRAFFIC VOLUME
  - - - - MEDIUM TRAFFIC VOLUME
  - ⋯⋯⋯ LOW TRAFFIC VOLUME

**PARKING ANALYSIS**  
 GRAPHIC SCALE  
 600' 0' 600' 1000' 1500'

SOURCE: GROUP 70

<p>GROUP 70  <b>TRAFFIC IMPACT REPORT FOR          THE UNIVERSITY OF HAWAII          LONG RANGE DEVELOPMENT PLAN          HONOLULU, OAHU, HAWAII</b></p>	<p><b>ATA</b> AUSTIN, TSUTSUMI, &amp; ASSOC., INC.          ENGINEERS SURVEYORS - HAWAII</p> <p><b>PARKING ANALYSIS</b></p>	<p><b>EXHIBIT</b>  <b>5</b></p>
--	---	-------------------------------------



EXHIBIT E

**R** E C E I V E D  
DEC 19 1991

GROUP 70  
LIMITED



**University of Hawaii at Manoa**

Facilities Planning and Management Office  
Physical Plant Building • 2002 East-West Road  
Honolulu, Hawaii 96822  
FAX NO. (808) 956-5385

Date December 19, 1991

**FAX TRANSMITTAL**

TO: George Atta  
Group 70

FROM: Clyde F. Akita  
Campus Planner

RE: Commuter Plan for University of Hawaii at Manoa  
January 1991

Transmitting 13 sheets including this cover sheet. Please notify Facilities Planning and Management Office immediately if materials forwarded are not legible at 956-8961, FAX 956-5385.

An Equal Opportunity Employer

COMMUTER PLAN FOR  
UNIVERSITY OF HAWAII AT MANOA

JANUARY 1991

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## I. Introduction

The position of University Commuter Program Development Coordinator was temporarily established on December 12, 1989, to comply with one of the conditions for the approval of the Long Range Development Plan for the Manoa Campus by the City and County of Honolulu. The Legislature in the 1990-91 Supplemental Budget established the position as permanent and on July 1, 1990, the University converted the position to permanent status.

The University Commuter Program Development Coordinator is responsible for the following:

### A. Long Range Planning and Policy Development

1. To plan, develop and coordinate a systemwide long range plan for resolving transportation and traffic congestion problems created at each campus with emphasis initially at the Manoa Campus.

### B. Develop a Mass Transit/Rideshare Program

1. To plan, organize, coordinate and promote a mass transit program which will encourage students, faculty and staff to use the bus system and other systems rather than their private vehicles for transportation.

### C. University Representative/Liaison

1. Serve as the designated representative of the University to meet with City and State agencies to alleviate the increasing traffic problems during the work week.
2. Attend public hearings to testify on behalf of the University its involvement and willingness to help reduce traffic congestion.
3. Attend meetings of community groups to hear their complaints and report on the progress made by the University.

## II. Current Situation

For the academic year 1989-90, the following statistics are provided:

A. Parking stalls

1. As of the 1990 Spring Semester, the University of Hawaii at Manoa (UHM) inventory of parking stalls was as follows:

Permit stalls	3,928	74.8%
Daily stalls	1,095	20.9
Other stalls	<u>227</u>	<u>4.3</u>
Total	5,250	100.0%

B. Permits Sold as of May, 1990

Faculty/Staff	3,674	64.1%
Students	<u>2,062</u>	<u>35.9</u>
Total	5,736	100.0%

C. Summary of Permits Available and Permits Sold

1. The permit stalls are oversold at a ratio of 1:46 to 1.

Computation:

Permit sold	5,736	
Permit stalls	<u>3,928</u>	= 1.46

D. UHM Population

Faculty/Staff (as of June, 1990)	5,683
Full-time Students (as of July, 1990)	<u>16,816</u>
Total	22,499

E. Permit Issuance Policy

1. Faculty/Staff have first priority for parking permits. UHM Departments apply and receive their parking zone assignments from the Parking Office. The Department Heads then assign the parking zone to their respective employees.

2. Classified graduate students and continuing seniors requesting permits are entered into a lottery system for the remaining permits.
3. 250 parking permits are reserved for UHM student carpoolers per year.

F. Commuting Start Point (Local Address) of Population

Honolulu = Hawaii Kai to Hickam AFB  
 Leeward = Aiea to Waianae to Wahiawa  
 Windward = Halaiwa to Waimanalo

Faculty/Staff - June, 1990

Honolulu	4,420	78%
Leeward	537	9%
Windward	693	12%
Other (Mainland/Neighbor Island)	<u>33</u>	<u>1%</u>
Total	5,683	100%

Students - July, 1990

Honolulu	11,098	66%
Leeward	3,649	22%
Windward	2,057	12%
No Data	<u>12</u>	<u>0%</u>
Total	16,816	100%

Combined Faculty/Staff and Student Totals

Honolulu	15,518	69%
Leeward	4,186	19%
Windward	2,750	12%
Other	<u>45</u>	<u>0%</u>
Total	22,499	100%

G. Major Concentration of Start Point Area  
 - Faculty/Staff/Student

	<u>Faculty/ Staff</u>	<u>Student</u>	<u>Combined Total</u>
Aiea	141	838	979
Kailua	339	817	1,156
Kaneohe	307	1,023	1,330
Pearl City	128	865	993
Mililani	93	626	719
Waipahu	67	497	564
Downtown/Pauoa	172	411	583
Ala Moana	105	274	379
Waikiki/Diamond Head	188	558	746
Kaimuki/St. Louis/ Palolo	640	1,351	1,991
Nuuanu/Puunui/Alewa	229	942	1,171
Salt Lake/Ala Moana	101	660	761
Kalihi/Moanalua	133	631	764
Aina Haina	278	511	789
Manoa/Tantalus/ Makiki	1,767	3,717	5,484
Hawaii Kai	359	850	1,209
Moiliili/McCully	406	1,203	1,609
Makakilo/Ewa/ Waianae	59	495	554
Wahiawa/Haleiwa	41	327	368
Other	<u>130</u>	<u>220</u>	<u>350</u>
Total	5,683	16,816	22,499



H. 57% of the UHM population are concentrated:

(1) Downtown/Pauoa	583
(2) Ala Moana	379
(3) Waikiki/Diamond Head	746
(4) Kaimuki/St. Louis/Palolo	1,991
(5) Nuuanu/Puunui/Alewa	1,171
(6) Kalihi/Moanalua	764
(7) Manoa/Tantalus/Makiki	5,484
(8) Moiliili/McCully	1,609
	<u>12,727</u>

(Represents 57% of Commuters)

Fifty-seven (57%) of the UHM commuters are concentrated in these Honolulu areas. A possible UHM shuttle service, in the future, in these areas could alleviate traffic, parking shortage, and release some parking permits.

III. Identified Problems

- A. The basic problem is that of supply and demand. UHM has 3,928 parking permit stalls. The UHM population of faculty/staff and full-time students totals 22,449 or 5.7 times more than available parking stalls. This shortage of parking stalls, in turn, creates other problems and they are:
1. Excessive off-campus street parking cause complaints from the Manoa Campus neighbors.
  2. Traffic congestion on University and Dole Streets inhibits early morning and afternoon traffic flows surrounding UHM.
  3. Unfulfilled requirements of City and County building codes; parking to buildings ratios.
  4. The need for organized efforts utilizing ridesharing programs with the faculty, staff and students.
  5. On-going construction for repairs and new buildings, thereby, closing parking stalls for periods of time adding to shortages of parking. (Tentative UHM Construction Schedule--See Attachment A.)

IV. Short-Term Plan

- A. Establish a Commuter Service Information Office at UHM

The office's goal will be to offer alternatives to driving alone to school. It should be located close to Campus Center, a major congregating area.

1. Provide carpool applications.
  2. Conduct carpool matching service. Designate Carpool Coordinator.
  3. Advertise and encourage University's carpool program.
  4. Maintain carpool matching data. The State Department of Transportation has provided the University with the computer and software for this purpose.
  5. Notify applicants with compatible commuting schedules. Conduct meetings of interaction group where carpools are formed by participants with similar schedules.
  6. Assist in carpool participant replacements when necessary.
  7. Assist in obtaining Carpool Parking Permits for carpoolers.
  8. Seek to improve better utilization of existing parking permit holders. Coordinate the encouragement of faculty and staff to carpool with each other to make more permits available to students.
- B. Provide Bus Route and Time Schedule Information
1. Upon request from inquirers, office will provide individuals with their own plotted routes and time schedules to encourage ridership. This information will be extracted from MTL schedules and given to individuals according to their needs.
  2. Monitor improvement suggestions and complaints from riders and address them to MTL.
  3. Develop relationship with MTL as a contact point for any scheduling or re-routing changes.
- C. Provide Information and Encourage Usage of Park and Ride Facilities

1. Publicize park and ride facilities at the Wahiawa National Guard Armory and the Hawaii Kai park and ride facilities.
2. Help people with carpool arrangements or bus schedule information for park and ride commuting.
3. Inquire with City, State, Federal, and private industry to establish more park and ride designated areas.

D. Reduction of Bus Pass Costs for University Students

1. Lobby the City Council to amend City Ordinance #84-66 dated June 14, 1984 so that "college or university students" may purchase bus passes at the reduced "student rate" of \$7.50 per month in lieu of the \$15 adult rate.
2. Parallel to the above will be to seek State funding of \$54,750 to subsidize the bus passes sold to students throughout the University system for one year. Data will be kept, analyzed, and a full report will be made on this project. (See Budget for analysis.)

E. Orientation of Incoming Freshmen Class

1. The goal of this effort is to have these students commute realistically and wisely. By concentrating on this 2,000 incoming student group every year, in four years the commuter information would have reached the majority of the student body at UHM.
2. Computer Coordinator will participate in the Freshmen Orientation with the High School Relations Department.
3. Will emphasize the lack of parking permit situation and encourage ridesharing alternatives along with Carpool Parking Permits.
4. Orient students on how to arrive and depart from the UHM campus. Provide maps of pay parking areas and bus schedules to fit their routes.

F. Improvement of University's Image on Commuter Related Concerns

1. Monitor all Neighborhood Boards surrounding University campuses.

2. Address concerns revealed through Neighborhood Board minutes by attending meetings and testifying before the Board.
3. State of Hawaii, Department of Transportation
  - a) Participation in all committees, seminars, and councils that requires the University's attendance. (Heat the School Jam, Governor's Highway Safety Council, etc.)
  - b) Verbal communication with the DOT--Ride Sharing Office on a monthly basis. The office is required to report progress of ridesharing efforts to the Director--DOT once a month.
4. City and County of Honolulu
  - a) Research with City Transportation staff the possibility of extending student fare rate to college students.
  - b) Establish relationship with City staff that oversees the MTL, Inc., operations to monitor planning changes.
  - c) Monitor the Rapid Transit Development Division on developments in the fixed rail project.
  - d) Develop a relationship with City Council members to be the point of contact for any commuter problems or suggestions they might have for the University campuses in their districts.
5. ASUH and Other Student Groups
  - a) 1,700 parking permits and approximately 900 daily pay parking are available to 18,600 students at UHM. Students, more than any group, suffer from lack of parking when commuting to school. Therefore, close interaction with the students through the student government must be the major focal point for initiating commuter programs.
  - b) Advising the leadership, utilizing the student government's energies and resources, and developing a working relationship with this group will contribute in creating

solutions to commuter and parking concerns to UHM.

V. Long-Term Plan

A. Vanpool/Shuttle Service

1. Designate pick-up areas within five-mile radius of UHM and pick-up/drop-off commuters on a pay basis. Drop off can be at residential or major employment areas during the day.
2. Obtain 15-passenger vans as UHM property to be operated and serviced by the UH Transportation Services.
3. Provide shuttle service from peripheral areas on campus, Lower Campus (quarry), dormitories, etc.

B. Mass Transit/Bus

1. Lobby to have the City's bus service connect the entire University of Hawaii System (campuses) on one circular route. Faculty and students may be more flexible in teaching and enrolling in courses at different locations and have the transportation to do so.
2. Make an analysis for possible increased Express Bus service to UHM from within a five-mile radius during certain times of the day. Fifty-seven per cent (57%) of UHM commuters are located within this radius.

C. Carpool Program

1. Try to reduce the "one car/one driver/one parking permit" commuter situation and maximize the use of parking permits.
2. Obtain commitment from UHM Administration for such a program both in philosophy and resources. Establish future requirement of carpooling for each parking permit issued.
3. Create marketing programs to continuously promote Ridesharing at UHM and its campuses.
4. Coordinate and develop working relationships with government and privately run carpooling organizations to benefit the University's population.

D. University's Image

1. Assure the communities surrounding the University's campuses that the University of Hawaii will become a leader in Ridesharing promotion to combat traffic and parking problems.
2. Show the State and City governments that the University of Hawaii is planning to address its commuter problems and is committed to its resolve.

EXHIBIT F

# EXHIBIT F



AUSTIN, TSUTSUMI & ASSOCIATES, INC.

CIVIL ENGINEERS • SURVEYORS

CONTINUING THE ENGINEERING PRACTICE FOUNDED BY H. A. R. AUSTIN IN 1934

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KENNETH K. KUROKAWA, P.E.  
THOMAS S. OTAGURO  
IVAN K. NAKATSUKA, P.E.

#92-49.1

January 15, 1992

Mr. Teuane Tominaga  
State Public Works Engineer  
Department of Accounting and  
General Services  
State of Hawaii  
P.O. Box 119  
Honolulu, HI 96810

Dear Mr. Tominaga:

**Subject: Traffic Assessment, U.H. Special Events Arena,  
University of Hawaii, Makai Manoa Campus**

The purpose of this letter report is to assess the impact on traffic resulting from the Amendment to the Phase II building program for the Makai Campus. The major difference between the original and the revised building program is the increase in the seating capacity of the Special Events Arena from 4,000 to 10,000, and the decrease in the number of parking stalls from approximately 1,750 in the Phase II program to 900 stalls in the Phase IIA parking plan.

Previously prepared traffic reports for the "Long Range Development Plan (LRDP), University of Hawaii Manoa Campus", and the "University of Hawaii Manoa Campus, Health and Physical Education (HPE) Facility Alternatives Study" include:

1. "Traffic Impact Report for the Proposed University of Hawaii Long Range Development Plan for the Manoa Campus", prepared for Group 70 by Austin, Tsutsumi & Associates, Inc., dated October 30, 1987.
2. "Traffic Impact Report for Phase I of the Proposed University of Hawaii Long Range Development Plan for the Manoa Campus", prepared by Austin, Tsutsumi & Associates, Inc., dated June 1989.

REPLY TO:  
501 SUMNER STREET, SUITE 521 • HONOLULU, HAWAII 96817-5031  
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OFFICES IN:  
HONOLULU, HAWAII  
WAILUKU, MAUI, HAWAII • HILO, HAWAII





Mr. Teuane Tominaga  
State Public Works Engineer  
Department of Accounting and  
General Services  
State of Hawaii

January 15, 1992

3. "Traffic Assessment for Proposed Special Events Arena at University of Hawaii Makai Campus", prepared by Austin, Tsutsumi & Associates, Inc., dated November 1989.

**Normal Weekday (School Day) Traffic Operations**

Basically, the findings and recommendations contained in the "Traffic Impact Report for Phase I of the Proposed University of Hawaii Long Range Development Plan for the Manoa Campus", dated June 1989 are still valid relative to traffic and traffic operations for the normal school day. The reduction in the number of parking stalls in the Makai Campus (Quarry) will reduce the AM peak hour traffic demand for the Quarry. Traffic exiting the parking structure will continue to be directed to the Old Waialae Road exit, thus minimizing the volume of traffic exiting at Dole Street during the afternoon hours.

**New Special Events Arena**

The findings and recommendations contained in the "Traffic Assessment for Proposed Special Events Arena at the University of Hawaii, Makai Campus", dated November 1989, for the 10,000 seat arena, are still valid.

The primary difference, again, is in the available number of parking stalls in the Quarry. The November 1989 report assumed that there would be approximately

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State Public Works Engineer  
Department of Accounting and  
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3,600 stalls. The number of stalls in the Quarry, as proposed by this amendment, is approximately 2,800. While the 2,800± stalls satisfy the City Land Use Ordinance requirement of 1 stall per 5 seats (total required 2,000 stalls), there may be a shortfall of parking stalls for a capacity, or near-capacity attracting event.

The primary route of ingress to the Quarry is the H-1 Freeway/University Avenue/Dole Street/Lower Campus Road. Approximately 75% of inbound traffic enters via Lower Campus Road. The primary egress route is via Old Waiālae Road to either west bound H-1 Freeway or King Street.

#### Proposed Operations In the Quarry to Facilitate Traffic Flow

The earlier traffic reports identified traffic operations in the Quarry as the constraint in accommodating incoming traffic.

Present AM traffic to the Quarry often queues on Lower Campus Road to Dole Street due to limited inbound laneage and number of parking attendants. This limit in laneage and parking attendants also constrains the rate of incoming traffic for special events.

As part of the amendment to the Phase II building program, the following improvements are proposed:

1. Lower Campus Road will be widened to four lanes, two lanes in each direction.

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2. An additional parking attendant's kiosk will be constructed, and the number of parking attendants will be increased for both the normal school day and for special events.
3. One lane of traffic will be for parking permit holders and the other lane for non-permit holders, during the normal school day.
4. A separate left-turn lane will be constructed, beyond the parking attendant's kiosks, for left turns to the parking structure.
5. During special events, additional parking attendants will be on duty to facilitate ingress.
6. U.H. parking attendants will provide traffic control at key intersections within the Quarry to facilitate traffic circulation.
7. The majority of the exiting traffic will be directed to the Old Waialae Road gate.
8. One hour prior to a special event, all traffic exiting the Quarry area will be directed to the Old Waialae Road gate to minimize traffic conflicts at the parking attendants' area.
9. A changeable message sign on Dole Street, to advise motorists that the parking structure is full, will be installed.



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These geometrics and operational improvements, coupled with the roadway improvements recommended on University Avenue and on Dole Street in the June 1989 traffic report, will facilitate vehicular traffic flow into the Quarry, both during the normal school day, and for special events.

#### Recommendations

The following are recommended to facilitate traffic operations in the vicinity of the Makai Campus.

1. **University Avenue/Dole Street Intersection** - Per the June 1989 traffic report, widen the mauka bound approach on University Avenue, between the west bound H-1 Freeway off ramp terminal and Dole Street to provide one exclusive right-turn lane to Dole Street and an optional through/right-turn lane. The existing left-turn lane and two through lanes on University Avenue remain unchanged. A traffic island will be constructed and the right-turn vehicular movement will be controlled by the traffic signal system to provide for pedestrian safety.
2. **Dole Street/Lower Campus Road Intersection** - per the June 1989 traffic report, widen Dole Street, between University Avenue and Lower Campus Road, to provide an exclusive right-turn lane from Dole Street to Lower Campus Road. The existing two east bound lanes remain as through lanes.



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3. **Lower Campus Road Between Dole Street and the Area of the Parking Attendant's Kiosk** - be widened to four lanes to provide two lanes in each direction.
4. An additional parking attendant's kiosk be constructed.
5. A changeable message sign be installed on Dole Street to advise motorists when the parking structure is full.
6. The use of Special Duty Police Officers be continued at the Old Waiialae Road intersection for exiting traffic after a major event.
7. Incoming traffic be monitored at the Dole Street/Lower Campus Road intersection during major events which attract capacity attendance. Should traffic congestion be severe, an optional right turn from the second east bound through lane on Dole Street to Lower Campus Road be implemented for major events attracting a capacity attendance. Special signing, coning and Special Duty Police Officers will be required in order to implement this recommendation. In addition, a City lane usage permit must also be obtained from the Department of Transportation Services in order to implement the second right-turn movement around the traffic island from Dole Street to Lower Campus Road.

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Department of Accounting and  
General Services  
State of Hawaii

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The following are recommended to reduce traffic demand to the U.H. Campus:

1. Encourage greater usage of public transportation.
2. Establish a Transportation Coordinator position to set up and manage a ride-sharing program for faculty and students.
3. Establish express buses from certain areas for major events.
4. Construct a mass transit station on, or in the proximity of, the Manoa Campus.

**Conclusion**

The amendment to the Phase II building program for the Makai Campus does not significantly alter the findings and recommendations of the previously prepared traffic reports. The recommendations, as contained in the June 1989 traffic report, coupled with the proposed roadway and operational improvements within the Quarry area, will mitigate the majority of the adverse impacts caused by traffic generated by the Special Events Arena. It is anticipated that only major events attracting capacity, or



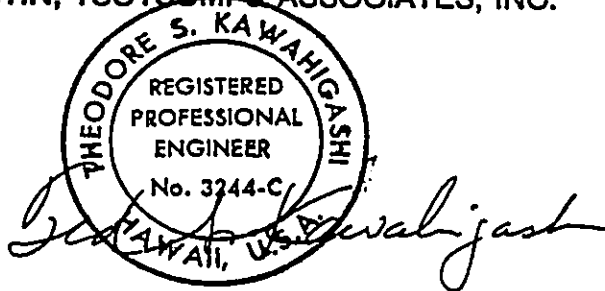
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near-capacity crowds, will have any significant impact on traffic in the vicinity of the  
Quarry.

Respectfully submitted,  
AUSTIN, TSUTSUMI & ASSOCIATES, INC.



By

TED S. KAWAHIGASHI, P.E.  
President

TSK: CDC