

**THE UNITED REPUBLIC OF TANZANIA**  
**BASIC DESIGN**  
**FOR**  
**THE KILIMANJARO**  
**AGRICULTURAL & INDUSTRIAL**  
**DEVELOPMENT CENTER PROJECT**

MAY 1979

JAPAN INTERNATIONAL COOPERATION AGENCY

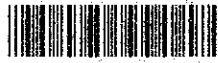
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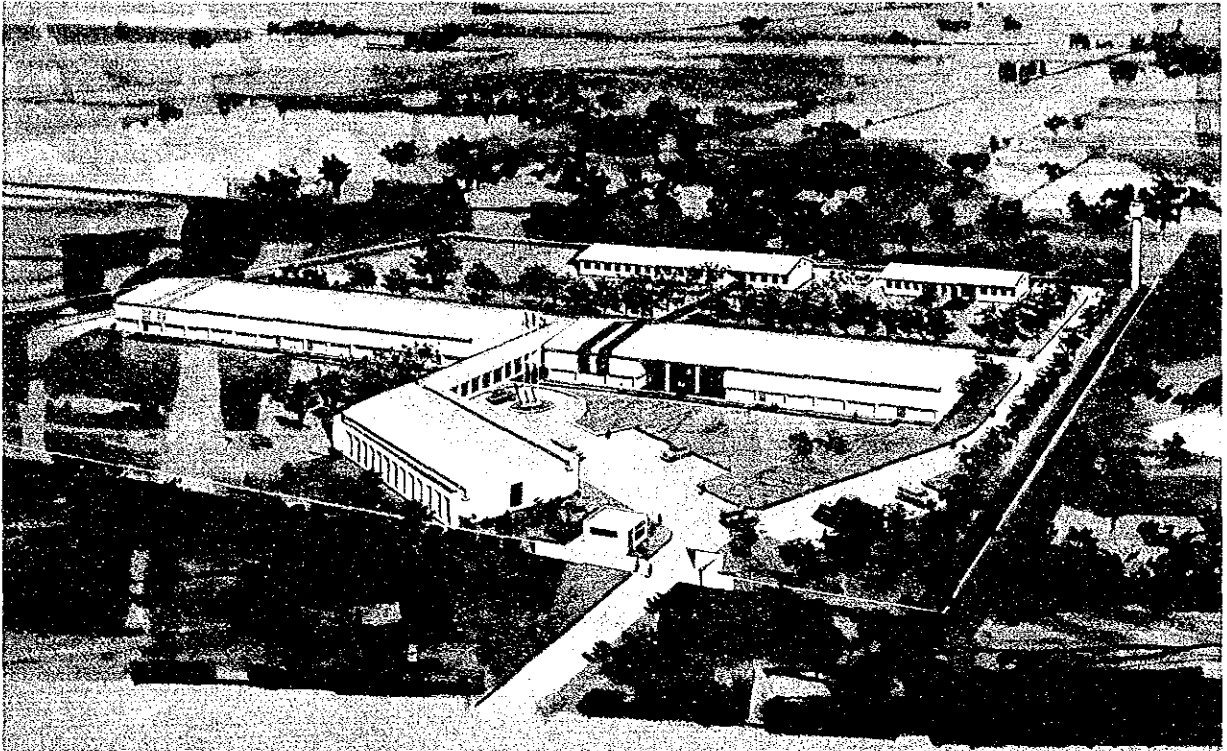


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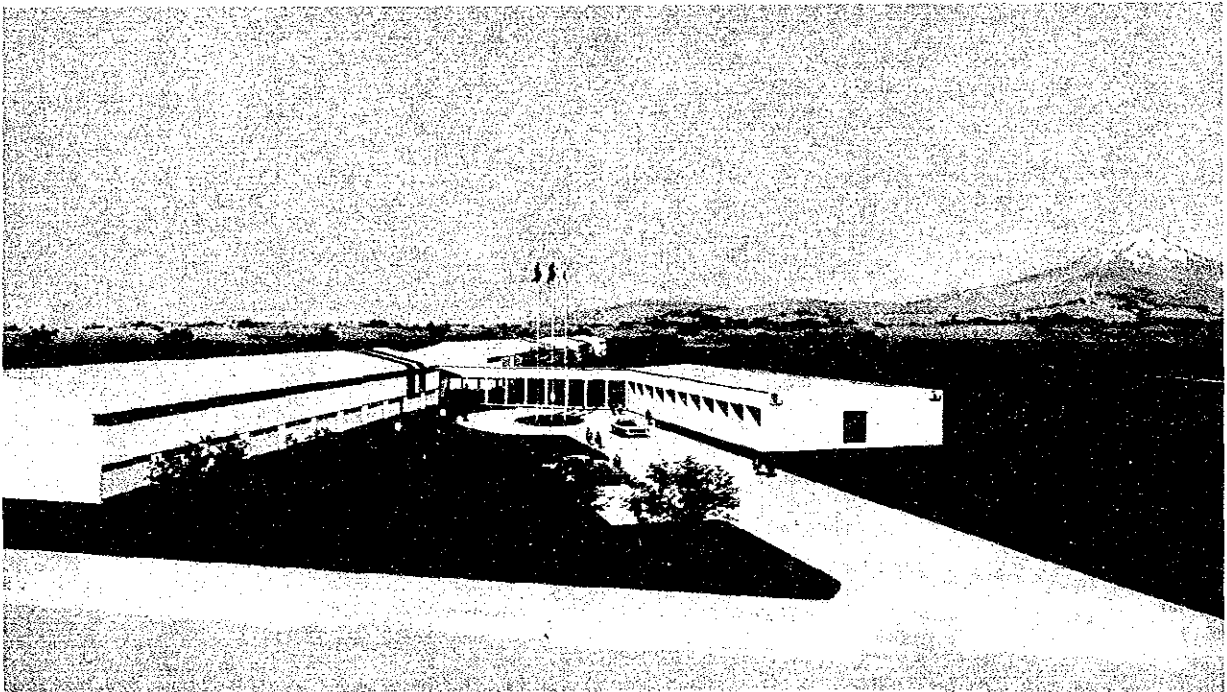
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KILIMANJARO AGRICULTURAL DEVELOPMENT CENTER PROJECT

KILIMANJARO AGRICULTURAL DEVELOPMENT CENTER PROJECT



KILIMANJARO INDUSTRIAL DEVELOPMENT CENTER PROJECT

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## PREFACE

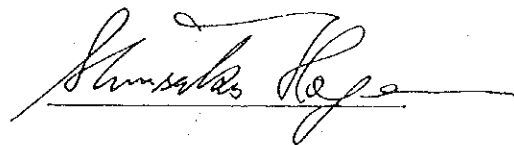
In response to the request of the Government of the United Republic of Tanzania, the Government of Japan decided to take up a survey on establishing the Kilimanjaro Agricultural and Industrial Development Project in Moshi-City, Kilimanjaro Region and the Japan International Cooperation Agency has conducted the survey on its basic designing.

The above Project is designed to contribute to the promotion of development in the Kilimanjaro Region through agricultural development aimed at improving agricultural infrastructure and increased productivity and through industrial development by establishing industrial infrastructure and promoting industrialization.

An on-the-spot survey of the project was carried out during the period from 3rd to 21st February 1979. The basic design based on the above survey was explained to and approved by the competent authorities of the United Republic of Tanzania during the period from 20th to 4th May, 1979 before formulating the present report.

I would like to express my sincere appreciation to the officers and people concerned of the United Republic of Tanzania who have extended close cooperation to our survey team.

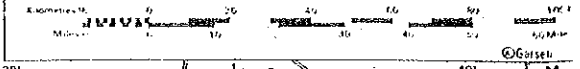
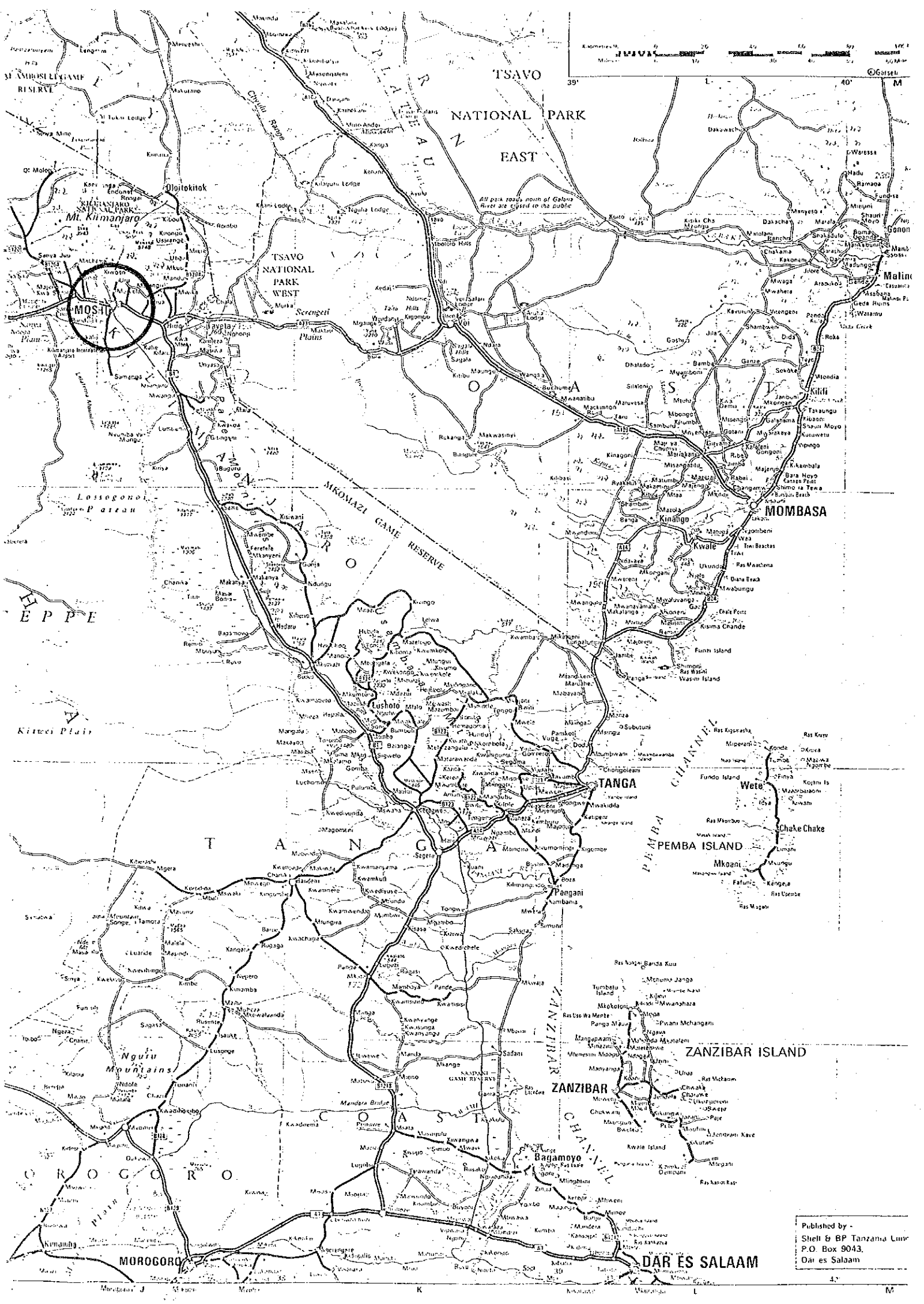
May 1979



Shinsaku Hogen

President

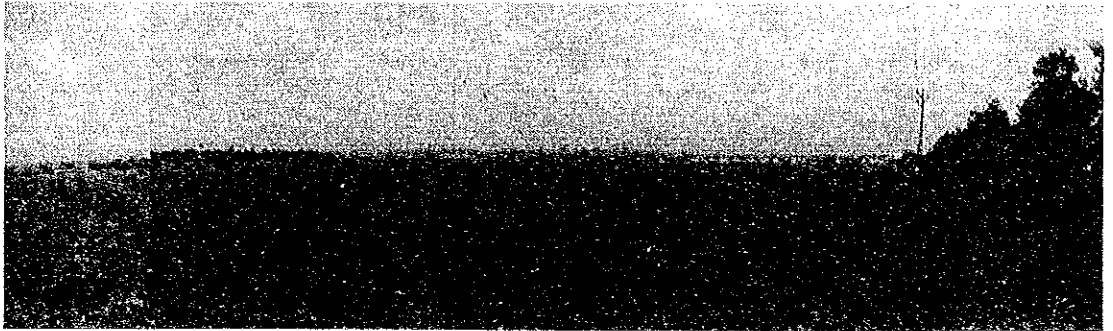
Japan International Cooperation Agency



Published by -  
Shell & BP Tanzania Ltd  
P.O. Box 9043,  
Dar es Salaam



KADC



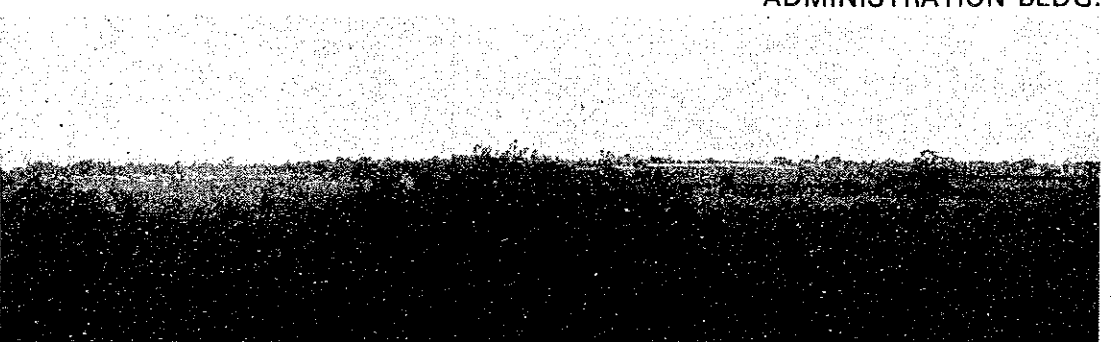
KIDC



KIDC DORMITORY



ADMINISTRATION BLDG.



HOUSING FOR LOCAL STAFF

## PROJECT SUMMARY

Kilimanjaro Agricultural Development Center ( KADC ) and Kilimanjaro Industrial Development Center ( KIDC ) are based on Kilimanjaro Integrated Development Plan framed by Japan International Cooperation Agency and will be constructed in Moshi-City, Kilimanjaro Region, the United Republic of Tanzania.

### ■ Construction Site

The proposed site is divided into 5 sites; four of them are located in Moshi-City and the KADC site is in Chekereni Village about 15 Km away from Moshi-City in south-eastern direction. The KIDC site is in industrial area at the southern part of Moshi-City and the site of KIDC Dormitory is in residential area near the KIDC site.

The site of Administration Office Building common to both centers is located adjacent to Regional Development Director's Office in the center of the city and the site of staff housing is at north-eastern part of Moshi-City.

### ■ Contents of the Facilities

The KADC site is planned to include Office Building, Agricultural Machinery Building, Processing Workshops and Storages for Harvested Crops, Canteen, Dormitory and the Staff Housing. The KIDC site is planned to include Office Building and Training Workshops, Machine Shop, Forging Workshop, Foundry Workshop and Briquette & Ceramic Factory, etc., and KIDC Dormitory is planned in the other site about 500 m away from the KIDC site.

Administration Office Building include office rooms for agricultural departments and for industrial departments, conference rooms, office rooms and a copy room in common use.

The Housing for Local Staff are designed to be 4 duplex houses. Total eight families are designed.

In this plan, the Administration Building has 2 stories and the other buildings are all flat type.

## ■ Mechanical Installations

### Ventilating System

Natural ventilation system is mainly planned in the main and mechanical ventilating will be installed where it is required ( ex. Training Workshop, etc. ).

### Water Supply, Drainage and Sanitary System

Installation for water supply, sewage treatment drainage, grease trap and sanitary equipment are planned.

### Electrical System

Installations for main line power, outlets for lighting fixtures, telephones and outdoor lightings are planned.

### Building Materials

Building materials will be mainly used importing from Japan, but some locally available materials will be used that has sure quality.



## CHAPTER 1 OUTLINE OF THE PROJECT

The United Republic of Tanzania has steadily advanced in an economical development plan, based on the Arusha Declaration ( 1967 ) since their independence in 1961. At the commencement of the third Five-Year Program ( 1975 - 1980 ), the Government of Tanzania has planned to make up the integrated development plan for each region to execute regional development effectively upon the Regional Governments' initiatives, adapting the Government's policy.

In this connection, the Government of Tanzania requested the Government of Japan technical cooperation in drawing up the Kilimanjaro Integrated Development Plan in 1974. On the other had, the Government of Japan had already extended technical cooperation to the Kilimanjaro Region earlier than 1974 for about ten years by dispatching survey teams to investigate the actual condition and circumstance of the agriculture and small scale industries in Kilimanjaro since 1964. Especially in the field of agriculture, the technical cooperation under the Record of Discussions ( R/D ) system had been executed from December 1974 to March 1978 and this had partially contributed to make up the Kilimanjaro Integrated Development Plan.

In this KIDP, about 45 projects were identified totaling the estimated amount of about 1.8 fillion T/sh. The Government of Japan dispatched a mission consisting of members from the Ministry of Foreign Affairs and the Japan International Cooperation Agency in September 1978 to negotiate with the Government of Tanzania on fourteen projects requested by the Government of Tanzania.

As a result of these negotiations between the two governments, the following 5 projects were suggested by the Government of Japan to be practicable:

- (1) Lower Moshi Agricultural Development Project
- (2) Water Resources Development for Agriculture
- (3) Kilimanjaro Agricultural Development Center
- (4) Kilimanjaro Industrial Development Center
- (5) Electrification Project

Of these 5 projects, the technical cooperation for the Kilimanjaro Agricultural Development Center ( KADC ), and Kilimanjaro Industrial Development Center ( KIDC ) was signed on the Record of Discussions in September, 1978.

### **Kilimanjaro Agricultural Development Center (KADC)**

#### Objectives

The objectives of the KADC is to contribute to the increase of agricultural production by the improvement of agricultural technics. In order to achieve this purpose, the KADC is planned to play a leading part of agricultural technics as well as to train skilled labours.

#### Functions

- a. Improvement of Agricultural Technics
  - Agricultural irrigation technics for the increase of agricultural production.
  - Technics for selection and multiplication of water rice, corn and vegetables.
  - Cultivation technics for the increase of production ( ex. use of fertilizer, extermination of vermin, etc. ).
  - Technics for effective utilization and maintenance of agricultural equipment.
  
- b. Diffusion and Instruction of Improved Agricultural Technics
  - Trial production for practical use of improved agricultural technics.
  - Distribution of superior seeds.
  - Instruction for settlement of an organization for effective enforcement of diffusion of improved agricultural technics.
  - Systematization of farmers' group for cultivation with agricultural equipment and instruction of the management.



c. Training for Agricultural Counterparts

Effective use of water and arrangement of agricultural basis is so important in promotion of irrigation that the KADC will train skilled labourers to contribute to irrigation.

- Training for cultivation technics of water rise, corn and vegetables.
- Instruction of Knowledge and technics for maintenance, disjointing, assembling, repairing and arranging of agricultural equipment.
- Training skilled labourers to diffuse improved technics to farmers immediately.

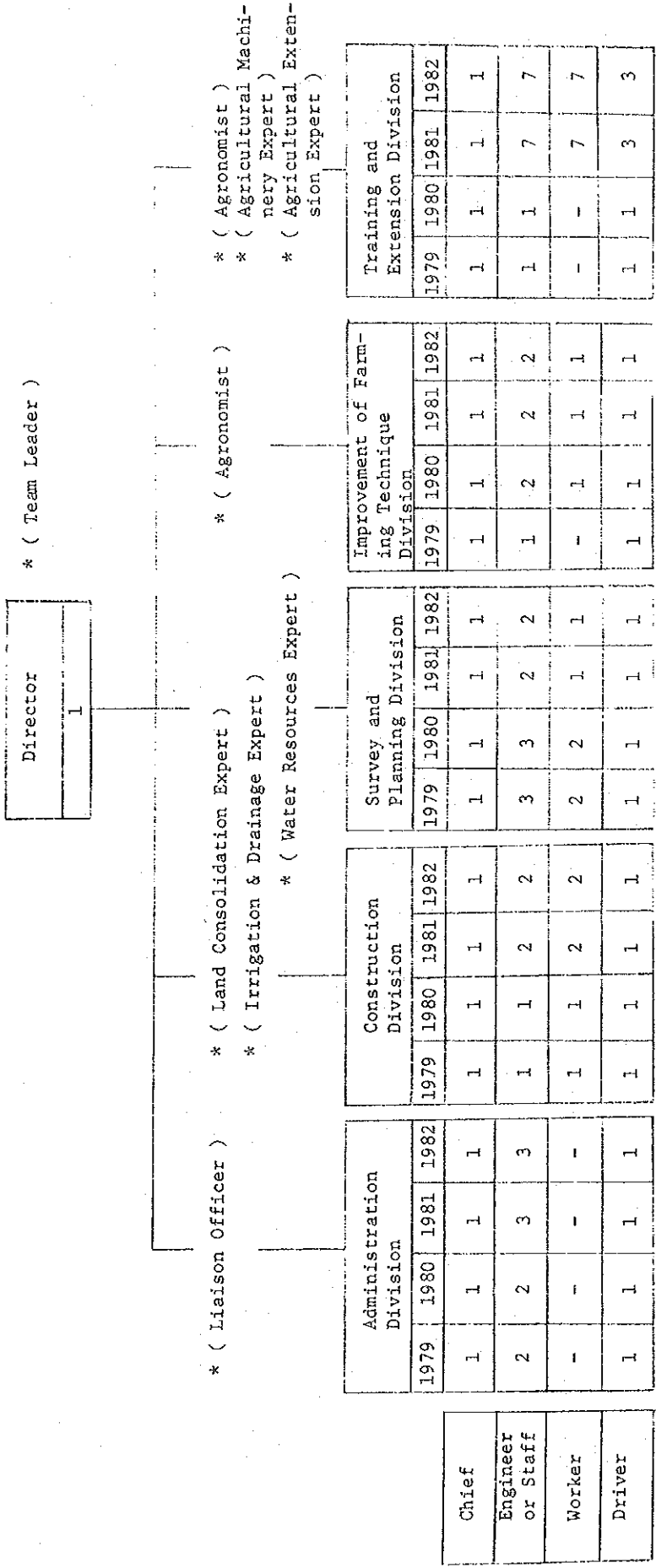
d. Technical Instruction and Management for the Enforcement of Agricultural Development

- Investigation for agricultural development at Lower Moshi Area and technical instruction on drawing.
- Technical instruction and management for agricultural basis arrangement work for the above.
- Technical instruction for investigation of water resources development in Kilimanjaro Region.

PLANNING OF ORGANIZATION AND STAFF OF THE KADC

Planning of the organization and personnel arrangements according to the above-mentioned purpose and function of the KADC are as attached.

Organization and Staffing Plan of KADC



Annual Staffing in Total

	1979	1980	1981	1982
Director	1	1	1	1
Chief	5	5	5	5
Engineer or Staff	8	9	16	16
Worker	3	4	11	11
Driver	5	5	7	7
Total	22	24	40	40

Foot Note: 1. This program is subject to conditions that necessary budget will be acquired for the implementation of the Project.  
 2. This Scope of Technical Cooperation is subject to change, if necessity arises in the future, within the scope of the provisions given in the "Record of Discussions."

3. Number of part time labourers and watchmen is excluded from the figures.  
 4. Agricultural Mechanical Service Center is one of the facilities of Training and Extension Division.  
 5. Mark \* is Japanese Experts.

## **Kilimanjaro Industrial Development Center (KIDC)**

### Objectives

KIDC will aim to develop small scale industries in Kilimanjaro region by providing technical assistance, extension services and manpower training as well as conducting programming and coordination of the activities on the basis of research and development to be undertaken by KIDC.

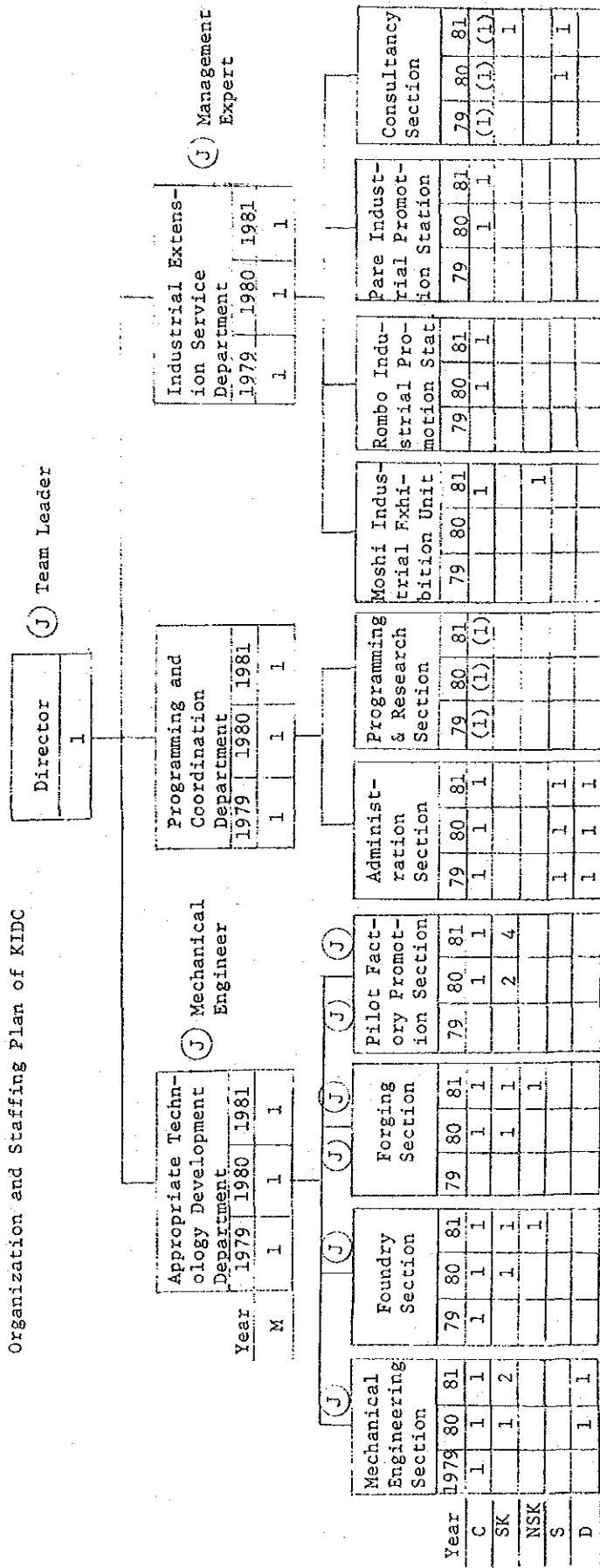
### Functions

- a. Development of Appropriate Technologies in;
  - Repair and Maintenance
  - New Production Technology
  - Inspection and Testing
  - Product Development
  - Quality Control
- b. Promotion of Appropriate Technologies in;
  - Repair and Maintenance
  - New Production Technology
  - Quality Control
  - Management
  - Marketing
  - Consultancy and Information Service
- c. Training of Manpower;
  - Staff Training ( in Japan and Tanzania )
  - Participants Training ( Group training in Tanzania )
  - Workers Training in New Industries ( On the job training in Tanzania )
- d. Programming and Coordination;
  - Feasibility Studies
  - Investment Planning
  - Preparation of Detailed Programs of Activities
  - Coordination of Activities

PLANNING OF ORGANIZATION AND STAFF OF THE KIDC

Planning of the organization and personnel arrangements according to the above-mentioned purpose and function of the KIDC are as follows.

Organization and Staffing Plan of KIDC



Annual Staffing Plan in Total

Ab.	Staff	1979	1980	1981	1982
Director		1	1	1	1
M	Manager	3	3	3	3
C	Chief	3	7	8	8
SK	Skilled Worker		5	9	9
NSK	Non-skilled W.		1	3	3
S	Secretary	1	2	2	2
D	Driver	1	2	2	2
	Total	9	21	28	28

(J): Japanese Experts assigned to KIDC

Foot Note: 1. This Program is subject to conditions that necessary budget will be acquired for the implementation of the Project.  
 2. This Scope of Technical Cooperation is subject to change, if necessity arises in the future, within the scope of the provisions given in the "Record of Discussions."

RE: Number of part-time labourers and watchmen is excluded from the figures.



## CHAPTER 2 SURVEY FOR CONSTRUCTION

As mentioned before the Japanese Government decided to carry out a Basic Design Survey in connection with the economical cooperation program for the 1979 fiscal year.

The Primary objective of the Survey Team was to exchange views with relevant Regional Development Director's Staff in order to get basic ideas, and to make a probable cost estimation for the establishment of the Kilimanjaro Agricultural & Industrial Development Center Project in accordance with the Kilimanjaro Integrated Development Plan prepared in October 1977.

Kume Architects-Engineers, Tokyo, Japan carried out the Basic design of the above Project being commissioned with the Japan International Cooperation Agency.

## 2.1 Members of the Japanese Basic Design Survey Team

Mr. Michimoto Goto	Team Leader Planning Department Japan International Cooperation Agency ( JICA )
Mr. Seiichi Kumazawa	Ceramic Industry Expert Ceramic Industry Course Leader Nagoya International Training Center ( JICA )
Mr. Kazuo Takei	Mechanical Engineer Director, Fuchu Training Center Small Business Promotion Corporation
Mr. Hisayuki Tsujimoto	Agriculture Mechanization Harvest Mechanism Course Uchihara International Agricultural Training Center ( JICA )
Mr. Mitsuaki Watanabe	Coordinator Agricultural Technical Cooperation Division Agricultural Development Cooperation Department ( JICA )
Mr. Junnosuke Sato	Coordinator Deputy Chief, Technical Cooperation Division Mining & Industry Development Cooperation Dept. ( JICA )
Mr. Seiichi Matsuda	Design Management Director, International Department Kume Architects-Engineers
Mr. Nobuo Horie	Mechanical Engineering Architect, Mechanical Engineering Department Kume Architects-Engineers
Mr. Shigeru Wakayama	Architectural Design Architect, Architectural Design Department Kume Architects-Engineers
Mr. Shunji Nagata	Quantity Survey Engineer, International Department Kume Architects-Engineers



## 2.2 Tanzanian Authorities Concerned

### 1. Participants of the United Republic of Tanzania

The following Participants of the United Republic of Tanzania are assigned to work with the Japanese survey team.

Mr. Kibuwana	Deputy-Director Department of Foreign Capital Ministry of Financial Planning
Mr. B. Mwansasu	Development Director Kilimanjaro Regional Development Office
Mr. M. Wapalila	Director of Development Kilimanjaro Regional Development Office
Mr. S. Lyimo	Survey Officer Kilimanjaro Survey Bureau
Mr. M. Lyamuya	Water Works Officer Kilimanjaro Water Works Bureau
Mr. K. Mukwanda	Agriculture Officer Kilimanjaro Agriculture Bureau
Mr. B. Lyatuu	Urban Planning Officer Kilimanjaro Urban Planning Bureau
Mr. M. Anver	Head of Moshi Office Tanzania Electrical Supply Corporation
Mr. K. Chami	Weather Officer Kilimanjaro Air Port
Mr. M. Lema	Soil Analysis Officer Lyamunga Agriculture Center

### 2. Officials of Japanese Government and JICA stationed in Tanzania

Mr. Takayoshi Tsuda	Ambassador Embassy of Japan
Mr. Masayoshi Hashimoto	Secretary Embassy of Japan
Mr. Kanehide Nishikawa	Coordinator Dar es Salaam Office JICA

### 2.3 Outline of the Discussion

The survey team has had discussions with Mr. B.Mwansasu, Regional Development Director, and Mr. M.Wapalila, Regional Planning Office Kilimanjaro Region and signed the Minutes between Mr. Michimoto Goto, team leader and Mr. B.Mwansasu in the form of as Minutes as per attached herewith.

#### • Summary of the Minutes

In reply to request from the Government of the United Republic of Tanzania for establishment of the Kilimanjaro Agricultural Development Center ( KADC ) and Kilimanjaro Industrial Development Center ( KIDC ), the Government of Japan dispatched a survey team headed by Mr. Michimoto Goto, Head of Planning Division, Japan International Cooperation Agency in February 1979, to execute the survey for the basic design.

This survey team held a series of animated discussions and exchanged views with the Tanzanian Authorities. As a result of these discussions, both parties have agreed to recommend to their respective government to take necessary actions for this project.

#### 1) Buildings provided by the Government of Japan

##### KADC

- Office Building
- Dormitory
- Canteen Building
- Storage for Harvested Crops

- Processing Workshop
- Shed for Agriculture Machinery
- Storage for Fuel Oil Fat
- Other Incidental Facilities

KIDC

- Office Building
- Machine Shop
- Forging Workshop
- Foundry Workshop
- Ceramic and Briquette Factories
- Dormitory
- Other Incidental Facilities

Administration Building

Housing for Local Staff

Equipment to be used at the KADC and the KIDC

2) Expenses for items borne by the Government of Tanzania

Infrastructure Work

- a. Providing data ( soil examination and survey map of sites, etc. )
- b. Provision of necessary space for temporary constructions
- c. Clearing of the sites ( removal of plants, obstacles, etc. )
- d. Adjustment of roads around the sites
- e. Water supply main to the sites
- f. Drainage line outside of the sites  
( Note: Exterior drainage main in the sites will be charged by the Government of Japan. )
- g. Electrical power main line to the sites. Transformer and connection mains to the main buildings
- h. Telephone main lines to the sites and MDF installation

External Work

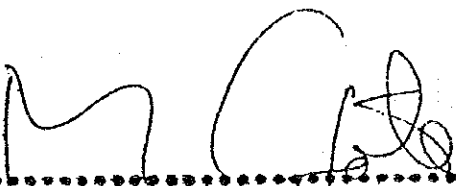
- a. Outdoor Fence
- b. Lawn and Planting

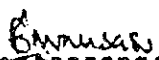
## 2.4 Agreed Minutes of Discussion

In response to the request made by the Government of the United Republic of Tanzania for constructing the Kilimanjaro Agricultural Development Center ( hereinafter referred to as "the KADC" ) and the Kilimanjaro Industrial Development Center ( hereinafter referred to as "the KIDC" ), the Government of Japan has sent, through the Japan International Cooperation Agency ( hereinafter referred to as "JICA" ), a team headed by Mr. MICHIMOTO GOTO, Japan International Cooperation Agency to conduct a basic design survey for 19 days from February, 1979. The team had a series of discussions and exchange views with the Tanzanian Government authorities concerned.

As a result of the survey, both parties have agreed to recommend to their respective Governments to take necessary measures toward the realization of the KADC and the KIDC Projects.

9TH FEBRUARY, 1979

  
.....  
MR. MICHIMOTO GOTO  
TEAM LEADER  
THE JAPANESE SURVEY TEAM

  
.....  
KILIMANJARO REGIONAL DEVELOPMENT  
DIRECTOR

## MINUTES

1. The proposed sites of the KADC and the KIDC will be Chekereni, Moshi Town area, Moshi Kilimanjaro, the United Republic of Tanzania.  
( Hereinafter referred to as "the Project sites" ).

2. The objectives of the KADC and the KIDC.

### KADC

- a) to plan and supervise construction of agricultural infrastructure,
- b) to improve cultivation techniques for agricultural development in Lower Moshi Area
- c) to diffuse agricultural techniques by extension services
- d) to train manpower
- e) to plan and coordinate the services of KADC

### KIDC

- a) to develop appropriate technologies in:  
Repair and Maintenance, New Production Technology,  
Inspection and Testing, Product Development, Quality Control
- b) to promote appropriate Technologies in:  
Repair and Maintenance, New Production Technology,  
Quality Control, Management, Marketing, Consultancy and  
Information Service
- c) to train manpower:  
Staff Training  
Participants Training  
Workers Training in New Industries
- d) to plan and coordinate the services of KIDC

3. The Government of Japan will take necessary measures to cooperate in establishing the KADC, the KIDC and related facilities as listed in Annex I. The layout plans of the KADC and the KIDC are shown in Annex II.

4. The Government of the United Republic of Tanzania will take necessary measures:

- a) to provide data and information necessary for the construction including topographic survey, soil test and other geological survey reports.

- b) to secure lands necessary for the construction.
- c) to clear and level the project sites before the start of the construction.
- d) to construct and pave access roads to the project sites before the start of the construction, and
- e) to provide other items listed in Annex III

ANNEX I

1) Buildings

KADC

OFFICE BLDG.  
DORMINTORY BLDG.  
CANTEEN BLDG.  
STORAGE FOR HARVESTED CROPS  
PROCESSING WORKSHOP  
SHED FOR AGRICULTURE MACHINERY  
REPAIRING AND TRAINING WORKSHOP  
STORAGE FOR FUEL AND OIL FAT  
OTHER INCIDENTAL FACILITIES

KIDC

OFFICE BLDG.  
MACHINE SHOP AND STORAGE  
FORGING WORKSHOP  
FOUNDRY WORKSHOP  
BRIQUETE & CERAMIC PILOT FACTORY  
STORAGE FOR BRIQUETE & CERAMIC  
DORMITORY  
OTHER INCIDENTAL FACILITIES

ADMINISTRATION BLDG.  
HOUSING FOR LOCAL STAFF

2) Equipment to be used at the KADC and the KIDC.

ANNEX III

Items whose cost should be born by the Government of the United Republic of Tanzania.

1) Infra-Structure and others

- (a) Water supply mains to the project sites
- (b) External drainage and sewage line from the project sites for Administration Building.
- (c) Electrical power main line to the project sites
- (d) Telephone main lines to the project sites and installation of main distribution frame at the project sites
- (e) Outdoor Fence
- (f) Lawn and Planting
- (g) Provision of space necessary for such construction as temporary office, working area, stock yards, etc.





## 2.5 Confirmation of Basic Design

The Survey Team made further studies for preliminary design and visited on Kilimanjaro Regional Development Office (R.D.D.) from 20th April to 4th May with the draft report of preliminary design in order to confirm.

As a result of discussion between R.D.D. and the Survey Team (for confirmation), the draft report of preliminary design were confirmed with only some modification. The Confirmation Note were signed by Mr. B.U. Mwansasu, Regional Development Director, and Mr. S. Matsuda, team leader of the Survey Team as attached.

As indicated in the article 2 of the Modification Item of the Confirmation Note of Preliminary Design, the question of de-touched type Housing and the size of the Housing for Local Staff will be settled, at the phase of Working Drawings, with consideration of the local condition of Kilimanjaro Region.

THE KILIMANJARO AGRICULTURAL AND INDUSTRIAL  
DEVELOPMENT CENTER

CONFIRMATION NOTE OF  
PRELIMINARY DESIGN

PRELIMINARY DESIGN

CONFIRMATION SURVEY TEAM


JAPAN INTERNATIONAL COOPERATION AGENCY

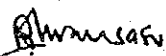
APRIL 1979

CONFIRMATION OF THE DISCUSSIONS  
ON THE DRAFT REPORT OF THE PRELIMINARY DESIGN  
OF THE CONSTRUCTION OF THE KILIMANJARO  
AGRICULTURAL AND INDUSTRIAL DEVELOPMENT CENTER

1. The Government of Japan has dispatched through Japan International Cooperation Agency ( JICA ), a Survey Team led by Mr. Seiichi Matsuda, JICA, from 20th April to 4 th May 1979 to submit the Draft report of the basic design for the construction of the Kilimanjaro Agricultural and Industrial Development Center which was prepared by JICA in accordance with the Agrred Minutes of Discussions between the Kilimanjaro Regional Development Director and Preliminary Survey Team dated 9th February, 1979.
2. The survey Team explained the Draft report to the Kilimanjaro Development Director and hold detailed discussions with the staff concerned.
3. As a result of the discussions, the Kilimanjaro Regional Development Director and the survey Team have confirmed the items attached as the "Confirmation Note of Preliminary Design". The following items were also discussed and confirmed at the meetings:
  - a) The preliminary of Report which has been prepared by the Survey Team has been approved by the Kilimanjaro Development Director.
  - b) The attached confirmation note was confirmed, leaving the possibility of minor modification such as listed attached hereto according to the progress of the detailed design.
4. The list of participants in the meeting attached hereto.

28th APRIL: 1979

  
Mr. Seiichi Matsuda  
Team Leader  
THE JAPANESE SURVEY TEAM

  
B.U. Kwansasu  
Director  
KILIMANJARO REGIONAL DEVELOPMENT

LIST OF PARTICIPANTS IN THE MEETING

KILIMANJARO REGIONAL DEVELOPMENT PARTICIPANTS

Mr. B.U. Mwansasu	Director Kilimanjaro Regional Development
Mr. Wapalila	Kilimanjaro Regional Development
Mr. A.N. Mchau	RADO
Mr. M Anver Dar	TANESCO
Mr. P.M. Magesa	SIDO
Mr. Ruhongola	SIDO, D'Salaam
Mr. S. Lyimo	ARDHI (LANDS)

JAPAN PARTICIPANTS

Mr. Seiichi Matsuda	Leader of the Survey Team Director Kume Architects - Engineers
Mr. Yoshio Yabe	Member of Survey Team Coordinator Japan International Cooperation Agency
Mr. Shunji Nagata	Member of Survey Team Engineer of Kume Architects-Engineers
Mr. Kanehide Nishikawa	Coordinator Dar es Salaam Office Japan International Cooperation Agency.

## MODIFICATION ITEMS

1. The original KADC site will be relocated to avoid cemetery. New bench mark stone will be placed by Kilimanjaro Development Director (refer to DWG.No.01)
  
2. De-touched type Housing layout and the size of the Housing will be studied with consideration of local condition of Kilimanjaro Region.  
(refer to DWG No.16, 17)
  
3. Sanitary wastes from each Building will be treated by the septic tank and soak pit.  
The plumbing plan will be revised in consideration of above system.  
(refer to DWG No. 18, 20, 22, 24, 26)
  
4. 11KV (or 33KV) electric power supplying to the designated sub-station (SS) and installation of transformer will be performed by Tanzania Electric Supply Co. Ltd.(TANESCO) before construction start of the Project.  
(refer to DWG.No. 19, 21)
  
5. Secondary electric power supply for staff Housing from the SS will be independent with independent meter.  
(refer to DWG. No. 19, 21, 27)

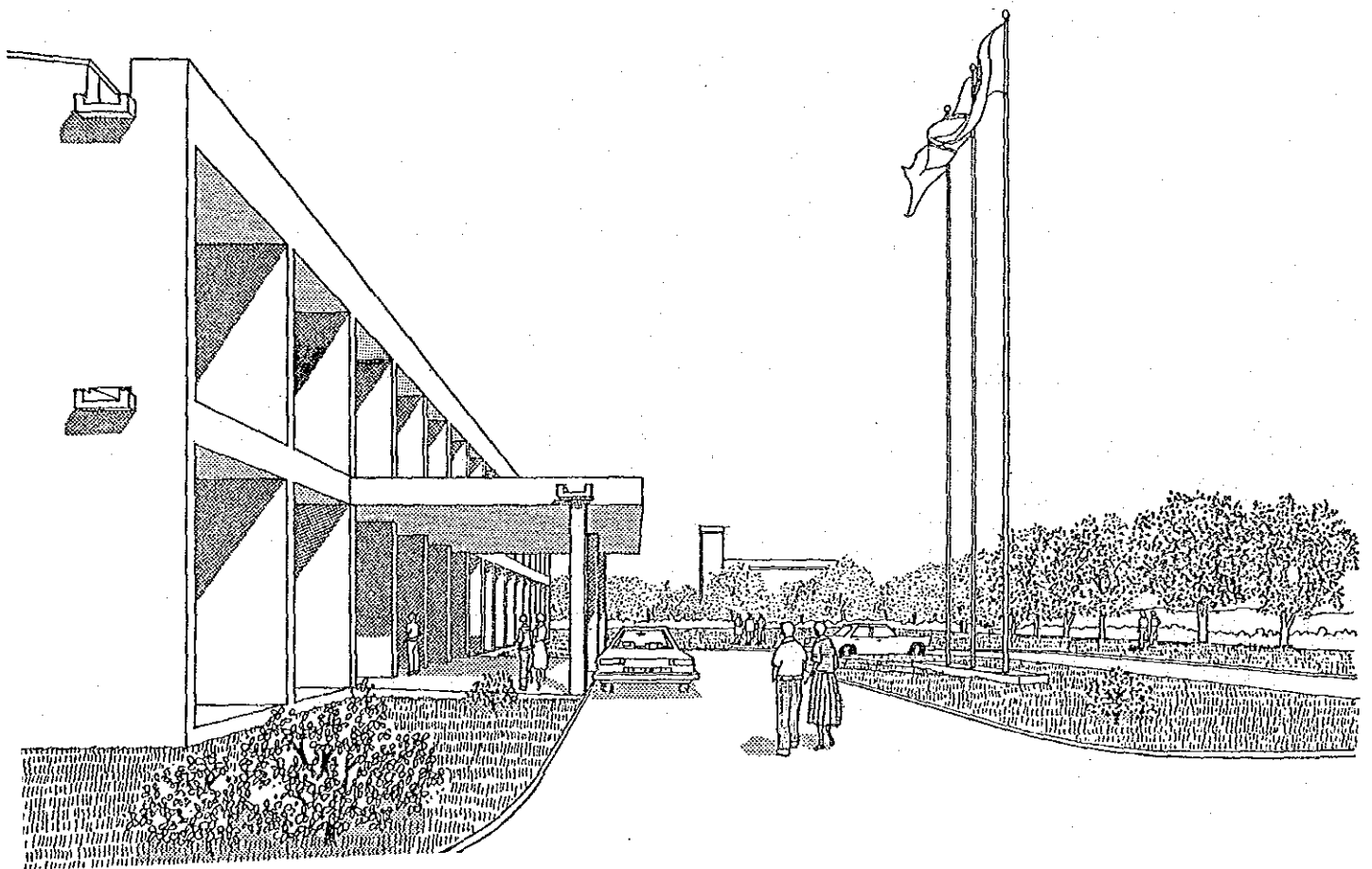
## 2.6 Evaluation on Survey Findings

At the result of the Basic Design Survey, the Survey Team confirmed that the technical development for agriculture and small-scale industry was urgently desired to develop the economics in Kilimanjaro Region, Tanzania, therefore both the KADC Project and the KIDC Project would be useful for the embodiment of it.

Moshi is a central city in Kilimanjaro Region which is favored with good life condition and anticipated its economical development in Tanzania, so that it is adequate for the location of this project.

The KADC is planned at Chekereni Village, where Trial Farm is situated, for the requirement of a training development for agricultural techniques and the KIDC is in the industrial zone in Moshi-City. That is natural in point of making much of practical training in both Centers, and these are expected to promote the technical development of agriculture and industry around. Moreover, the Administration Office Center is needed to make both Centers connected and to stimulate the administrative and economical function of Moshi-City.

Each facility is designed on the basis of development programming by the Japanese Technical Cooperation, and considered about real circumstances in economics, agriculture and industry in Kilimanjaro Region and in Tanzania. Architectural planning such as facility size, facility layout and equipment item are in accordance with the series of discussions among staff members of Kilimanjaro Regional Development Office, Staff members and experts of Japan International Cooperation Agency. Architectural details are described in the following chapter.



ADMINISTRATION BLDG.



## CHAPTER 3 BASIC PLANNING FOR CONSTRUCTION

### 3.1 Outline of Basic Design

The fundamental plan for this project is based on the Kilimanjaro Region Integrated Development Plan prepared in October 1977 by Japan International Cooperation Agency.

Following working out several alternative plans on the procedures of basic design for comparative studies on minimizing the operating cost and also to meet the relation to the surrounding environment, the basic design covered in this report is the one that was arrived as a result of the studies and with some modification made.

The KADC site has been confirmed to be at Chekereni Village, about 15 Km from suburban Moshi, near the Trial Farm. Here, a workshop has been planned for practice training of technical harvested crops and the practice training of the technical agricultural machinery, such as a tractor tiller for their main use. And also because this site is far from the center of the city, to have at least a minimum living standard possible, a dining room, student dormitory, and a minimum requirement of Housing for Local Staffs are necessary. Putting 40 people as the base for the students, classrooms, dormitories, etc., are planned and the dining room is planned so that about 40 people, considering the use of the specialists and staffs, may be accommodated. The KIDC will be constructed in an industrial apartment area where an urban city plan is under construction, in suburban Moshi, and practice training of the machinery construction, workshops for the practice training of the forging and foundry, and the experimental factories for the ceramics and briquettes are under plan. The student dormitories are planned at a residential area near here and it is possible to accommodate about 16 people.

Other than this, an administration office is necessary for both the KADC and the KIDC, and is planned adjacent to the RDD office in the center of Moshi city. Main business affairs will be done in these offices, and at each site, the business affairs should be limited to ( confined to ) affairs necessary for contacts and practice trainings. Also, this administration building will be used temporarily for the other 3 projects.

Including the Housing for Local staff, there are 5 sites, and the management of the KADC and the KIDC is conducted with these 5 sites.

### 3.2 Floor Area of Facilities

The present diagram of the facilities of the KADC and the KIDC has been planned based on the discussions among the Regional Development Director's Office, Kilimanjaro Region, JICA ( Japan International Cooperation Agency ) and Japanese specialists from each department.

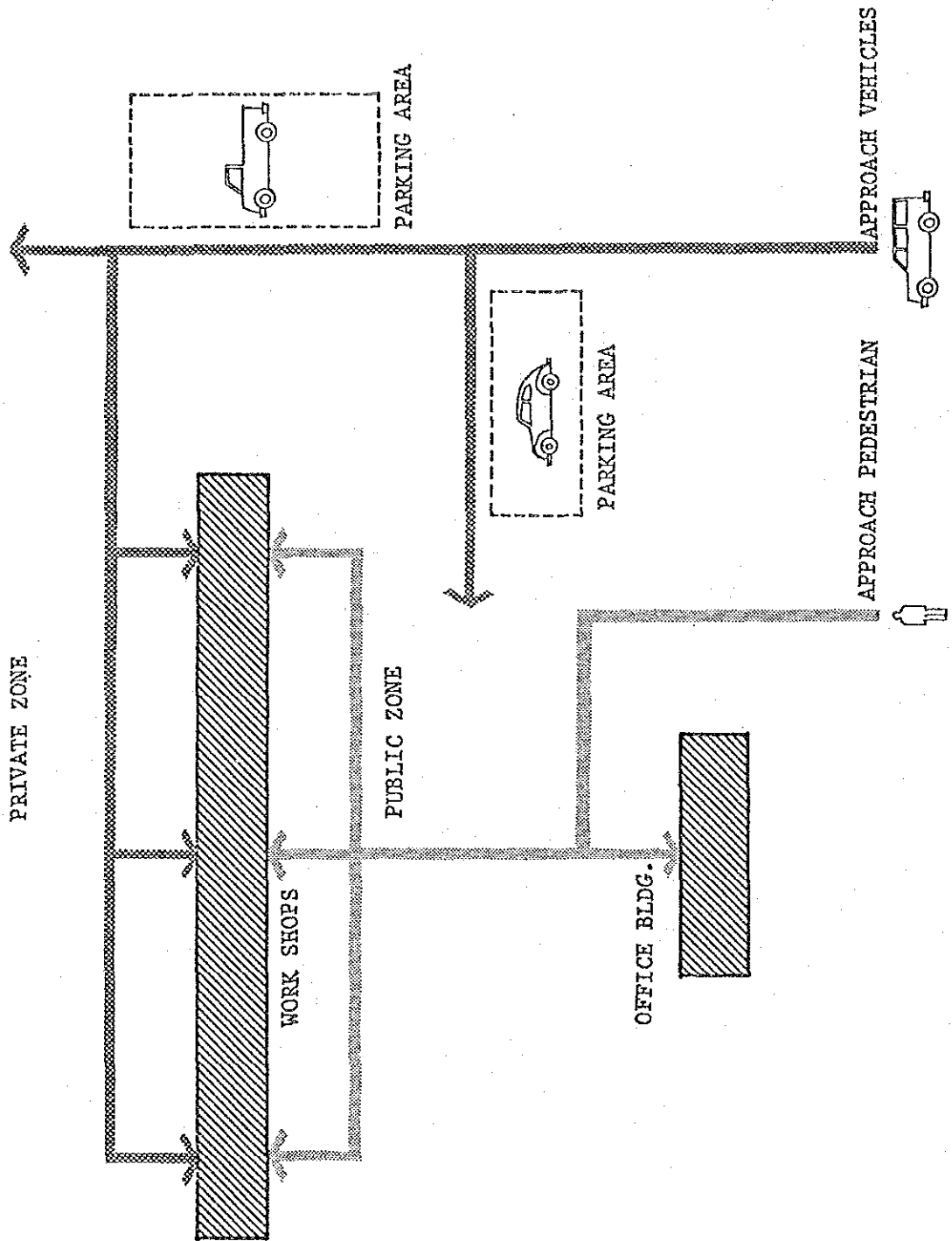
The site is divided into 5 parts; KADC, KIDC, KIDC Dormitory, Administration Bldg. and the Housing for Local Staff, and at each site the following buildings are planned for construction.

The floor area tabulation of each bldg. is the following.

#### FLOOR AREA TABULATION

	Floor Area (M <sup>2</sup> )
<u>KADC</u>	
Office Bldg.	512.5
Shed for Agriculture Machinery ( Repairing & Training Workshop )	1,125.0
Processing Workshop	525.0
Storage for Harvested Crops	225.0
Storage for Fuel Oil Fat	75.0
Canteen	125.0
Dormitory	437.5
Housing for Local Staff	248.0
Other Incidental Facilities	62.5
Total for KADC	3,335.5

	Floor Area (M <sup>2</sup> )
<u>KIDC</u>	
Office Bldg.	362.5
Machine Shop	825.0
Forging Workshop	150.0
Foundry Workshop	300.0
Ceramic & Briquete Factories	525.0
Ceramic & Briquete Storage	105.0
Other Incidental Facilities	62.5
Total for KIDC	2,330.0
<u>KIDC DORMITORY</u>	250.0
<u>ADMINISTRATION BLDG.</u>	865.0
<u>HOUSING FOR LOCAL STAFF</u>	992.0
<u>TOTAL FLOOR AREA</u>	<u>7,772.5</u>



### 3.3 Facilities Layout

The KADC site is approached from the southern road. Office Bldg. is located in the forefront of the site, and in the middle of the site are the Shed for the Agriculture Machinery, Processing Workshop, etc.

Behind it, the Student Dormitories, Canteen Building, Housing for Local Staff, etc., which are residential buildings have been plotted.

To each building, the access road is from the northern direction, while the pedestrian roads are set apart from them so that they will not intersect in anyway and convenient to each buildings.

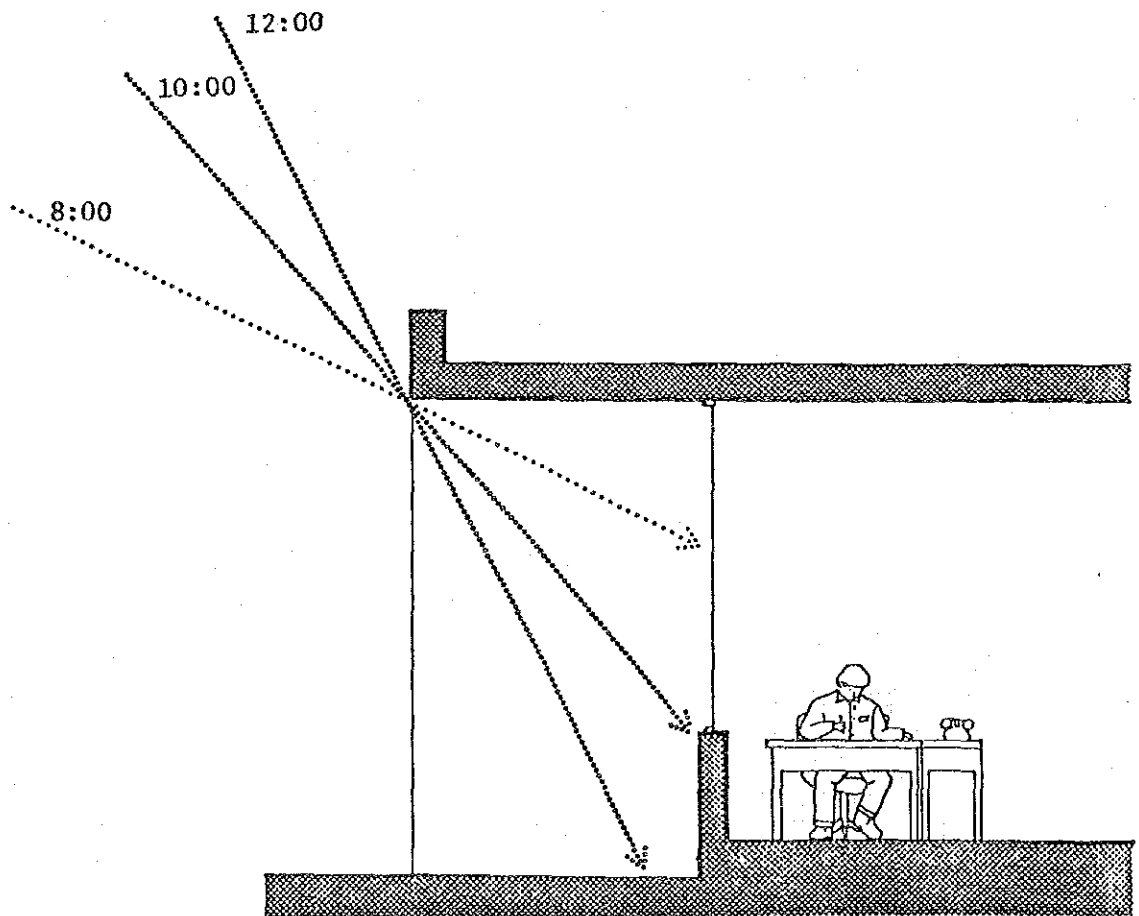
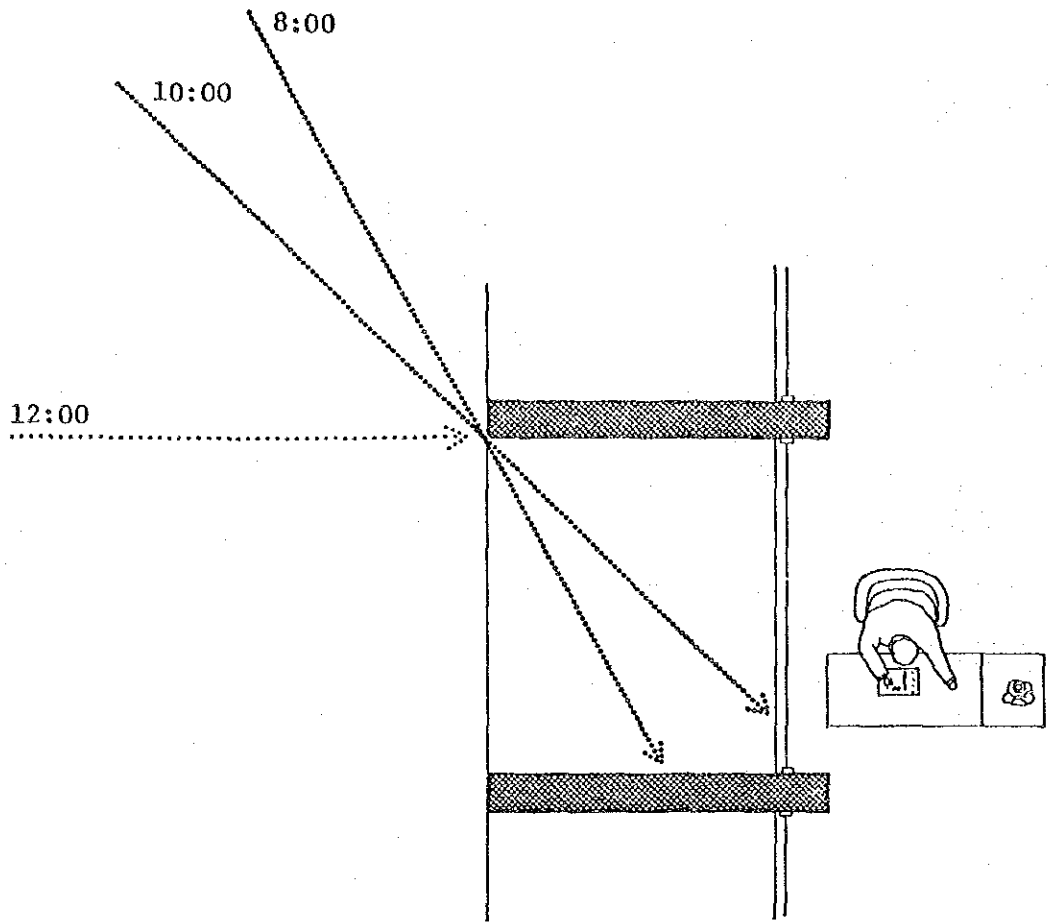
Basically the direction of the buildings are plotted according to the access road and the conditions of the site, but the office building has been plotted so that the lighting of the north and south may be guaranteed on the sun-shine conditions. Also, according to the building, open spaces has been planned with a linear shape. The area between the office building and the factories are provided more publicly, and the area between the factories and the residential buildings are provided more privately.

The KIDC site is approached from the eastern T.P.C Road and the office Building is located in forefront of the site and on the rear part of the site, the Machine Shop and other experimental factories are located. However, since cacophony is expected from the Forging Workshop, smoke from the Foundry Workshop and soot & dust from the Ceramic and Briquete Factories, each building has been separated and has been plotted in consideration of the wind directions.

Since the KIDC site is included in the industrial area of the Urban Planning, Student Dormitories have been planned near the Residential Areas.

The Administration Building is located in the RDD office site, and it is on the southern side of the RDD office building. The front road is on the eastern side, but considering the sun-shine conditions of the office environment, the office building should be plotted for lighting from the south. The roads within the site are planned so that they will be connected with the existing roads.

The site for the Housing for Local Staff has an approach on the road which runs from north to south and is divided between this road on the eastern and western sides. Lock of these buildings are duplex housings but each duplex on the north and south are planned so that private gardens will be available for each duplex.



### 3.4 Architectural Planning

The Office Building of the KADC is planned under a flat middle hallway, on a East-west axis to provide ample sunlight from the north and south. The west side is provided with the Entrance Hall and the Core for the toilet and the pantry, on the east side a class room which is able to accomodate 40 people will be provided.

Other facilities such as class rooms which accomodate 20 people, experimental rooms, conference rooms, office rooms, etc. will be provided in the interior. Also, from the Entrance Hall, a hallway leading to the Factory Zone and together with this, toilets and shower rooms will also be serially planned.

The Shed for Agriculture Machinery is mainly composed of the storage of the Agricultural Machinery, Workshops, and Training space and to this, the tool storage and testing rooms will be added in the plan.

The Processing Workshop will be serially planned with the Storage for Harvested Crops and will be connected by a roof in order to provide a drying area for maize, etc.

The Student Dormitory is a central corridor type and there are 20 rooms which accomodates 2 people, a total of 40 people and other common utility spaces such as the lounge, toilet, shower, and the custodian room.

The Canteen Building has 42 seats and this number is a scale which fulfills both the planned number of people and also for a rotation rate. The office building of the KIDC is quite similiar to the KADC in floor plan, and this building consists of class rooms which accomodate 20 people, class rooms which accomodate 10 people, experimental rooms, Conference rooms, office buildings, etc. The Machine Shop consists of a storage area, equipment room, Testing room, etc. The Forging Workshop and the Foundry Workshop is planned with an open yard between them, and the Forging Workshop includes a forming area, and the Foundry Workshop includes a carpentry area. The Briquete and Ceramics Factory is a one building plan but is divided so that the Briquete Factory is serially planned with the raw material stocking area and a storage for finished goods.

The KIDC Dormitory is basically the same plan as the KADC, but this one has 8 rooms for 2 people, total of 16 with an inclusion of a canteen and a kitchen.

The Administration Building is a 2 storey building and is located in the center of the city. From the regulations of an urban planning system, it is planned so that extensions are possible up to the 4th floor, structurally and similar to the other office buildings, it is a central corridor structure, with a core, and toilets and a pantry on the eastern side. On the 1st floor, the office rooms, Conference rooms, Director rooms, etc. are planned, and on the 2nd floor, the office rooms for the KADC staff and the KIDC staff are planned.

The Housing for the Local Staff is a duplex house building and the interior consists of private rooms such as a dining kitchen, main bed rooms for children, maid rooms, etc.



### 3.5 Building System Planning

The types of buildings for this project may be divided into 3 parts, administration zone, working zone, and dormitories. Considering a cut down for the construction period and also a reduction for the Construction cost' structurally, the buildings which have the same functions will be unified, and the materials for the parts, parts, and construction materials will be standardized.

The construction for the office building puts emphasis on the environmental conditions of the inner office areas and an outer louver has been set concurrently to the structure to prevent direct sunlight with the external construction.

Also, the roof will be a double roof in order to provide good airing in between for heat prevention. The horizontal pattern, and the structure of the walls will be in such a shape that the corridor may provide for sufficient airing. In this way, and considering the weather conditions of the location, a very good office environment may be guaranteed with no air conditioning.

The Workshop construction, on the other hand, have conditions where heat will develop from the interior, and materials which do not confine the heat will be used for the roofs and the walls. The roof will be higher and airing must be provided from under the eaves in order to maintain the inner environment.

For the Dormitory construction, the inner environment is guaranteed by providing airing between the roof and the ceiling, and also with consideration to reducing cacophony from each room, the walls will be made of bricks. This is to guarantee a high quality space, measuring for a cost down, by adopting a unified local construction method.

### 3.6 Mechanical Planning

#### 1) Water Supply

##### Water Supply Volume

KADC	30,000 ℓ/day
KIDC	20,000 ℓ/day
ADMINISTRATION	16,000 ℓ/day
H.F.L.S.	8,000 ℓ/day
KIDC DORMITORY	3,000 ℓ/day

##### Water Supply System

###### a. KADC

Pumped up well water for each of the facilities are supplied by a gravity supply system from an elevated water tank which is transferred from the reservoir tank.

Well construction is included in the Tanzanian work and installation of pumps and plumbing work are to be planned in the main construction work. The capacity of reservoir tank is 30 m<sup>3</sup> and that of the high elevated tank is 4 m<sup>3</sup>.

2 water pumps are installed and to be in alternate automatic operation.

###### b. KIDC

Since the hydrogen pressure of the site is high enough, the city water main is connected directly to the high elevated tank to supply water to each building with the gravity supply system. The capacity of the high elevated tank is 5 m<sup>3</sup>.

###### c. KIDC DORMITORY

Direct connection of city water main. Water is to be supplied to necessary points.

###### d. ADMINISTRATION

- ditto -

###### e. H.F.L.S.

- ditto -

## 2) Drainage

### Sanitary Waste

- a. KADC  
Sewage from lavatories in buildings is drained to the septic tanks outside and are connected to the used water drainage pipe after purification.
- b. KIDC  
- same as KADC -
- c. KIDC DORMITORY  
- same as KADC -
- d. ADMINISTRATION  
- same as KADC -
- e. H.F.L.S.  
- same as KADC -

### Used Water Drainage

- a. KADC  
Used water, except for the sewage, is drained out of the site in one pipe. Industrial wastes is separately treated by an oil trap and discharged.
- b. KIDC  
- same as KADC -
- c. KIDC DORMITORY  
Used water, except for the sewage is drained out of the site in one pipe.
- d. ADMINISTRATION  
Used water, except for the sewage is a connected drainage main, and is drained out of the site in one pipe.
- e. H.F.L.S.  
- same as KIDC DORMITORY

### Rainwater Drainage

a. KADC

Rainwater drainage of the site is flowed into an open ditch, which is to be provided around the site to prevent rainwater from running in. Rainwater from each of the buildings and from the site is drained out of the site in one pipe.

b. KIDC

- same as KADC -

c. KIDC DORMITORY

Rainwater from each of the building is drained out of the site in one pipe.

d. ADMINISTRATION

- same as KIDC DORMITORY

e. H.F.L.S.

- same as KIDC DORMITORY

### 3) Sanitary Equipments

Sanitary equipments will be installed at lavatories of each buildings, adjusting to the construction plan of each.

### 4) Septic Tank

Sewage from the lavatories is treated with Septic Tanks. Tanks will be installed in each facilities where required.

### 5) Gas Installations

L.P.G. Gas cylinder will be installed in each facilities where required and piped to places for use.

### 6) Ventilation

Natural ventilation system is mainly planned and mechanical ventilation will be installed where natural ventilation is hard to install on the construction plan.

### 3.7 Electrical Planning

#### 1) Power Receiving & Transformer Facilities

##### KADC

Electric power required in this site is presumed to be about 80 KVA, considering load capacity. High-tension power is to be led from a power company, transformer shall be built to make high-tension power to low tension power and to supply it to load the buildings.

##### KIDC

Electric power required in this site is presumed to be about 100 KVA, considering load capacity. High-tension power is to be led from a power company, transformer shall be built to make high-tension power to low tension power and to supply it to load the buildings.

##### KIDC DORMITORY

Electric power required in this site is presumed to be about 10 KVA. Low-tension power will be led to the dormitory.

##### ADMINISTRATION

Electric power required in this site is presumed to be about 30 KVA, considering load capacity. Low-tension power will be led to the buildings directly.

##### H.F.L.S.

- same as ADMINISTRATION -

#### 2) Electrical Supply System

##### KADC

Electric supply for the buildings are planned as follows:

Lighting Main & Power Main	.....	3 $\phi$	4 W	400/230 V
Power Circuit	.....	3 $\phi$	3 W	400 V
Lighting & Socket Outlet Circuit	.....	1 $\phi$	2 W	230 V

Power distribution boards are installed for power load and lighting panel boards are installed for lighting & socket outlet load.

Power is supplied by vinyl sheathed wire in metal conduit tube.

KIDC

- same as KADC -

KIDC DORMITORY

- same as KADC -

ADMINISTRATION

- same as KADC -

H.F.L.S.

- same as KADC -

3) Lighting System

KADC

Fluorescent light will be used mainly, and incandescent light partially.

Illumination is roughly as follows:

Office, Class room, Working space	.....	300 - 350 lx
Housing, Corridor, Lavatory	.....	50 - 100 lx

KIDC

- same as KADC -

KIDC DORMITORY

Fluorescent light will be used mainly, and incandescent light partially.

ADMINISTRATION

- same as KADC -

H.F.L.S.

Incandescent light will be used mainly.

#### 4) Telephone Service Wiring

##### KADC

1 - 2 main line(s) for office bldg. and 1 main line for each house of residence area will be necessary. Receiving of telephone line and installation of telephone will be included in the Tanzanian side work. Main work only includes piping in the building. Telephone exchanger will not be installed.

##### KIDC

- same as KADC -

##### KIDC DORMITORY

1 main line will be necessary. Receiving of telephone line will be included in the Tanzanian side work. Main work only includes piping in the building.

##### ADMINISTRATION

2 main line will be necessary. Telephone exchanger will be installed and extension telephone are planned to be about 20. Receiving of telephone line will be included in the Tanzanian side work. Main work includes piping, wiring, and installation of telephone.

##### H.F.L.S.

1 main line for each of the 8 houses will be necessary. Receiving of telephone line and installation of telephone will be included in the Tanzanian side work. Main work only includes piping in the building.

## CHAPTER 4 BASIC DESIGN DRAWINGS

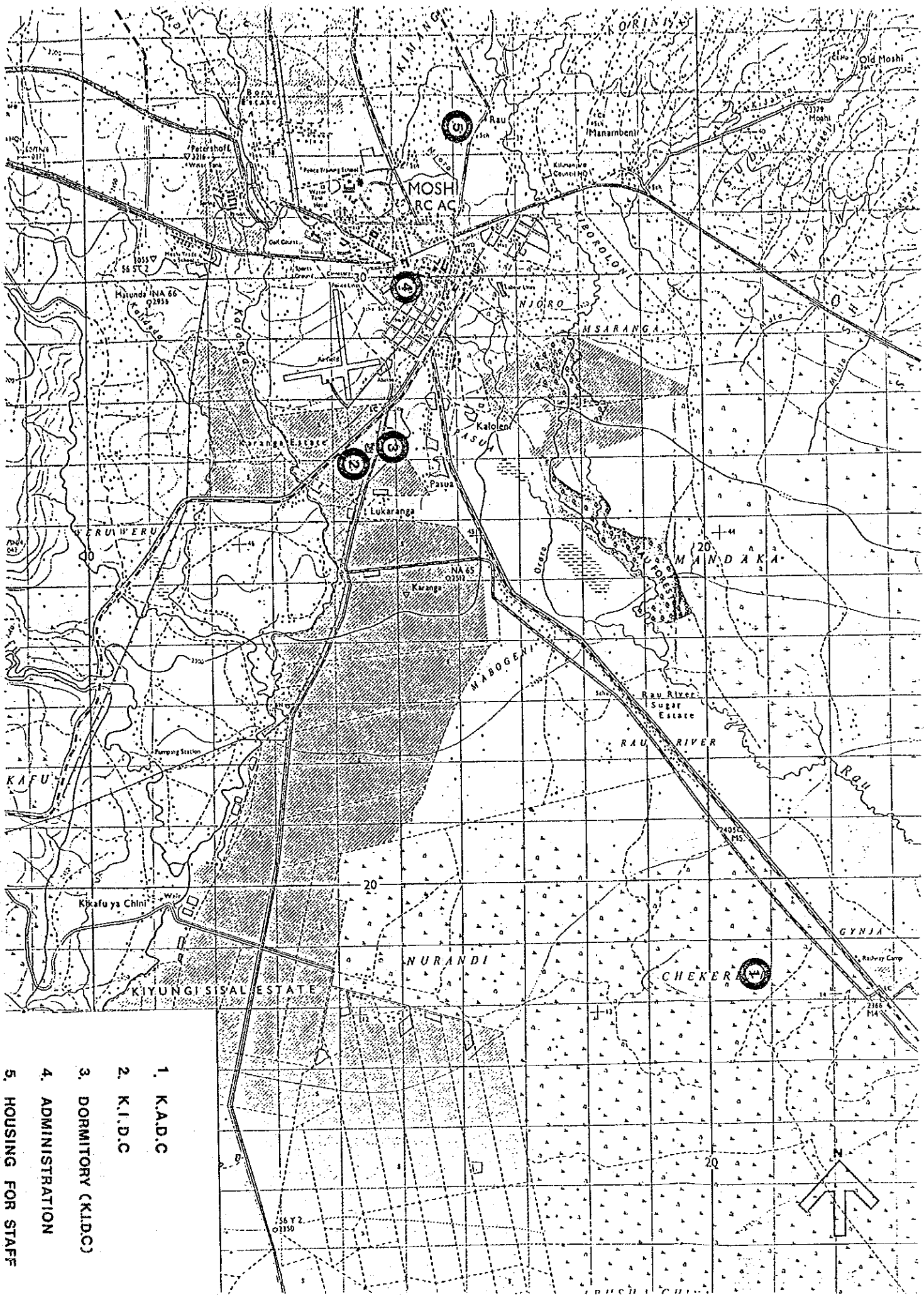
### DRAWING LIST

- |    |   |
|----|---|
| 01 | KADC BLOCK PLAN                                   |
| 02 | KADC OFFICE BLDG.                                 |
| 03 | SHED FOR AGRICULTURE MACHINERY                    |
| 04 | STORAGE FOR HARVESTED CROPS & PROCESSING WORKSHOP |
| 05 | DORMITORY CANTEEN                                 |
| 06 | KIDC BLOCK PLAN                                   |
| 07 | KIDC OFFICE BLDG.                                 |
| 08 | MACHINE SHOP                                      |
| 09 | FORGING WORKSHOP FOUNDRY WORKSHOP                 |
| 10 | BRIQUETE CERAMICS FACTORIES                       |
| 11 | KIDC DORMITORY BLOCK PLAN                         |
| 12 | KIDC DORMITORY                                    |
| 13 | ADMINISTRATION BLDG. BLOCK PLAN                   |



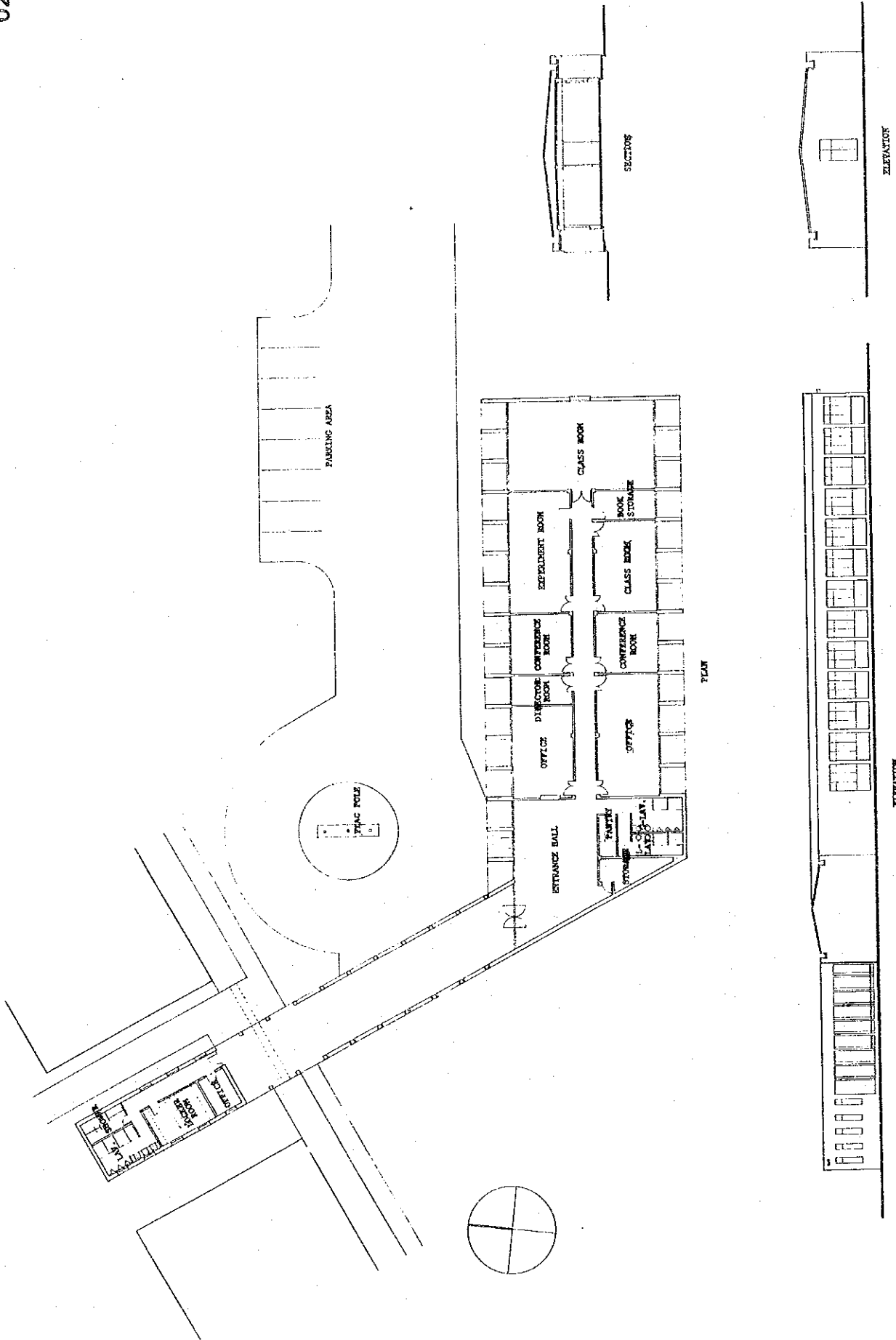
- 14 ADMINISTRATION BLDG. NO. 1
- 15 ADMINISTRATION BLDG. NO. 2
- 16 HOUSING FOR LOCAL STAFF BLOCK PLAN
- 17 HOUSING FOR LOCAL STAFF
- 18 KADC WATER SUPPLY SYSTEM DRAINAGE & SEPTIC TANK LAYOUT PLAN
- 19 KADC ELECTRIC POWER SUPPLY SYSTEM & TELEPHONE MAIN PLAN
- 20 KIDC WATER SUPPLY SYSTEM DRAINAGE & SEPTIC TANK LAYOUT PLAN
- 21 KIDC ELECTRIC POWER SUPPLY SYSTEM & TELEPHONE MAIN PLAN
- 22 KIDC DORMITORY WATER SUPPLY SYSTEM DRAINAGE & SEPTIC TANK LAYOUT PLAN
- 23 KIDC DORMITORY ELECTRIC POWER SUPPLY SYSTEM & TELEPHONE MAIN PLAN
- 24 ADMINISTRATION BLDG. WATER SUPPLY SYSTEM DRAINAGE & SEPTIC TANK LAYOUT PLAN
- 25 ADMINISTRATION BLDG. ELECTRIC POWER SUPPLY SYSTEM & TELEPHONE MAIN PLAN
- 26 HOUSING FOR LOCAL STAFF WATER SUPPLY SYSTEM DRAINAGE & SEPTIC TANK LAYOUT PLAN
- 27 HOUSING FOR LOCAL STAFF ELECTRIC POWER SUPPLY SYSTEM & TELEPHONE MAIN PLAN



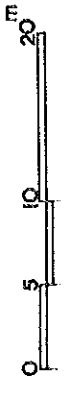


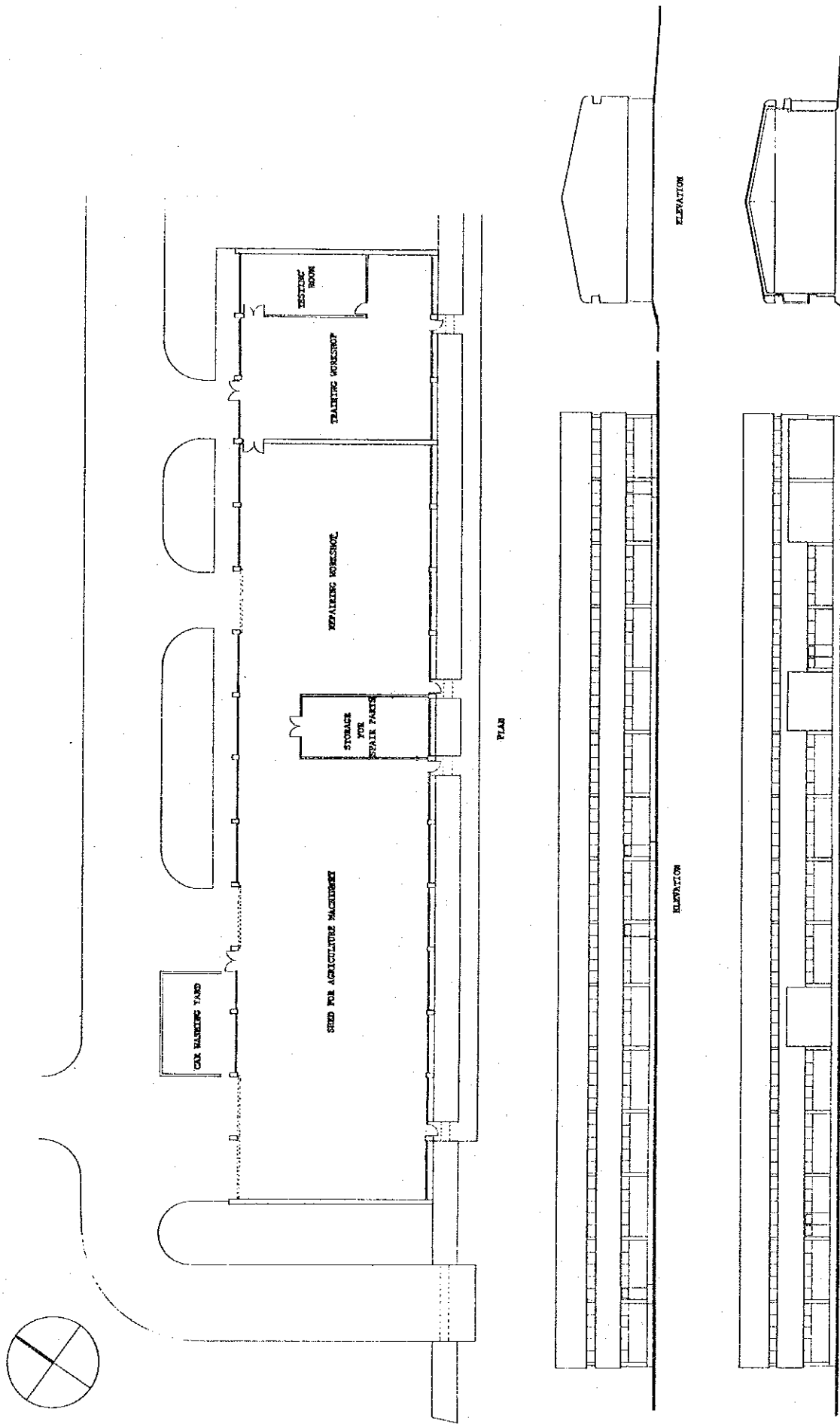
1. K.A.D.C
2. K.I.D.C
3. DORMITORY (K.I.D.C)
4. ADMINISTRATION
5. HOUSING FOR STAFF





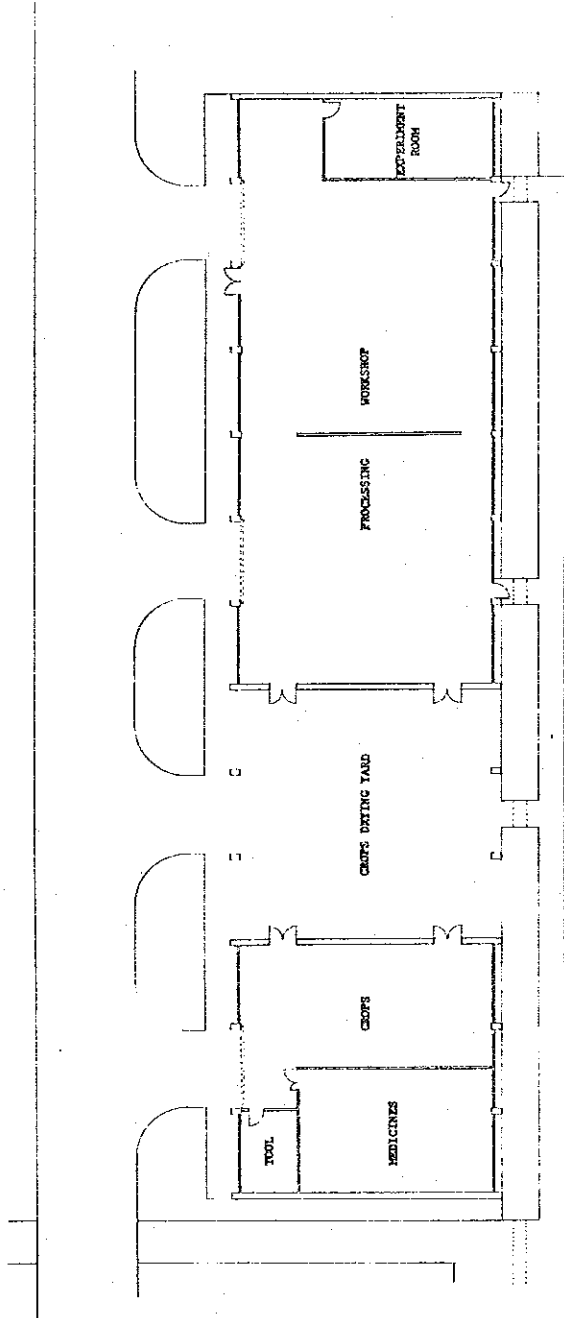
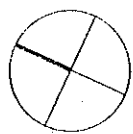
02 K.A.D.C. OFFICE BLDG



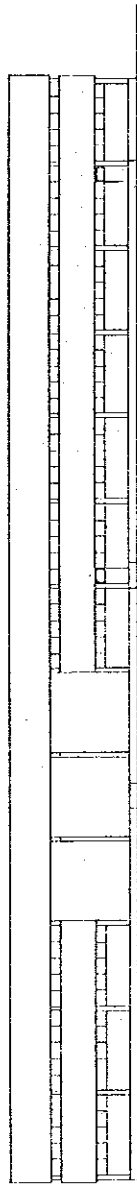


03 SHED FOR AGRICULTURE MACHINERY

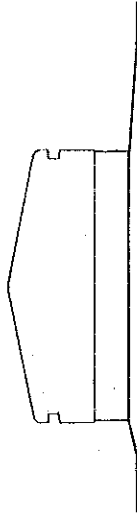




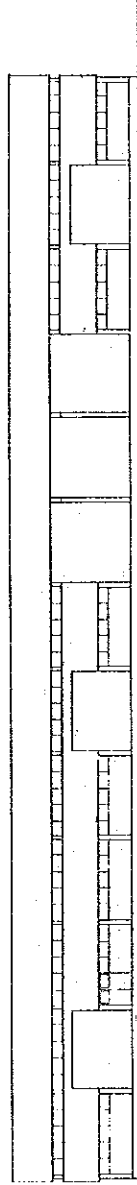
PLAN



ELEVATION

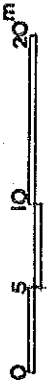


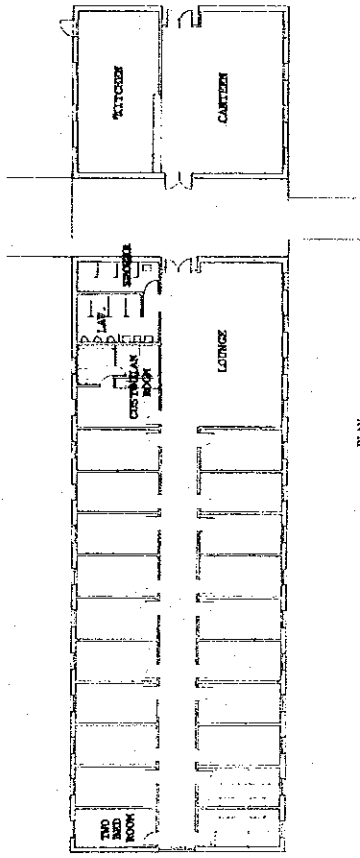
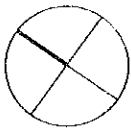
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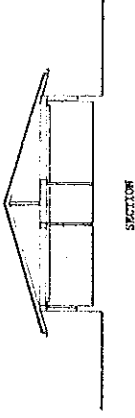
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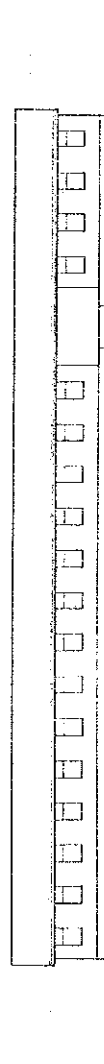




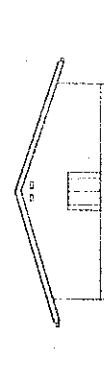
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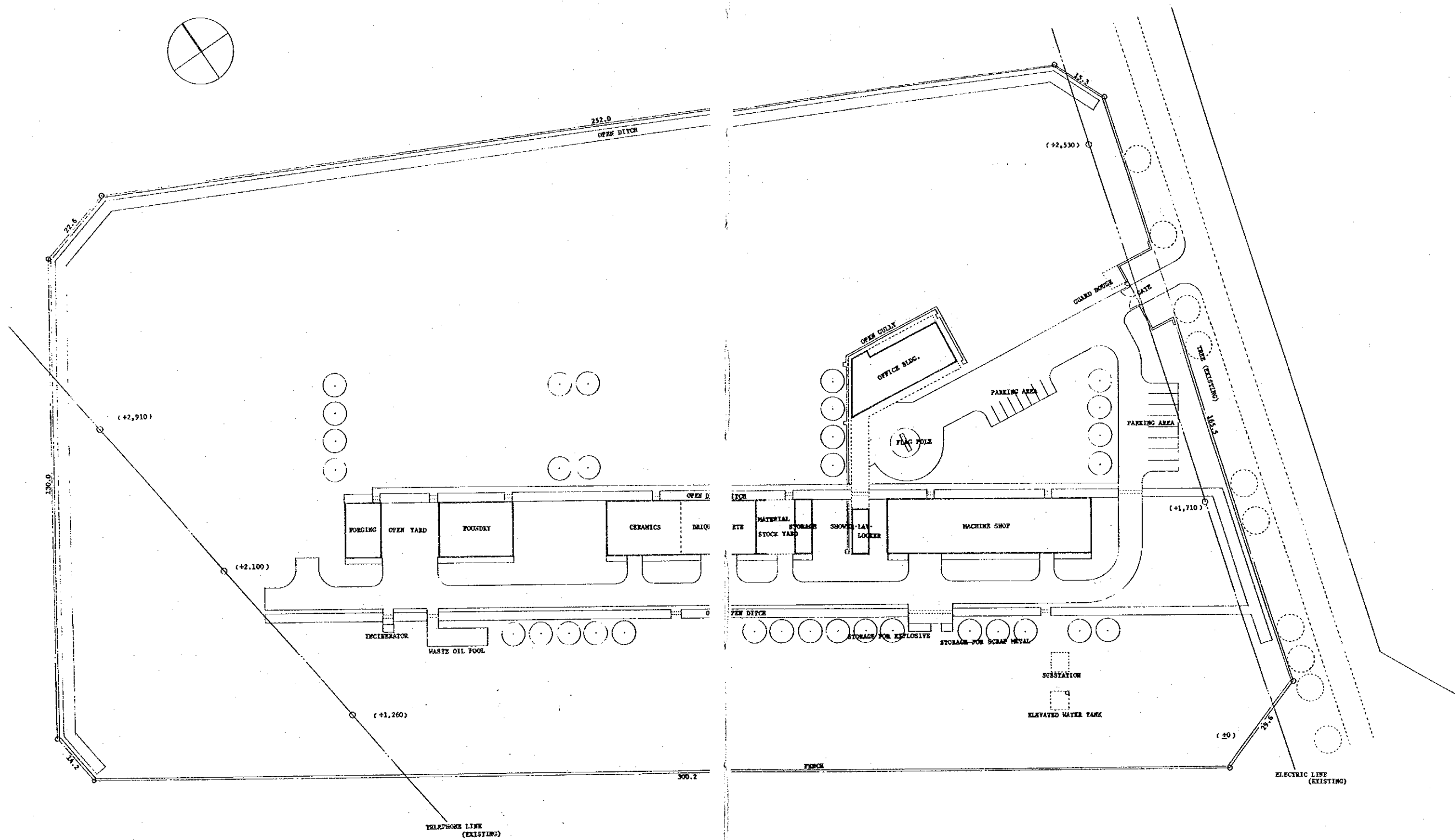


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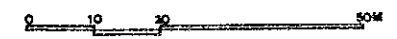


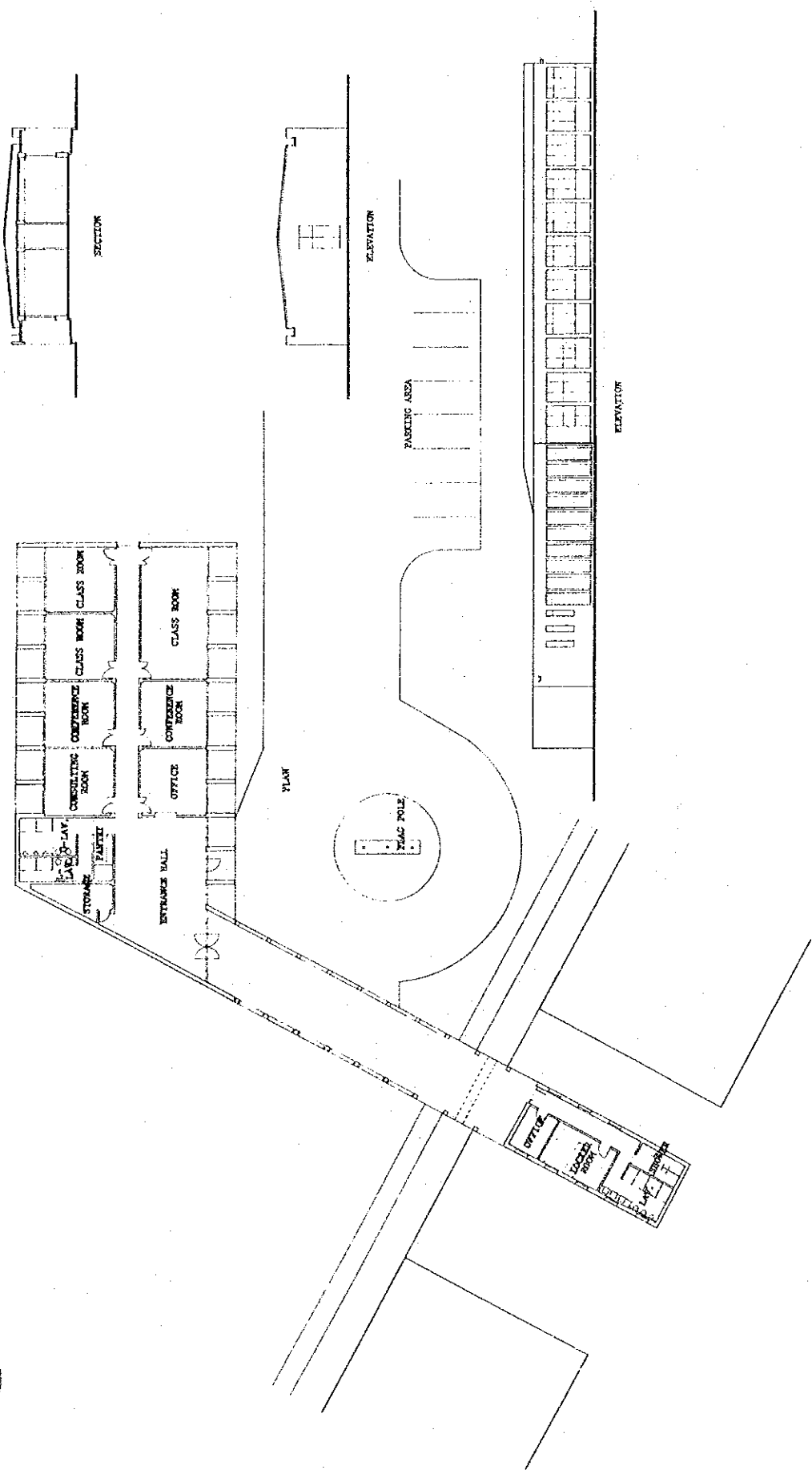
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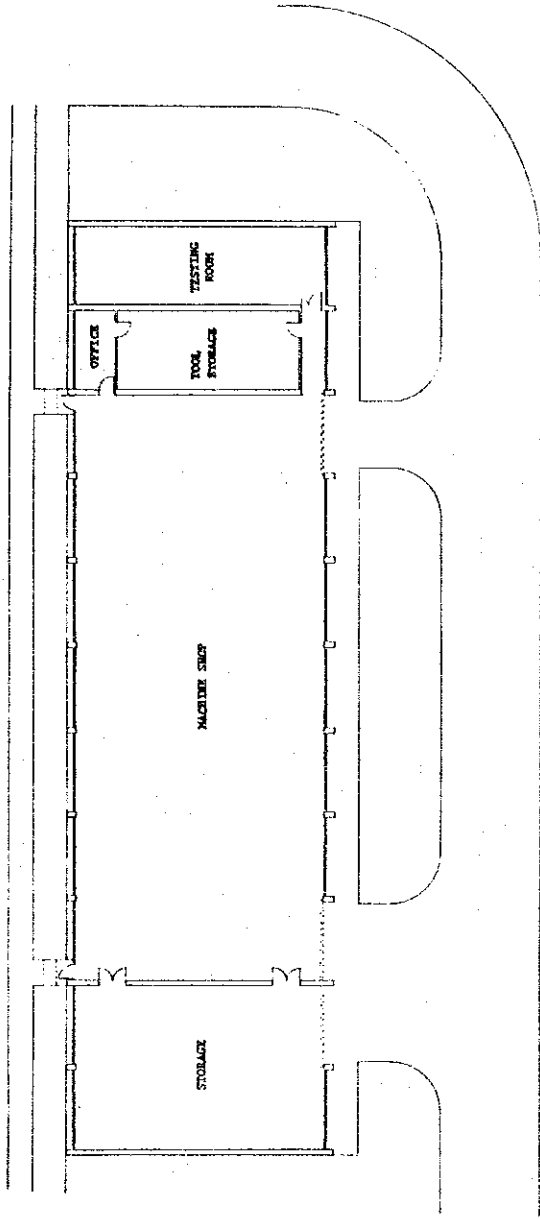
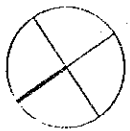




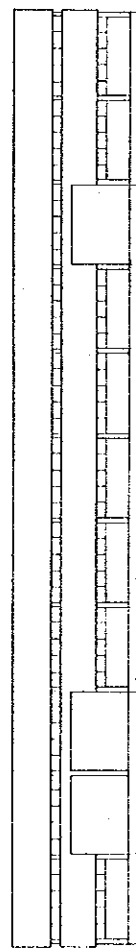
06 K.I.D.C. BLOCK PLAN



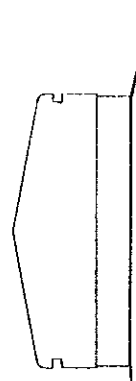




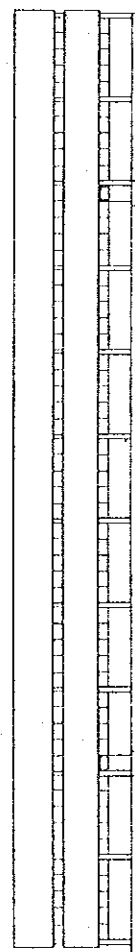
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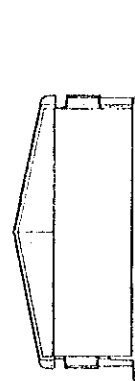
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ELEVATION



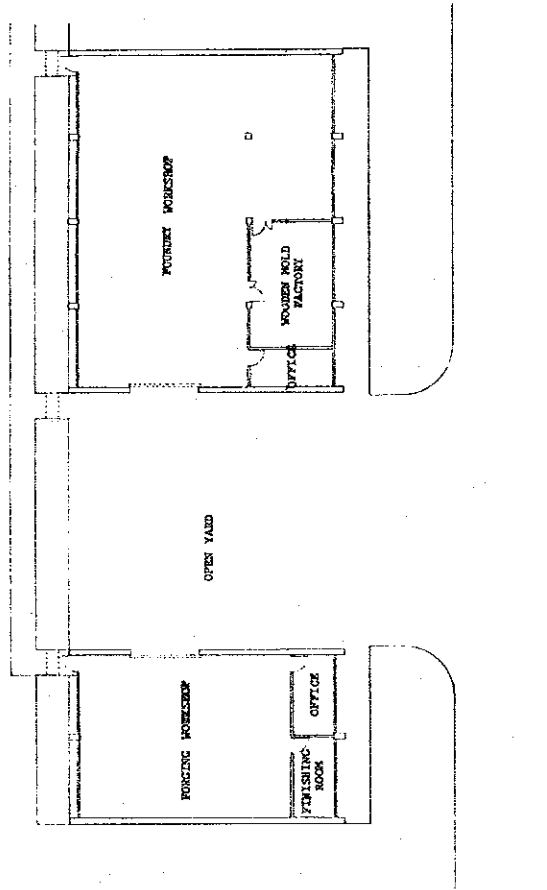
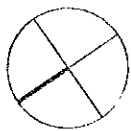
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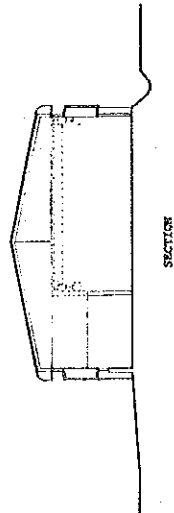
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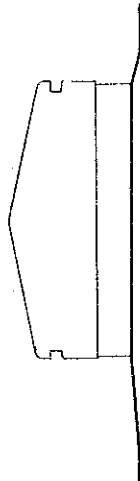
08 MACHINE SHOP



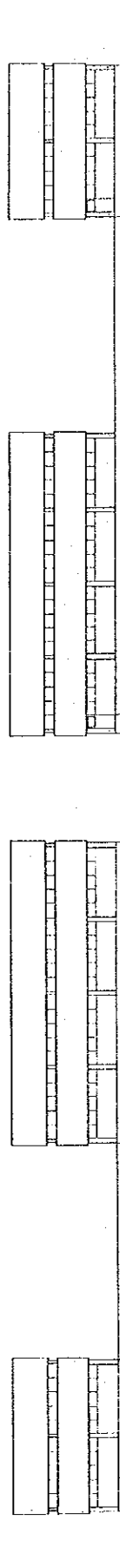
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SECTION



ELEVATION

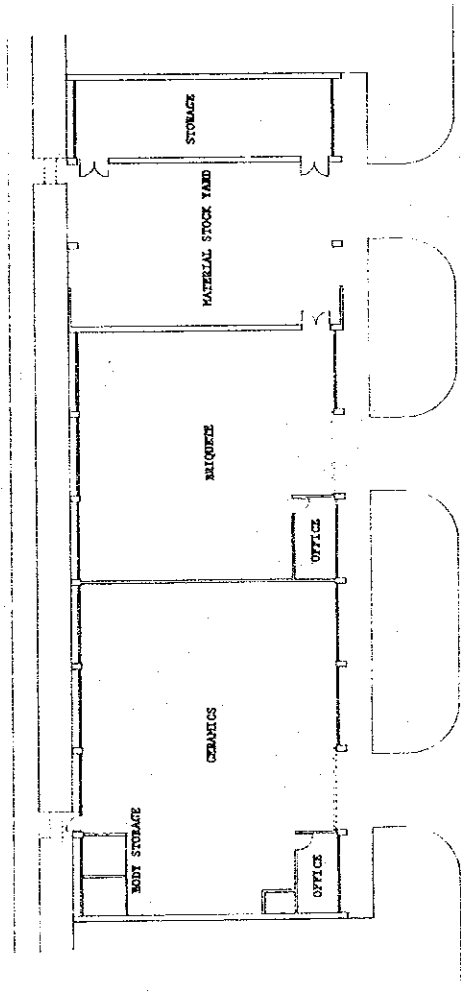
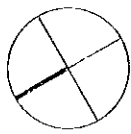


ELEVATION

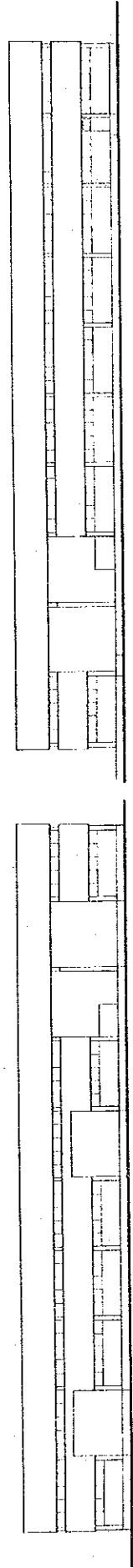
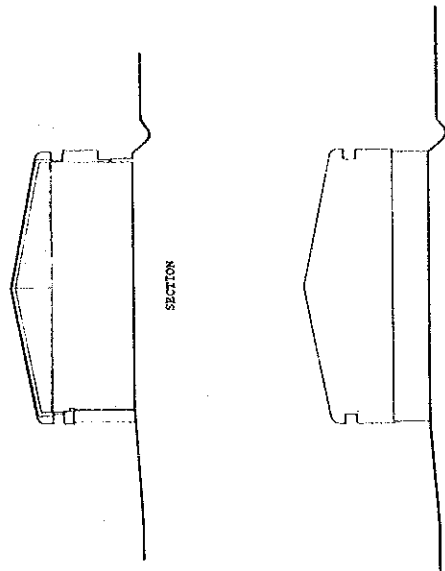
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09 FORGING WORKSHOP FOUNDRY WORKSHOP

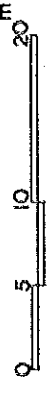


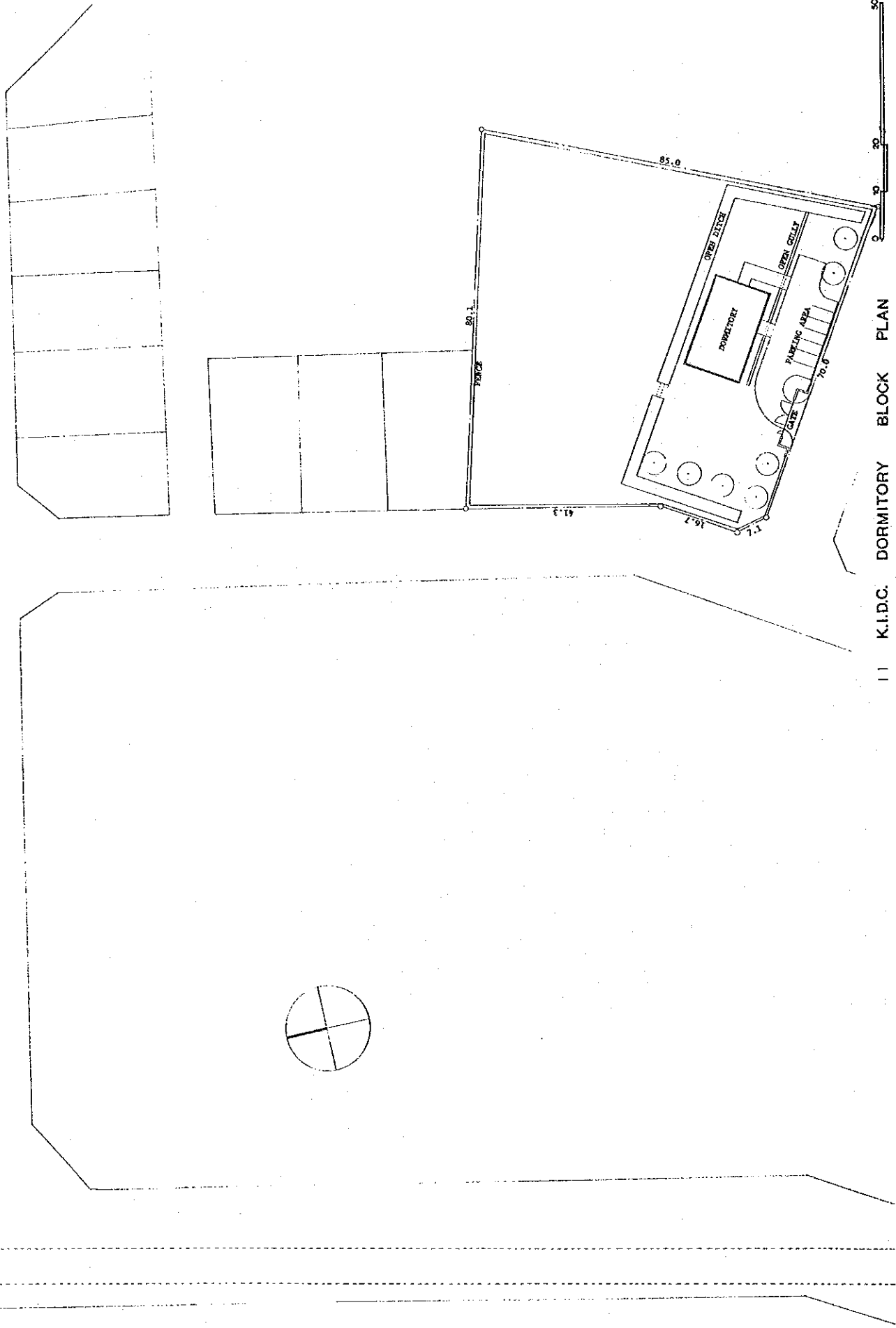
PLAN



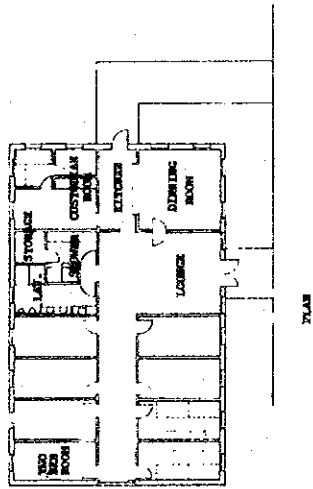
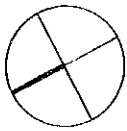
ELEVATION

ELEVATION

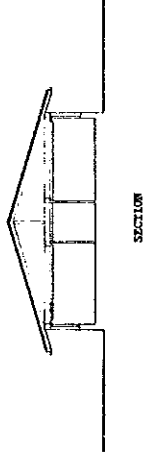




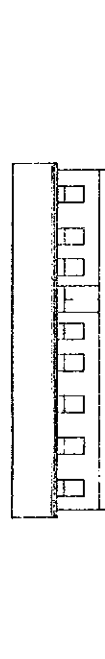
11 K.I.D.C. DORMITORY BLOCK PLAN



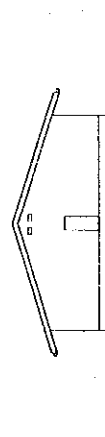
PLAN



SECTION

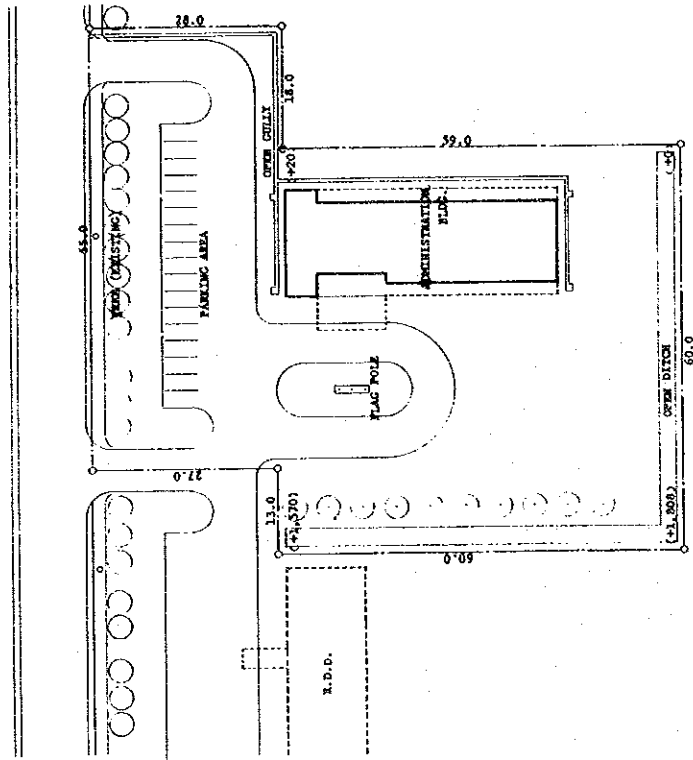
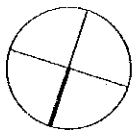


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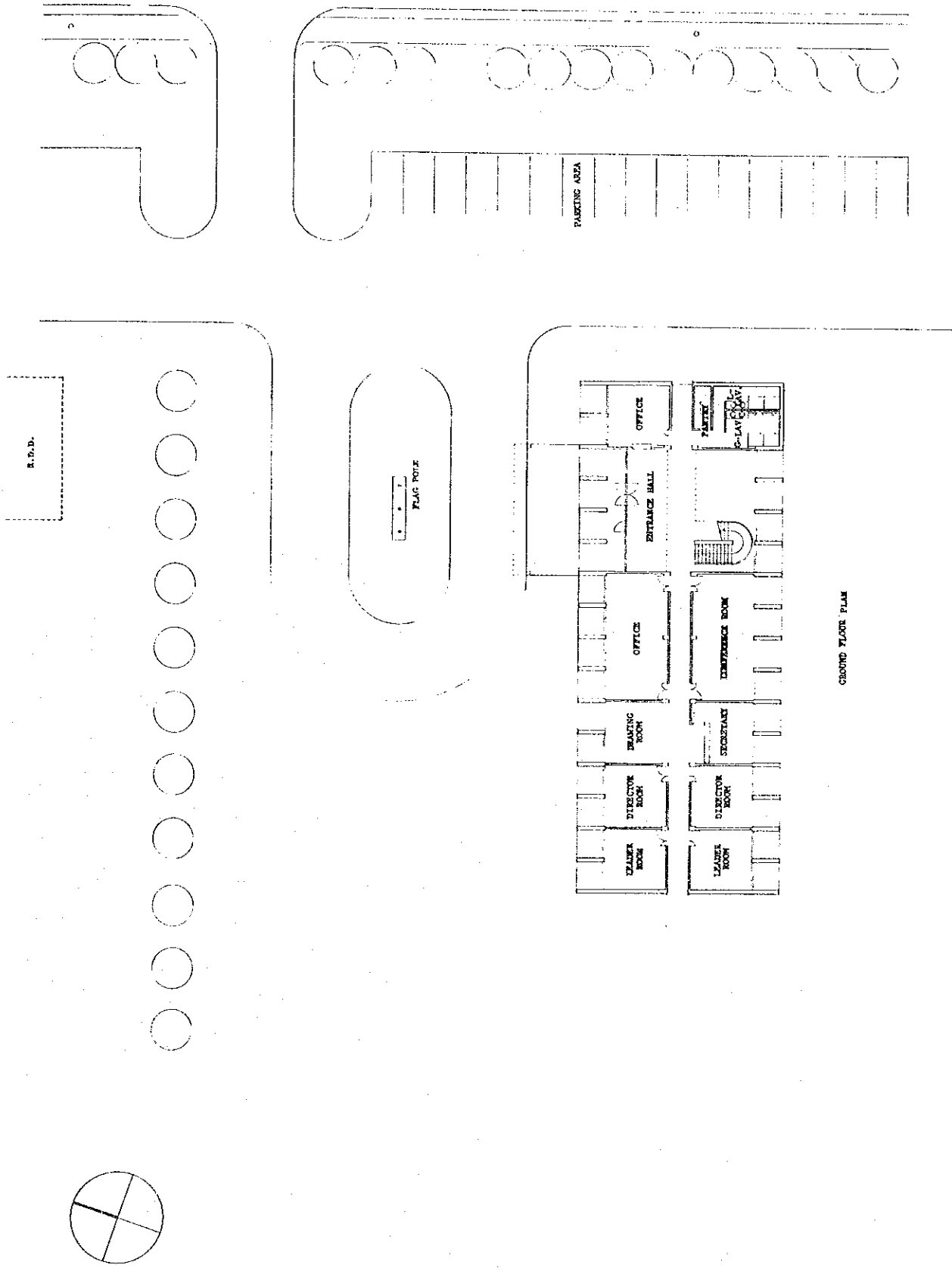
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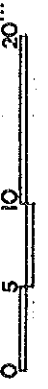
13 ADMINISTRATION BLDG. BLOCK PLAN

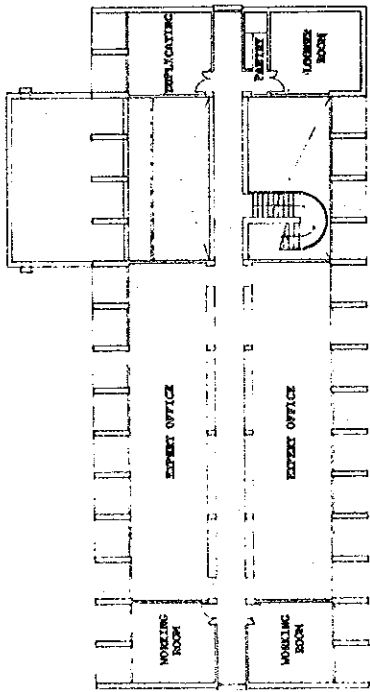
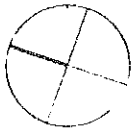




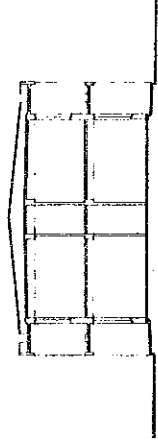
GROUND FLOOR PLAN

14 ADMINISTRATION BLDG.





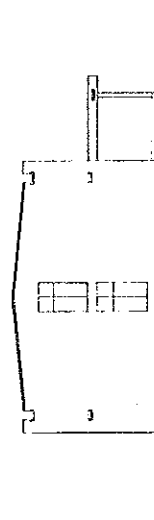
FIRST FLOOR PLAN



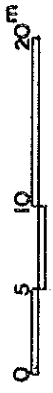
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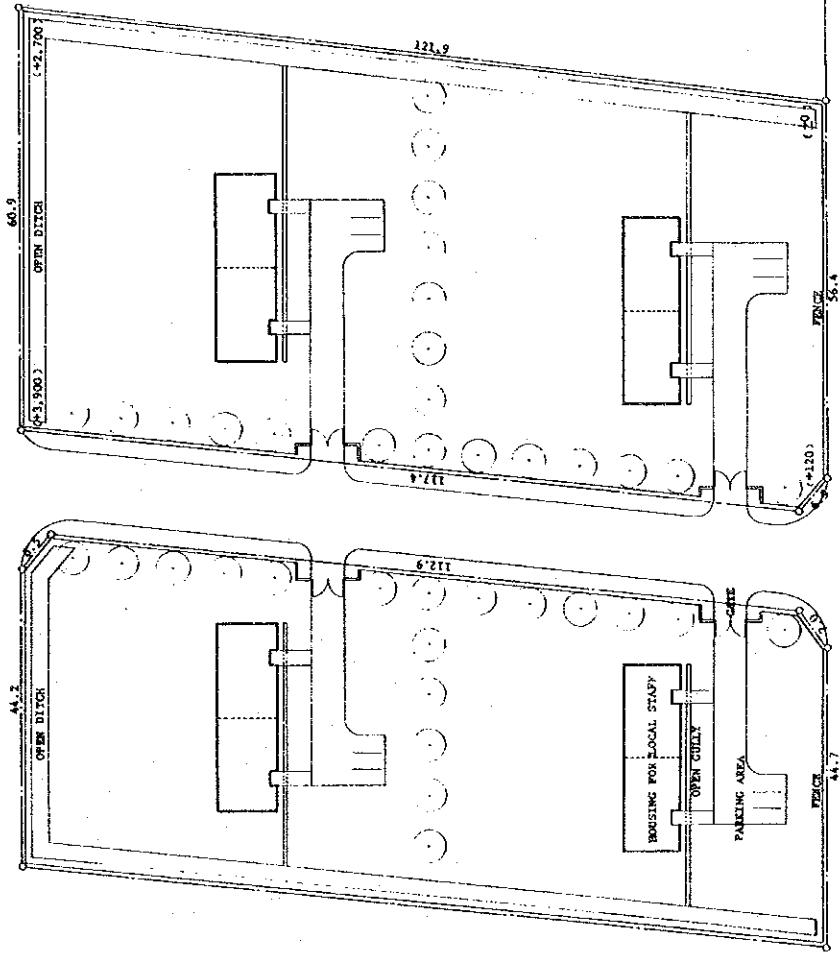
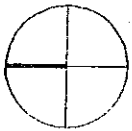
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ELEVATION

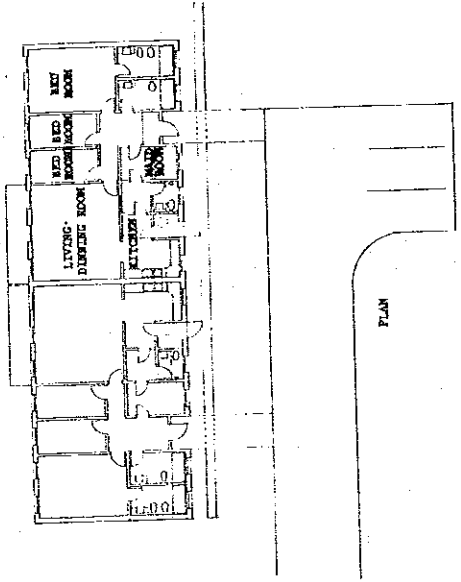
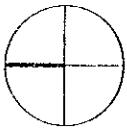


15 ADMINISTRATION BLDG.

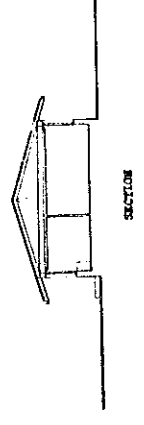


16 HOUSING FOR LOCAL STAFF BLOCK PLAN

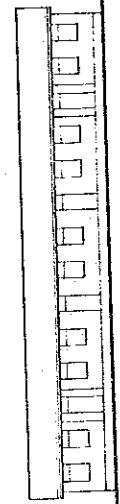




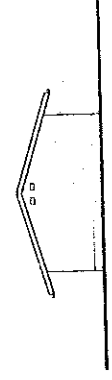
PLAN



SECTION



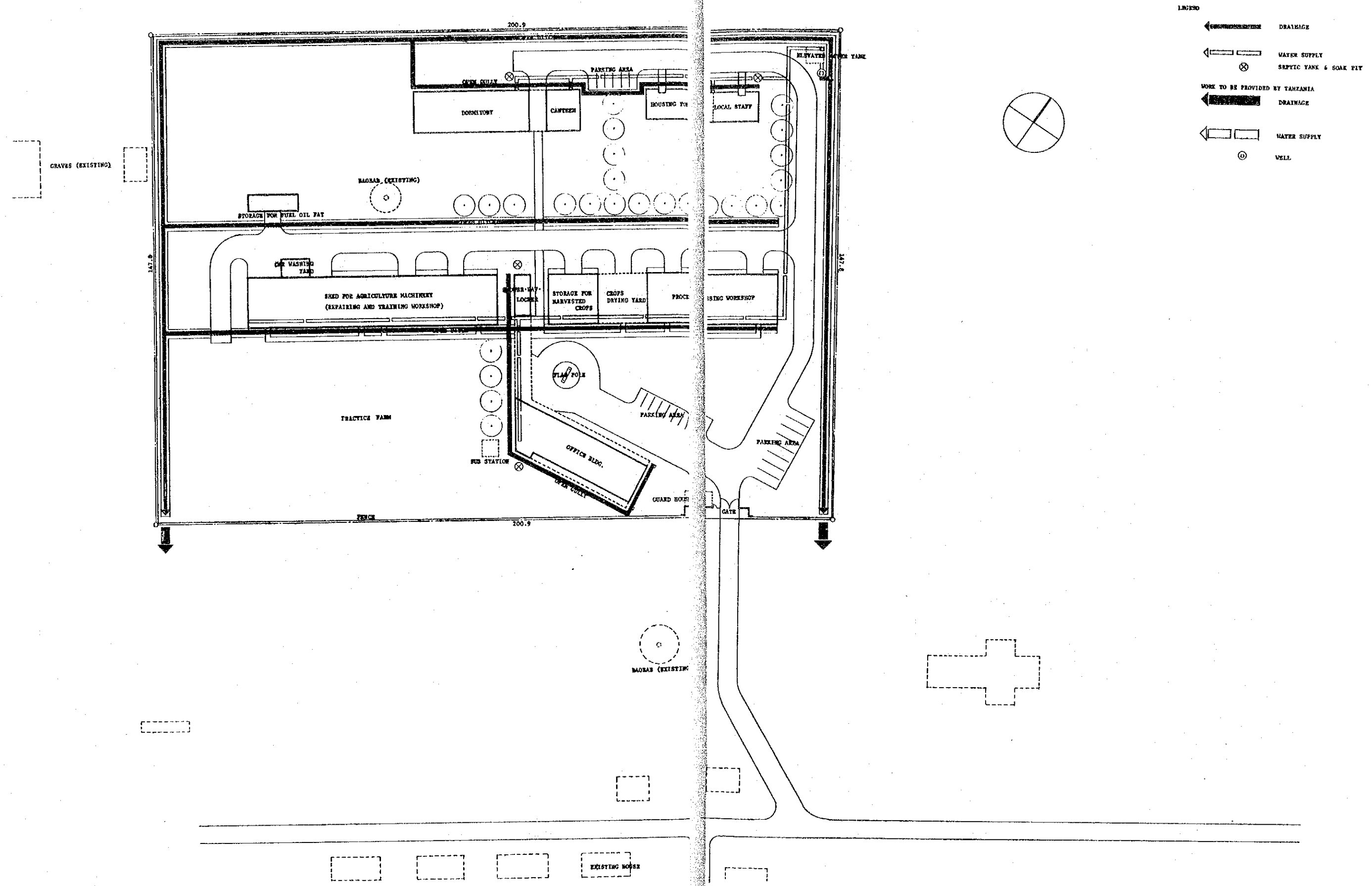
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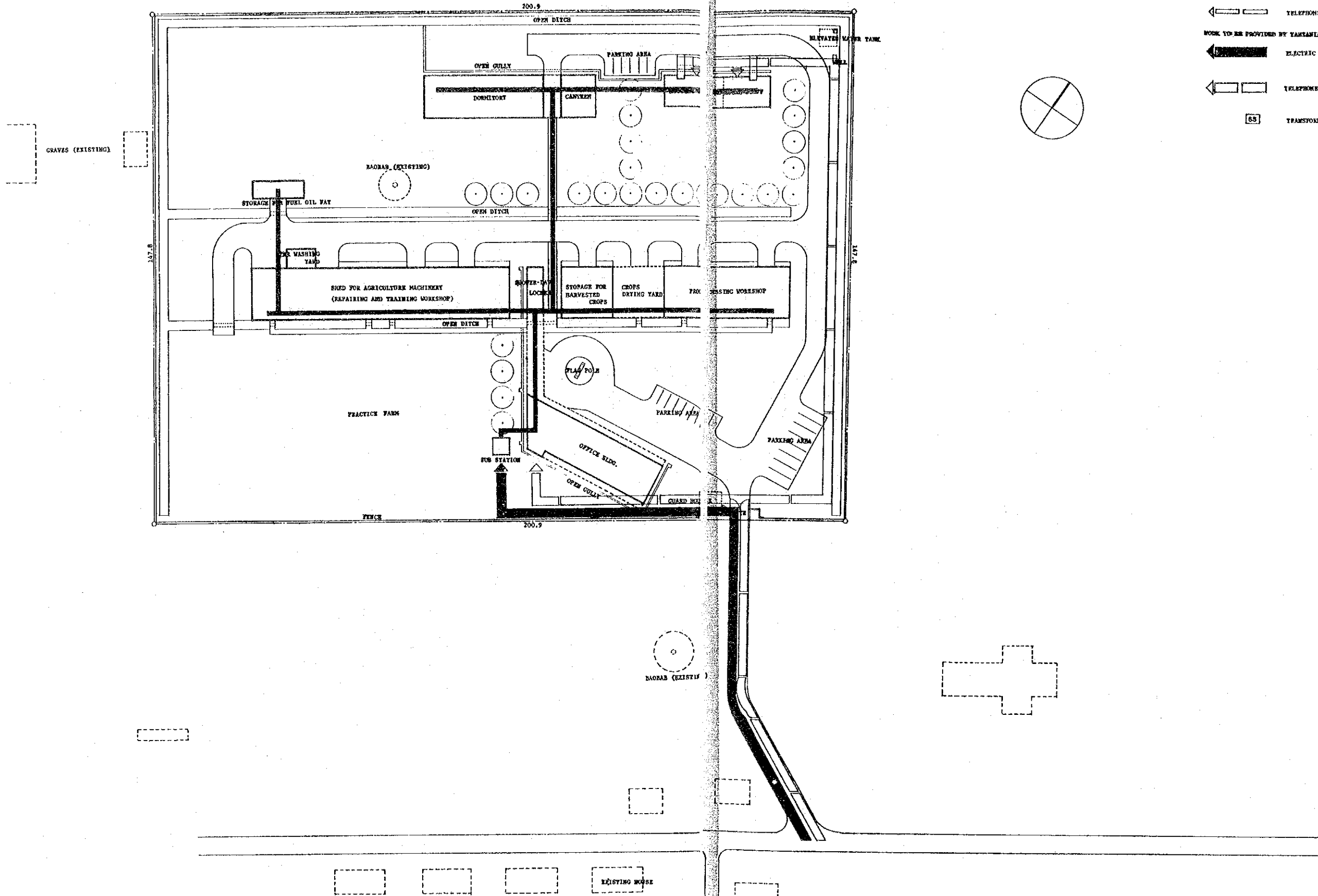




- LINE NO
- ← DRAINAGE
  - ← WATER SUPPLY
  - ⊗ SEPTIC TANK & SOAK PIT
  - WORK TO BE PROVIDED BY TANZANIA
  - ← DRAINAGE
  - ← WATER SUPPLY
  - ⊙ WELL

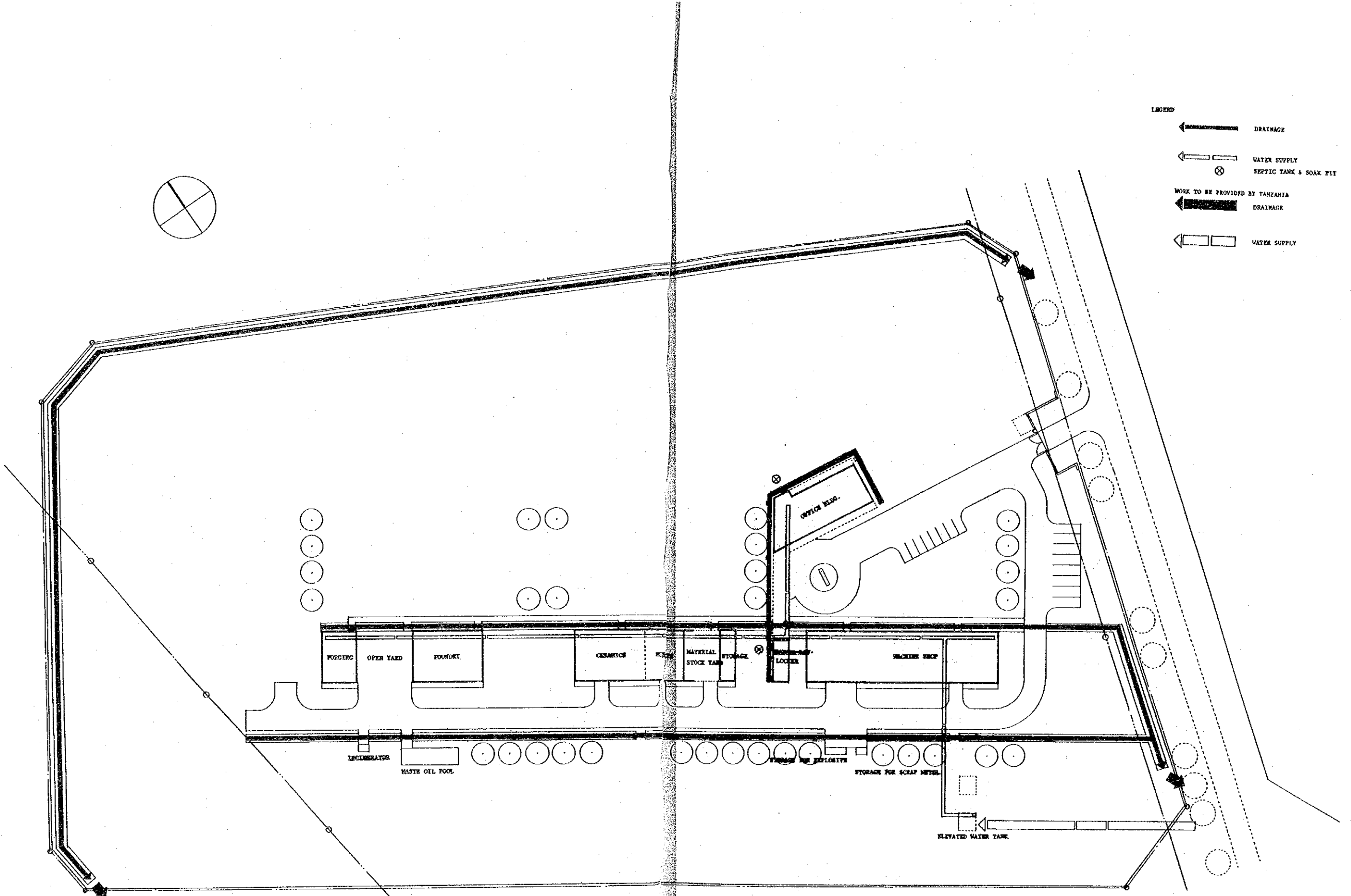
18 A.D.C. WATER SUPPLY SYSTEM, DRAINAGE & SEPTIC TANK LAYOUT PLAN





- LEGEND
- ← [Symbol] ELECTRIC SUPPLY
  - ← [Symbol] TELEPHONE LINE
  - WORK TO BE PROVIDED BY YAKAMATA
  - ← [Symbol] ELECTRIC SUPPLY
  - ← [Symbol] TELEPHONE LINE
  - [85] TRANSFORMER SUB-STATION



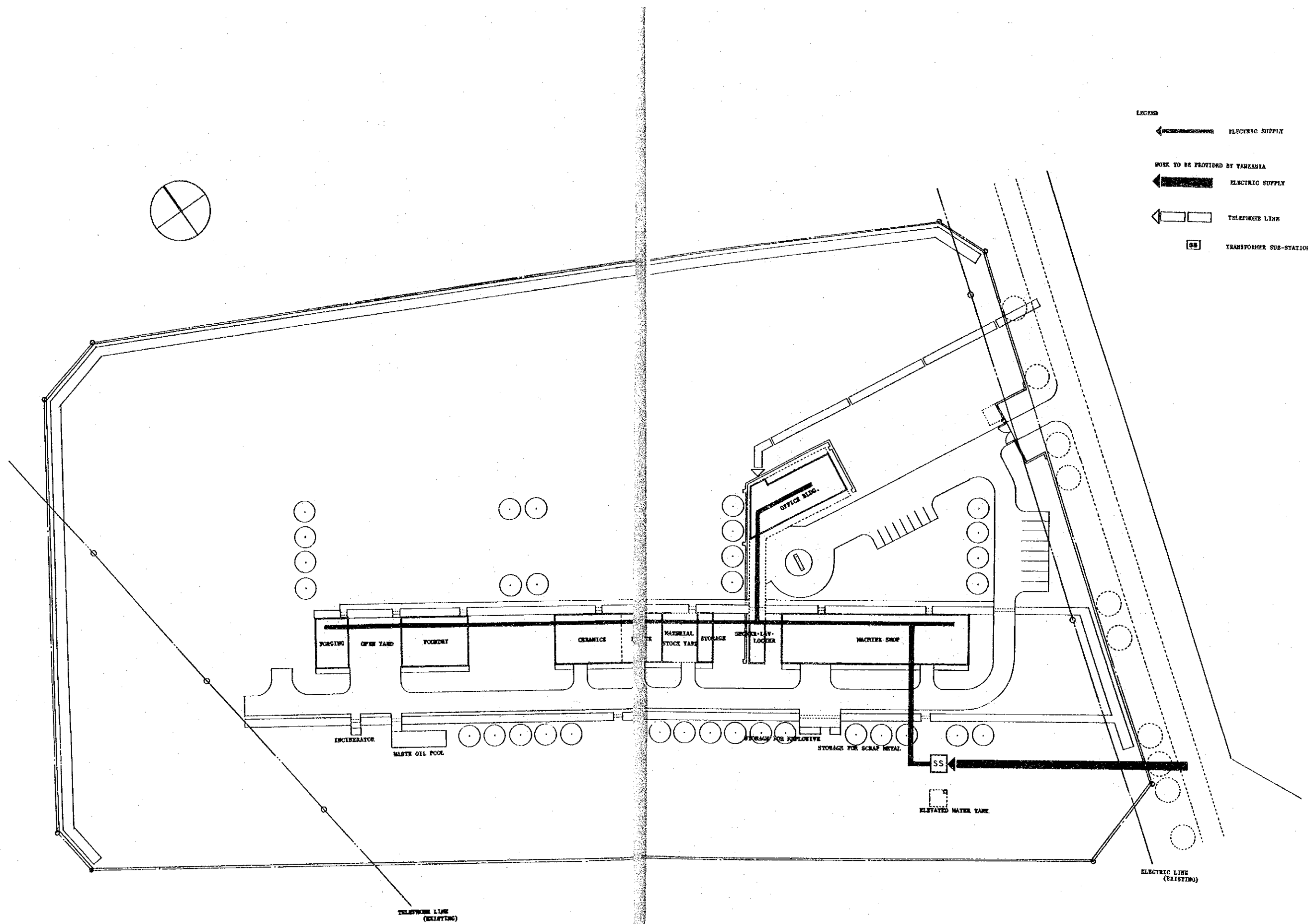
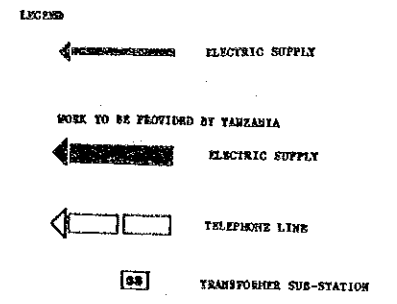


- LEGEND
- ← DRAINAGE
  - ← WATER SUPPLY
  - ⊗ SEPTIC TANK & SOAK PIT
  - ← WORK TO BE PROVIDED BY TANZANIA
  - ← DRAINAGE
  - ← WATER SUPPLY

20 K.C. WATER SUPPLY SYSTEM, DRAINAGE & SEPTIC TANK LAYOUT PLAN

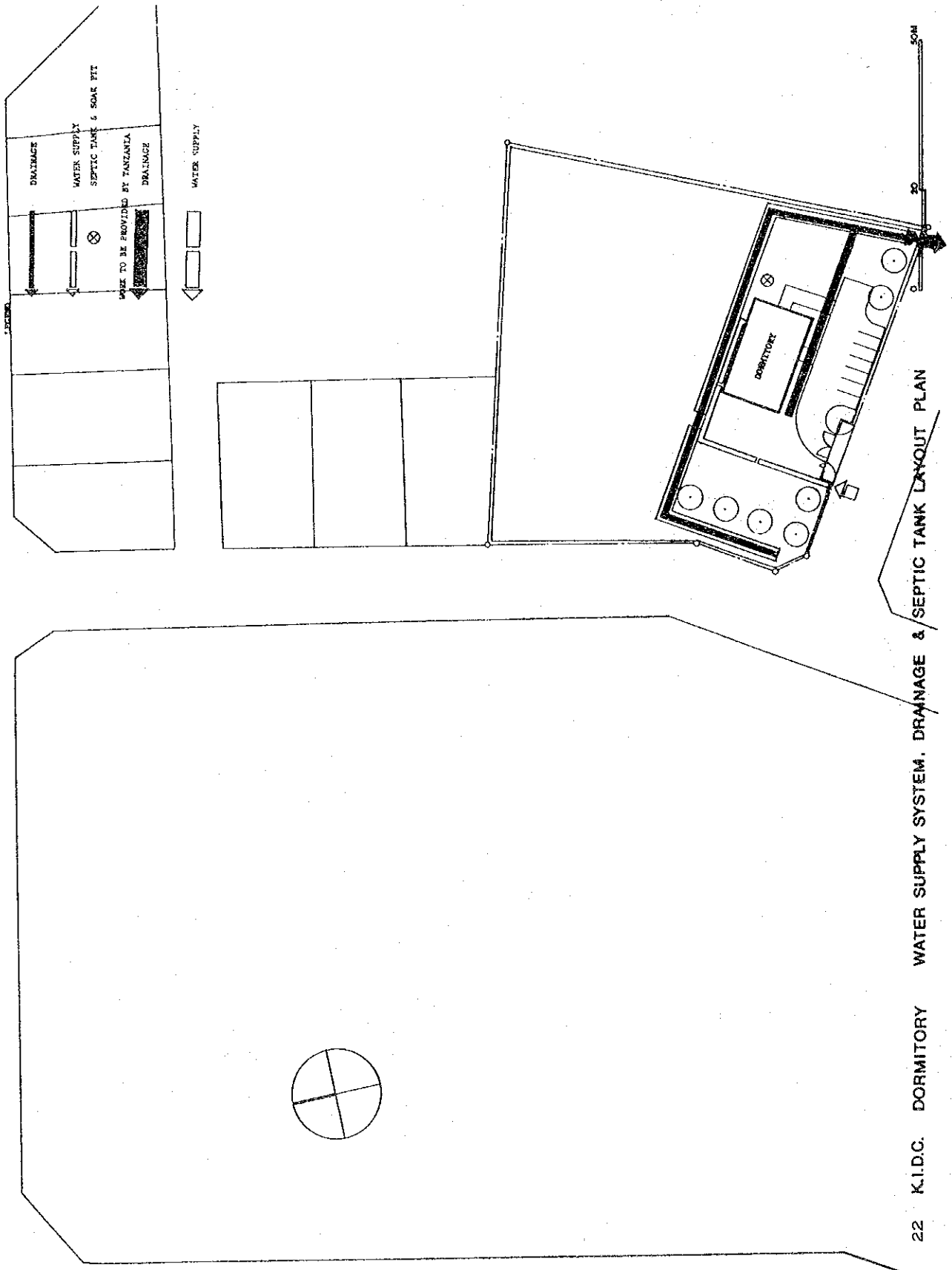




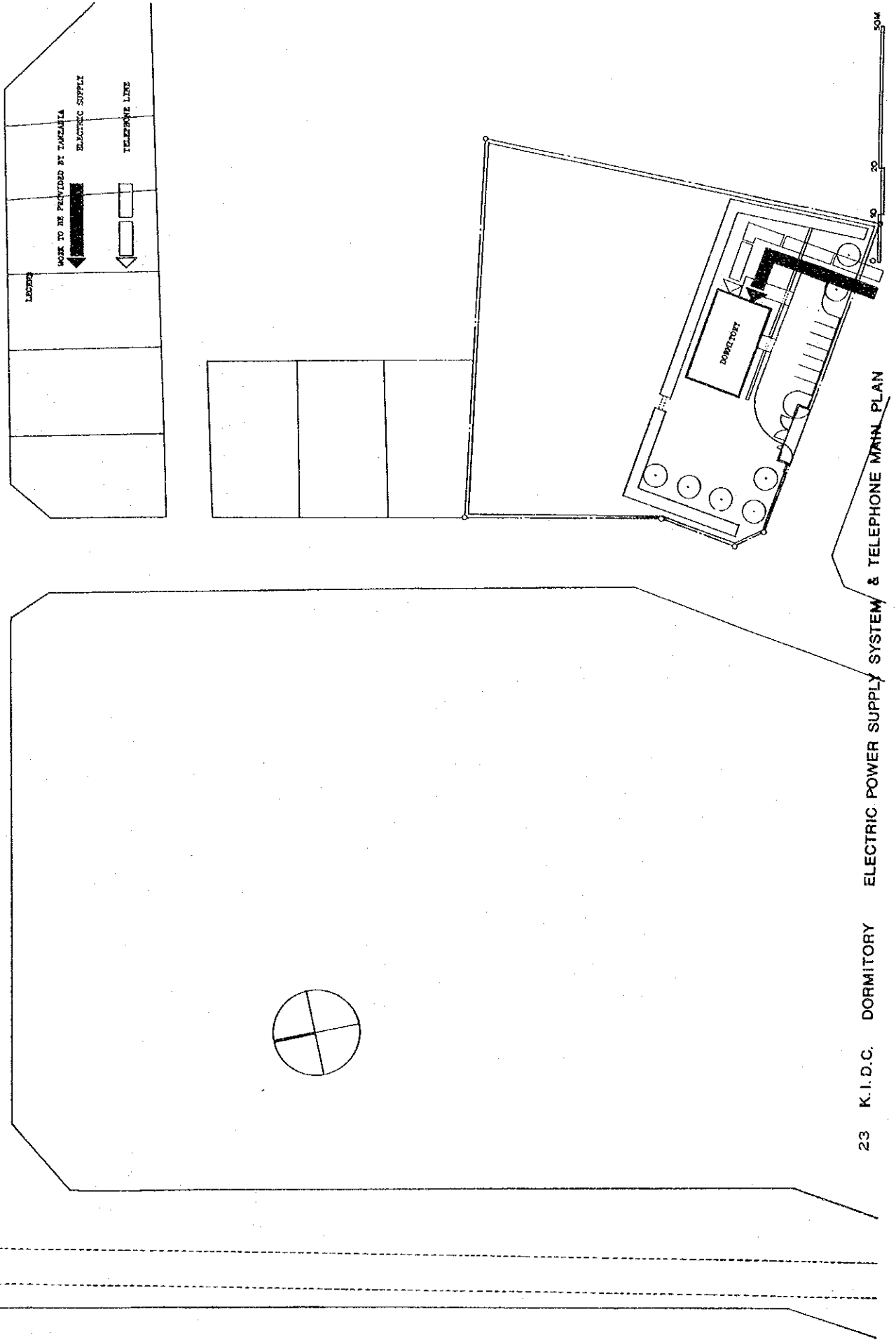


2 K.I.D.C. ELECTRIC POWER SUPPLY SYSTEM & TELEPHONE MAIN PLAN

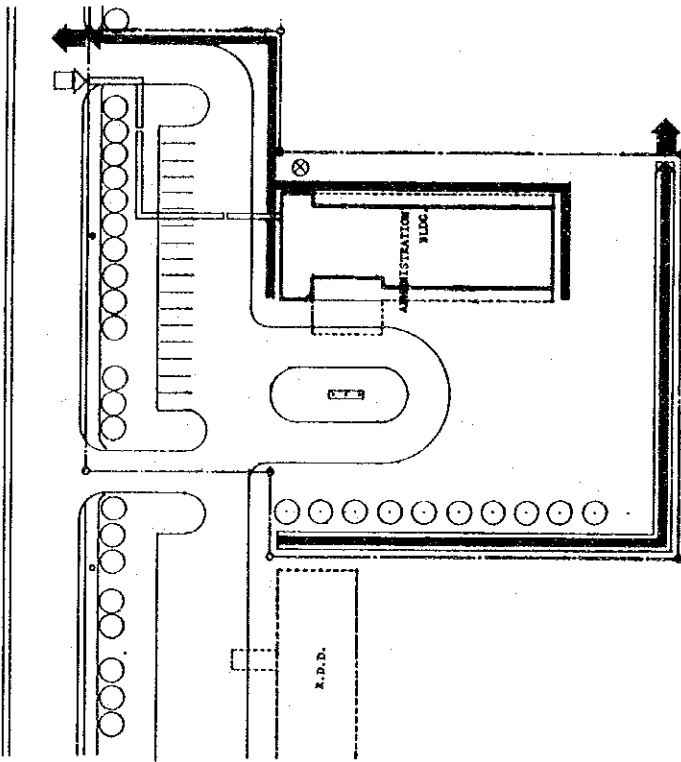
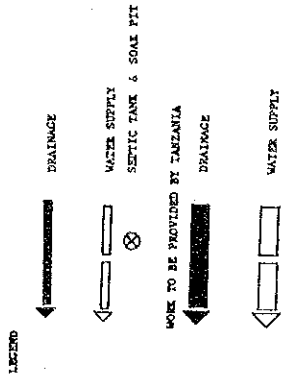
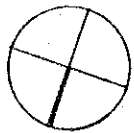




22 K.I.D.C. DORMITORY WATER SUPPLY SYSTEM, DRAINAGE & SEPTIC TANK LAYOUT PLAN

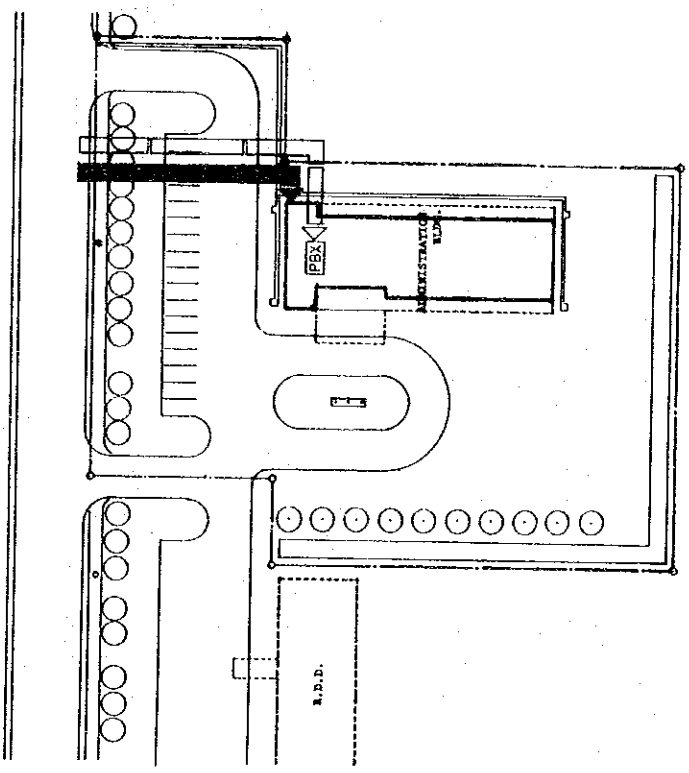
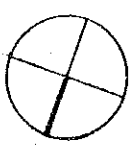
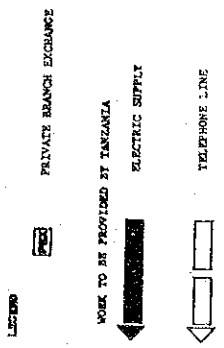


23 K.I.D.C. DORMITORY ELECTRIC POWER SUPPLY SYSTEM & TELEPHONE MAIN PLAN



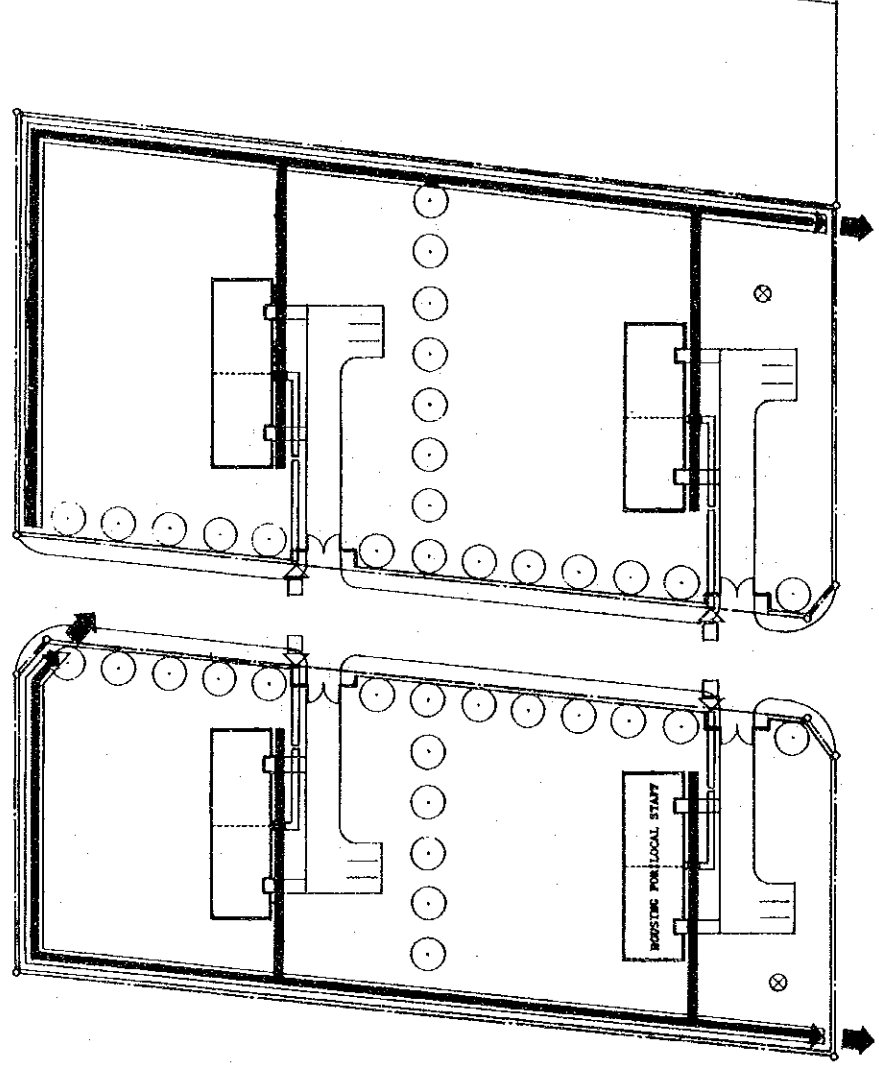
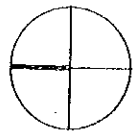
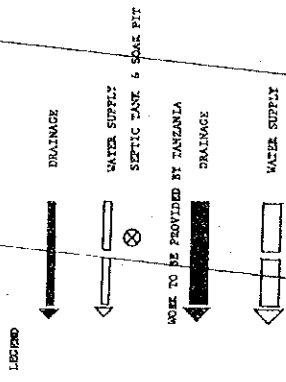
24 ADMINISTRATION BLDG. WATER SUPPLY SYSTEM, DRAINAGE & SEPTIC TANK LAYOUT PLAN



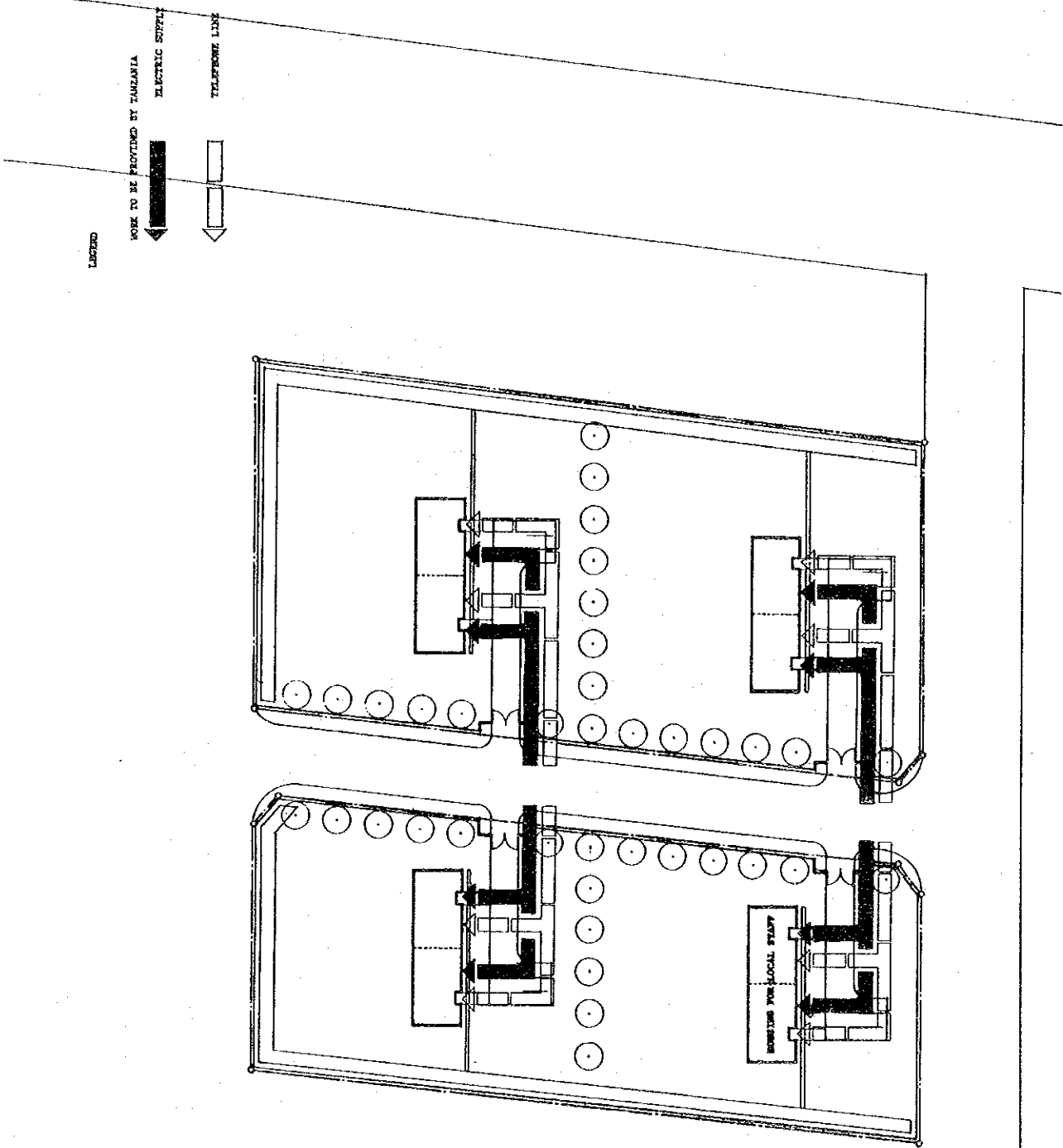


25 ADMINISTRATION BLDG. ELECTRIC POWER SUPPLY SYSTEM & TELEPHONE MAIN PLAN





26 HOUSING FOR LOCAL STAFF WATER SUPPLY SYSTEM, DRAINAGE & SEPTIC TANK LAYOUT PLAN



27 HOUSING FOR LOCAL STAFF ELECTRIC POWER SUPPLY SYSTEM & TELEPHONE MAIN PLAN





## CHAPTER 5 SCOPE OF WORK AND CONSTRUCTION SCHEDULE

The Preliminary Design Survey Team, during their stay in Tanzania, held meetings with members of Kilimanjaro Regional Development Director with the technical staff to discuss in detail, the scope of the construction work and measures as to how the Tanzanian and the Japanese side share the works and measures.

### 5.1 Scope of Construction Work and Work Demarcation

While the scope of Work of the Tanzanian side is already stated in the Minutes, the demarcation of each work will be summarized below.

#### A. Fundamental Work

##### 1) Site Preparation Work

Tanzanian side: prior to the commencement of work, weeds, trees and other obstructions will be eliminated.

##### 2) Water Supply Work

###### K.A.D.C. Site

Tanzanian Side: Installation of Well at the North-East of the Site.

Japanese Side : Pumping up from the well to the Elevated water tank and piping work from the Elevated Water Tank.

###### K.I.D.C. Site

Tanzanian Side: Water supply piping from the city water main to the site.

Japanese Side : Water supply piping in the site.

###### K.I.D.C Dormitory Site

Tanzanian Side: Water supply piping from the city water main to the site.

Japanese Side : Water supply piping in the site.

###### Administration Bldg. Site

Tanzanian Side: Water supply piping from the city water main to the site.

Japanese Side : Water supply piping in the site.

Housing for Local Staff Site

Tanzanian Side: Water supply piping from the city water main to the site.

Japanese Side : Water supply piping in the site.

3) Drainage Work

K.A.D.C. Site

Japanese Side : Drainage routes, installation of Septic tank within the site.

K.I.D.C. Site

Japanese Side : - same as KADC Site -

K.I.D.C. Dormitory Site

Japanese Side : - same as KADC Site -

Housing for Local Staff Site

Japanese Side : - same as KADC Site -

Administration Bldg. Site

Tanzanian Side: Will take care of drainage routes from terminal catch basin within the site to be installed by Japanese side.

Japanese Side : Drainage work in the site.

4) Electrical Work

Tanzanian Side: Will install aerial 11 KVA wiring to a point to be designated by Japanese side, and installing transformers.

Japanese Side : Will carry out laying of lines from the above transformer.

5) Telephone Work

Administration Bldg. Site

Tanzanian Side: Will install main distribution frame (MDF) at the site and connect telephone lines.

Japanese Side : Will provide Secondary telephone line from the MDF and install Telephone Exchanger and Telephone equipment.

6) Material Transportation

Tanzanian Side: Issue of permissions and exemptions of custom duties and taxes from the competent authorities of the Tanzanian Government for:

Japanese nationals concerned for the Project  
Construction materials, equipment, vehicles,  
construction machinery, etc.

Japanese Side : Marine and inland transportation of materials and construction machinery imported to Tanzania from Japan.

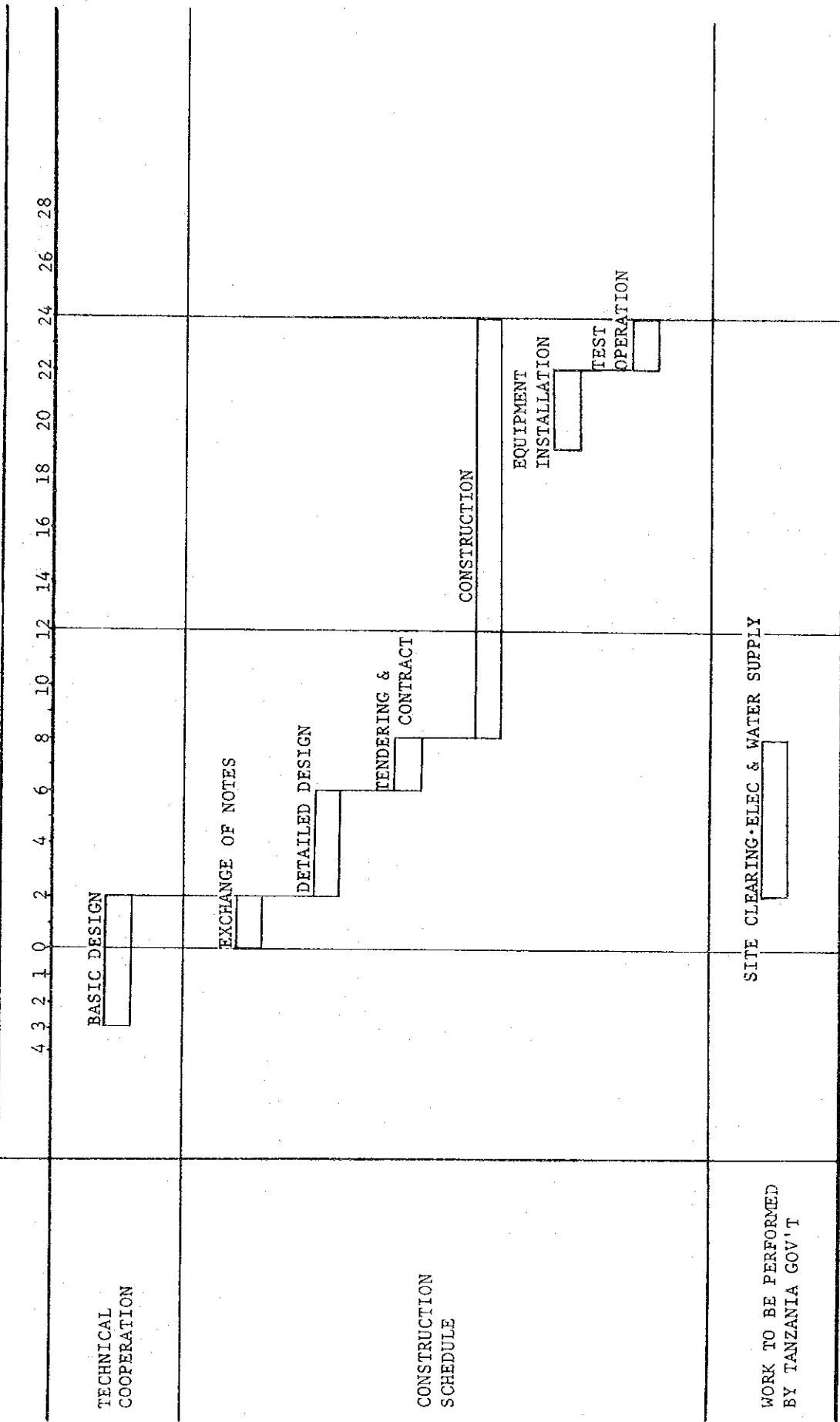
7) Others

Tanzanian Side: Provision of space necessary for such construction as temporary office, working area, stock yards, etc.

## 5.2 Construction Schedule

The implementation designing, under the grant aid, will be commenced after the Exchange of Notes between the Government of Japan and the Government of the United Republic of Tanzania. All design drawings and specifications for the construction purpose and contract documents required for bidding on the contract will be prepared during the implementation designing. The bidding shall be made with tenderes assembled upon an approval given by the client on the implementation design drawings and documents submitted in review. The Work under this project will be commenced after the construction contract agreement concluded between the Government of Tanzania and the tenderer awarded by the contract, upon the verification by the Government of Japan. Considering from this scale, structures and contents of the equipment planned for the facilities is estimated to take a construction period of 16 months required for the construction work. The construction guarantee period will be one year following completion of the building and its delivery to the owner. Reference is made to the following page for the construction schedule.

CONSTRUCTION SCHEDULE





## CHAPTER 6. ASSUMPTION ON THE ESTIMATION OF THE COST FOR CONSTRUCTION

The following assumptions were set for determination of the estimated construction cost.

- Construction Material

In general, the materials produced in Tanzania and Japan shall be used. The cost of the materials to be imported from Japan include packing cost, marine freight, insurance premium and inland transportation. Import duties to be levied on these materials are not included.

- Contractor's Taxes, Duties, Due, etc.

It is assumed that any contractor who may be engaged solely in the construction of this project are exempted from all taxes, duties, due, etc. which may otherwise be imposed on the contractor.

### Projected Construction Cost Estimation

1. Building Work	¥1,060,000,000.-
Architectural Work	
Mechanical Work	
Electrical Work	
2. Infrastructure Work	¥170,000,000.-
3. External Work	¥180,000,000.-
4. Equipment	¥400,000,000.-
5. Consultant's Fee	¥190,000,000.-
TOTAL	<u>¥2,000,000,000.-</u>

Amendment

- |     |                                    |                                     |
|-----|------------------------------------|-------------------------------------|
| P.4 | Total eight families are designed: | Eight families are tqtally designed |
| P.5 | that has sure quality              | : and have sure quality             |
| P.7 | 1.8 fillion T/sh                   | : 1.8 billion T/sh                  |
| P.9 | water rise                         | : water rice                        |









JICA