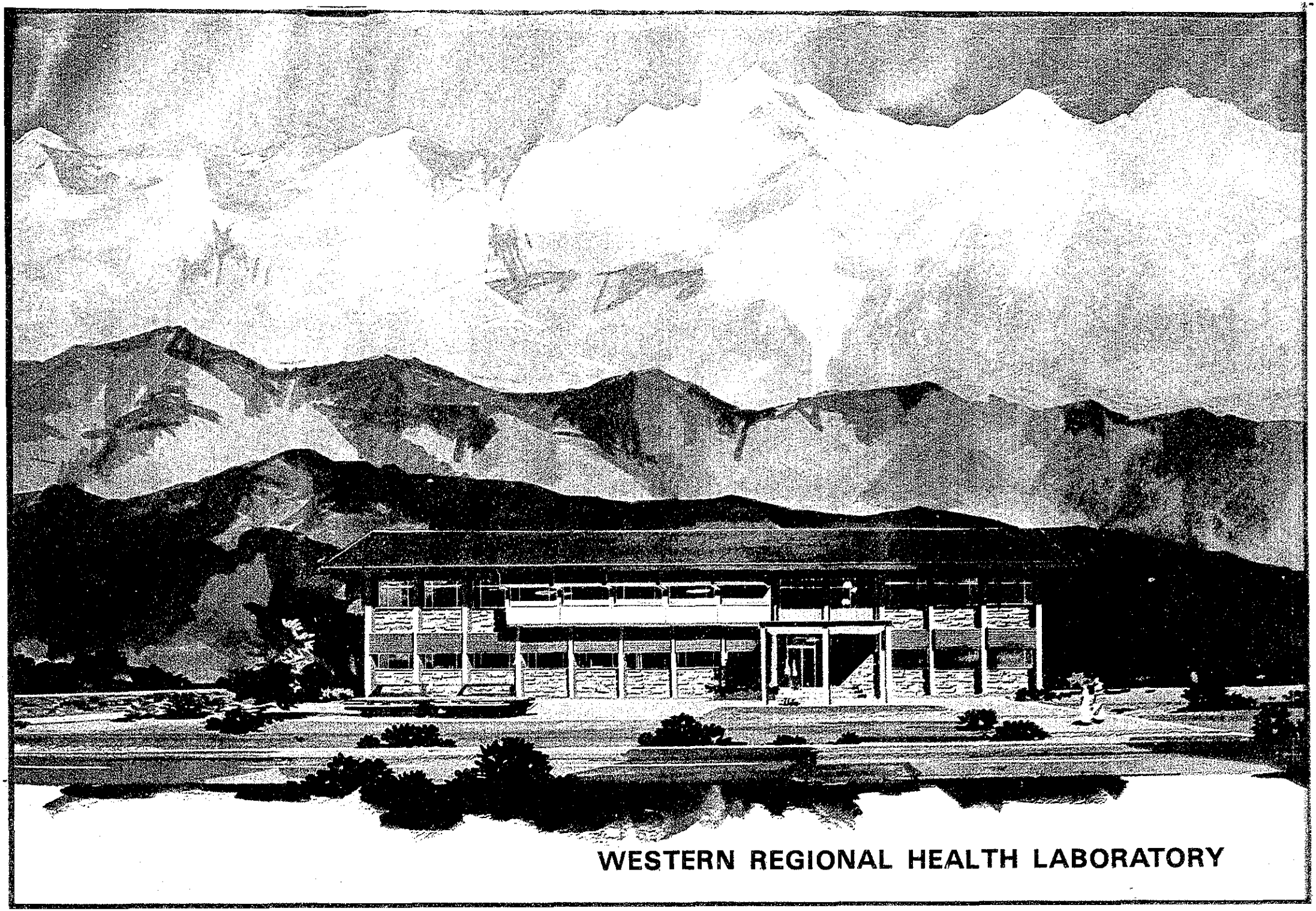
REPORT
ON
PRELIMINARY DESIGN

HEALTH POSTS
AND
WESTERN REGIONAL HEALTH LABORATORY
IN
THE KINGDOM OF NEPAL

MARCH, 1978

JAPAN INTERNATIONAL COOPERATION AGENCY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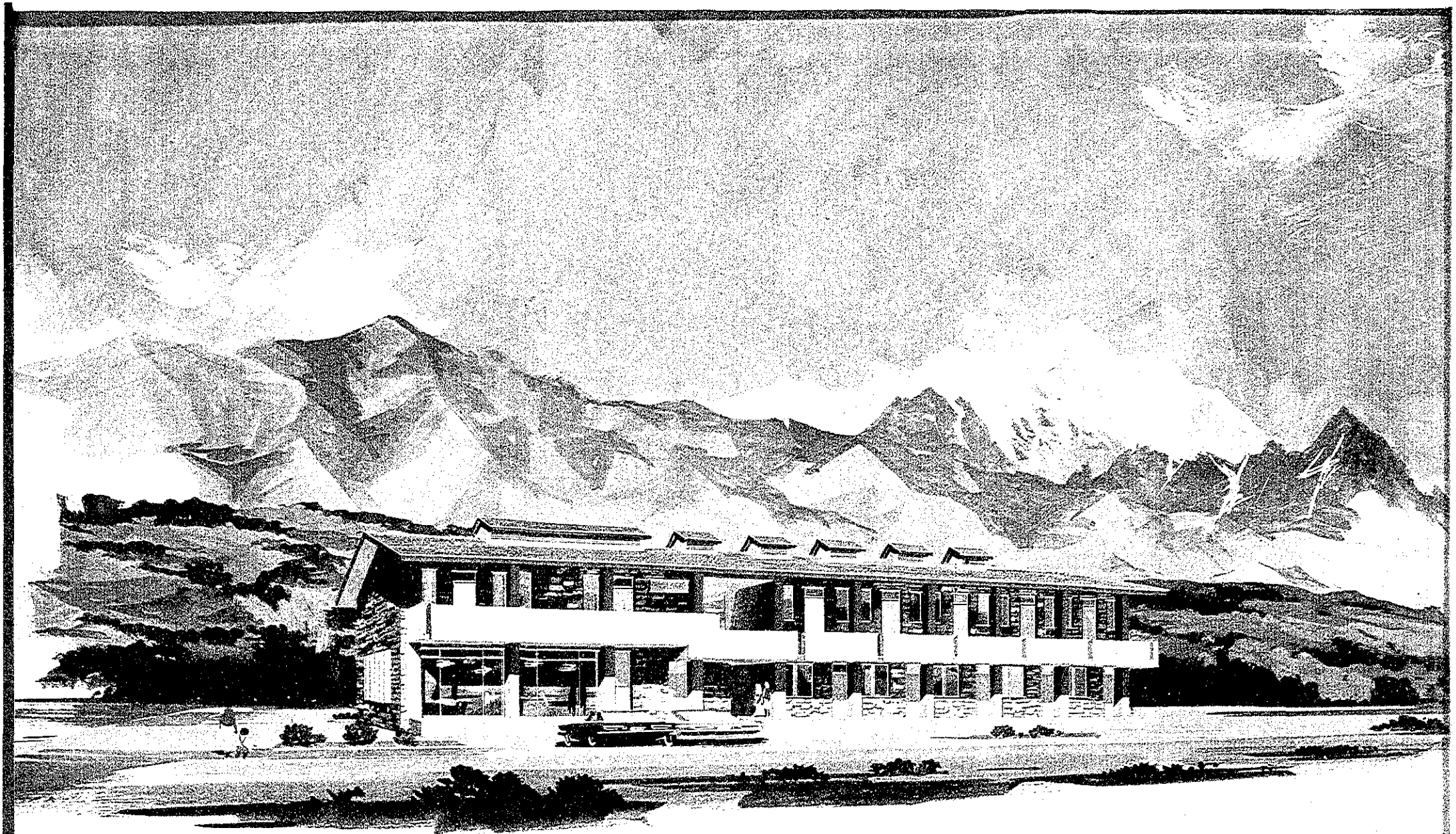

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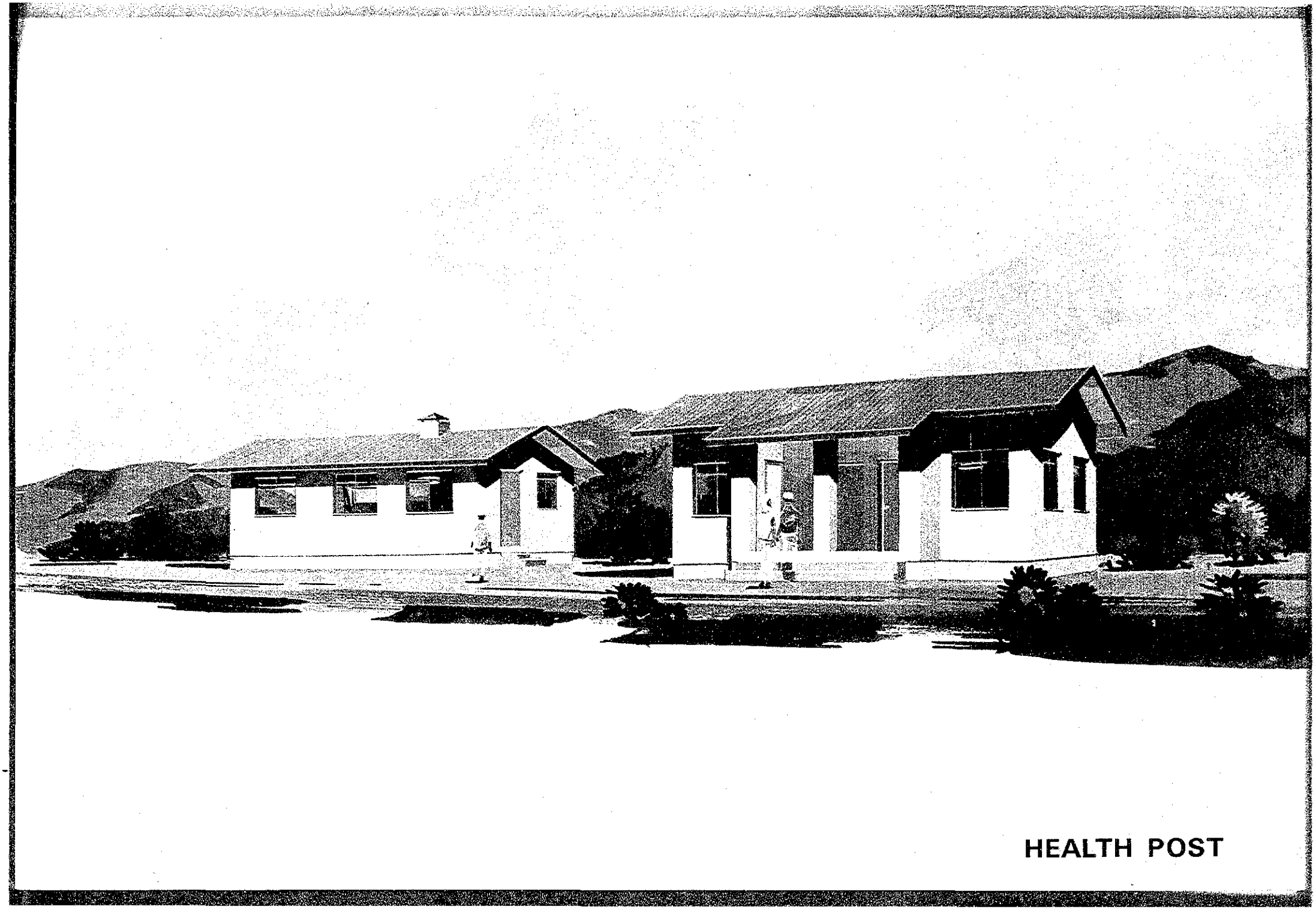

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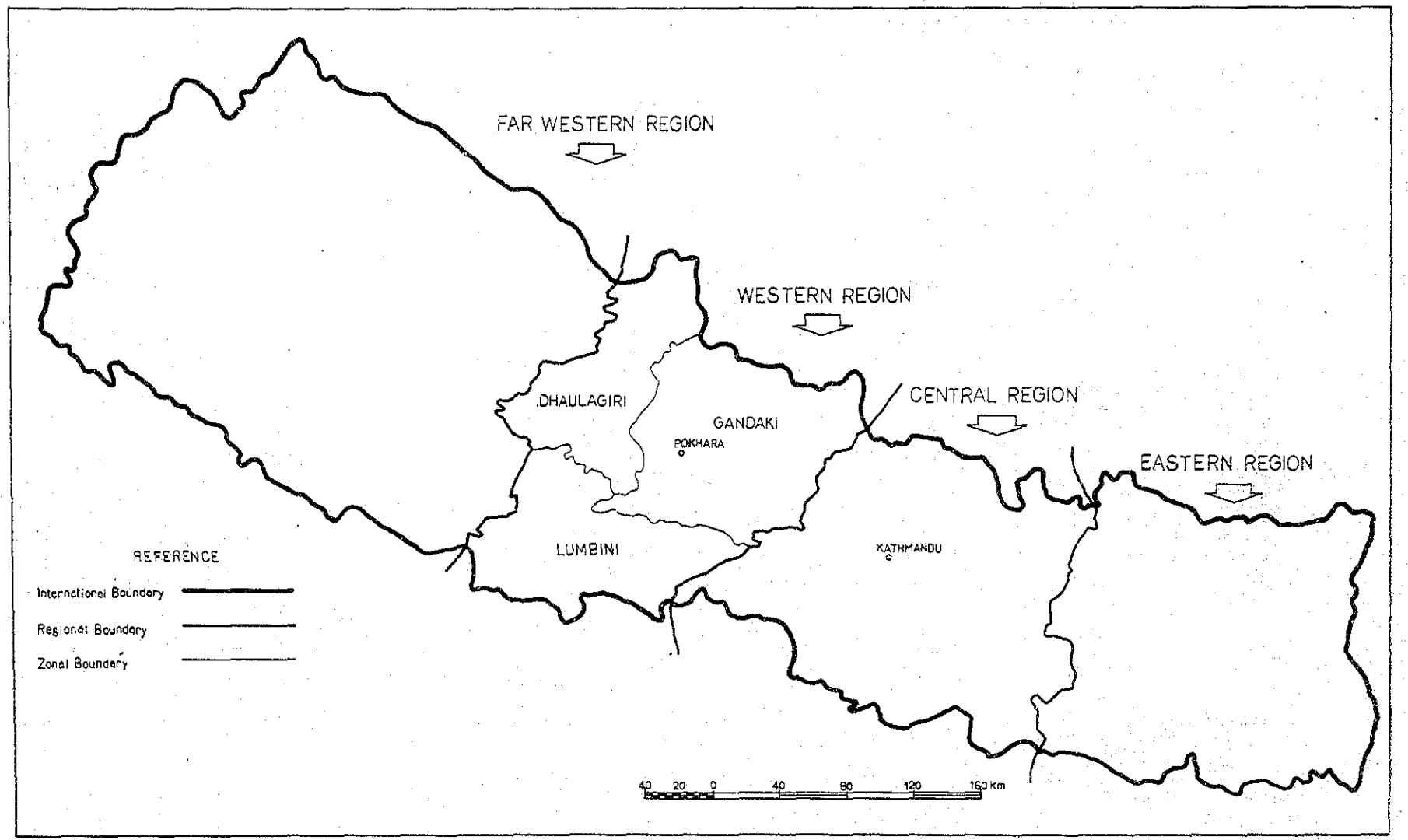

THE KINGDOM OF NEPAL

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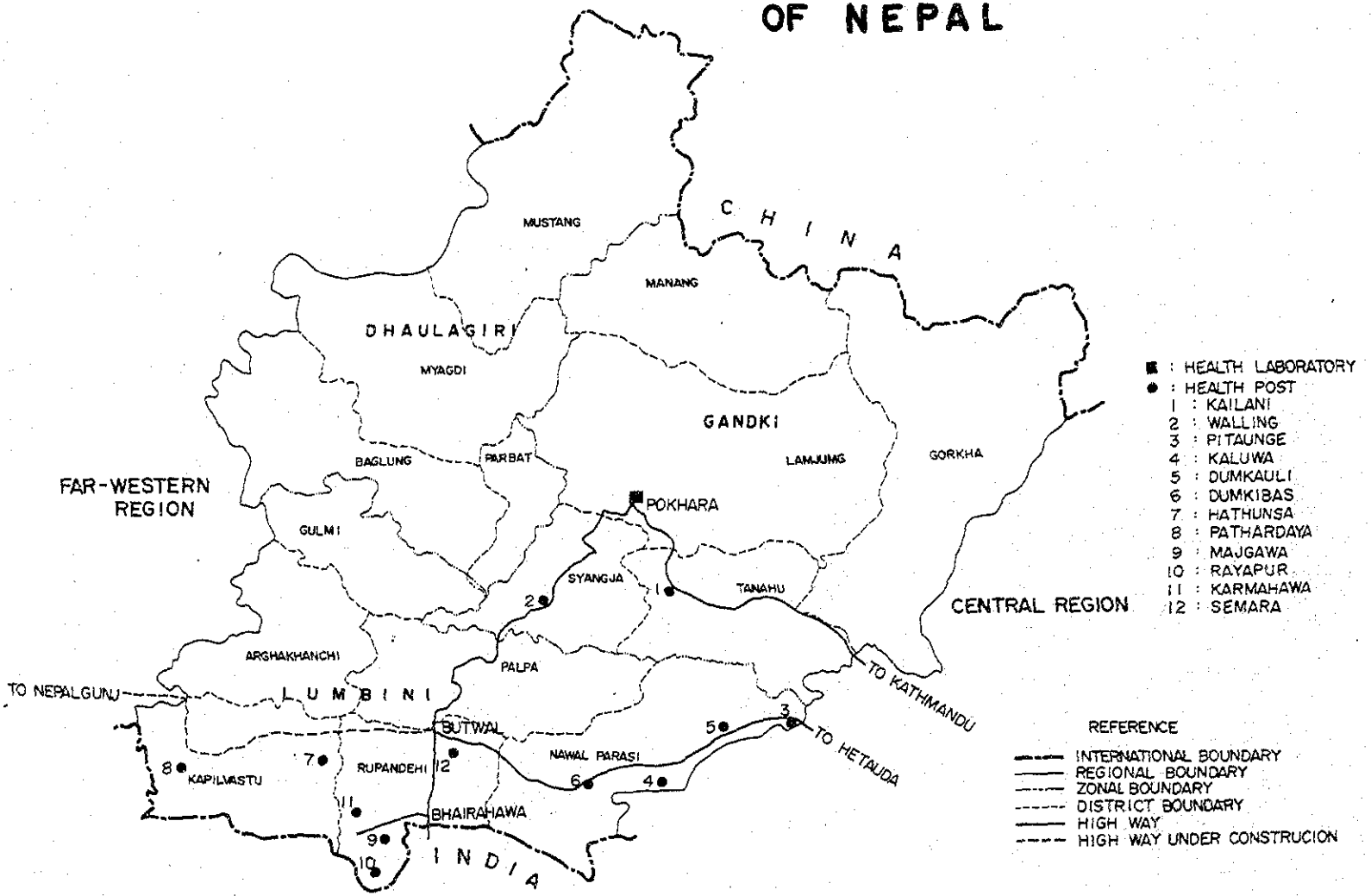
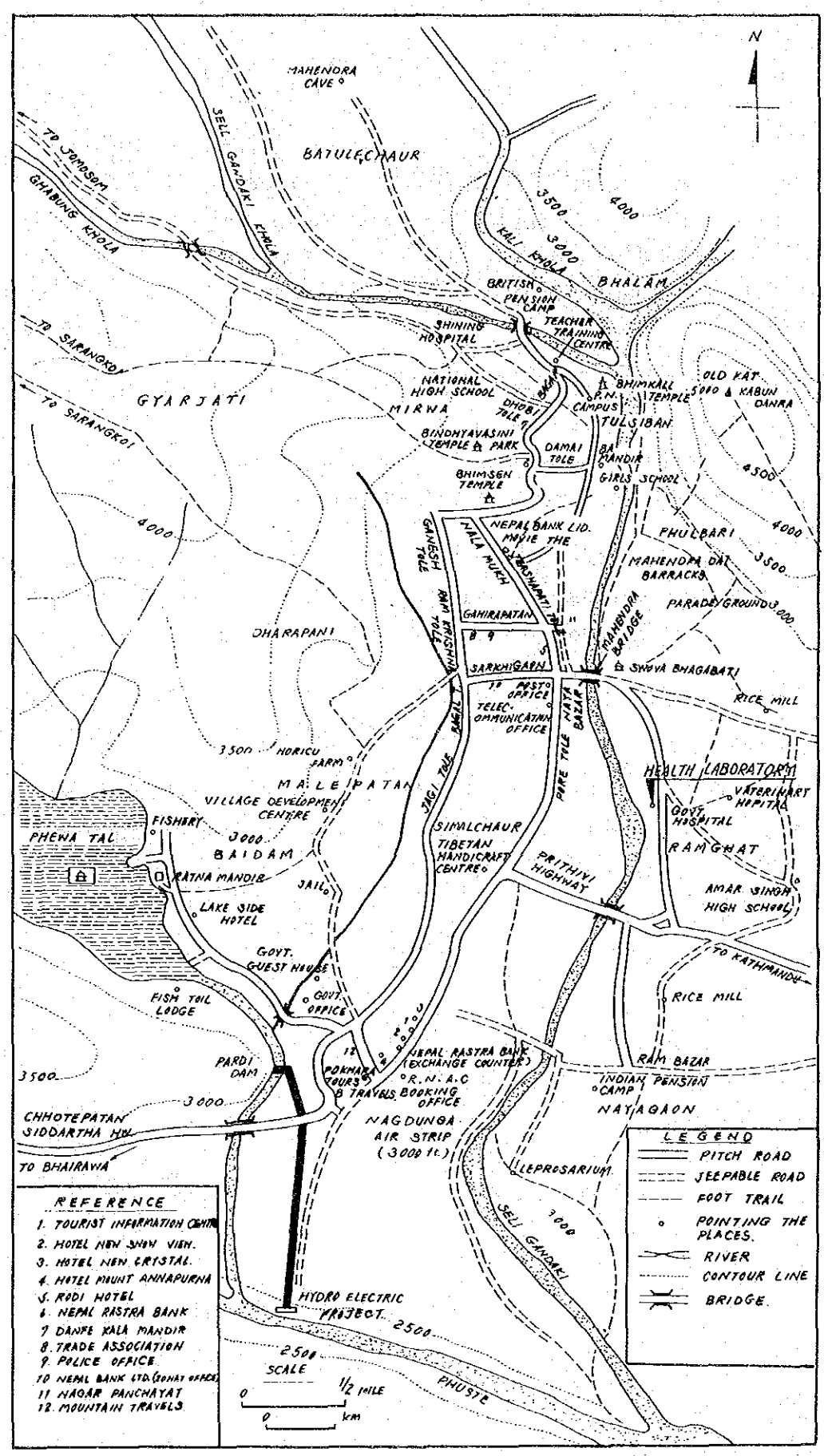




POKHARA CITY

PREFACE

At the request of the Government of the Kingdom of Nepal, the Government of Japan decided to conduct a study on basic design for the construction plan of Health Posts in the western region of Nepal as well as of the Western Regional Health Laboratory through the Japan International Cooperation Agency.

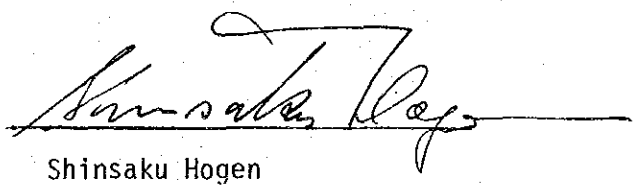
The JICA organized a survey team consisting of nine experts headed by Dr. Masakazu AOKI, Chief, Clinical Research Section, Dept. of Research, The Institute of Tubercurosis, Japan Anti-Tubercurosis Association, and had it carry out the study from 29th October 1977 to 24th February 1978.

The Report we are now submitting has been compiled based on the draft preliminary design report and taking fully into account the questions and answers voiced at the meetings held in the Kingdom of Nepal.

I sincerely hope that this report will prove to be useful for the promotion of the Health Posts and Laboratory Construction Plan.

I would like to express my deep appreciation to all the people who participated in the study and to the authorities concerned in the Kingdom of Nepal for their cooperation.

March, 1978



Shinsaku Hogen
President
Japan International Cooperation
Agency

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CHAPTER 1. OUTLINE OF SURVEY FOR BASIC DESIGN

1-1. Objectives and Background of Survey

His Majesty's Government of the Kingdom of Nepal (hereinafter referred to as H.M.G. of Nepal) is enforcing its 5th five-year program started in 1976. One of the most important projects of this program is improvements of health and hygiene, and the highest priority has been given to the Western Region. The greatest emphasis has been put on "Health Posts" which are to play the key roles in the health service network to be established. The Western Region, however, is not fully covered yet with Health Posts.

The Government of Japan, since 1973, has been rendering medical cooperations in the Western Region of the Kingdom of Nepal in the following points:

i) Replenishment of Health Laboratory and guidance of research

ii) Eradication of tuberculosis

iii) Training on X-ray technic

The Government of Japan received from H.M.G. of Nepal a request for a gratuitous fund for the construction of Health Posts and Health Laboratory in the Western Region, with a view to consolidate the health service network and to make the Japanese medical cooperation still more effective.

Complying with the request, the Government of Japan decided to construct the above facilities with a gratuitous fund. A Japanese survey team was dispatched to the Kingdom of Nepal and conferred with Nepalese Governmental officials, collected relative materials, and made field survey in order to fix the plan of the facilities and to draw up basic blueprints for the project.

1-2. Survey for Preliminary Design

1-2-1. Team members and schedules of survey

The survey team consisted of eight members, headed b y Dr. Masakazu Aoki, Chief, Clinical Research Section, Dept. of Research, The Research Institute of Tubercurosis, Japan Anti-Tubercurosis Association.

Members:

Leader	Dr. Masakazu AOKI	Chief, Clinical Research Section, Dept. of Research, The Research Institute of Tubercurosis, Japan Anti-Tubercurosis Association,
Member	Mr. Yoshio MUNEMORI	Technical Official, Ministry of Health and Welfare
Member	Dr. Yoshi HIROSE	Technical Official, Deputy Head, National Sanatorium Division, Medical Bureau, Ministry of Health and Welfare
Member	Mr. Isao FUKUWATARI	Fukuwatari and Architectural Consultants Co., Ltd.
Member	Mr. Takeo MORIMURA	"
Member	Mr. Iwao OSHIMA	"
Member	Mr. Shigeyuki MUKASA	"
Member	Mr. Yushi SAITO	Development Survey Division, Social Development Cooperation Dept. Japan International Cooperation Agency

1-2-2. Schedule of survey

The team made a survey for 22 days from October 29 to November 19, 1977. The schedule is as shown in the APPENDIX-I.

1-2-3. Minutes of discussion

The surbey team discussed with officials of Ministry of Health and others on the project plan and the minutes of the discussion were prepared. The minutes is as follows:

Minutes of Discussions

The Japanese Survey Team headed by Dr. Masakazu Aoki visited the Kingdom of Nepal from October 30 till November 18, 1977 in order to make necessary surveys pertinent to a preliminary designing for health posts in the Western Region of the Kingdom as well as of Western Regional Health Laboratory at Pokhara to which the Government of Japan plans to extend economic cooperation on a grant basis in 1978 fiscal year.

After having exchanged candid and constructive opinions on the matters with the authorities concerned of His Majesty's Government of Nepal, the Survey Team and the authorities concerned of H.M.G. of Nepal wished to record the following :

1. Health Posts

Due to anticipated difficulties in constructing health posts at the originally proposed sites under Japanese grant assistance, the Survey Team suggested an alternative list of health posts in the Region that are physically accessible by jeeps. The Ministry of Health understood the nature of the problem and furnished the Survey Team with a new list attached hereto for consideration, explaining that these posts specified in category A are located along main roads and easily reachable by jeeps

and trucks, those in category B within a walking distance of a few hours from main roads, but with no access by motor vehicles.

The Survey Team stated that category A posts should no doubt be included in the forthcoming grant assistance of the Government of Japan upon the assumption that they are located exactly as was explained by the Ministry of Health of H.M.G. but the definitive number and sites of category B posts, to be covered by the Japanese grant, regardless of high priorities attached to them by H.M.G., should be determined later in close collaboration with the Government of Japan.

2. Western Regional Health Laboratory at Pokhara

(1) The scale and size of the Laboratory should be determined commensurate to the uptimum need and operable running cost of H.M.G. at the time of the completion of facilities.
Bearing this basic view in mind, the Survey Team will make recommendation to the Government of Japan that the following facilities are required for effective operation of the Laboratory, and that they should be constructed under the grant assistance at the earliest possible time.

(a) Laboratory:

The building should contain, inter alia, rooms for bacteriology, Biochemistry,

Haematology, Tuberculosis,
Parasitology

(b) Dormitory for trainees
bed room, cafeteria, kitchen,
office room & bathroom

(2) With regard to medical equipments in the Laboratory, the Survey Team was of the opinion that a fairly large number of medical equipments that already had been provided under technical cooperation through the Japan International Cooperation Agency should be relocated into the Laboratory, and that there would be no need of furnishing new medical equipments within the framework of the grant assistance.

The Ministry of Health of H.M.G. expressed its earnest wish that additional grant would be extended to H.M.G. in the future when an expansion plan of the Laboratory and health posts be worked out in order to strengthen medical welfare of the Nepalese in the Region. The Survey Team stated in reply that the wish mentioned-above would be duly communicated to the Government of Japan.

The Survey Team expressed its deep appreciation for the cooperation of the Nepalese authorities concerned in carrying out the survey, and stated that the report

together with a basic preliminary designing would be submitted to H.M.G. for approval no later than the beginning of March, 1978.

At the conclusion of the discussions, the Survey Team emphasized repeatedly that utmost efforts and cooperation would be required, on both sides in successfully constructing the facilities under the Japanese grant assistance, in particular, in view of the scattered sites of health posts in the Region.

The authorities concerned of H.M.G. of Nepal were in full accord with the Japanese view on this matter, and ensured the uppermost cooperation in all stages for the purpose of smooth construction of the facilities under the Japanese grant assistance.

Kathmandu, November 9, 1977

Dr. H.D. Pradhan
International Health
and Training Division,
Directorate of Health
Services
His Majesty's Government
of Nepal.

Masakazu Aoki

Dr. Masakazu Aoki
Leader, Japanese
Survey Team for the
Construction Plan
of Health Posts and
Laboratory in the
Kingdom of Nepal.

1-3-4. Minutes of discussion

The survey team explained the preliminary design to Nepalese officials and discussed the subject. The minutes of the discussion is as follows:

ITEMS CONFIRMED

THE PRELIMINARY DESIGN FOR

THE CONSTRUCTION PLAN OF HEALTH POSTS AND LABORATORY

IN THE KINGDOM OF NEPAL

1. The Japanese Team dispatched to the Kingdom of Nepal by the Japan International Cooperation Agency (JICA) from February 3rd to 24th, 1978, explained and conferred with the authorities concerned of His Majesty's Government of Nepal (hereinafter referred to as H.M.G.) on the preliminary design of the construction plan of health posts and Regional Health Laboratory in the Western Region.

2. The authorities concerned of H.M.G. and the Japanese Team confirmed following items :

(A) Drawings

(1) Western Regional Health Laboratory

* Site Plan (Attached Drawing No.1)
* Ground Floor Plan (Attached Drawing No.2)
* First Floor Plan (Attached Drawing No.3)
* Elevation and Section (Attached Drawing No.4)

(2) Dormitory

* Site Plan (Attached Drawing No.1)
* Ground Floor Plan (Attached Drawing No.5)
* First Floor Plan (Attached Drawing No.6)
* Elevation and Section (Attached Drawing No.7)

(3) Health Post (1)

* Plans, Elevation and Section (Attached Drawing No.8)

(4) Health Post (2-1)

* Plans, Elevation and Section (Attached Drawing No.9)

(5) Health Post (2-2)

Plans, Elevation and Section (Attached Drawing No.10)

(B) The construction of this Plan shall be carried out within the limitation of the grant-aid budget for this Plan of the Japanese Government.

(1) Works and materials to be included in the budget

* Building of the Western Regional Health Laboratory and Dormitory
* Buildings of Health Posts
* Outdoor stairs and berm with kerbs around the buildings
* Utilities within the buildings
* Furniture and furnishings (Annex 1, 2, 3, 4, 5)
* Medical equipment for Health Post (Annex 6)

(2) Works and Materials not to be covered by the budget

* Demolishing and removal of obstacles
* Site preparation
* Road construction
* Landscaping and planting
* Exterior signs
* Exterior lighting

* Electricity wiring to disconnecting switch to be provided in the building
* Water supply piping to water receiving tank
* Telephone wiring to protector to be installed in the building and telephone
* Furniture and furnishings except that listed in Annex 1, 2, 3, 4 and 5

3. The time schedule of detail designing, tendering and construction including respective Government's approval and/or verification is as shown on page 15 of the draft report.

4. For the construction of the health posts under this plan, the following conditions have to be fulfilled by the authorities concerned of H.M.G. :

(A) Site plans of the health posts and the data of the sites described below be furnished to the Embassy of Japan by the end of February 1978.

(1) Guide maps to the sites,

(2) Survey maps showing :

a) a point of the compass,

b) measurement of all the sides of the site,

c) site area,

d) rise and fall on the site (or contour lines),

e) existing drains in and around the site, if any,

f) existing pipings and wirings in and around the site, if any,

g) trees and other obstacles in the site, if any,

and

h) main access to the site and outline of the adjoining area.

(3) Soil investigation data :

A trial hole of the depth of about one metre, with the area of one sq. metre is to be dug in the centre of each site and the following conditions of the bottom of the hole is to be checked.

a) soil type, whether : (i) Rocks
(ii) Graveles
(iii) Sands
(iv) Silts
or (v) Clays

b) ground-water : (i) visible
or (ii) invisible

5. The Representatives of both the authorities concerned as U.M.G. and the Japanese Team surveyed eleven sites of the Health Posts of Category A.

Kathmandu, February 1978

Dr. H.N. Upreti,
Senior Public Health
Administrator,
International Health and
Training Division,
Department of Health Services,
His Majesty's Government of
Nepal

Dr. Masakazu Aoki,
Leader,
Japanese Survey Team for
the Construction Plan of
Health Posts and Laboratory
in the Kingdom of Nepal

Table A-1 Furniture, Fittings, and Furnishings in Each Laboratory Room (1)

Annex-1

	Room Name	Wooden office desks (900 x 1200)	Wooden office chairs (with the back)	Wooden office chairs (without the back)	Curtain rail (extruded aluminum single rail ℓ = 3600)	Remarks, others
Ground Floor	Reception	-	-	-	-	
	Serology	-	-	2	1	Work table (with bottom closet)
	Parasitology	-	-	2	2	Work table (with bottom closet)
	Sterializing & Wash Room	-	-	2	1 (ℓ = 2,000)	Work table (with bottom closet)
	T.B.	-	-	2	2	Work table (with bottom closet)
	Bacteriology	-	-	2	2	Work table (with bottom closet)
	Biochemistry	-	-	2	1	Work table (with bottom closet)
	Store Office	1	1	-	-	
	Maintenance Store	-	-	-	1	
	Store	-	-	-	3	Wooden (600W x 400L x 2500H, 5 shelves) x 2
	Machine Room	-	-	-	-	
	W.C.	-	-	-	-	
	Corridor	-	-	-	-	

Table A-2 Furniture, Fittings, and Furnishings in Each Laboratory Room (2)

Annex-2

	Room Name	Wooden office desks (900 x 1,200)	Wooden office chairs (with the back)	Wooden office chairs (without the back)	Curtain rail (Extruded aluminum single rail ℓ = 3600)	Remarks, others
First Floor	General Office	4	4	-	1	Wooden bookcase (1800W x 1800H x 300D wooden, with glass sliding doors). File cases (Steel, 3 drawers, ℓ=900) x 2.
	P.A & Waiting Room	-	-	-	1	Sofas (750 x 1800) x 2. Table (600 x 900) x 1.
	Chief	1 (1200 x 2000)	2 (with the arm-rest)	-	1	Bookcase (1800W x 1800H x 300D, wooden, with glass sliding doors). File case (Steel, 3 drawers, ℓ=900)x1
	Staff Room	-	-	-	2	Wooden lockers (300W x 180H x 500D x 10 rows) x 2. File cases (Steel, 3 drawers, ℓ=900) x 2.
	Library	-	-	-	1	Bookcase (1800W x 1800H x 300D, wooden, with glass sliding doors) x 1.
	Seminary Room		72		*Double rail x 6 with blackout curtains	Blackboard (1200H x 3000W). Conference tables (450 x 1800, wooden)x18. Lecture stand (1000 x 1500, wooden).
	Store	-	-	-	1	
	W.C.	-	-	-	-	
	Corridor	-	-	-	-	

Table A-3 Furniture, Fittings, and Furnishings in Each Dormitory Room

Annex-3

	Room Name	Wooden office desks (900 x 1200)	Wooden office chairs (with thr back)	Wooden office chairs (without the back)	Curtain rail (Extruded aluminum single rail ℓ = 2000)	Remarks, others
Ground Floor	Hall	-	-	-	-	
	General Office	1	2	-	1 (ℓ = 3900)	
	Cafeteria	-	20	-	3 (ℓ = 3900)	Tables (wooden 850x1300) x 5
	Kitchen	-	-	-	-	Work table (with bottom closet). Delivery counter. Handing cupboard.
	Each Bed Room	-	-	-	1	Beds (wooden, 950x2000) x 2
	Salon	-	-	-	1 (ℓ = 3900)	Sofas(750x1500) x 4. Carpets (1600x2000) x 2. Tables (450x700) x 2
	Store	-	-	-	-	
	W.C.	-	-	-	-	
	Shower Room	-	-	-	-	
	Corridor	-	-	-	-	
First Floor	Each Bed Room	-	-	-	1	Beds (wooden, 950x2000) x 2
	Store	-	-	-	-	
	W.C.	-	-	-	-	
	Shower Room	-	-	-	-	
	Corridor	-	-	-	-	

Table A-4 Furniture, Fittings, and Furnishings in Each Room of Health Post - (1)

Annex-4

	Room Name	Wooden office desks (700 x 900)	Wooden office chairs (with the back)	Wooden office chairs (without the back)	Curtain rail (Extruded aluminum single rail ℓ = 1600)	Remarks, others
Ground Floor	Gen. Waiting	-	-	-	-	Wooden counter (with wooden horizontally sliding sashes) x 1
	Disp. Store & Reception	1	2	-	1 (ℓ = 2000)	Wooden closet (900Wx1800Hx500D, lower 600 without shell, upper 1200 with 4 removable glass shelves)
	Dressing Room	-	-	-	1	
	Exam. Room (Large)	1	2	1	1	Examining bed (600x1800, wooden) x 1
	Exam. Room (Small)	-	-	-	1	
	Field Stuff Room	-	-	-	1	
	Corridor	-	-	-	-	
First Floor	Each Health Assistant Room	-	-	-	1 (ℓ = 2000)	Bed (wooden, 950x2000) x 1
	Each A.H.W. Room	-	-	-	1	Bed (wooden, 950x2000) x 1
	A.N.M. (Large)	-	-	-	1 (ℓ = 2000)	Bed (wooden, 950x2000) x 1
	A.N.M. (Small)	-	-	-	1	Bed (wooden, 950x2000) x 1
	Food Demonstration	-	-	-	1	Bed (wooden, 950x2000) x 1
	Corridor	-	-		-	
	W.C.	-	-	-	-	

Table A-5 Furniture, Fittings, and Furnishings in Each Room of Health Post - (2)

Annex-5

	Room Name	Wooden office desks (700 x 900)	Wooden office chairs (with the back)	Wooden office chairs (without the back)	Curtain rail (Extruded aluminum single rail ℓ = 1600)	Remarks, others
Ground Floor	Hall	-	-	-	-	Wooden counter (with wooden horizontally sliding sashes)
	Registration	-	-	-	1 (ℓ = 2000)	
	Exam. Room Mother & Children	1	2	1	1 (ℓ=2000) 1 (ℓ=1600)	
	Exam. Room	-	-	-	1 (ℓ = 2000)	Examining bed (600x1800, wooden) x 1
	Treatment Room	-	-	-	1 (ℓ = 2000)	
	Despensary	1	2	-	1 (ℓ=1600) 1 (ℓ=2000)	Wooden closet (900Wx1800Hx500D), lower 600 without shelf, upper 1200 with 4 removable glass shelves)
First Floor	Each Health Assistant Room	-	-	-	1 (ℓ = 2000)	Bed (wooden, 950x2000) x 1
	Each A.H.W. Room	-	-	-	1	Bed (wooden, 950x2000) x 1
	A.N.M. (Large)	-	-	-	1 (ℓ = 2000)	Bed (wooden, 950x2000) x 1
	A.N.M. (Small)	-	-	-	1	Bed (wooden, 950x2000) x 1
	Food Demonstration	-	-	-	-	
	W.C.	-	-	-	-	

Annex-6(a)

No.		Quantity
1	Wash Basin Stand	1
2	Sphygmemanometer	1
3	Instrument Sterilizing Tray 240x180x35mm	2
4	Instrument Sterilizing Tray 210x150x35mm	2
5	Dressing Jars	2
6	Hand Lamp, Koike	1
7	Tongue Depressors	10
8	Percussion Hammer	1
9	Stechoscopes	1
10	Clinical Thermometers	10
11	Pus Basin Sets	2
12	Mouth gag	1
13	Minor Surgical Operation Set	1
14	Surgical Gloves	1
15	Healthmeter	1
16	Tape Measure	3
17	Glass Syringes (Tuberculin 2cc, 5, 10, 20, 50, 100)	2
18	Glass Syringes (Tuberculin 2cc)	20
19	Needles (Intrarenous, Hypodosmic 1/3, 1/2, 1/1,)	2
20	Needles (Tuberculin)	20
21	Enema Syringe 50cc	2
22	Jar for Forceps	1
23	Sterile Reservoir Stand	1
24	Cotheler (Helaton)	5

Annex-6(b)

No.		Quantity
25	Ice Bag	2
26	Water Bottle	1
27	Undine Glass	1
28	Basin eye bath	1
29	Sterilizer Forceps Seuated Jars	1
30	Wide Mouth Bottle (White)	5
31	Wide Mouth Bottle (Brown)	5
32	Teurniquet	2
33	Umbilical Scissors	1
34	Instrument Holding Forceps	1
35	Vaginal Speculum Examining (Large Size)	1
36	Vaginal Speculum Examining (Middle Size)	1
37	Umbilical Clamps	1
38	Tooth Extracting Forceps	1
39	Dental Mirror	2
40	Needles (Dental)	20
41	Glass Syringes (Dental)	5
42	Dissectors	3
43	Matress for Examining Table	1

1-4. Members Concerned with the Survey for Preliminary Design

a) Nepales Members

a-1) Ministry of Finance

Mr. D.R. PANDAY	Additional Secretary

a-2) Ministry of Health

Mr. T.D. BATTARAI	Secretary
Dr. N.D. JOSHI	Director-General, Dept. of Health Sorvices
Dr. H.D. PRADHAN	Chief, Supervision, Indent & Procurement Division, Dept. of Health Services
Dr. H.N. UPRETY	Chief, International Health & Training Division, Dept. of Health Services
Dr. L. POUDAYL	Chief, Central Health Laboratory
Dr. Rita THAPA	Acting Chief, Integrated Health Services Division, Dept. of Health Services
Dr. N.L. MASKEY	Chief, Central Chest Clinic
Dr. J.N. GIRI	Project Leader, Tuberculosis Control Project

b) Japanese Members

Mr. Katsumi SEZAKI	Former Director of Second Economic Cooporation Division Ministry of Foreign Affairs
Mr. Tomoo AOYAGI	Assistant Director of Second Economic Cooporation Division Ministry of Foreign Affairs
Dr. Masakazu AOKI	Chief, Clinical Research Section, Dept. of Research, The Presearch Institute of Tubercurosis, Japan Anti-Tubercurosis Association,
Mr. Yoshio Munemori	Technical Official, Ministry of Health and Welfare
Dr. Yoshi HIROSE	Technical Official, Deputy Head, National Sanatorium Division, Medical Bureau. Ministry of Health and Welfare
Mr. Isao FUKUWATARI	Fukuwatari and Architectoral Consultants Co., Ltd.
Mr. Takeo MORIMURA	"
Mr. Iwao OSHIMA	"
Mr. Shigeyuki MUKASA	"
Mr. Hiroshi OSAWA	"
Mr. Yushi SAITO	Development Survey Division, Social Development Cooperation Dept. Japan International Cooperation Agency

CHAPTER 2. OUTLINE OF HEALTH POSTS AND HEALTH LABORATORY IN THE WESTERN REGION

In the Kingdom of Nepal, the five-year program is being carried out dividing the country into four regions -- Eastern, Central, Western, and Far Western. The highest priority is given to improvements of health and hygienic conditions of the Western Region.

Health Posts are to play the key roles of the medical service network of the country.

Each Health Post is scheduled to cover 15,000 persons in the plain area, or 25,000 persons in the hilly area.

The major activities of the Health Posts shall be first-aid medical treatments and preventive medical service. Each Health Post shall have a staff of 13 to 17 persons, headed by a Health Assistant. Training of these persons is one of the important problems.

The major projects, such as maralia eradication, nutrition, family planning, tuberculosis and leprosy, shall be handled at the central and regional hospitals and laboratories. The Western Regional Health Laboratory also will handle clinical inspections and studies on preventions.

The Preliminary design, taking fully into consideration the view of the Nepalese officials and the currents states of the medics in the Western Region, has been worked out as follows:

(1) Western Regional Health Laboratory

i) Laboratory rooms

(a) Bacteriological examination room

(b) Parasitic examination room

(c) Serological examination room

(d) Tuberculosis examination room

(e) Biochemical examination room

(f) Experiment facilities (Preparation room for media etc.)

ii) Collection rooms

(a) Registration

(b) Blood collection and urea collection

iii) Training and seminary room

iv) Library

v) General office

(2) Dormitory

The dormitory shall have 10 boarding rooms for 10 male personnel and 10 female personnel and 4 guest rooms for lecturers, etc.

(3) Health Posts

Each of the 12 Health Posts shall have examination rooms, a treatment room, a dispensary, health workers' boarding facility, and a store.

CHAPTER-3 PRELIMINARY DESIGN

3-1. Overview of the facilities

The project covers the following facilities.

(1)	Western Regional Health Laboratory (hereinafter referred to as Laboratory)	x 1 building
(2)	Trainees accommodations for the Health Laboratory above (hereinafter referred to as Dormitory)	x 1 building
(3)	Health Post	x 12 buildings

3-1-1. Laboratory

Two-story reinforced concrete structure with steel roof truss.

Construction area	702.10 m^2
Ground floor, floor area	564.20 m^2
First floor, floor area	551.20 m^2
Aggregate floor area	1,115.40 m^2

3-1-2. Dormitory

Two-story reinforced concrete structure with steel roof truss.

Construction area	384.75 m^2
Ground floor, floor area	317.25 m^2
First floor, floor area	282.00 m^2
Aggregate floor area	599.25 m^2

3-1-3. Health post

Stone or brick masonry one-story structure with steel roof truss.

Construction area	191.92 m^2
Floor space	169.3 m^2

3.2 Design principles

The preliminary design has been made according to the following principles.

(1) The design shall fully incorporate the ideas and demands of the Nepalese users.

(2) The design shall be in harmony with the natural environments at site.

(3) The disign shall facilitate the maintenance and management in keeping with local conditions.

(4) The design shall be adapted for the local state of art in construction engineering.

(5) The design shall be given a flexibility permitting the future changes in use of buildings.

(6) The design standards shall be established to meet the actual circumstances of the Kingdom of Nepal while taking into account the Japanese laws, regulations and standards concerning buildings, structures and facilities.

(7) The materials and supplies available locally shall be made most use of, and the materials and supplies from Japan shall be used only if necessary or justifiable so to do.

(8) Regarding the Health Posts, a standard design (one-storied building) shall be worked out and layout of buildings shall be planned after the site is fixed.

The principles set for the buildings are given in more detail below.

3-2-1. Laboratory

(1) The building shall not be provided with any structural partition. This will facilitate the modification of geometry whenever so required.

(2) The floors and wainscottings for the laboratory room and examination room shall be finished with a synthetic resin paint for ease of washing with water.

(3) The eaves and louvers shall be used to minimize the room temperature change by preventing the direct sunlight from entering the room.

(4) The building shall be designed for thorough draft and ventilation in consideration of subtropical climate.

(5) Airconditioning facilities shall be installed to the required minimum of laboratories. Ventilation for the other rooms shall be of the natural draft type, Ceiling fans shall be installed in each room and corridors.

(6) The laboratory room and examination room shall be designed so that the medical equipments and furniture of exising Western Regional Laboratory can be made the best use.

(7) The water supply installation shall be of the gravity system in which water is pumped from a water receiving tank to head tank from which it is distributed gravitationally.

(8) The Drainage system shall be of the separated type in which soil is run separately from other types of waste water. The soil shall be treated in a septic tank, and the other types of waste water shall be drained by seaking.

(9) The laboratory shall be served with gas from LPG cylinders.

(10) The lighting and power circuits for the building shall be served with 400/230 V, 50 Hz. A diesel generator shall be installed for the refrigerators and incubators in order to provide against blackout failure

(11) A lightning rod system shall be installed.

(12) The building shall be provided with a piping harness for one telephone circuit.

(13) One water heater shall be provided at each of the Tea-Service of the 1st and 2nd floors.

3-2-2. Dormitory

(1) The building structure shall be of the same type as the Laboratory.

(2) The installations to be provided shall be almost the same as the Laboratory, with the exception that the diesel generator shall not be installed.

(3) The same design considerations as with the Laboratory shall be provided.

3-2-3. Health post

(1) The ceiling height shall be at least 3 meter in Plain Area and at least 2.4 meter in the hilly area.

(2) Care shall be taken of draft and ventilation.

(3) The two examination rooms shall be provided with one washbasin each, and the dispensary with one laboratory sink. The food demonstration room shall be provided with a sink and served with water.

(4) The food demonstration room shall be provided with a chimney, and shall use wood as a fuel.

(5) The lavatory shall be detached, and its two compartments shall be provided with a water cock each.

(6) The lavatory shall be of the flush type.

3-3. Site Conditions

3-3-1. Locations of Sites

(a) Laboratory and Dormitory

The site for Laboratory lies N. Lat. 28°13' by E. Long. 84°00' at an altitude of 918 m.

It is an oblong (about 70 m from north to south and about 85 m from east to west) located on the southwest of Gandaki Zonal Hospital in Pokhara.

The site for Dormitory is located at a part of the belt zone between a river and the Hospital. It is also an oblong (about 175 m from north to south, and about 70 m from east to west) located on the north of the Laboratory.

(b) Health Posts

The following twelve villages were designated by the Ministry of Health as proposed sites for Health Posts. The location of eleven sites of them have already been fixed. The location of remaining one will be fixed before long.

(1) Khairani
(2) Walling
(3) Pitaunge
(4) Kaluwa
(5) Dumkauli
(6) Dumkibas
(7) Hathunsa
(8) Pathardaya
(9) Majgawa
(10) Rayapur (location of site is not fixed yet)
(11) Karmahawa
(12) Semara

3-3-2. Weather conditions

- The weather data recorded at Pokhara are as listed below.

Temperature	° Summary (May ∿ Sep.): Monthly average maximum, 30.1°C ° Winter (Dec. ∿ Feb.): Monthly average minimum, 7.6°C	1966 ∿ 1977
Relative humidity	° Monthly average (at 8:40 AM): - Summer, 79 to 86% Winter, 59 to 78% ° Monthly average (at 5:40 PM): - Summer, 70 to 79% Winter, 41 to 72%	1967
Reinfall	° Daily maximum, 205 mm/d. ° Hourly maximum, 56 mm/h.	1966 ∿ 1975
Snowfall	° nil ○	
Maximum wind velocity	° 30 m/sec.	1972 ∿ 1975

° The weather data recorded at Bhairawa are as listed below.

Temperature	° Summer (May ∿ Sep.): Monthly average maximum, 35.2°C ° Winter (Dec. ∿ Feb.): Monthly average minimum, 7.6°C	1973 ∿ 1975
Relative humidity	° Monthly average (at 8:40 AM): - Summer, 53 to 88% Winter, 79 to 94% ° Monthly average (at 5:40 PM): - Summer, 40 to 87% Winter, 36 to 83%	1973 ∿ 1975
Reinfall	° Daily maximum, 185 mm/d.	1970 ∿ 1975
Snowfall	° nil	
Maximum wind velocity	° 32.5 m/sec.	1971 ∿ 1975

3-3-3. Geology

a) Soil conditions at hilly area

The Pokhara basin is covered with a thin layer of humus soil. At a depth of several tens of centimeters, gravel is beginning to appear in humus soil.

At a depth of 40 to 50 cm, a thin conglomeratic layer is hit. From around 1.0 m deep, conglomeratic sedimentary rocks appear.

The soil bearing power of the conglomeratic sedimentary rock layer is more than 50 tons/m^2. The top soil above the conglomeratic sedimentary rock layer is somewhat undulating, and the footing depth of the structural foundation should preferably be set at around 1.0 m with the soil bearing power of the conglomeratic layer taken as 30 tons/m^2.

So far as the topography shows, the hilly area apart from the basin will have almost the same soil profile as above.

b) Soil conditions in the plain

A clayey layer of the same quality is seen almost entirely in the flat terrain. The ground surface has several tens of centimeters of humus soil below which lines an unknown thickness of clayey layer.

The adhesion of the clay is estimated to be considerably large; under natural conditions, the clay can be cut at a slope angle, ϕ, of 45° to 60°. In support of this, some river banks show a natural slope of as steep as 70° to 80°.

It is therefore expected that a soil bearing power of 15 tons/m^2 will be obtainable. For more detail data, soil tests will be necessary, however.

3-4. Overall Plan

(a) Laboratory and Dormitory

A public road runs south of the laboratory site and the current condition is sufficient for car traffic. According to the layout drawing of the Gandaki Zonal Hospital, the road will be widened to approximately 24 meters. The design has been worked out taking this expansion into consideration. Two gates shall be installed facing this public road, with the east one as the main gate and the west one as the sub gate.

The Zonal Hospital is laid in a shape crossing from east to west and from north to south. In conformity with this layout, the laboratory and dormitory shall be located on an axis of from east to west, avoiding the severe west wind.

The laboratory shall be laid as east as possible (as consented by the Hospital official).

(b) Health Posts

Most of the sites for Health Posts are in plain areas. When in rainy seasons, the approach roads and some parts of the sites may be flooded. The buildings should be constructed at as elevated positions as possible. To avoid the severe west wind, the buildings should be constructed on an axis of from east to west.

The facilities being planned for each site are Health Post - (1), Health Post-(2), lavatory building and as accessory installations, water tank, septic tank, and soak pit. Health Posts (1) and (2) are located as apart as possible in order to keep privacy. The lavatory is located between the two posts. As a general rule, the buildings and trees existing in the site shall be left as they are.

3-5. Building Plan

3-5-1. Layout Plan

a) Laboratory

The Laboratory building comprises following zones. Laboratory zone, Storage zone, and Specimen Collecting zone are on the ground floor, and administration zone, training zone, and staff zone are on the first floor.

In working out the layout plan, trafic lines between each rooms were taken into account and Specimen Collecting zone is separated from others perfectly.

b) Dormitory

In the Dormitory building, the common-use rooms (dining room, salon, etc.) are located westward and bedrooms are located eastward. Regarding the bedrooms, those for guests and keeper are on the ground floor and those for trainees are on the 1st floor. An open corridor and stairs is designed for each of north and south side of the building in order to separate males and females completely.

c) Health Post - (1)

A hall shall be located in the center position, southward. With this hall as a traffic center, two examination rooms, a treatment room, store, dispensary, and registration shall be located centering around the hall.

(d) Health Post - (2)

Rooms shall be located southward and northward, being separated with an axis of from east to west. A direct entrance shall be provided for each room.

3-5-2. Structural plan

In the Kingdom of Nepal, there are no laws nor design standards concerning the design of building structures. All rests with the designers.

The external forces on the structures, allowable stress intensities of structural materials, and structural design principles are set as detailed below.

a) External forces

a-1) Fixed load

The fixed load (dead load of building) is to be calculated to meet specific conditions of each building.

a-2) Live load

Unit: kg/m^2

	For floor design	For design of girder beam, post, wall	Seismic-load
1st floor of Domitory	180	130	60
1st floor of Laboratory (excl. seminary room)	300	180	80
1st floor of Laboratory (seminary room)	300	270	160

a-3) Wind load

The wind pressure, P (kg/m^2), to be used for structural calculation is given by the following formula.

$P = Cq$

Where, C: wind force coefficient

q: wind pressure (kg/m^2)

For a maximum instantaneous wind velocity, V, of 50 m/sec., q is set as follows.

$q = 40\sqrt{h}$ (kg/m^2)

Where, h: height above ground (m)

a-4) Snow load = 0

a-5) Seismic force

Seismic coefficient, k = 0.10

b) Allowable stress intensity

b-1) Allowable stress intensity of reinforcing bar

Type of reinforcement	Long-term allowable stress intensity		Short-term allowable stress intensity
	Tensile	Compression	
SD30 (of Japanese make)	2.0 t/cm^2	2.0 t/cm^2	1.5 times the longterm value
SR24 (of Japanese make)	1.6 t/cm^2	1.6 t/cm^2	ditto
Round bar (of other than Japanese make)	1.4 t/cm^2	1.4 t/cm^2	ditto

b-2) Allowable stress intensity of concrete

Unit: kg/cm^2

Type of concrete	Compression force FC
Machine-mixed	135
Hand-mixed	90

b-3) Allowable stress intensity of steel

Steels of Japanese make (SS41 (JIS G3101), SSC41 (JIS G3350), STK41 (JIS G3444), etc.) are to be used, and the Standard for Structural Calculation of Steel Structures established by The Architectural Institute of Japan will be followed.

c) Allowable soil bearing pressure

c-1) Hilly area

In the hilly area, the long-term soil bearing power for the standard design is set at 30 tons/m^2 with respect to the conglomeratic ground.

c-2) Plain area

In the plain area, the long-term soil bearing power for standard design is set at 15 tons/m^2 with respect to the hard clayey ground.

d) Principles for structural plan

d-1) Laboratory and dormitory

The Laboratory and Dormitory will be of the iron-reinforced concreate rahmen structure designed in accordance with The Standard for Structural Calculation of Reinforced Concrete Structures established by The Architectural Institute of Japan.

d-2) Health post

The stone or brick masonry will be applied with due attention paid to the following points.

(1) Burned bricks shall be used at any rate.

(2) The joints shall be set with cement mortar in a manner that will ensure permeation of cement mortar over the entire surface of each joint.

(3) An RC girder shall be placed on top of the wall.

(4) The wall whose length is less than twice the thickness shall not be handled as aseismic wall.

(5) The first floor shall be of iron-reinforcec concrete.

(6) An RC lintel shall be provided on top of the opening whose width is in excess of 1 m.

(7) The bearing wall thickness shall be more than 34 cm.

(8) Dimensions of stone block

Those stone blocks whose major length is more than half the wall thickness shall account for more than one third the total number of stone blocks to be used.

(9) The wall volume shall be more than 15cm/m^2

(10) The length of the loaded wall shall be less than 7.0 m.

3-5-3. Finishing materials

a) Laboratory

a-1) Principal external finishing materials

Roofing	Asphalt shingling (of steel truss structure; light gauge steel purlin, wooden rafters and waterproof plywood siding)
Ceiling of eaves	Paint-finished waterproof plywood on wooden ceiling frame
Post	Multi-layer coatings with decorative pattern
Outer wall	Ashlaring on concrete wall with an air gap in between
Louver	Baking-finished aluminum shapes
Sash	Aluminum. Stainless Steel

a-2) Principal interior finishing materials

(1) Laboratory room

Floor	Epoxy resin paint (non-slip finish)
Wainscotting	ditto (w/o non-slip finish)
Wall	Multi-layer coatings with decorative pattern
Ceiling	Paint-finished water proof plywood on wooden ceiling frame.

(2) Corridor, office room, staff rooms, stores, wash room

Floor	Terrazo block
Plinth	Terrazo block
Wall	Multi-layer coatings with decorative pattern
Ceiling	Paint-finished waterproof plywood

(3) Seminary room

Floor	Rubber tile
Plinth	Paint-finished mortar
Wall	Multi-layer coatings with decorative pattern
Ceiling	Paint-finished cloth on plywood ground

b) Dormitory

b-1) Principal external finishes

Roofing	Asphalt shingling
Ceiling of eaves	Paint-finished waterproof plywood
Post	Multi-layer coatings with decorative pattern
Outer wall	Ashlaring on concrete wall with an air gap in between
Sash	Aluminum

b-2) Principal interior finishes

(1) Bedrooms, corridors, office room, wash room and kitchen

Floor	Terrazo block
Plinth	Paint-finished mortar (terrazo block for toilet)
Wall	Multi-layer coatings with decorative pattern
Ceiling	Paint-finished mortar for ground floor; paint-finished plywood for first floor

(2) Cafeteria, lounge

Floor	Terrazo block
Plinth	Paint-finished mortar
Wall	Multi-layer coatings with decorative pattern
Ceiling	Paint-finished cloth on plywood ground

(3) Shower room

Floor	Finished-in-place terrazo
Wall	ditto
Ceiling	Paint-finished waterproof plywood

c) Health post-(1), (2)

c-1) Principal external finishes

Roofing	Corrugated color iron sheet (light gauge steel for purlin)
Ceiling of eaves	Paint-finished waterproof plywood
Outer wall	Paint finished mortar
Sash	Wooden sash; paint-finished wooden door

c-2) Principal interior finishes

Floor	Mortar troweling
Plinth	Paint finished mortar
Wall	ditto
Ceiling	Paint-finished plywood

3-5-4. Partitions

The partitions shall be of the single-layer brick work, or of stone masonry (wall thickness, 30 mm) or of wood.

3-6. Equipment plan

3-6-1. Plan for electrical installations

a) Power supply

A commercial power supply of AC three-phase 4-wire, 11 kV will be received. A standby power supply will be a 15 kVA diesel generator which is to serve some of medical appliances in the Laboratory.

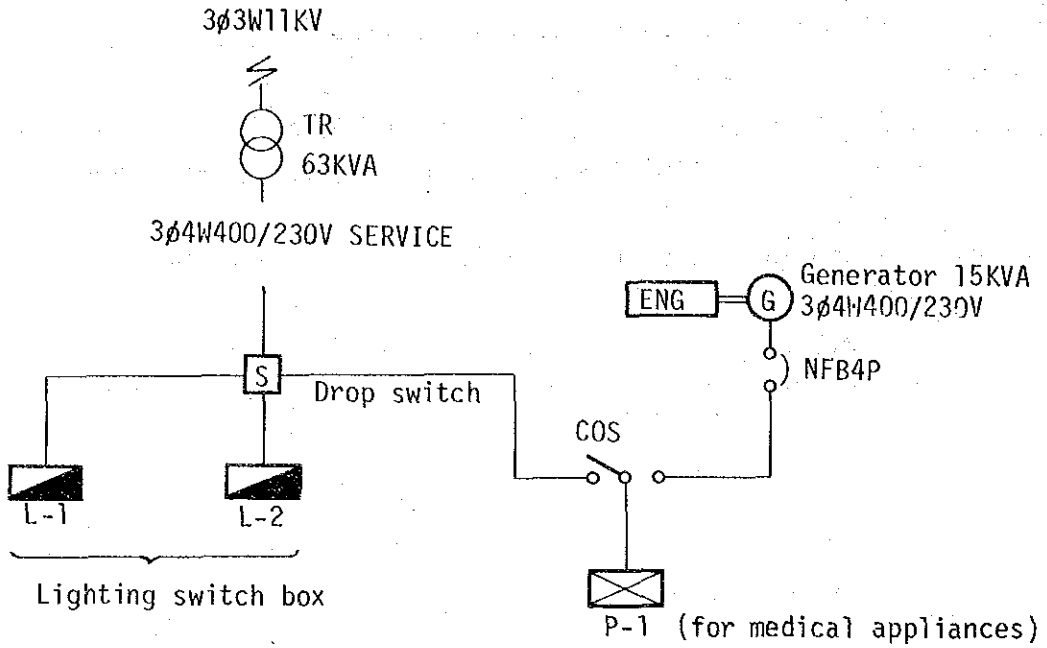
The electrical loads, including luminaires, convenience outlets, machines, fans, and medical appliances will be as follows:

1)	Laboratory	67 kVA
2)	Dormitory	20 kVA

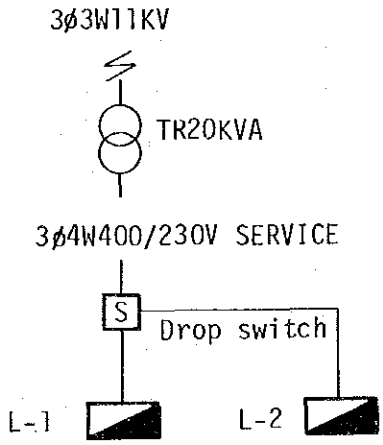
b) Trunk wiring

The trunk wiring for the luminaires, convenience outlets, machines and fans will be extended from the low-voltage main switchboard to the lighting switch boxes.

The single-line diagram for each building is illustrated below.



Laboratory



Dormitory

Note: The lighting switch box covers the power circuit.

c) Luminaires and convenience outlets

The rooms, waiting hall and corridors will be illuminated mainly with fluorescent lamps and partly with incandescent lamps.

The intensity of illumination of the rooms is as follows.

Office room	250 to 300 lx
Examination room	250 to 300 lx
Waiting hall, corridor	100 to 150 lx
Store	100 lx
Training room	250 to 300 lx
Bedroom	100 lx
Toilet	100 lx

The convenience outlets will be prepared for general-purpose use, medical appliances and fans. The branch circuits split from the switch boxes will be of flexible cables.

d) Telephone equipment

The Laboratory and Dormitory will be furnished with one telephone circuit each. The telephone circuit will be led in by means of an overhead drop wire.

e) Automatic fire alarm

Those rooms in the Laboratory where fire is used will be provided with a spot type heat sensor which is to automatically work a bell on the ground and the first floor.

f) Manual alarm

Each floor of the Dormitory will be equipped with two manual push-button stations in order to work the bell to give the arrester.

g) Lightning rod system

A lightning rod will be erected on top of each building and will be connected to a buried copper grounding plate through a conductor.

h) Electrical appliances for the buildings

The electrical appliances for the buildings are listed in Tables ME1 through ME2.

3-6-2. Plan for mechanical installations and facilties

a) Building users and water consumption

The building users and water consumption are estimated as shown in Table M-1.

b) Water supply faciliteies for the buildings

A city water is available for the laboratory, dormitory, and Health Post in Kailanitar. For the each of other Health Post, water will be drawn from a well which shall be dug about 14 meters deep, and, since electricity is not abailable, so water will be drawn with buckets.

For each building, a water tank for one day consumption capacity shall be installed. At the Laboratory and dormitory, water shall be fed with motor pumps; at the Health Posts, water shall be fed with a wing pump to the tank which is installed on an elevated location.

Two motor pumps shall be installed for each building, and they will be operated alternately in response to the water level in the elevated tank. A wing pump also shall be installed in order to be used in case of power failure. The capacity of the elevated tank shall be consumed in an houre use of total usage when motor pumps are used for water elevating and it will be consumed in two hours usage when elevated with a wing pump.

Water-Elevated tanks for the laboratory and Health Post shall be installed on the underneath of the roof or on the top of the roof. For the dormitory, however, since showers are provided on the 1st floor and they required a water head of approximately 3 m Aq, a steel tower shall be constructed of approximatery 10 meters high, as a water elevated tank tower.

For a Health Post which is consisting of two different buildings, a common water receiving tank shall be used for the two buildings, and elevated tanks shall be provided for respective buildings.

For each building, water shall be supplied to the required point by means of gravitational force (natural water head pressure).

Hydraulic plug (for fire fighting) shall not be provided.

(c) Drain installations of buildings

For each building, the drain system shall be separated into soil water line and waste water line. The former shall be treated with a septic tank, then merged with the latter, and then, it shall be disposed in soak pit by means of infilteration. The capacity of the septic tank shall be as per the Japanese standard for that of the septic tank of soil water treatment system.

The area of infilteration of the soak pit will be calculated on condition that the infilteration rate is assumed to be 200 lit/m^2 day.

(d) Sanitary fecilities:

Sanitary fixtures for the each buildings are shown in Table M-2.

Rooms that those fixtures be settled, are shown in Table ME-1 through ME-3.

The water closets shall be flush type. A water tap shall be installed inside of each water closet booth.

(e) Gas supply system

At Laboratory, liquefied petrolium gas of 27,740 kcal/m^3 will be supplied for the laboratory and training use from gas cylinders installed outdoors.

(f) Air conditioning system

Thru-the-wall air conditioners for cooling will be installed at those rooms in Laboratory which are listed in Table ME-1.

(g) Ventilating system

At Laboratory and Dormitory, sweep ceiling fans and ventilating fans will be installed in rooms as shown in Table ME-1 and Table ME-2.

(h) Other installations

A draft chamber will be installed in each of the TB room and training room of the laboratory, for prevention of TB dispersion.

An electric water heater of hot water storage type shall be installed at each of the Tea-Service.

Table M-1 Building users and water consumption

Neme of building	Number of users	Water consumption (lit./person·d.)	Daily consumption (lit./d.)	Daily consumption hours (hrs./d.)	Hourly consumption (lit./hr.)	Remarks
Laboratory	Full-timer 50 Seminar participator 130	100 10	5,000	8	625	
Dormitory	Resident 40	200	8,000	10	800	
Health Post	Resident 7 Full-time 13	150 100	2,350	10 8	267.5	In case of flushing type water closet

Table M-2 Specifications of sanitary ware

Name of equipment	Specifications
Flushing type water closet	23" Qrissa Pan, w/trap, 3 gal, flushing cistern, paper holder
Non-flushing type water closet	23" Qrissa Pan, w/paper holder, w/o trap, flushing cistern
Washbasin	Wash Basin 22" x 16", w/c.p. Liquid Soap Container, 24" long Glass Shelf, 24" x 16" Looking Mirror
Laboratory sink	Laboratory Sink 21" x 17" x 7", w/1/2" c.p. fancy type Bib-Cock
Kitchen sink	Kitchen Sink, 24" x 18" x 10", w/1/2" c.p. fancy type Bib-Cock
Shower	3" ø Shower Rose, w/c.p. Consealed Stop Cock, C.P. Soap Dish, 1/2" x 24" Towel Rod

Table E-1-(a) A list of plumbing fixtures, ventilation equipments and electrical appliance for Laboratory (1)

	Room Name	Orissa Pan	Wash Basin	Laboratory Sink	Kitchen Sink	LPG Gas Cock	Ceiling Fan	Ventilating Wall Fan	Air Conditioner	Water Heater	Flourescent Light	Incandescent Light	Convenience Out Let
Ground Floor	Main Hall	-	-	-	-	-	-	-	-	-	-	-	-
	Registration	-	1	-	1	-	1	-	-	-	(40Wx2)x1	-	1
	Serology	-	-	1	-	1	1	-	1	-	(40Wx2)x2	-	4
	Parasitology	-	-	1	-	1	1	-	1	-	(40Wx2)x2	-	4
	Biochemistry	-	-	1	-	1	3	-	3	-	(40Wx2)x6	-	8
	T.B	-	-	1	-	1	3	-	3	-	(40Wx2)x6	-	9
	Sterilizing & Wash Room	-	-	1	-	1	2	1	-	-	(40Wx2)x2	-	4
	Bacteriology	-	-	1	-	1	3	-	3	-	(40Wx2)x6	-	10
	Patient Waiting Hall	-	-	-	-	-	1	-	-	-	(40Wx2)x2	-	1
	Urine Collecting Room	1	1	-	-	-	-	-	-	-	-	40Wx1	-
	Blood Collecting Room	-	1	-	-	-	1	-	-	-	-	40Wx1	1
	Store	-	-	-	-	-	-	-	-	-	(40Wx1)x6	-	2
	Maintenance Store	-	-	-	-	-	-	-	-	-	(40Wx1)x2	-	1
	Store Office	-	-	-	-	-	1	-	-	-	(40Wx2)x2	-	2
	Corridor	-	-	-	-	-	5	-	-	-	(40Wx2)x5	-	2
	Wash Room	4	4	-	-	-	-	-	-	-	(40Wx1)x2	-	2
	Tea Service	-	-	-	1	-	-	-	-	-	(20Wx1)x1	-	1
	Electric Room	-	-	-	-	-	-	1	-	1	(40Wx1)x2	-	1
	Machine Room	-	-	-	-	-	-	-	-	-	(40Wx1)x1	-	-
	Preperation Room For Media	-	-	1	-	-	-	1	-	-	(40Wx2)x2	-	2

Table ME-1-(b) A list of plumbing fixtures, ventilation equipments and electrical appliance for Laboratory (2)

	Room Name	Orissa Pan	Wash Basin	Laboratory Sink	Kitchen Sink	LPG Gas Cock	Ceiling Fan	Ventilating Wall Fan	Air Conditioner	Water Heater	Flourescent Light	Incadescent Light	Convinience Out Let
First Floor	Staff Room	-	-	-	-	-	2	-	-	-	(40Wx2)x4	-	4
	Library	-	-	-	-	-	1	-	-	-	(40Wx2)x2	-	2
	Chief	-	-	-	-	-	1	-	1	-	(40Wx2)x2	-	2
	Waiting Room	-	-	-	-	-	1	-	1	-	(40Wx2)x2	-	2
	General Office	-	-	-	-	-	2	-	-	-	(40Wx2)x4	-	4
	Seminary Room	-	-	-	-	-	9	-	-	-	(40Wx2)x12	-	4
	Training Room	-	-	5	-	5	5	-	-	-	(40Wx2)x8	-	8
	Store	-	-	-	-	-	-	-	-	-	(40Wx1)x2	-	1
	Corridor	-	-	-	-	-	5	-	-	-	(40Wx1)x6	-	2
	Wash Room	4	4	-	-	-	-	-	-	-	(40Wx1)x2	-	2
	Tea Service	-	-	-	1	-	-	-	-	1	(20Wx1)x1	-	1
	Void	-	-	-	-	-	-	-	-	-	(40Wx2)x2	-	-

Table ME-2 A list of plumbing fixtures, ventilation equipments and electrical appliance for Dormitory

	Room Name	Orissa Pan	Wash Basin	Shower	Ceiling Fan	Ventilating Wall FAn	Flourescent Light	Incandes-cent Light	Convenience Out Let
Ground Floor	Keeper -(1)	-	-	-	1	-	(40Wx1)x2	-	2
	Keeper -(2)	1	1	1	1	-	(20Wx1)x2	-	2
	Cafeteria	-	-	-	2	-	(40Wx1)x4	-	3
	Saloon	-	-	-	1	-	(20Wx1)x2	-	1
	Kitchen	-	-	-	1	1	(40Wx1)x2	-	2
	Store	-	-	-	-	-	(40Wx1)x2	-	2
	W.C.	2	2	-	-	-	-	40Wx2	-
	Guest Room	4	4	4	8	-	(20Wx1)x24	40Wx4	8
First Floor	Bed Room	-	-	-	-	-	(20Wx1)x24	-	36
	Shower Room	-	-	4	-	-	-	40Wx4	-
	Wash Room	6	6	-	-	-	(20Wx1)x4	-	-
	Void	-	-	-	-	-	(20Wx1)x3	-	-

Table ME-3 A list of plumbing fixtures for Health Post

Room Name	Orissa Pan	Wash Basin	Laboratory Sink	Kitchen Sink
Hall	-	-	-	-
Registration	-	-	-	-
Exam. Room Mother & Children	-	1	-	-
Exam. Room	-	1	-	-
Treatment Room	-	-	-	-
Dispensary	-	-	1	-
Each Health Assistant Room	-	-	-	-
Each AHW Room	-	-	-	-
ANM (Large)	-	-	-	-
ANM (Small)	-	-	-	-
Food Demonstration	-	-	-	-
W.C.	2	-	-	-

3-7. Scope of Construction

3-7-1. Laboratory and Dormitory

a) Works, equipments, and materials included in the budget.

1) Buildings

2) External staircases, porches, berms, etc. accompanying the buildings.

3) Electrical and Mechanical Systems for the buildings otherwise noted below. Electricity leading-in and water service upto reservoir from public main are included in temporary works.

4) Furniture, fittings, and furnishings listed in Table A-1 to A-3.

b) Works, equipments and materials not included in the budget

1) Disassembly and removal of obstacles.

2) Site preparation and leveling work.

3) Road construction.

4) Landscaping and planting.

5) Outdoor signs.

6) Outdoor lighting.

7) Furniture, fittings, and furnishings not listed in Tables A-1 to A-3; curtains, blinds, etc.

3-7-2. Health posts

a) Works, equipments, and materials included in the budget.

1) Buildings

2) External staircases, porches, berms, etc. accompanying the buildings.

3) Mechanical Systems for the buildings otherwise noted below.

4) Furniture, fittings, and furnishings listed in Tables A-4.

5) Medical equipments, tools, and supplies listed in Table A-5

b) Works, equipments, and materials not included in the budget.

1) Disassembly and removal of obstacles.

2) Site preparation and leveling work.

3) Road construction.

4) Landscaping and planting.

5) Outdoor signs.

6) Water service up to the connection to water-receiving tanks.

7) Furniture, fittings, and furnishings not listed in Tables A-4; curtains, blinds, etc.

Table A-1 Furniture, Fittings, and Furnishings in Each LABORATORY Room (1)

	Room Name	Wooden office desks (900x1,200)	Wooden office chairs (with the back)	Wooden office chairs (without the back)	Curtain rail (aluminum. single rail)	Remarks
GROUND FLOOR	STORE	-	-	-	-	
	MAINTENANCE STORE	-	-	-	-	
	STORE OFFICE	1	1	-	1 (ℓ= 2,900)	
	MAIN HALL	-	-	-	-	
	SEROLOGY	-	-	2	1 (ℓ= 2,900)	Work table (with bottom closet)
	PARASITOLOGY	-	-	2	1 (ℓ= 2,900)	Work table (with bottom closet)
	REGISTRATION	1	1	-	-	Counter (Wooden)
	PATIENT WAITING HALL	-	-	-	-	Bench (500 x 1,800) x 5
	BLOOD COLLECTING ROOM	1	1	1	-	
	URINE COLLECTING ROOM	-	-	-	-	Counter (Wooden)
	WASH ROOM	-	-	-	-	
	TEA SERVICE	-	-	-	-	Handing capboard
	BIOCHEMISTRY	-	-	2	3 (ℓ= 2,900)	Work table (with bottom closet)
	T.B.	-	-	2	3 (ℓ= 2,900)	Work table (with bottom closet)

Table A-2 Furniture, Fittings, and Furnishings in Each LABORATORY Room (2)

	Room Name	Wooden office desks (900x1,200)	Wooden office chairs (with the back)	Wooden office chairs (without the back)	Curtain rail (aluminum. single rail)	Remarks
	BACTERIOLOGY	-	-	2	3 (ℓ= 2,900)	Work table (with bottom closet)
	STERILISING & WASH ROOM	-	-	2	1 (ℓ= 2,000)	Work table (with bottom closet)
		-	-	-	1 (ℓ= 2,900)	
FIRST FLOOR	LIBRARY	-	-	-	1 (ℓ= 2,900)	Bookcase (1,800Wx1,800Hx300D, Wooden, with glass sliding cloors) x 1
	STAFF ROOM	-	-	-	2 (ℓ= 2,900)	Wooden lockers (300Wx1,800Hx500Dx 10 rows) x 2. File case (steel, 3 drowers ℓ = 900) x 2
	CHIEF	(1,200x2,000)	2	-	1 (ℓ= 2,900)	Bookcase (1,800Wx1,800Hx300D, Wooden, with glass sliding door). File case (steel, 3 drowers, ℓ= 900) x 1
	WAITING ROOM	-	-	-	1 (ℓ= 2,900)	Sofas (750 x 1,800) x 2 Table (600 x 900) x 1
	GENERAL OFFICE	4	4	-	1 (ℓ= 2,900)	Wooden bookcase (1,800Wx1,800Hx300D, Wooden, with glass sliding doors) x 1 File case (steel, 3 drawers, ℓ=900)
	TRAINING ROOM	(1,200x2,000)	2	20	5 (ℓ= 2,900)	Black board (1,200x3,000) Experimental table (900x1,800) x 5
	WASH ROOM	-	-	-	-	
	TEA SERVICE	-	-	-	-	Handing capboard
	STORE	-	-	-	-	
	SEMINARY ROOM	-	72	-	Double rail x 6 blackout curtains	Blackboard (1,200x3,000) Conference tables (450x1,800, Wooden) x 18. Lecture stand (1,000x1,500, Wooden)

Table A-3 Furniture, Fittings, and Furnishings in Each DORMITORY Room

	Room Name	Wooden office desks (900x1,200)	Wooden office chairs (with the back)	Wooden office chairs (without the back)	Curtain rail (aluminum. single rail)	Remarks
GROUND FLOOR	CAFETERIA	-	20	-	1 (ℓ= 3,700) 1 (ℓ= 6,200)	Tables (Wooden, 850x1,300) x 5
	KITCHEN	-	-	-	-	Work table (with bottom closet) Delivery counter, Handing cuppoard
	SALON	-	-	-	1 (ℓ= 3,000) 1 (ℓ- 4,800)	Sofas (750x1,500)x4. Tables (450x 700)x2. Carpets (1,600x2,000)x2
	W.C.	-	-	-	-	-
	STORE	-	-	-		-
	KEEPER 1	1	2	-	1 (ℓ= 1,800) 1 (ℓ= 1,200)	
	KEEPER 2	-	-	-	1 (ℓ= 1,800)	Beds (Wooden, 950x2,000)x2
	GUEST ROOM	1	1	-	2 (for each room (ℓ=1,800)	Beds (Wooden, 950x2,000)x2 (for each room)
		-	-	-		
		-	-	-		
FIRST FLOOR	BED ROOM 1 ~ 12	2 (for each room (600x900)	2 (for each)	-	1 (for each room (ℓ=1,900)	Beds (Wooden, 950x2,000)x2 (for each room)
	SHOWER ROOM	-	-	-	-	-
	W.C.	-	-	-	-	-

Table A-4 Furniture, Fittings, and Furnishings in Each Room of Health Post

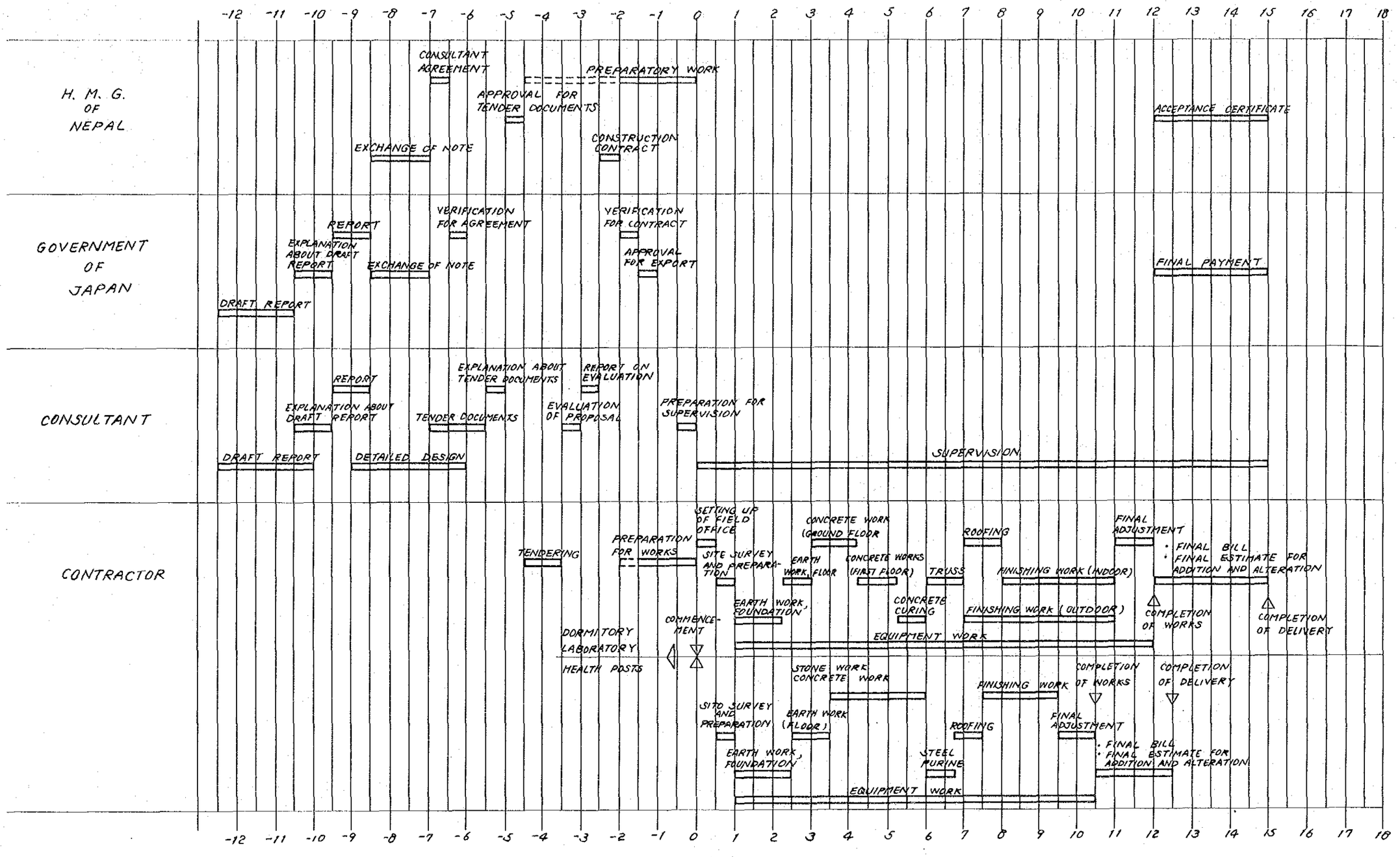
	Room Name	Wooden office desks (700 x 900)	Wooden office chairs (with the back)	Wooden office chairs (without the back)	Curtain rail (Extruded aluminum single rail ℓ = 1600)	Remarks, others
Health Post-(1)	Hall	-	-	-	-	Wooden counter (with wooden horizontally sliding sashes)
	Registration	-	-	-	1 (ℓ = 2000)	
	Exam. Room Mother & Children	1	2	1	1 (ℓ=2000) 1 (ℓ=1600)	
	Exam. Room	-	-	-	1 (ℓ = 2000)	Examining bed (600x1800, wooden) x 1
	Treatment Room	-	-	-	1 (ℓ = 2000)	
	Despensary	1	2	-	1 (ℓ=1600) 1 (ℓ=2000)	Wooden closet (900Wx1800Hx500D), lower 600 without shelf, upper 1200 with 4 removable glass shelves)
Health Post-(2)	Each Health Assistant Room	-	-	-	1 (ℓ = 2000)	Bed (wooden, 950x2000) x 1
	Each A.H.W. Room	-	-	-	1	Bed (wooden, 950x2000) x 1
	A.N.M. (Large)	-	-	-	1 (ℓ = 2000)	Bed (wooden, 950x2000) x 1
	A.N.M. (Small)	-	-	-	1	Bed (wooden, 950x2000) x 1
	Food Demonstration	-	-	-	-	
	W.C.	-	-	-	-	

Table A-5 Medical equipment, tools, and supplies for each H. P.

No.	Name	Quantity
1	Wash Basin Stand	1
2	Sphygmemanometer	1
3	Instrument Sterilizing Tray 240x180x35mm	2
4	Instrument Sterilizing Tray 210x150x35mm	2
5	Dressing Jars	2
6	Hand Lamp, Koike	1
7	Tongue Depressors	10
8	Percussion Hammer	1
9	Stechoscopes	1
10	Clinical Thermometers	10
11	Pus Basin Sets	2
12	Mouth gag	1
13	Minor Surgical Operation Set	1
14	Surgical Gloves	1
15	Healthmeter	1
16	Tape Measure	3
17	Glass Syringes (Tuberculin 2cc, 5, 10, 20, 50, 100)	2
18	Glass Syringes (Tuberculin 2cc)	20
19	Needles (Intrarenous, Hypodosmic 1/3, 1/2, 1/1,)	2
20	Needles (Tuberculin)	20
21	Enema Syringe 50cc	2
22	Jar for Forceps	1
23	Sterile Reservoir Stand	1
24	Cotheler (Nelaton)	5

No.	Name	Quantity
25	Ice Bag	2
26	Water Bottle	1
27	Undine Glass	1
28	Basin eye bath	1
29	Sterilizer Forceps Seuated Jars	1
30	Wide Mouth Bottle (White)	5
31	Wide Mouth Bottle (Brown)	5
32	Teurniquet	2
33	Umbilical Scissors	1
34	Instrument Holding Forceps	1
35	Vaginal Speculum Examining (Large Size)	1
36	Vaginal Speculum Examining (Middle Size)	1
37	Umbilical Clamps	1
38	Tooth Extracting Forceps	1
39	Dental Mirror	2
40	Needles (Dental)	20
41	Glass Syringes (Dental)	5
42	Dissectors	3
43	Matress for Examining Table	1

3-8. TIME SCHEDULE



3-9. Transportation of Construction Materials

Concerning transportation of the construction materials supplied from Japan, following matters will be practical.

a) Transportation term

About 50 days. (After leaving Japanese port to arrival at construction sites or maintaining space for temporary bonded storage of materials in Nepal.)

b) Unloading Point

Calcutta (India)

c) Customs clearance point at Nepales border

Raxaul (India), Birganj (Nepal)

or

Nautanwa (India), Bhairawa (Nepal)

3-10. Budget

Budget estimate for all buildings equipments, tools and other materials presented by Government of Japan is as follows.

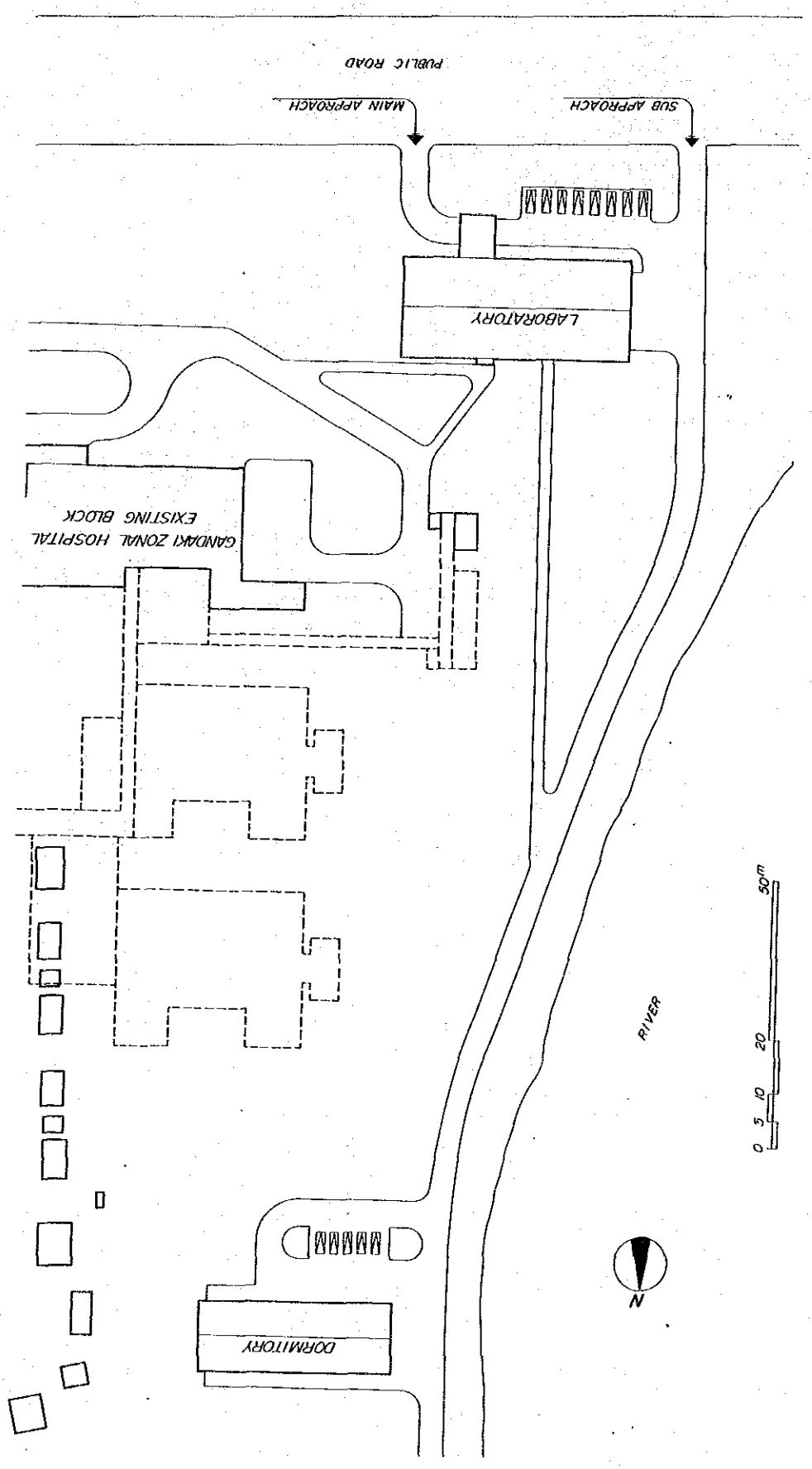
1)	Laboratory	¥186,000,000.-
2)	Dormitory	¥111,000,000.-
3)	Health Post	¥178,000,000.-
4)	Furniture and furnishings	¥10,000,000.-
5)	Medical tools and appliances	¥5,000,000.-
6)	Consulting and supervising	¥60,000,000.-
	Total	¥550,000,000.-

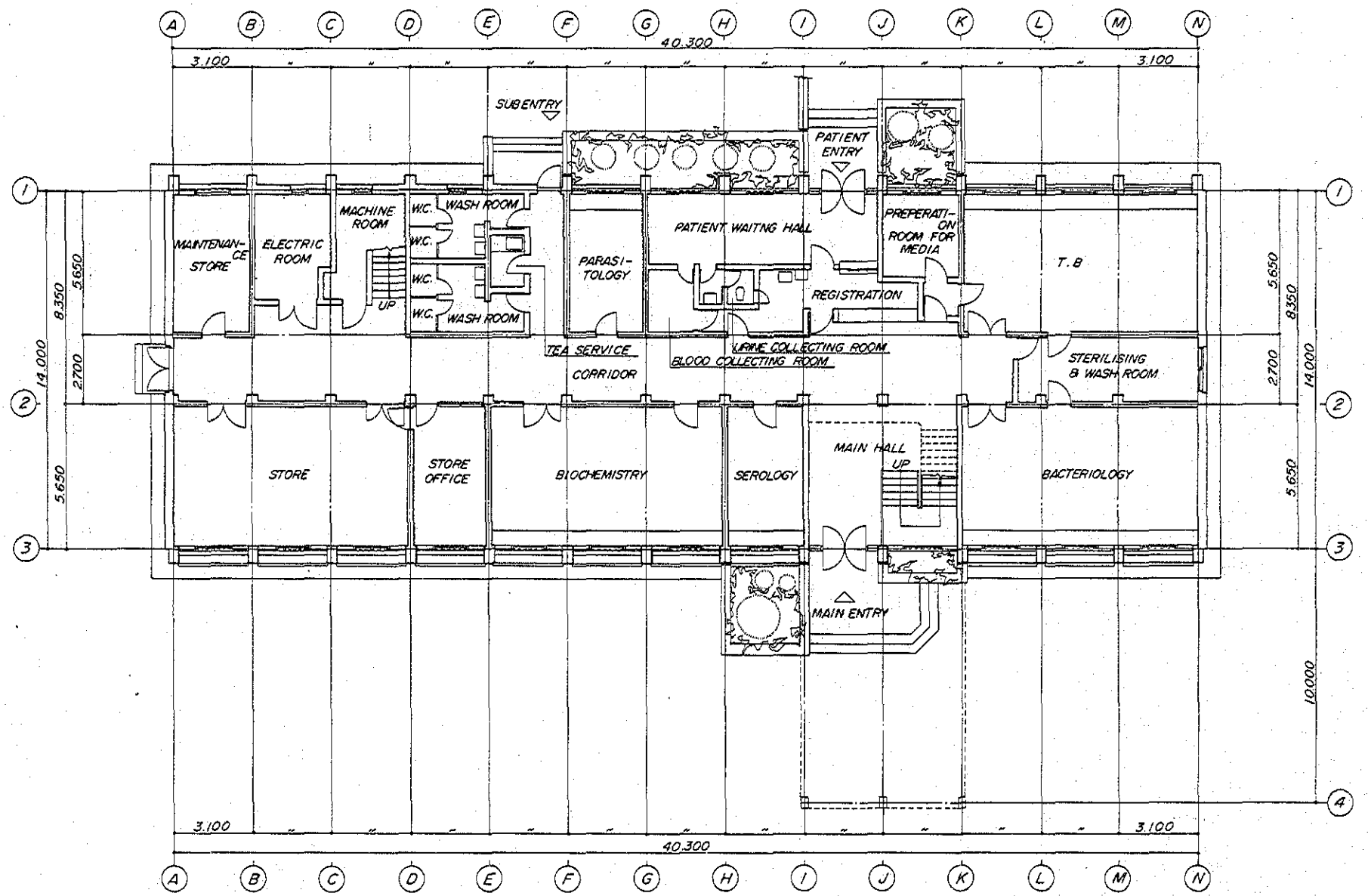
3-11. Design Drawings

Design drawings prepared for the present preliminary design are composed of the following:

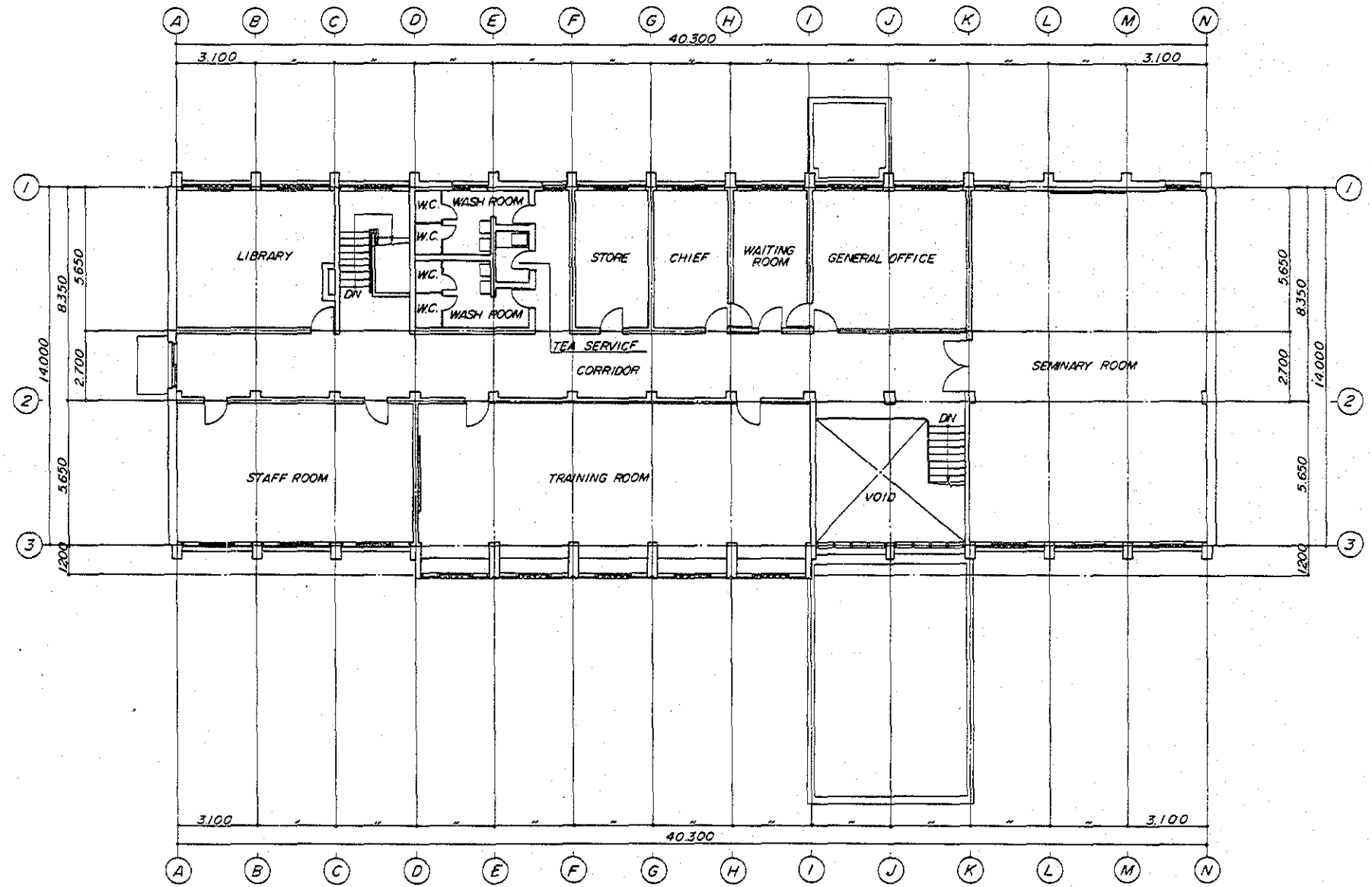
Drawing No.	Title
01	LABORATORY & DORMITORY SITE PLAN
02	LABORATORY GROUND FLOOR PLAN
03	LABORATORY FIRST FLOOR PLAN
04	LABORATORY ELEVATION SECTION
05	DORMITORY GROUND FLOOR PLAN
06	DORMITORY FIRST FLOOR PLAN
07	DORMITORY ELEVATION SECTION
08 ∿ 18	HEALTH POST SITE PLAN
19	HEALTH POST-(1) PLAN SECTION ELEVATION
20	HEALTH POST-(2) & W.C PLAN SECTION ELEVATION

LABORATORY & DORMITORY SITE PLAN 01

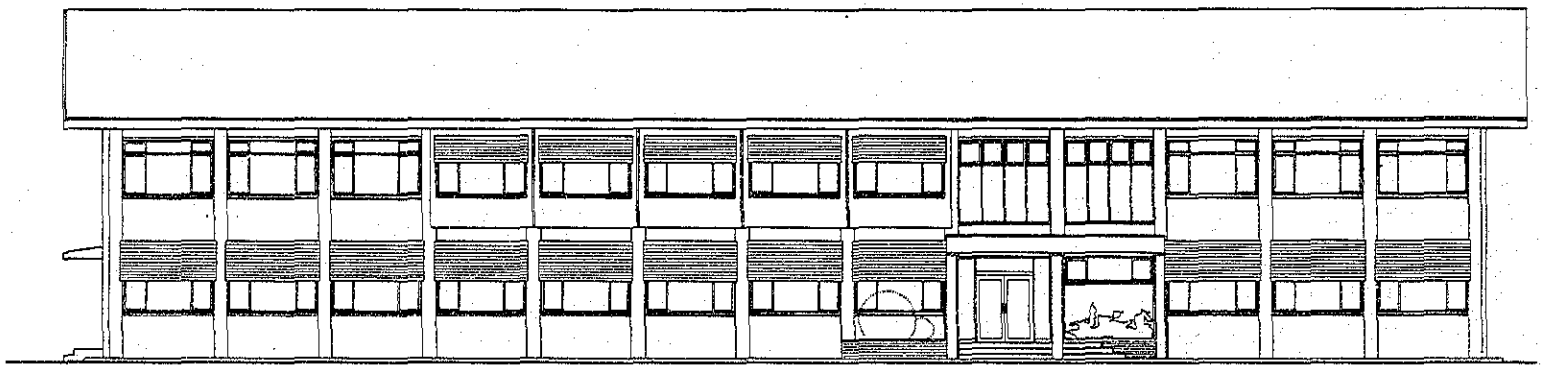




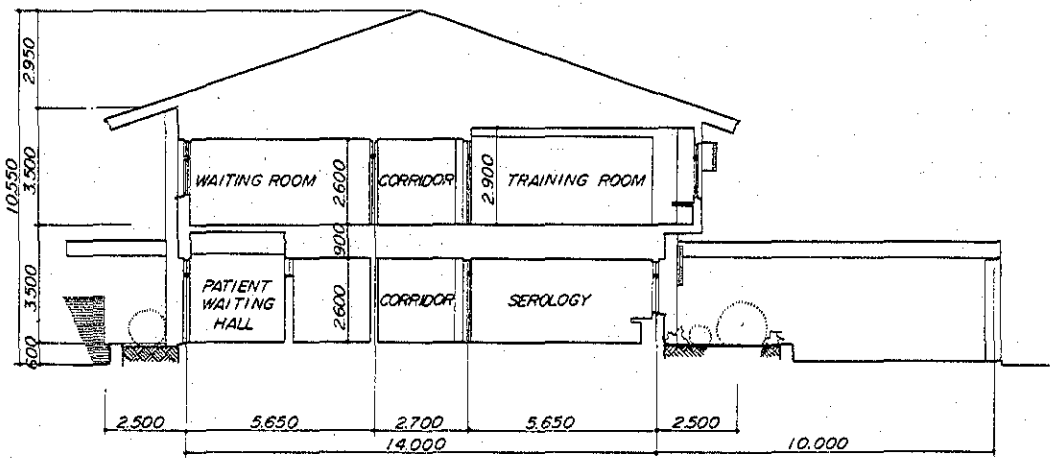
LABORATORY GROUND FLOOR PLAN 02



LABORATORY FIRST FLOOR PLAN 03

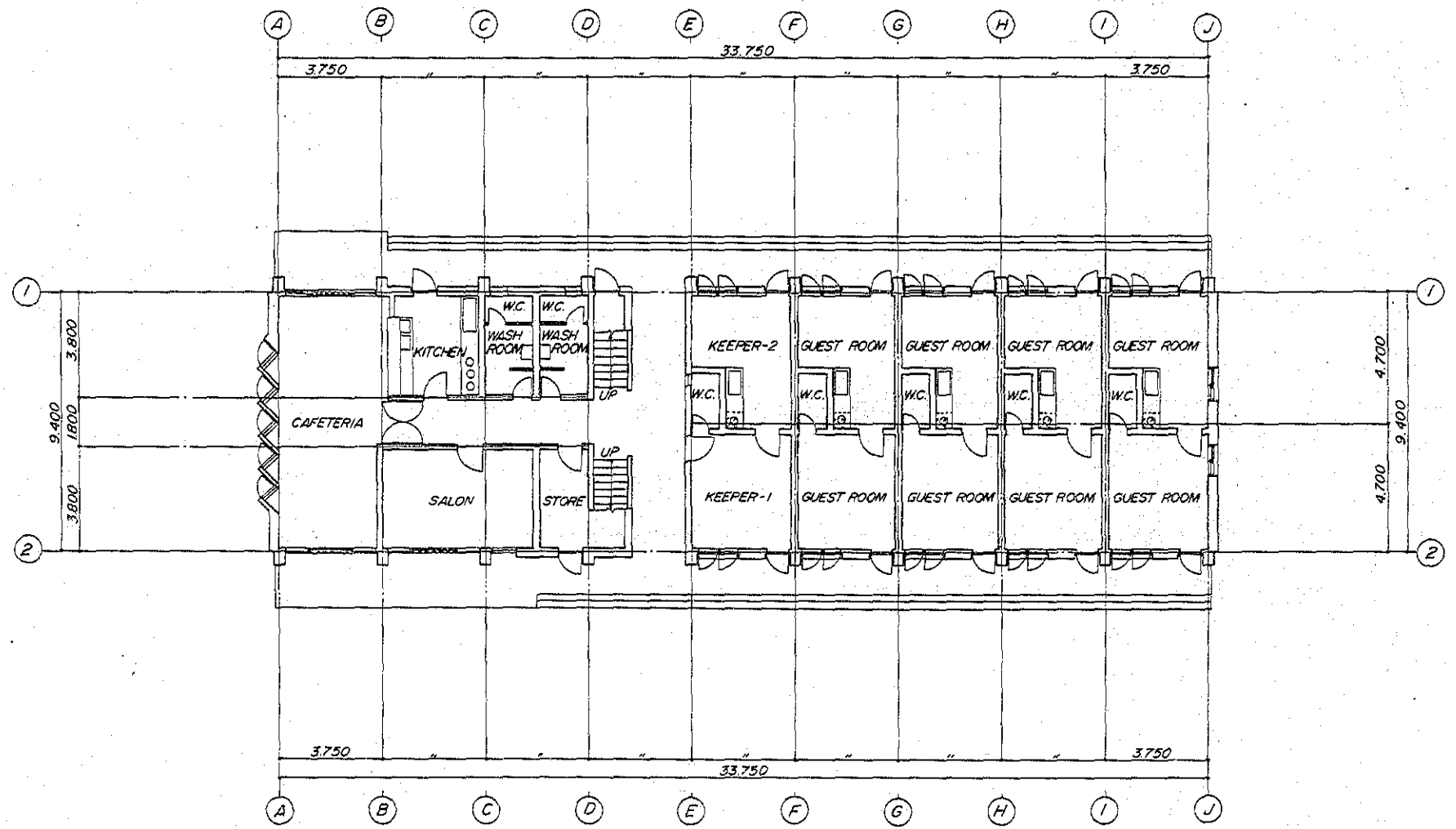


ELEVATION

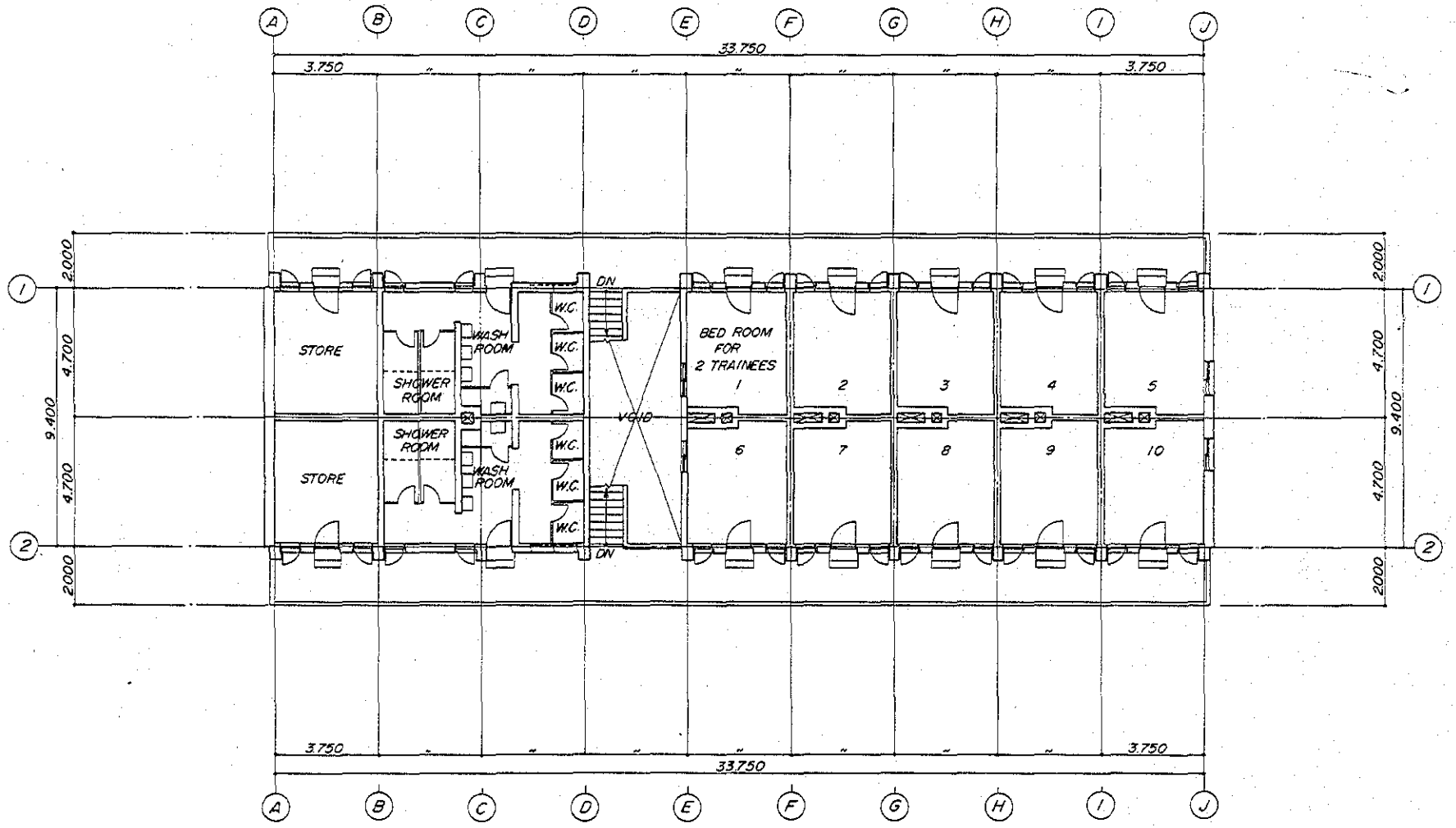


SECTION

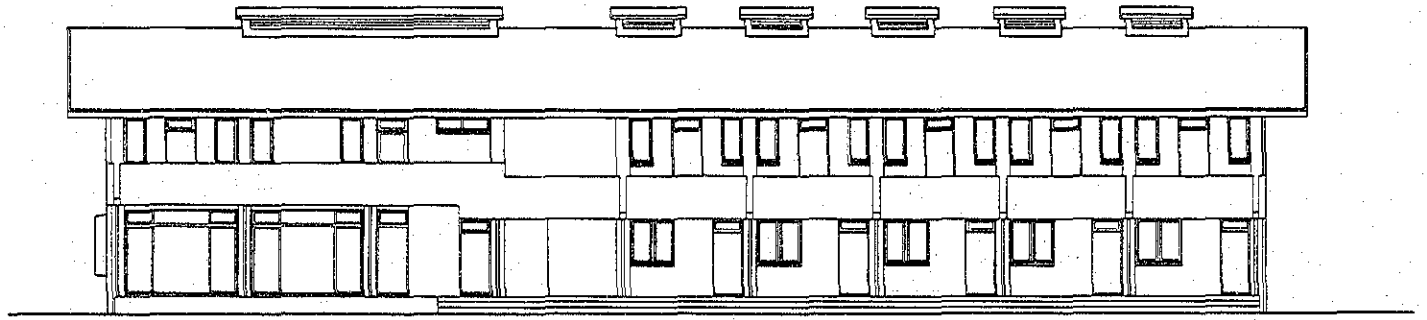
LABORATORY ELEVATION SECTION 04



DORMITORY GROUND FLOOR PLAN 05



DORMITORY FIRST FLOOR PLAN 06



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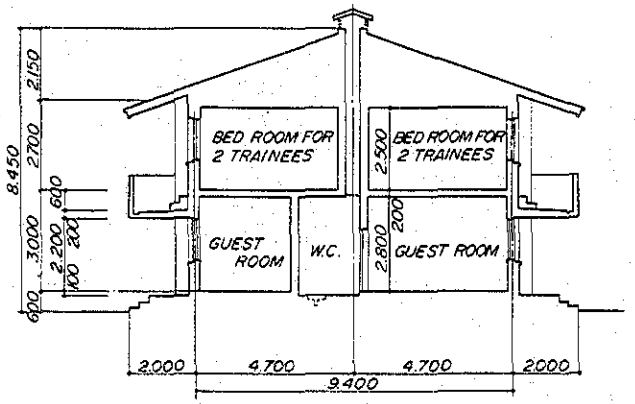

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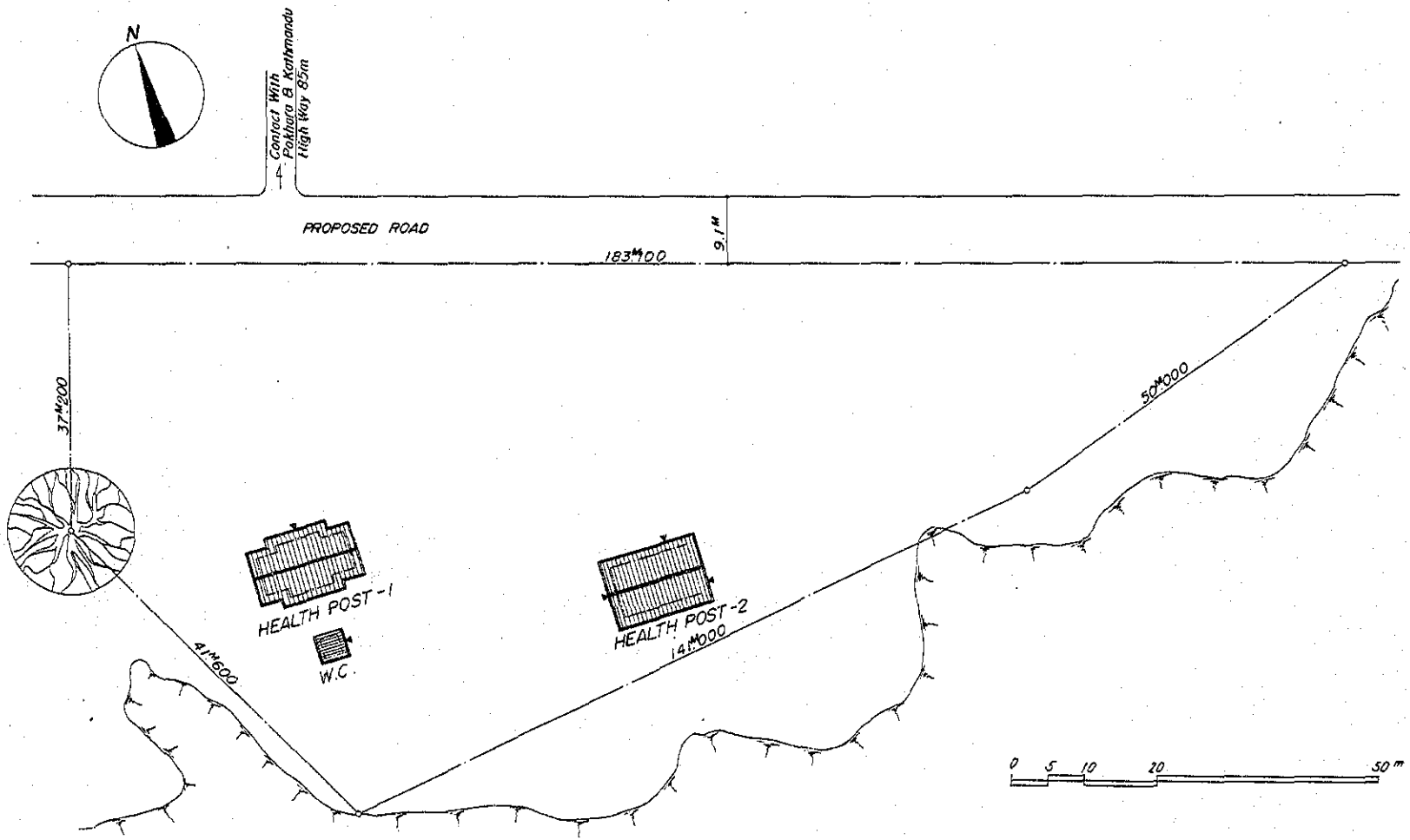
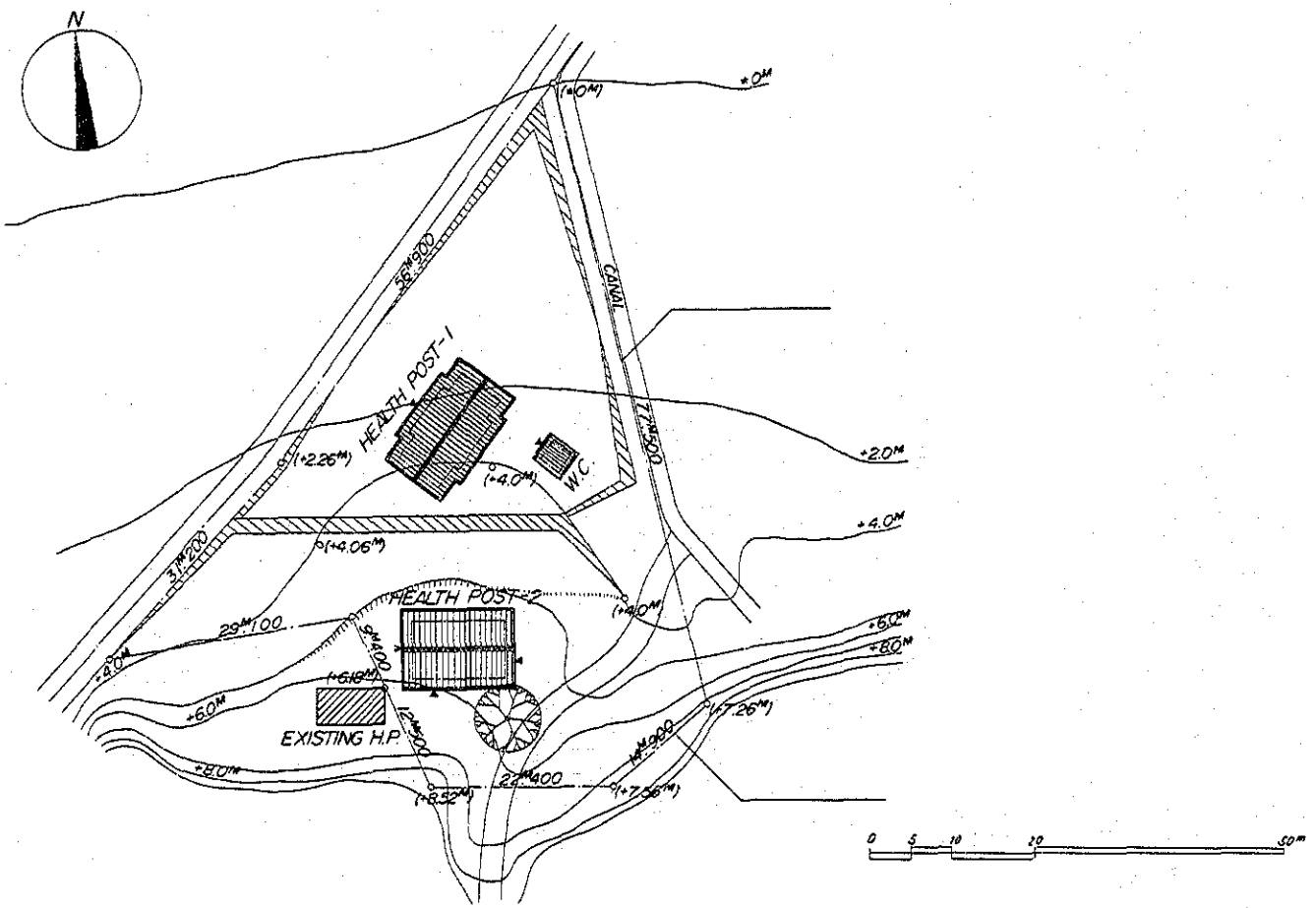
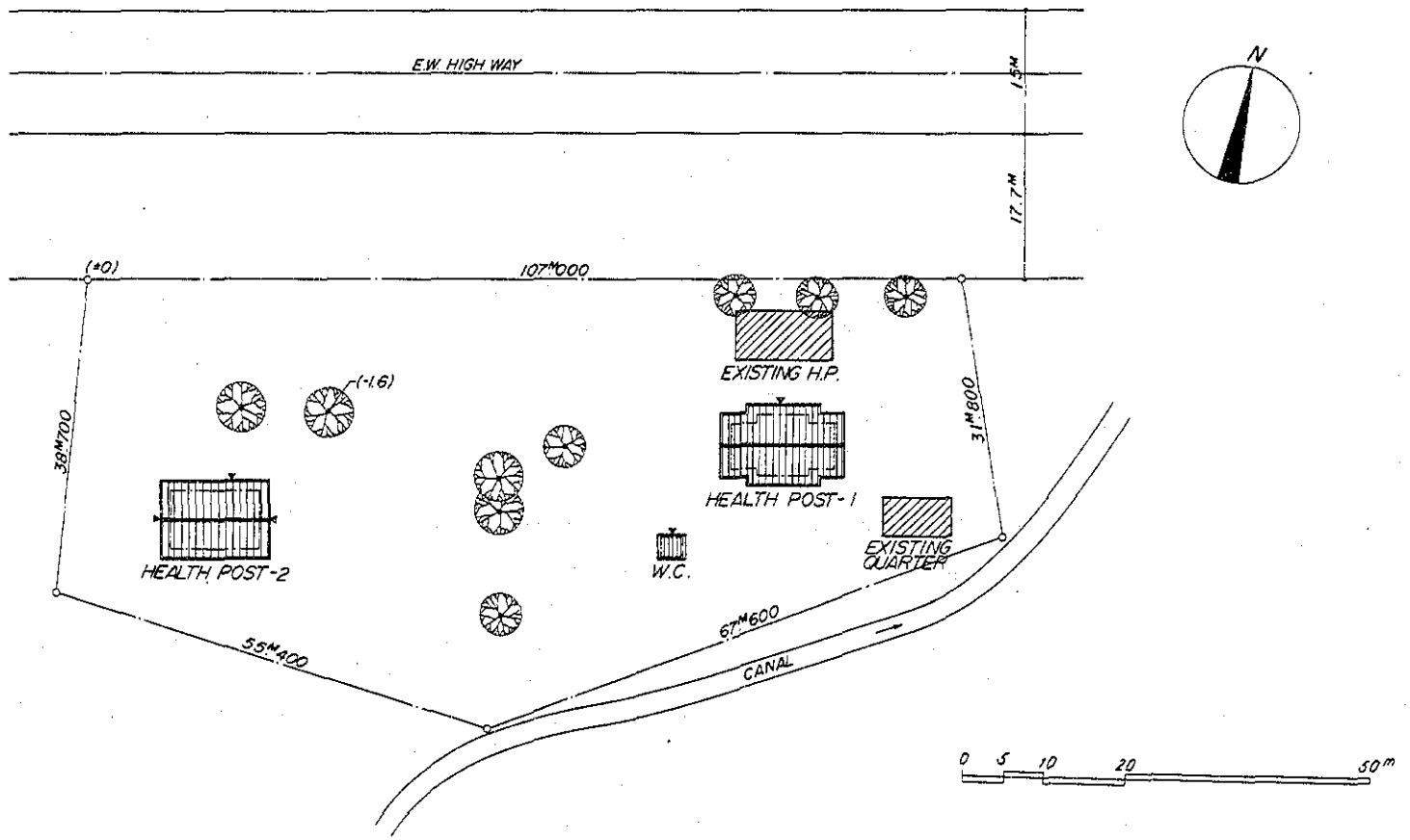


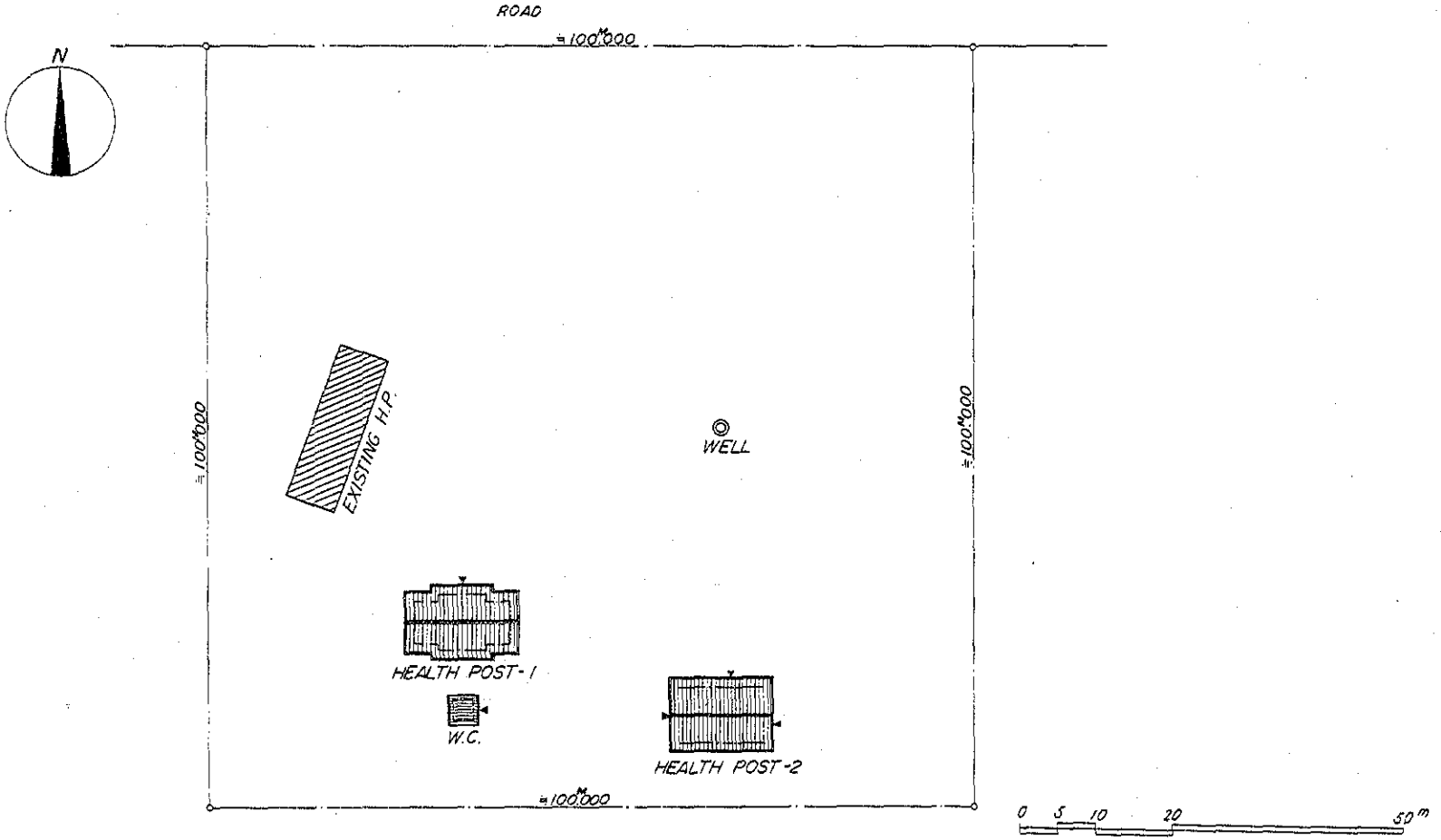
1. KAILANI H.P. SITE PLAN 08



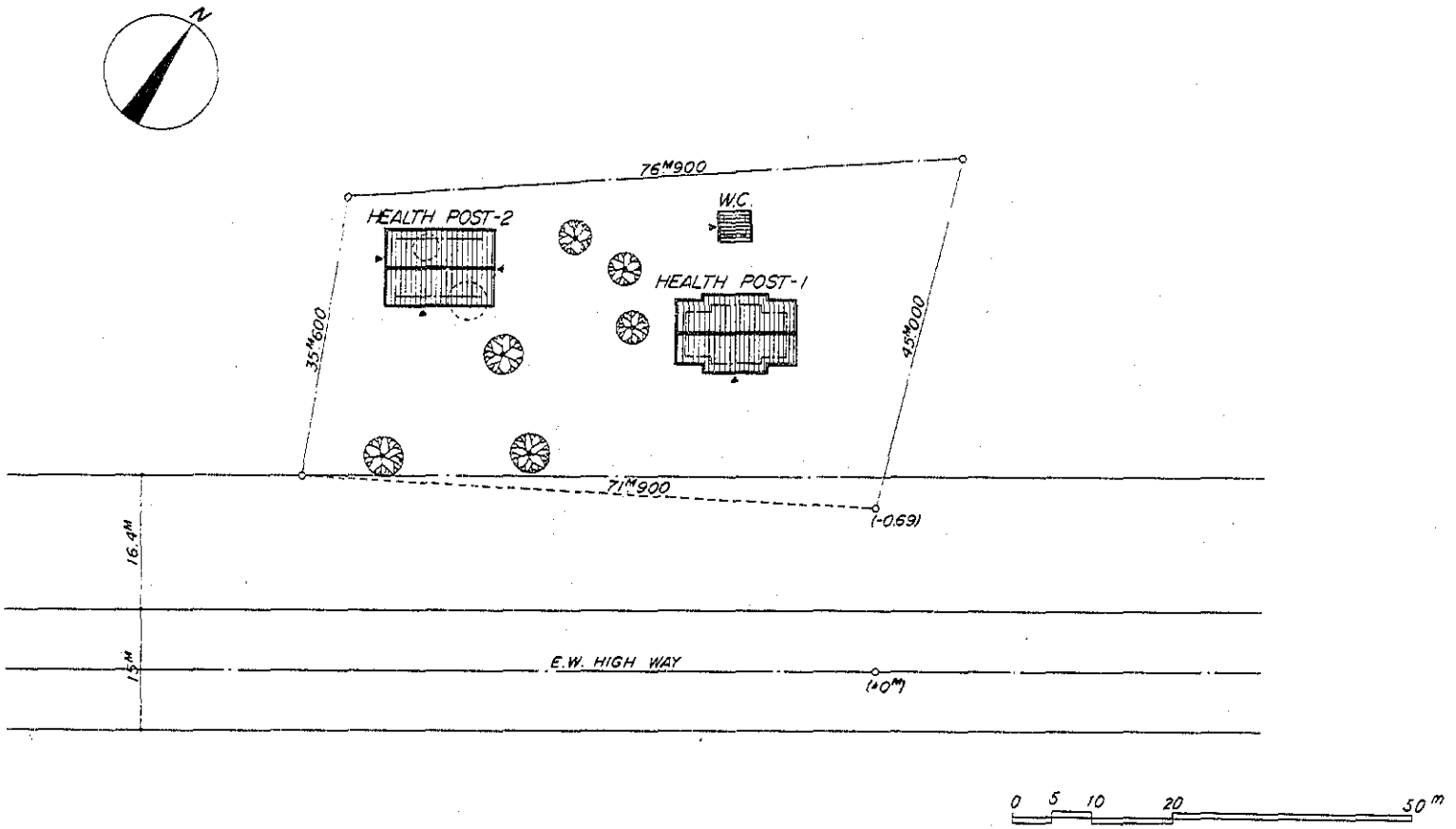
2. WALLING H.P. SITE PLAN 09



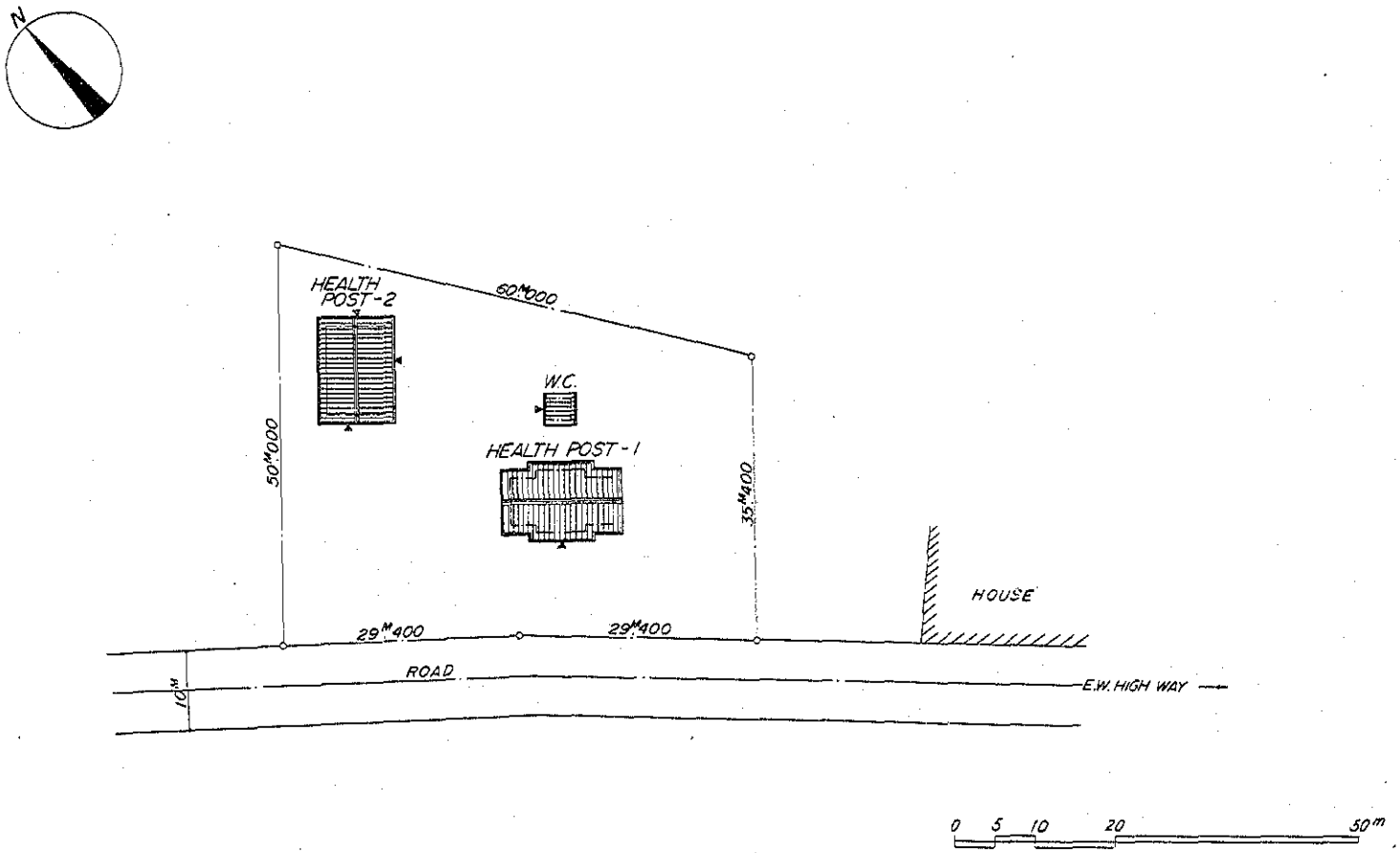
3. PITAUNGE H.P. SITE PLAN 10



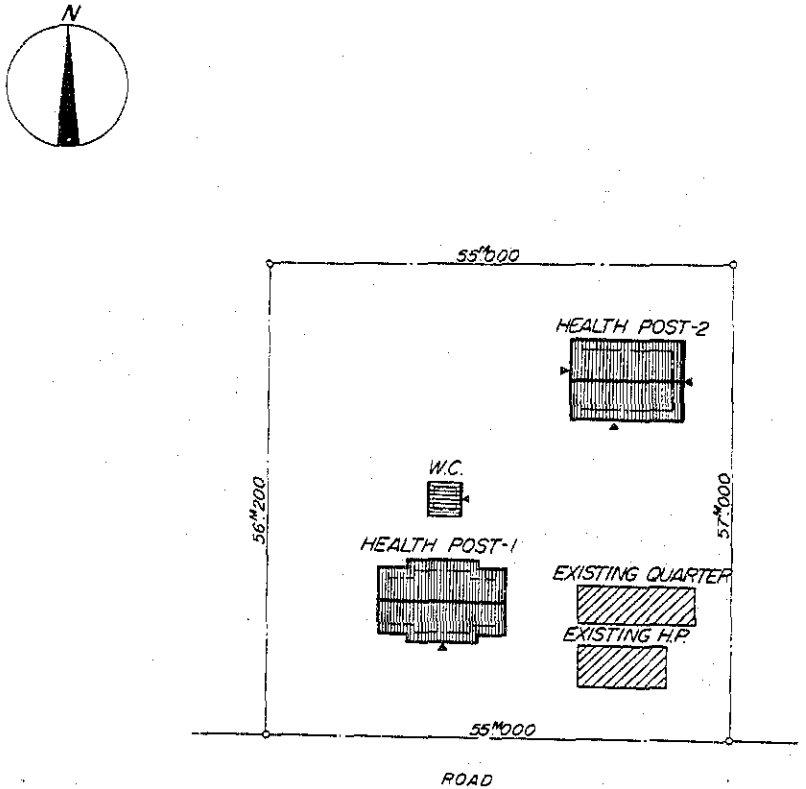
4. KALUWA H.P. SITE PLAN 11

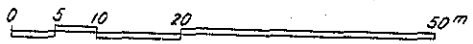


5. DUMUKAULI H.P. SITE PLAN 12

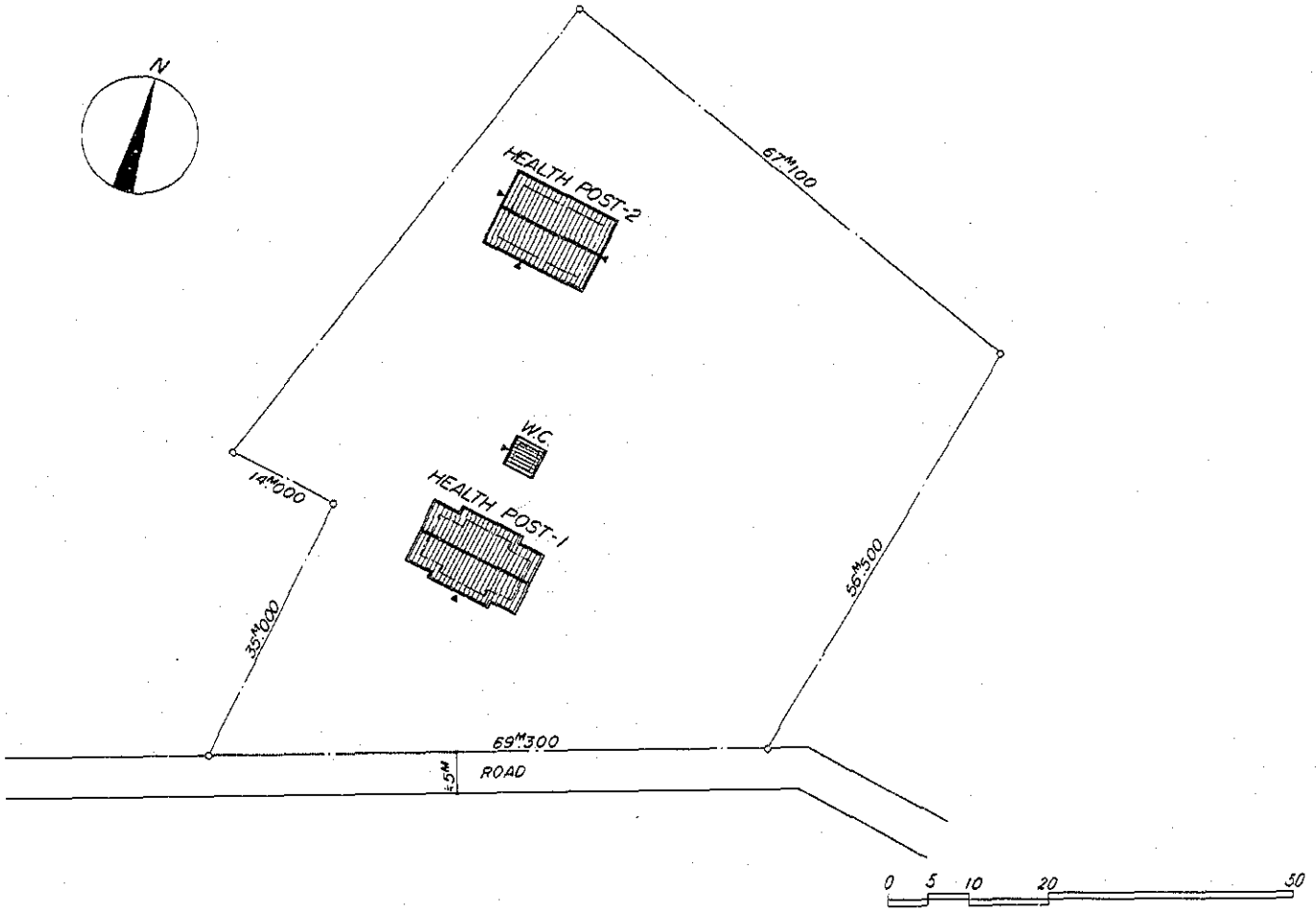


6. DUMKIBAS H.P. SITE PLAN 13

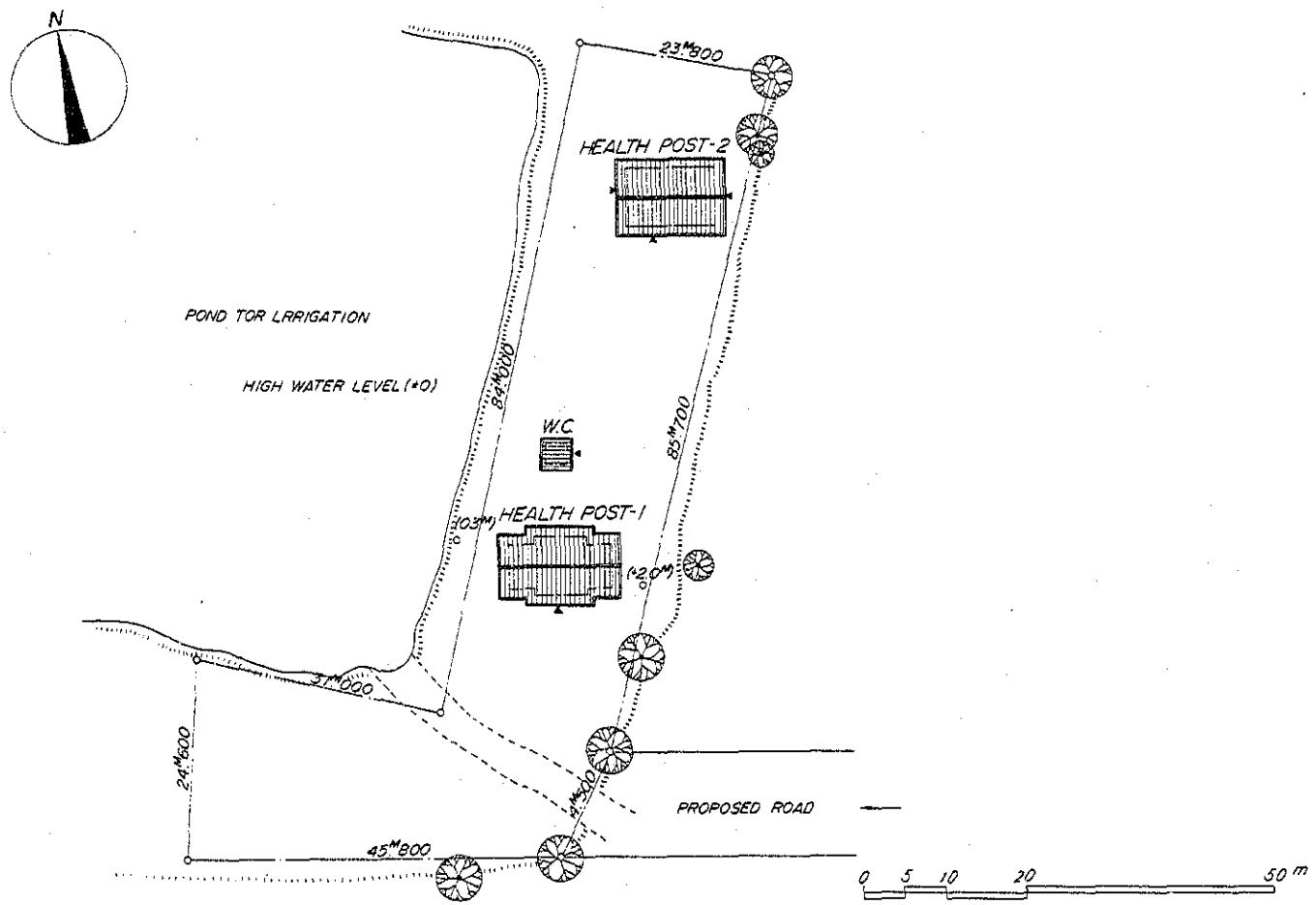




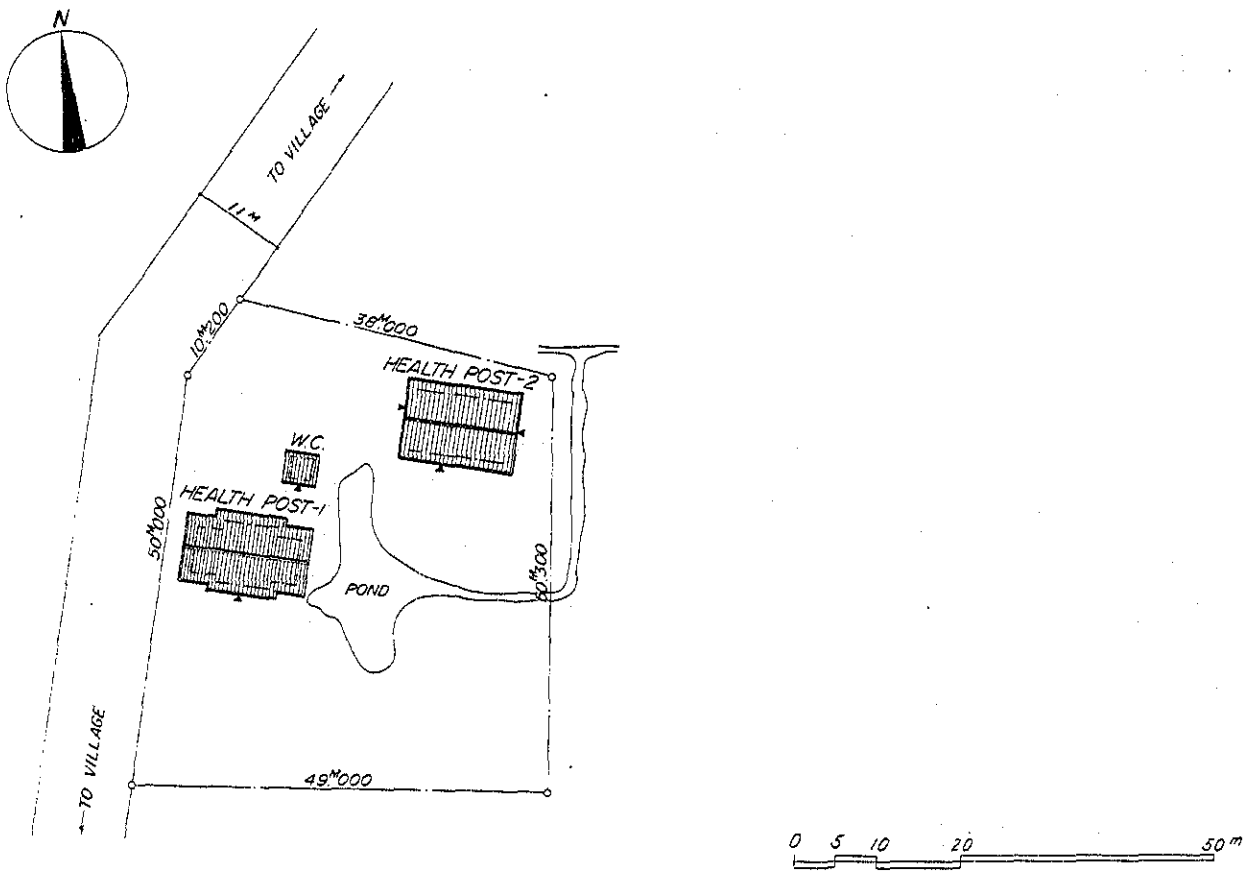
7. HATHUNSA H.P. SITE PLAN 14



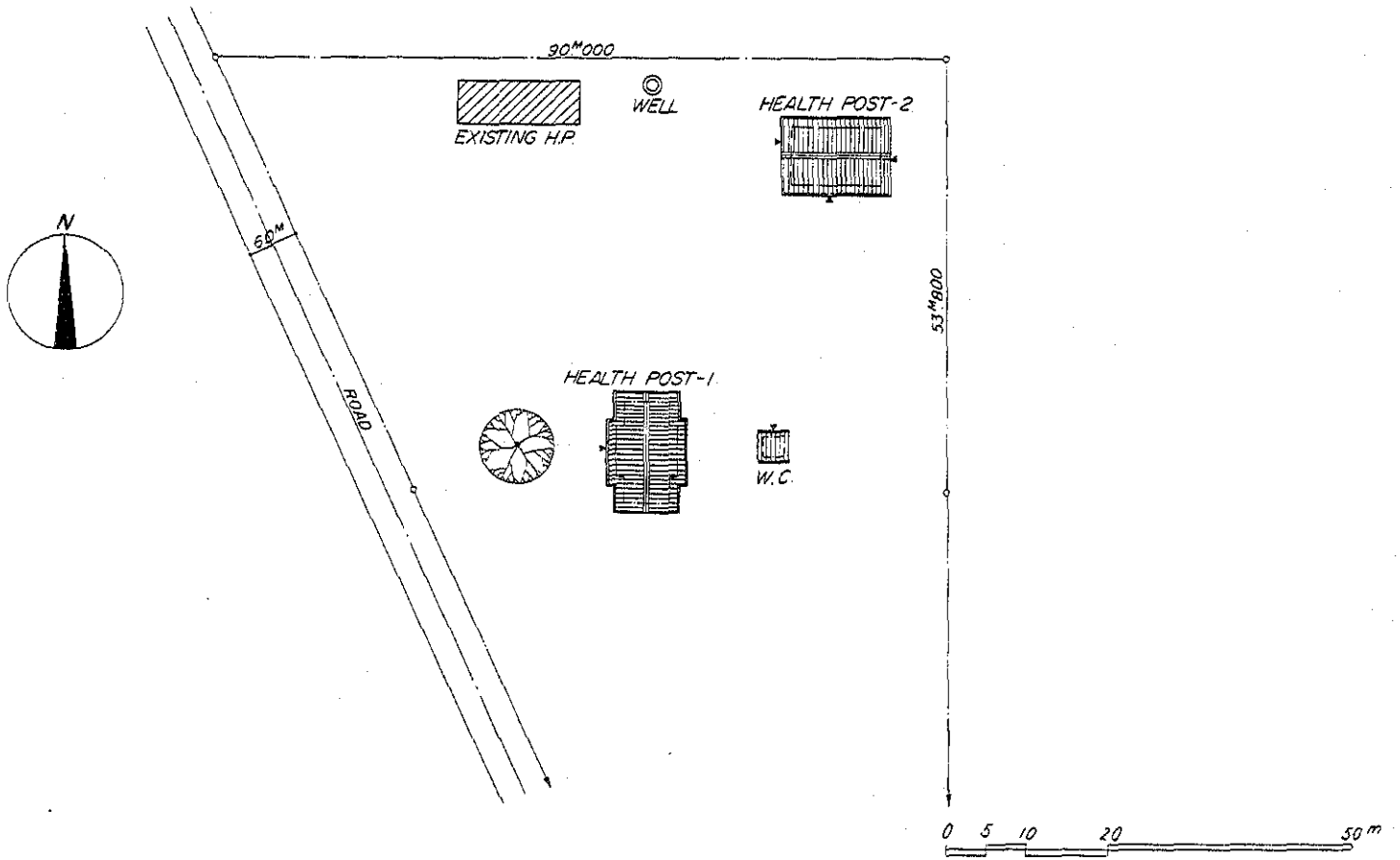
8. PATHARDAYA H.P. SITE PLAN 15



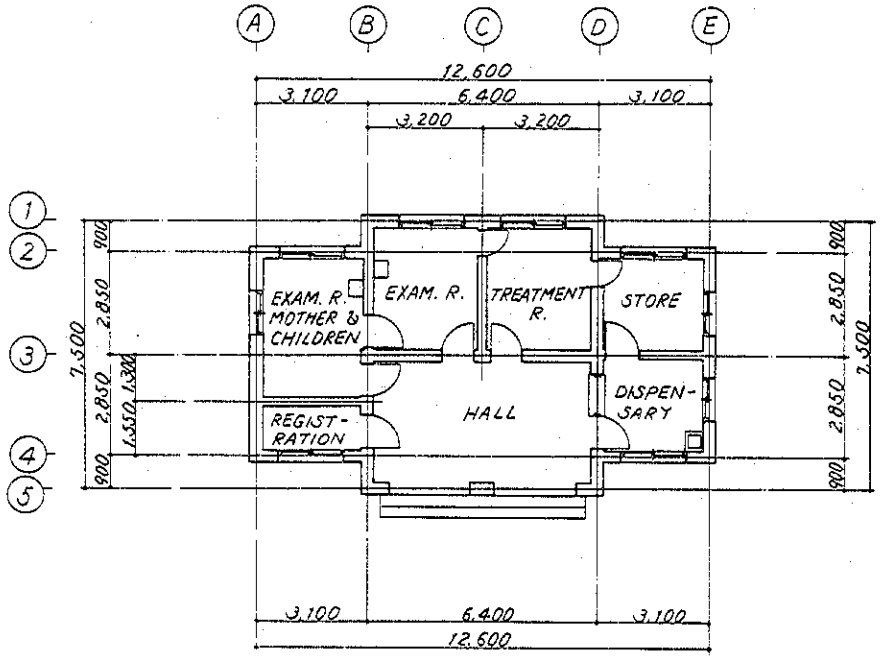
9. MAJGAWA H.P. SITE PLAN 16



11. KARMAHAWA H.P. SITE PLAN 17



12. SEMARA H.P. SITE PLAN 18



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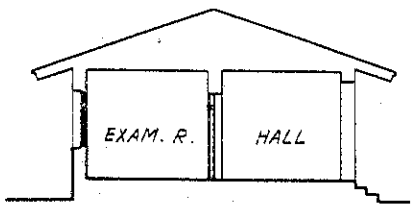

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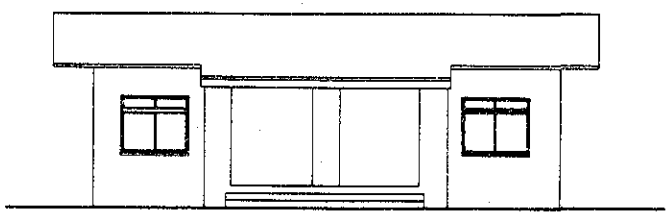

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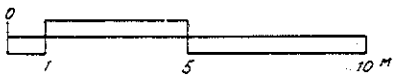
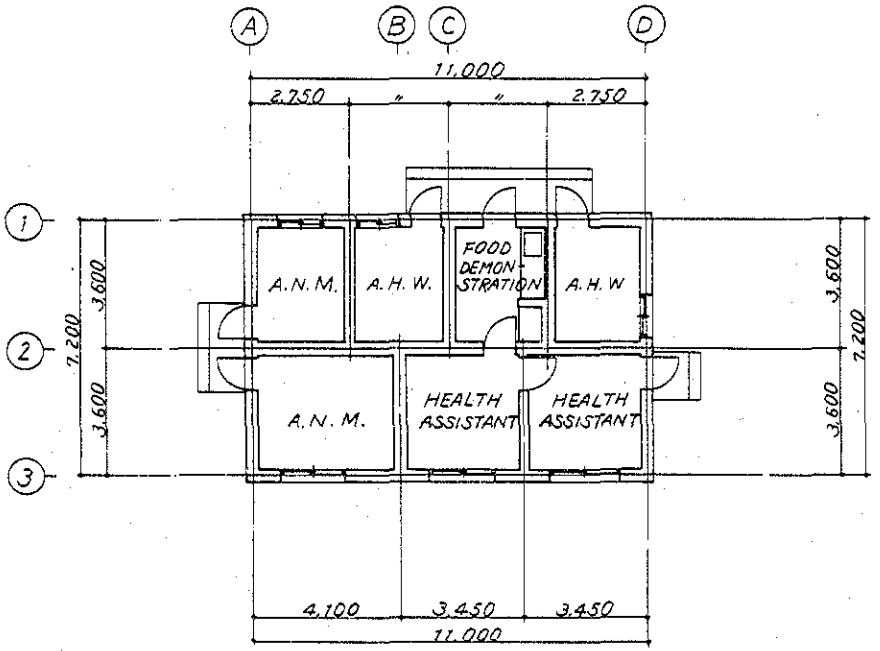


HEALTH POST-(1) PLAN SECTION ELEVATION 19



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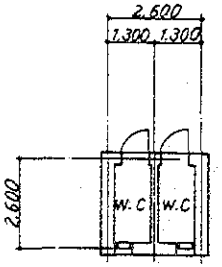
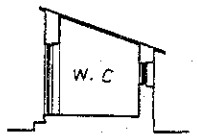


PLAN



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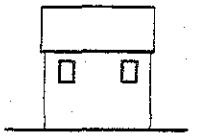

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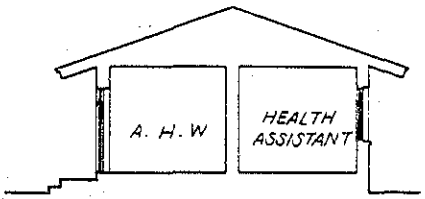

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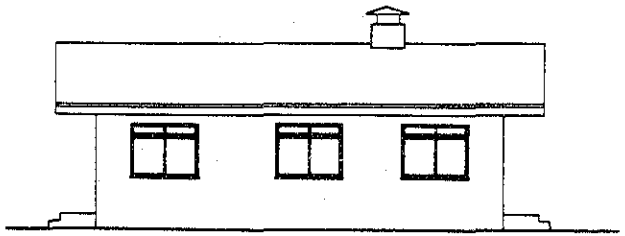

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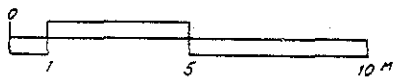

HEALTH POST-(2) & W.C. PLAN SECTION ELEVATION 20

APPENDIX-I

1. SCHEDULES OF SURVEY FOR BASIC DESIGN

1-1. Schedules of survey

Date	Activities	
Oct. 29 (Sat.)	Leave Tokyo	
30 (Sun.)	Arrive at Katmandu, visit to Japanese Embassy	
31 (Mon.)	Visit to Ministry of Health	
Nov. 1 (Tues.)	Disucssion at Ministry of Health	
2 (Wed.)	Discussion at Ministry of Health, visit to Central Health Laboratory for study.	
3 (Turs.)	Kathmandu → Pokhara	
4 (Fri.)	Discussion with authorities in Western Regioned Health Laboratory	
5 (Sat.)	Field Survey of sites suitable for Health Posts	
6 (Sun.)		
7 (Mon.)		
8 (Tues.)	Pokhara → Kathmandu (Aoki, Muemori, Hirose, Morimura, Saito)	(Other members) field survey and collection of materials
9 (Wed.)	Discussion at Ministry of Health, etc.	
10 (Thurs.)	Report to Japanese Embassy	
11 (Fri.)	(Aoki, Munemori, Hirose, Saito) Arrive in Tokyo	
12 (Sat.)		
13 (Sun.)		

Date	Activites
14 (Mon.)	Pokhara → Kathmandu
15 (Tues.)	Collection of materials
16 (Wed.)	
17 (Turs.)	
18 (Fri.)	Leave Kathmandu
19 (Sat.)	Arrive in Tokyo

I-2. Schedule of the Team for Preliminary Design Explanation and Supplementary Survey

Date	Activities
Feb. 3 (Fri.)	Leave Tokyo
4 (Sat.)	Arrive at Katmandu
5 (Sun.)	Visit to Japanese Embassy. Explanation of and discussion on preliminary design (draft) at Ministry of Health
6 (Mon.)	Discussion at Ministry of Health and at NCCN
7 (Tues.)	Visit Dr. Rana (Vice Superintendent of Gandaki Hospital), discussion with officials of Western Regioned Health Laboratory
8 (Wed.)	Dr. Aoki leave for Japan. Inspection of Health Post site in Khairani.
	Discussion with Dr. Bajracharya (Superintendent of Western Regional Health Laboratory) and Dr. Rana (Vice Superintendent of Gandaki Hospital).
9 (Turs.)	Inspection of Health Post site in Walling
10 (Fri.)	Inspection of Health Post sites in Pitaunge and Kaluwa
11 (Sat.)	Inspection of Health Post sites in Dumkauli and Dumkibas
12 (Sun.)	Inspection of Health Post site in Hathunsa
13 (Mon.)	Inspection of Health Post site in Pathardaya
14 (Tues.)	Inspection of Health Post sites in Majgawa and Rayapur
15 (Wed.)	Inspection of Health Post sites in Karmahawa and Semara
16 (Turs.)	Visit Governor (Pokhara)
17 (Fri.)	Inspection of sites of laboratory and dormitory
18 (Sat.)	Pokhara → Kathmandu
19 (Sun.)	Collection of information about construction materials and costs

Date	Activities
20 (Mon.)	Final discussion at Ministry of Health
21 (Tues.)	Discussion with concerned parties
22 (Wed.)	Visit to Ministry of Health and Japanese Embassy
23 (Thurs.)	Leave Katmandu
24 (Fri.)	Arrive in Tokyo