

STRUCTURAL STANDARD DRAWING

ABBREVIATIONS

- C : COLUMN
- G : GIRDER
- B : BEAM
- S : SLAB
- W : WALL
- WG : CONCRETE WALL GIRDER
- FG : FOOTING BEAM
- F : FOUNDATION
- FS : GROUND LEVEL SLAB
- ST : STAIR
- V : BRACING
- J : JOINT
- TG : TOP CHORD
- TP : WEB MEMBER
- T : TIE
- TB : PURLIN
- A : BASE

REINFORCED CONCRETE WORK

2.1. MATERIALS AND DESIGN STRENGTH

1) CONCRETE

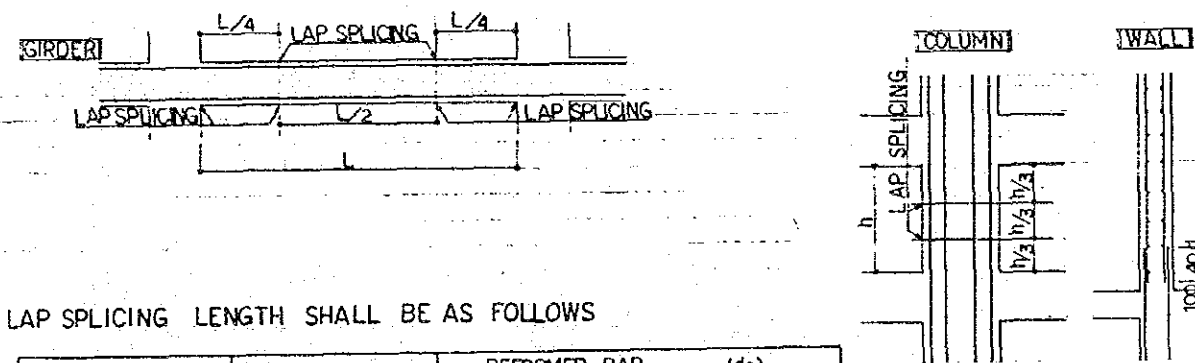
DESIGN COMPRESSIVE STRENGTH AT 28 DAYS	180 kg/cm ²
CEMENT	NOT LESS THAN 260 kg/m ³
SLUMP	12 cm
MAX. SIZE OF COARSE AGGREGATE	25 mm
MAX. SIZE OF FIN AGGREGATE	2.5 mm
CONCRETE ADMIXTURE	SURFACE ACTIVE AGENT
GRAUTY	2.3

2) REINFORCEMENT

- PLAIN BAR YIELD STRENGTH 25.3 kg/mm² (d: PLAIN BAR)
- DEFORMED BAR YIELD STRENGTH 43.3 kg/mm² (D: DEFORMED BAR)
- SYMBOLS OF BAR SIZE ARE AS FOLLOWS ; • D10 / x D12 / - D16 / • D 20

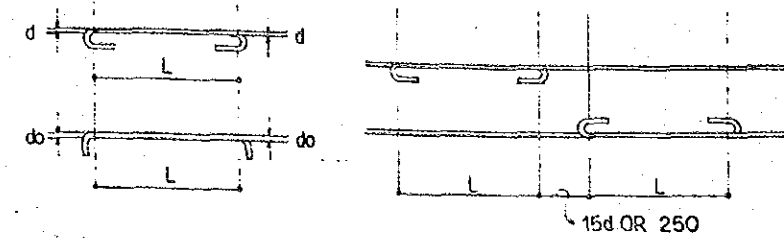
2.2. LAP SPICING

- 1) ALL LAP SPICING SHALL BE LAP JOINTS.
- 2) LOCACION OF LAP SPICING SHALL BE AS SHOWN BELLOW



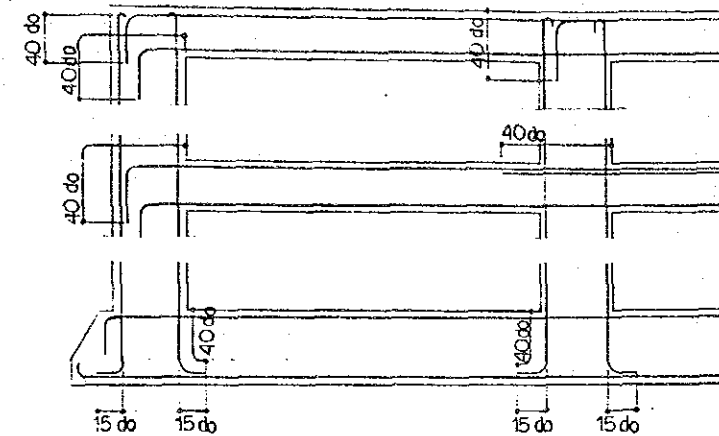
	ROUND BAR (d)	DEFORMED BAR (do)	
		W/HOOK	W/O HOOK
GROUND LEVEL SLAB (FS)	30d	20do	30do
WALL (W)	30d	30do	40do

- LENGTH OF LAP SPICINGS LOCATED OTHER THAN SPECIFIED ABOVE SHALL BE 40 do
- LAP SPICING LENGTH AND LOCATION OF EACH ADJOING LAP SPICING SHALL BE AS SHOWN BELOW



2.3. ANCHORING

1) ANCHORING AT THE END OF BEAM AND BOTTOM OF COLUMN



• HOOKS ARE REQUIRED AT PROJECTED PARTS AND AT COLUMN TOPS.

3. BRICK WORK

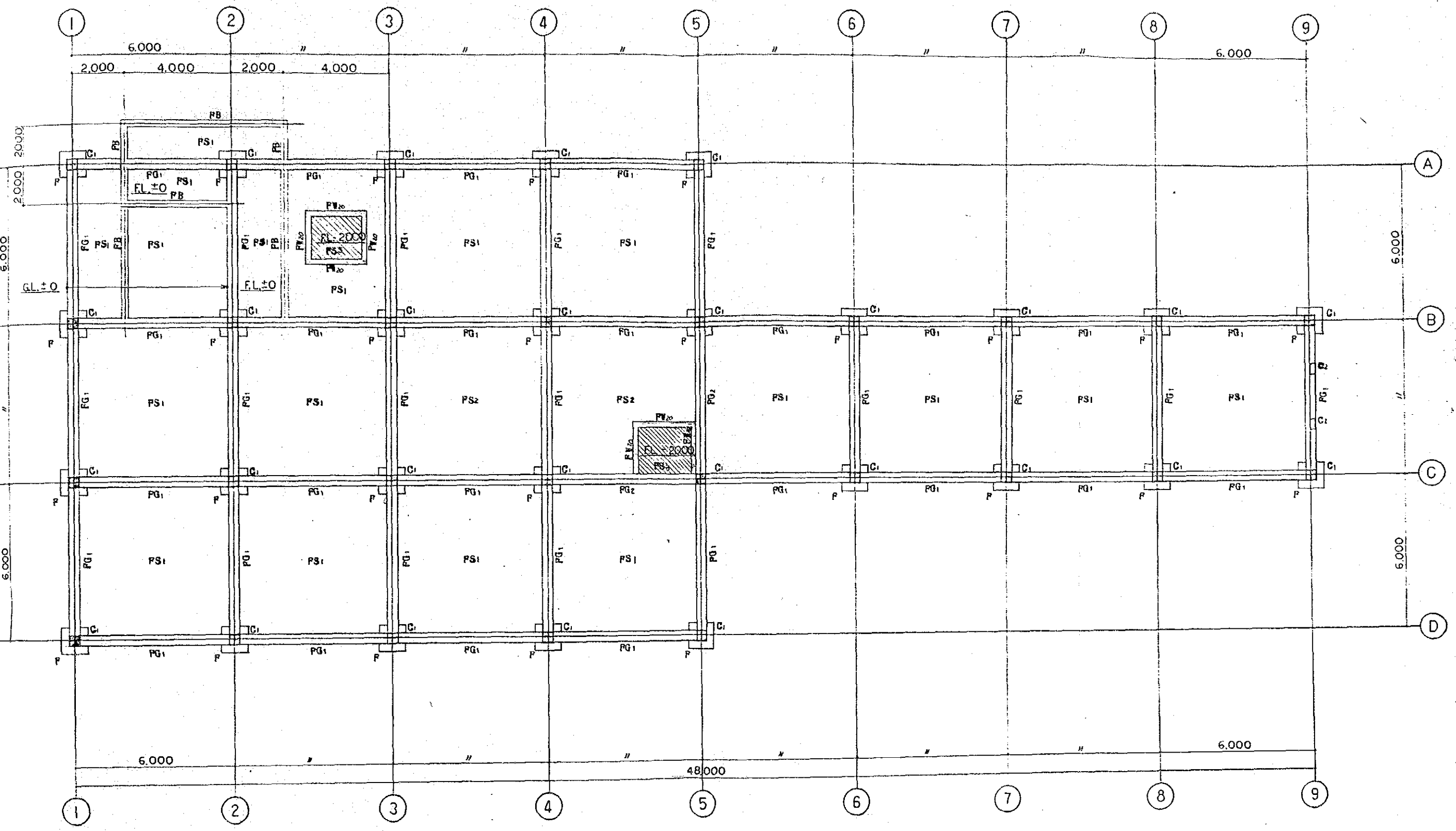
• SEE DETAIL NO. P-4

4. STEEL CONSTRUCTION

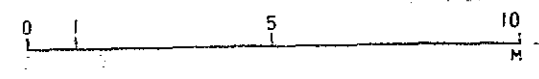
4.1. MATERIALS

	MATERIAL	SHAPE	REMARKS
TOP CHORD	EQUAL - LEG ANGLE	SS 41	
WEB MEMBER	EQUAL - LEG ANGLE		
TIE	EQUAL - LEG ANGLE		
BRACING	ROUND BAR		WITH TURN BACKLE
PURLIN	EQUAL - LEG ANGLE		
BASE	STEEL PLATE		
JOINT	BOLT		

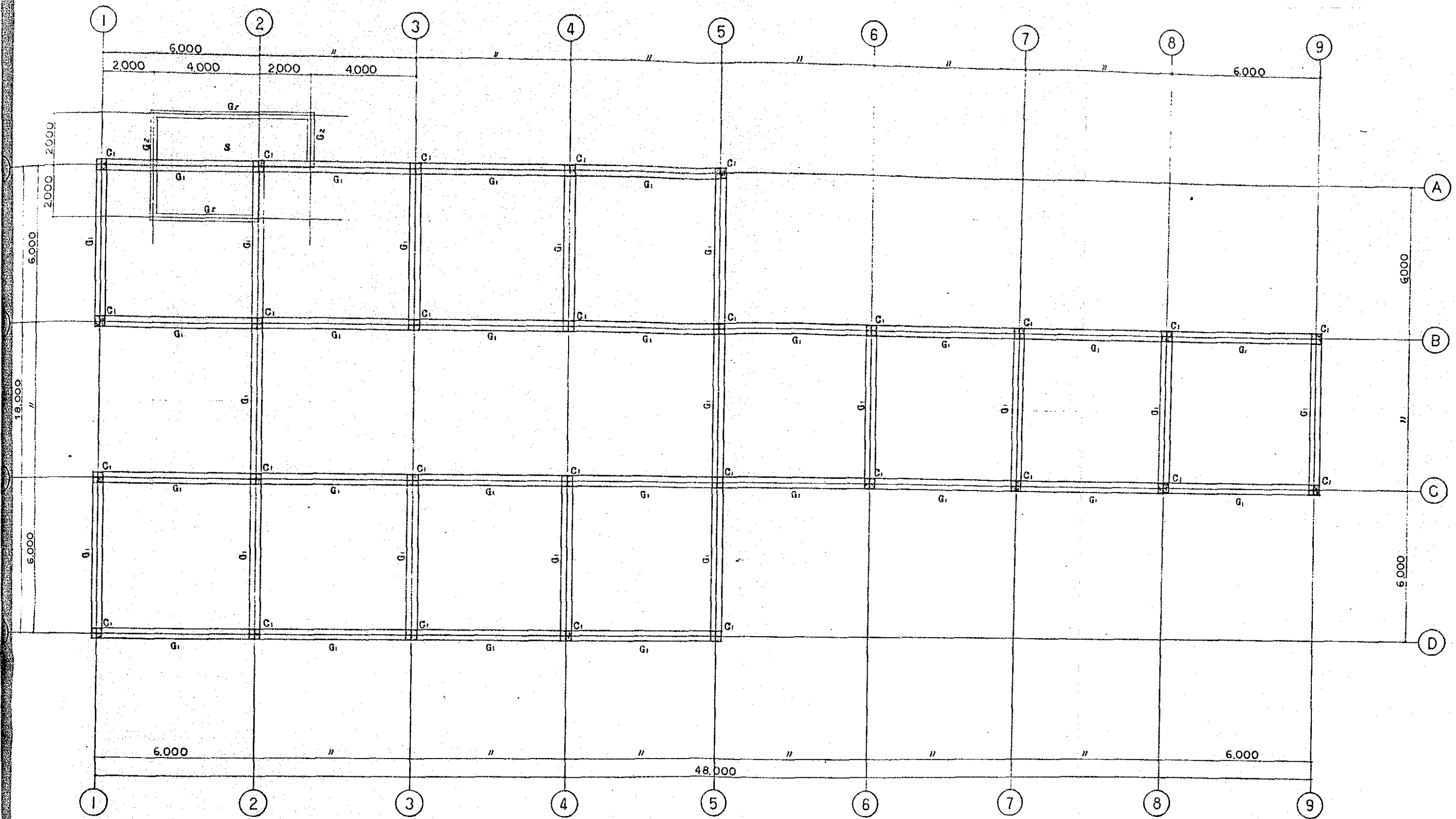
MAHAWELI AUTHORITY OF SRI LANKA
INTEGRATED AGRICULTURE DEVELOPMENT
DEMONSTRATION PROJECT IN MAHAWELI AREA
PLANT BUILDING
STRUCTURE DETAILS (1)
JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO, JAPAN
DWG No. B-8



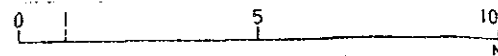
GROUND LEVEL FRAMING PLAN 1/100



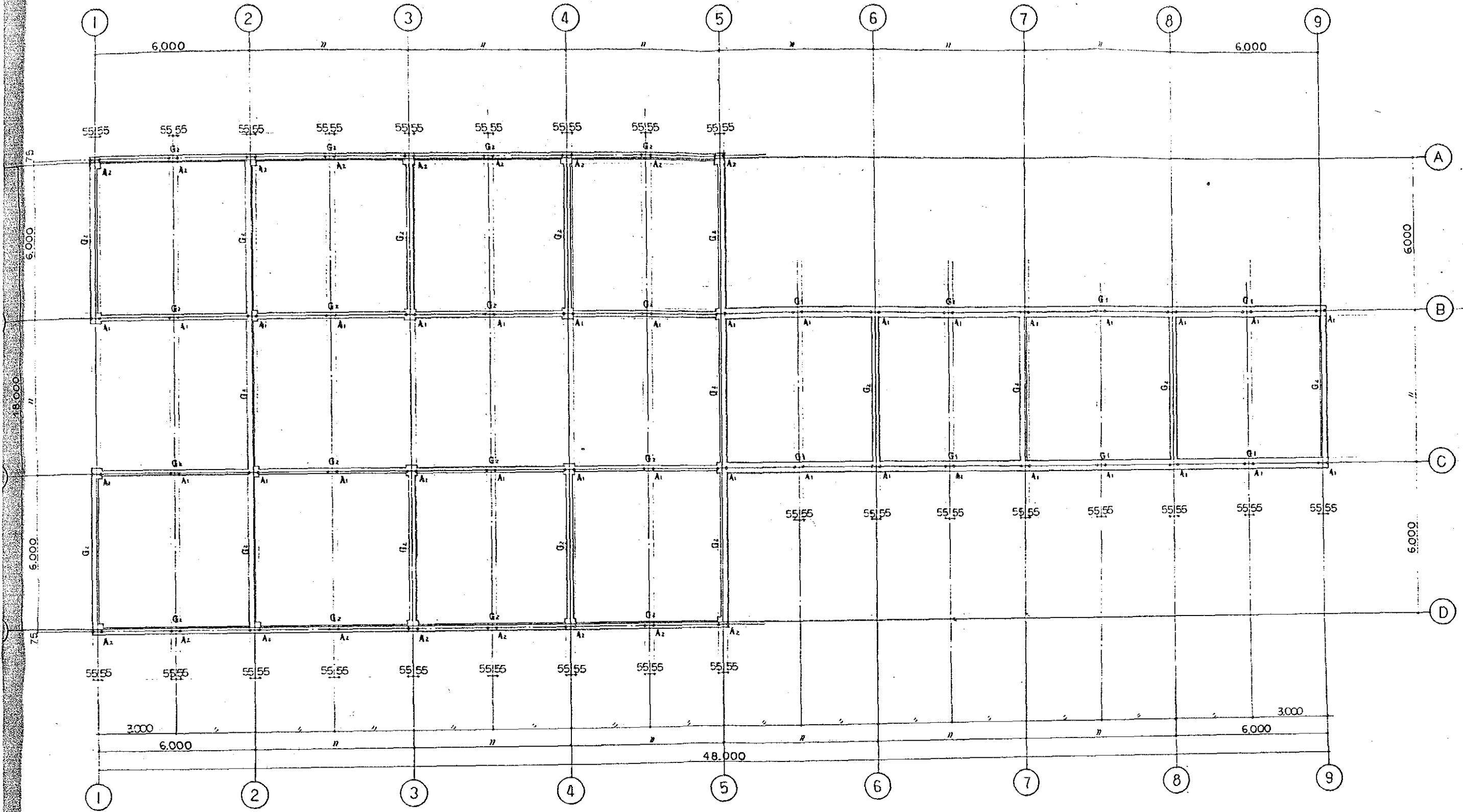
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PLANT BUILDING	
STRUCTURE DETAILS (2)	
JAPAN INTERNATIONAL COOPERATION AGENCY	
TOKYO, JAPAN	DWG No. B-9



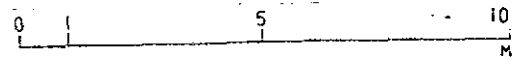
G.L. + 5.300 LEVEL FRAMING PLAN 1/100



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PLANT BUILDING	
STRUCTURE DETAILS (3)	
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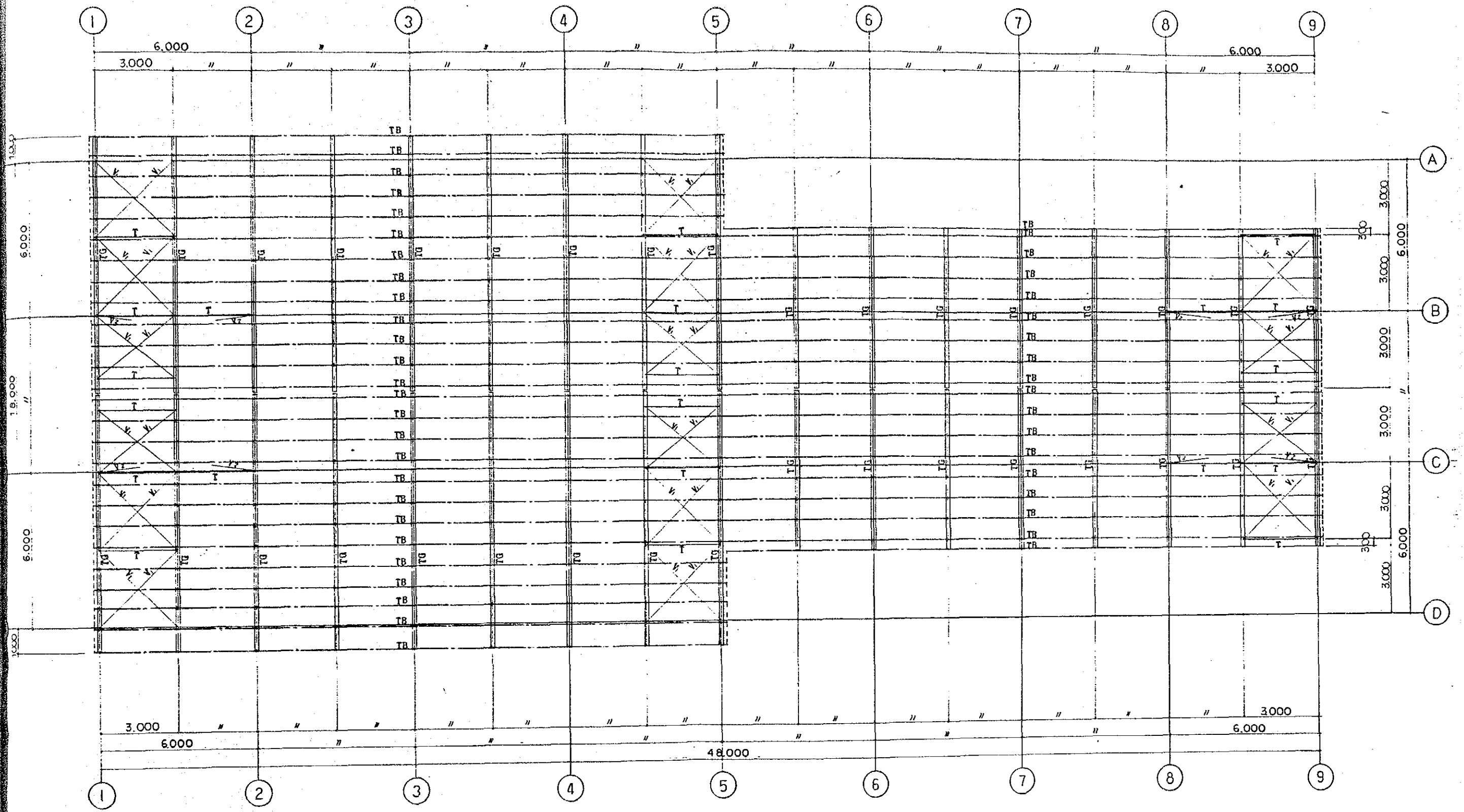


G.L. + 9300 LEVEL FRAMING PLAN 1/100

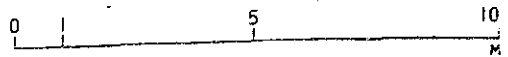


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 STRUCTURE DETAILS (4)

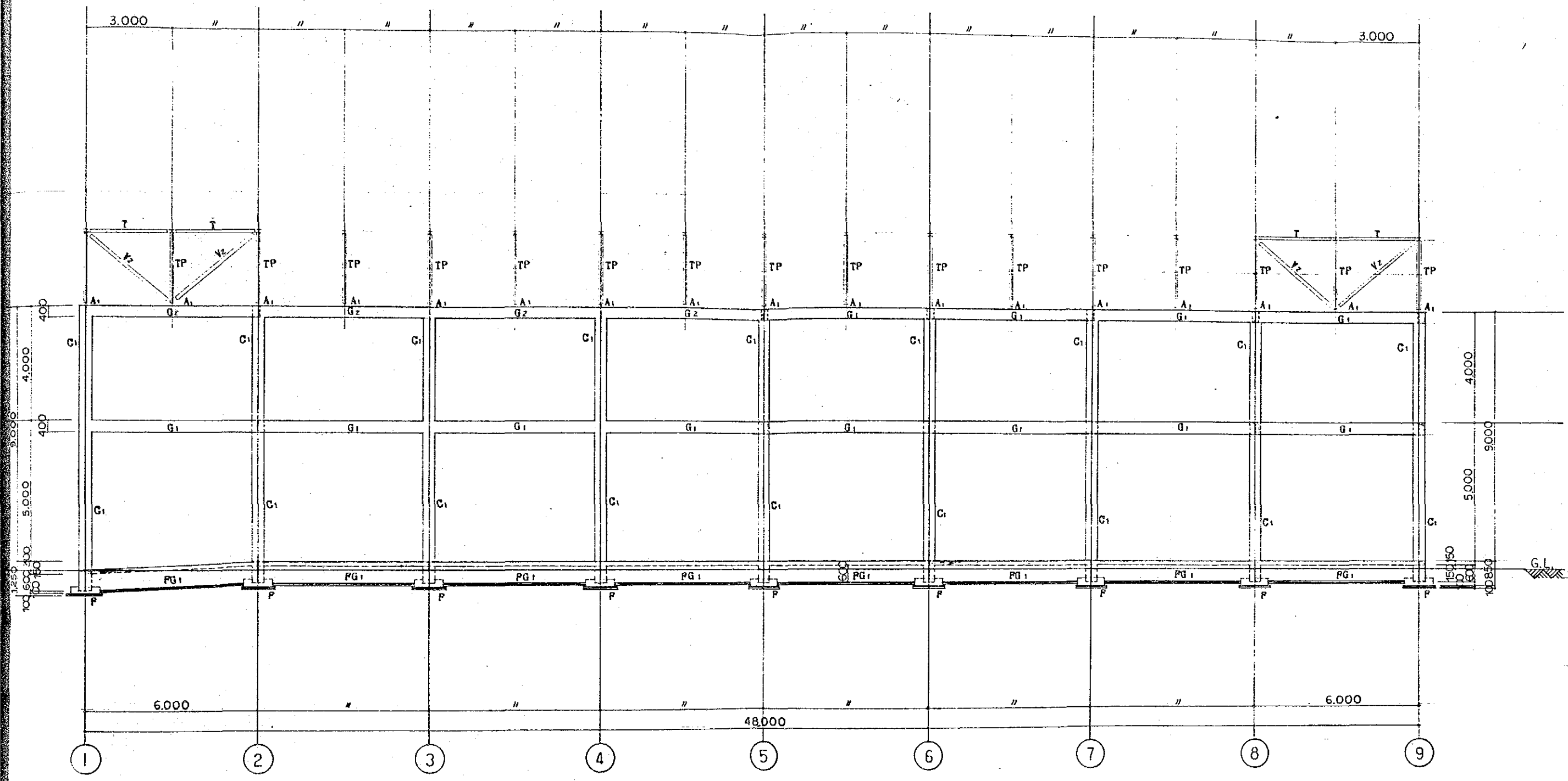
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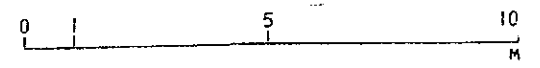
ROOF LEVEL FRAMING PLAN 1/100



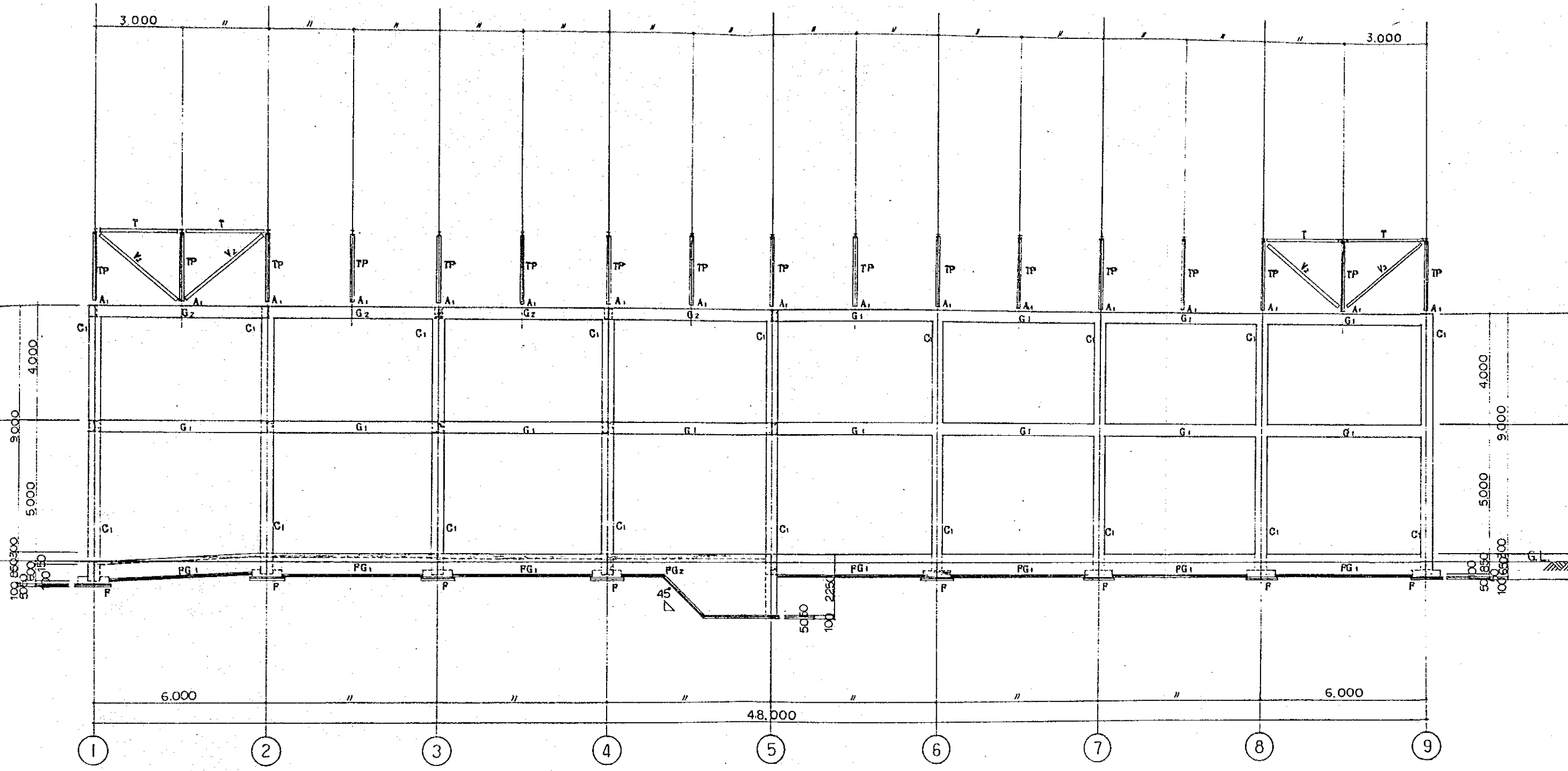
MAHAWELI AUTHORITY OF SRI LANKA	
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PLANT BUILDING	
STRUCTURE DETAILS (5)	
JAPAN INTERNATIONAL COOPERATION AGENCY	
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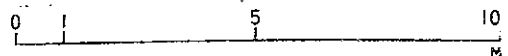
B. FRAME ELEV. 1/100



MAHAWELI AUTHORITY OF SRI LANKA INTEGRATED AGRICULTURE DEVELOPMENT DEMONSTRATION PROJECT IN MAHAWELI AREA	
PLANT BUILDING STRUCTURE DETAILS (6)	
JAPAN INTERNATIONAL COOPERATION AGENCY TOKYO, JAPAN	
DWG No. B-13	



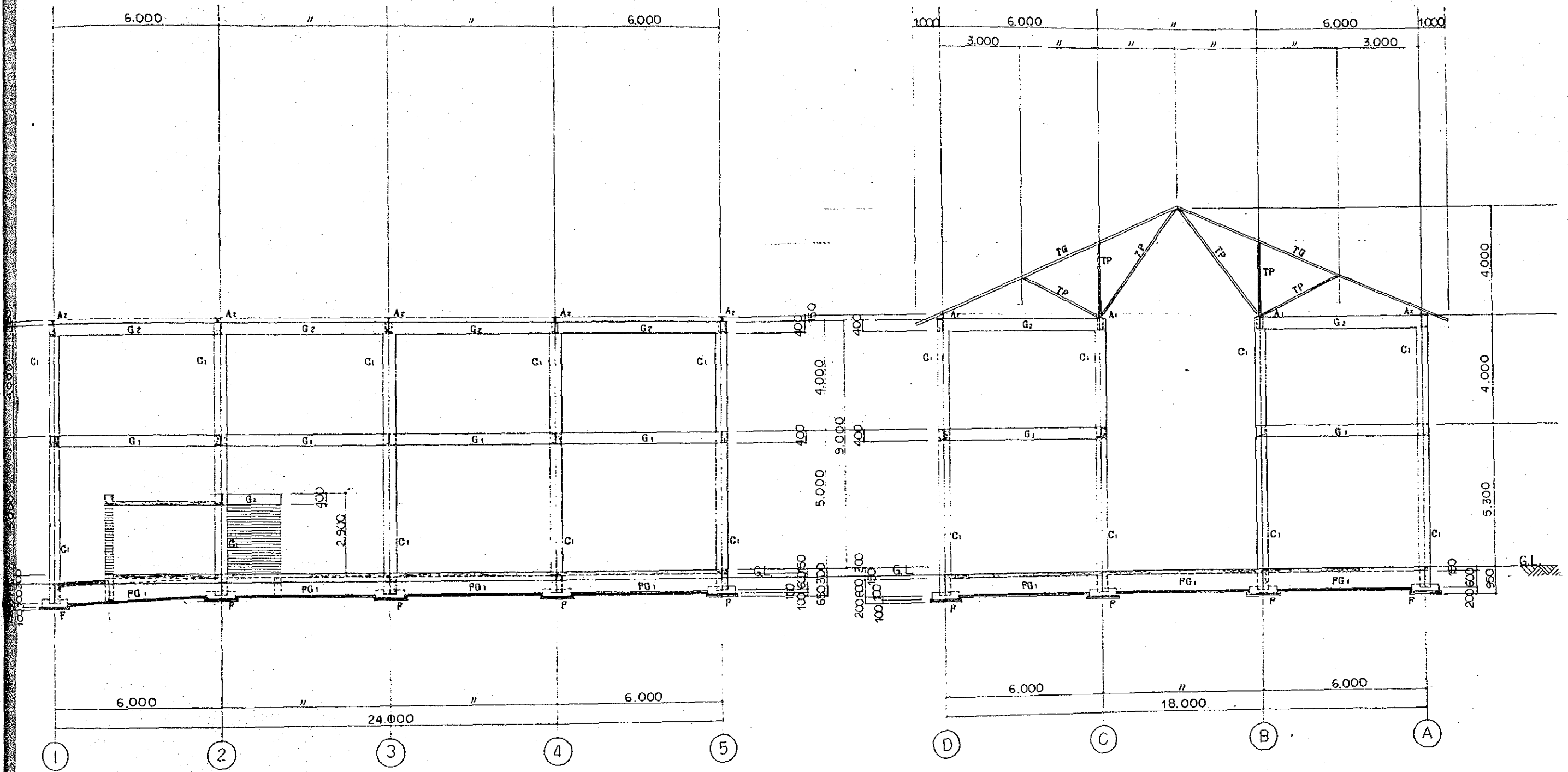
C. FRAME ELEV. 1/100



MAHAWELI AUTHORITY OF SRI LANKA
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 DEMONSTRATION PROJECT IN MAHAWELI AREA

PLANT BUILDING
 STRUCTURE DETAILS (7)

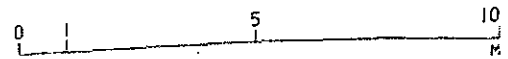
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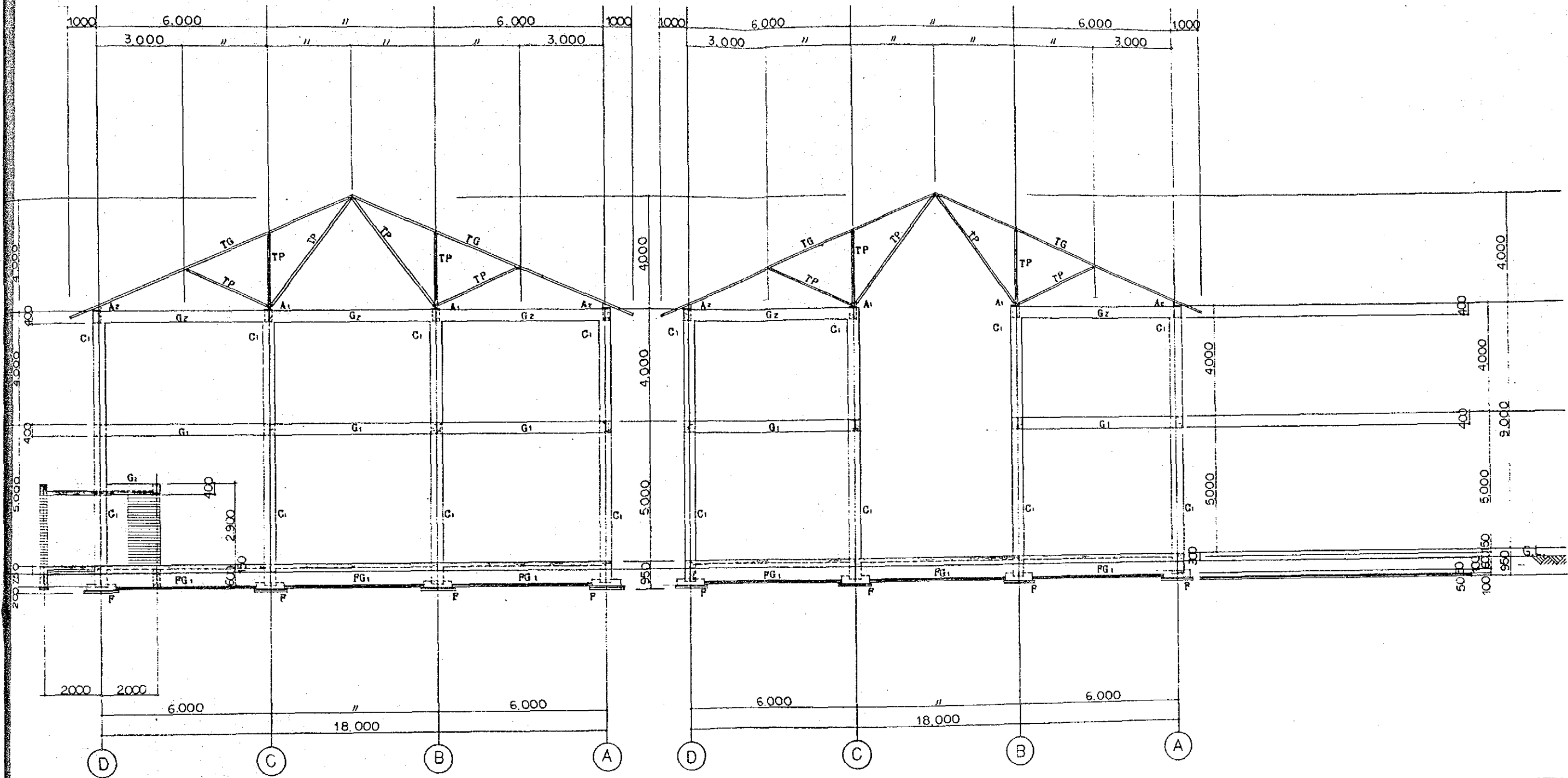
A. FRAME ELEV. 1/100

1 FRAME ELEV. 1/100

NOTE

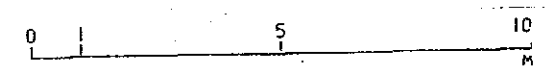


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STRUCTURE DETAILS (8)	
JAPAN INTERNATIONAL COOPERATION AGENCY	
TOKYO, JAPAN	DWG No. B-15



2. FRAME ELEV. $\frac{1}{100}$

3. 4. FRAME ELEV. $\frac{1}{100}$



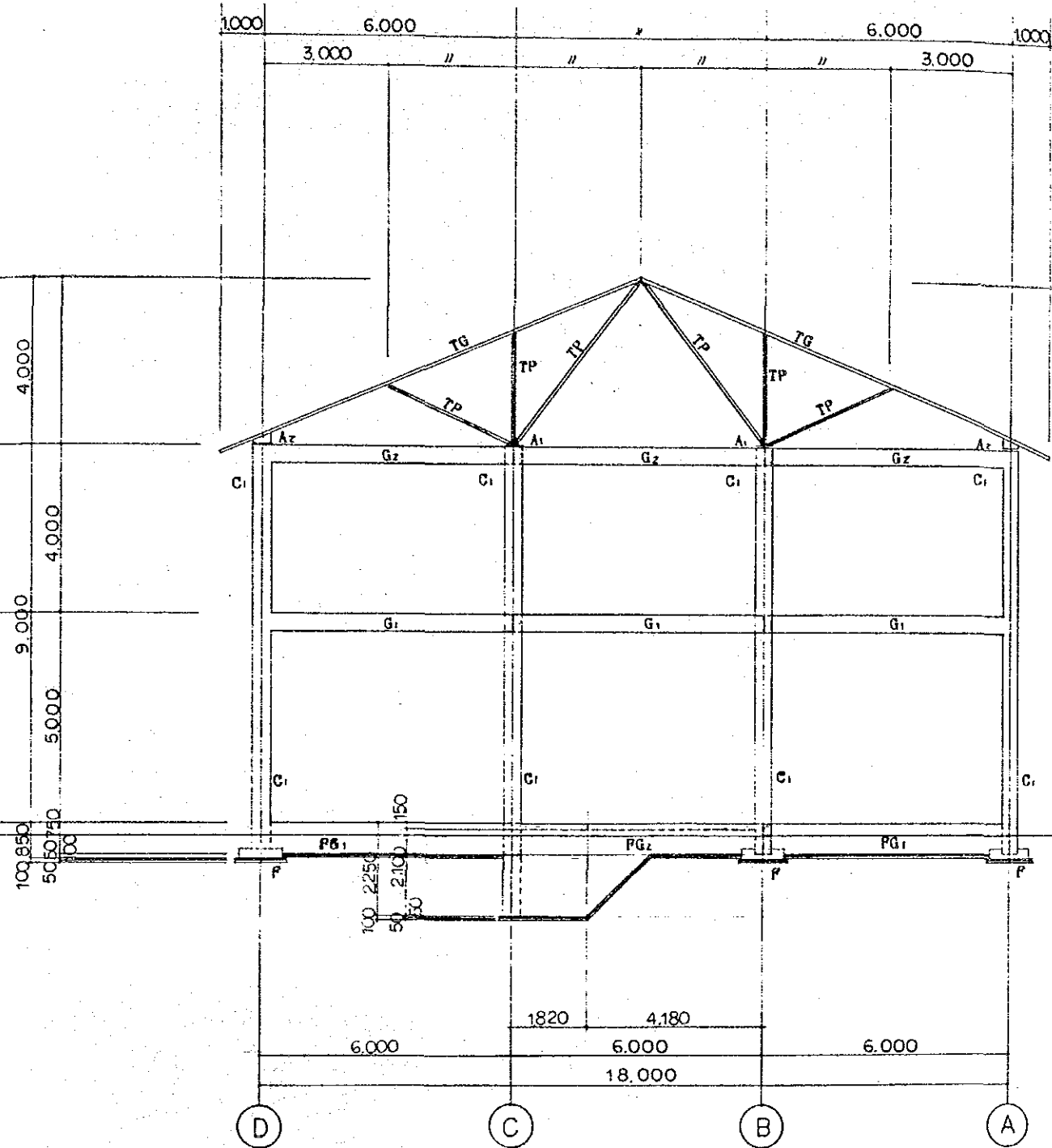
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 DEMONSTRATION PROJECT IN MAHAWELI AREA

PLANT BUILDING

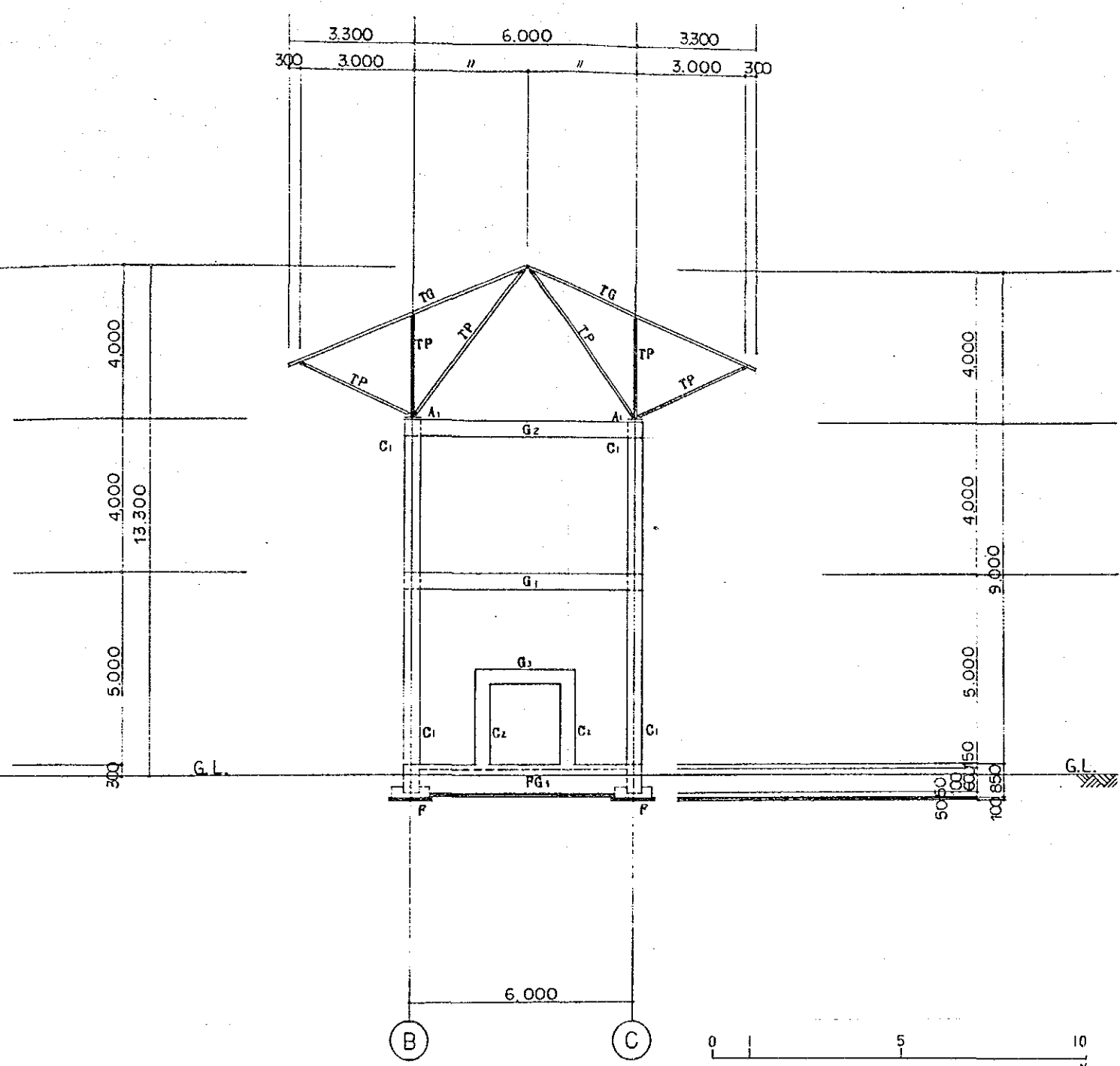
STRUCTURE DETAILS (9)

JAPAN INTERNATIONAL COOPERATION AGENCY
 TOKYO, JAPAN

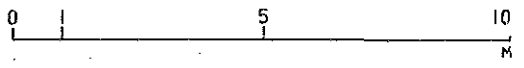
DWG No. B-16



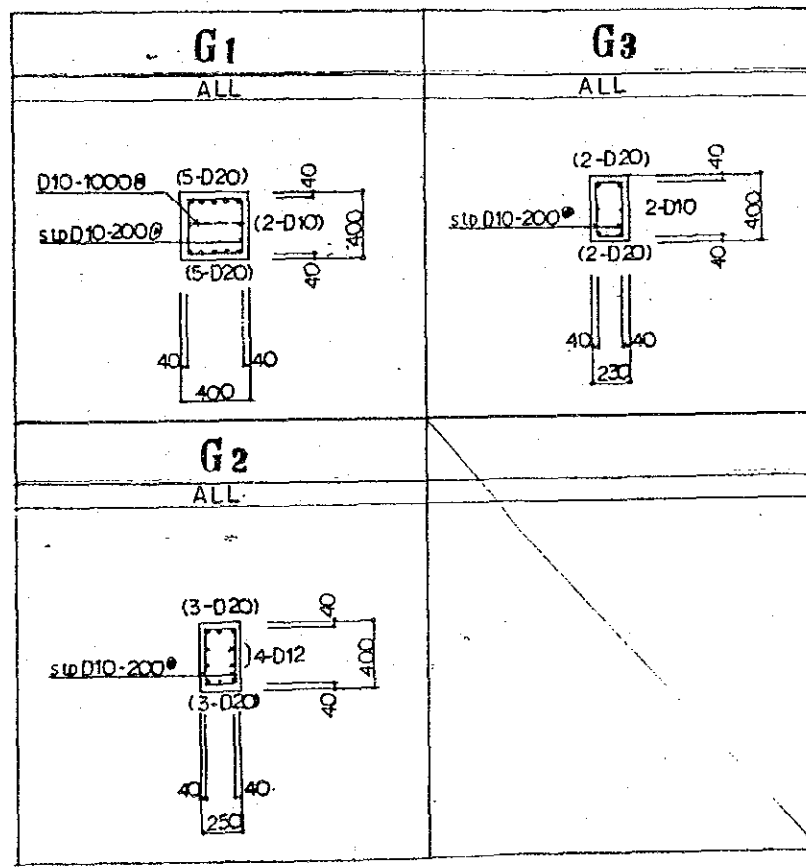
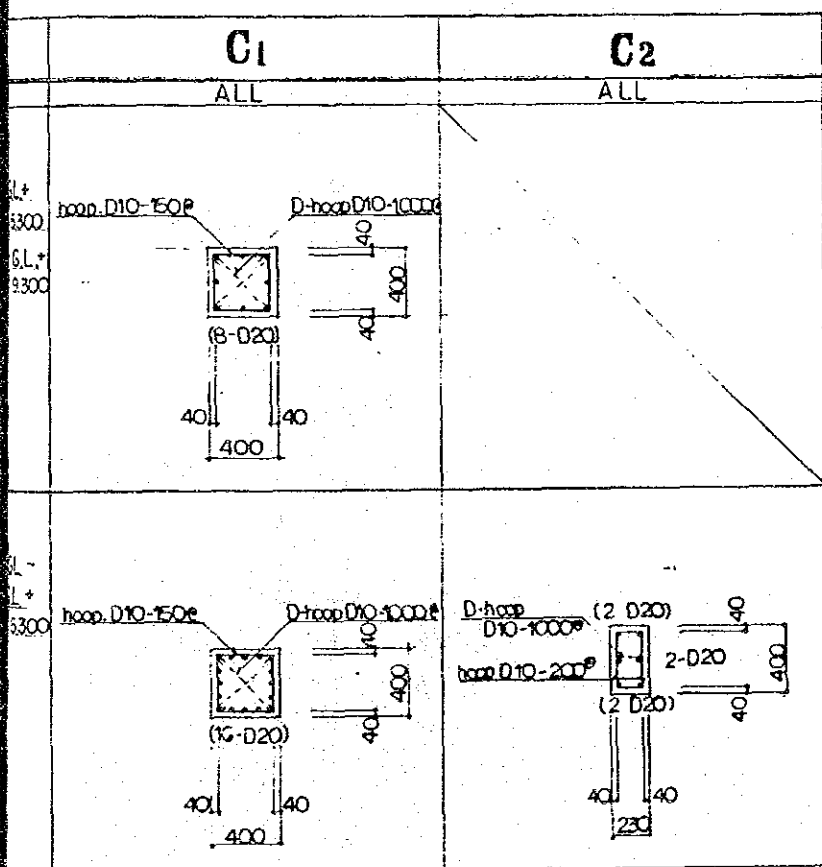
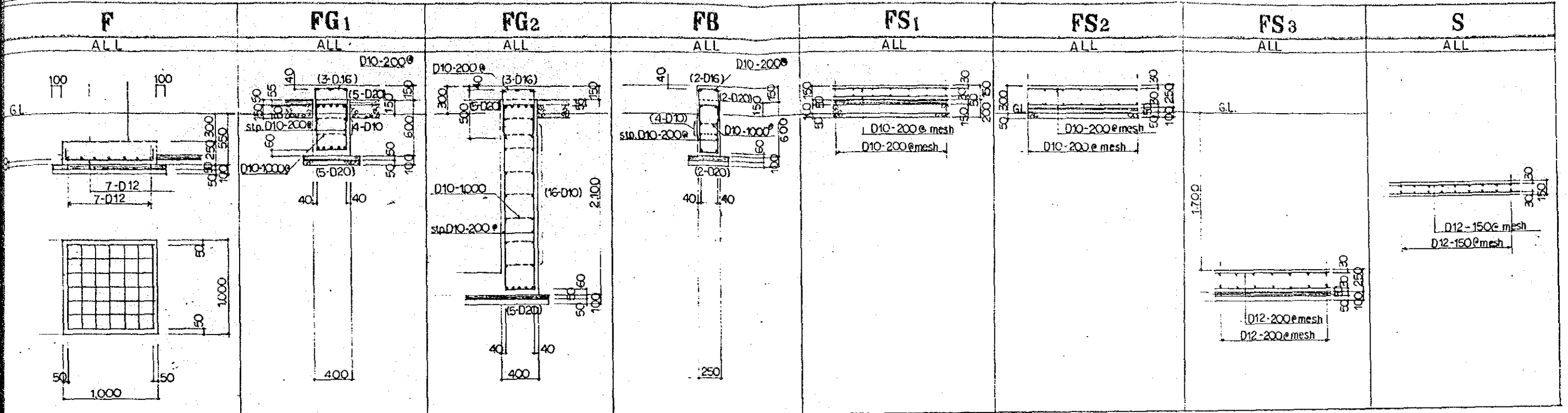
5. FRAME ELEV. 1/100



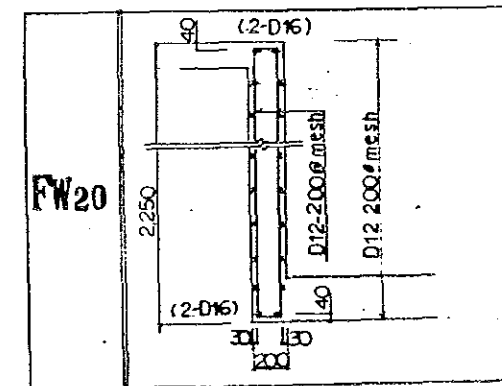
9. FRAME ELEV. 1/100



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 PLANT BUILDING
 STRUCTURE DETAILS (10)
 JAPAN INTERNATIONAL COOPERATION AGENCY
 TOKYO, JAPAN DWG No. B-17

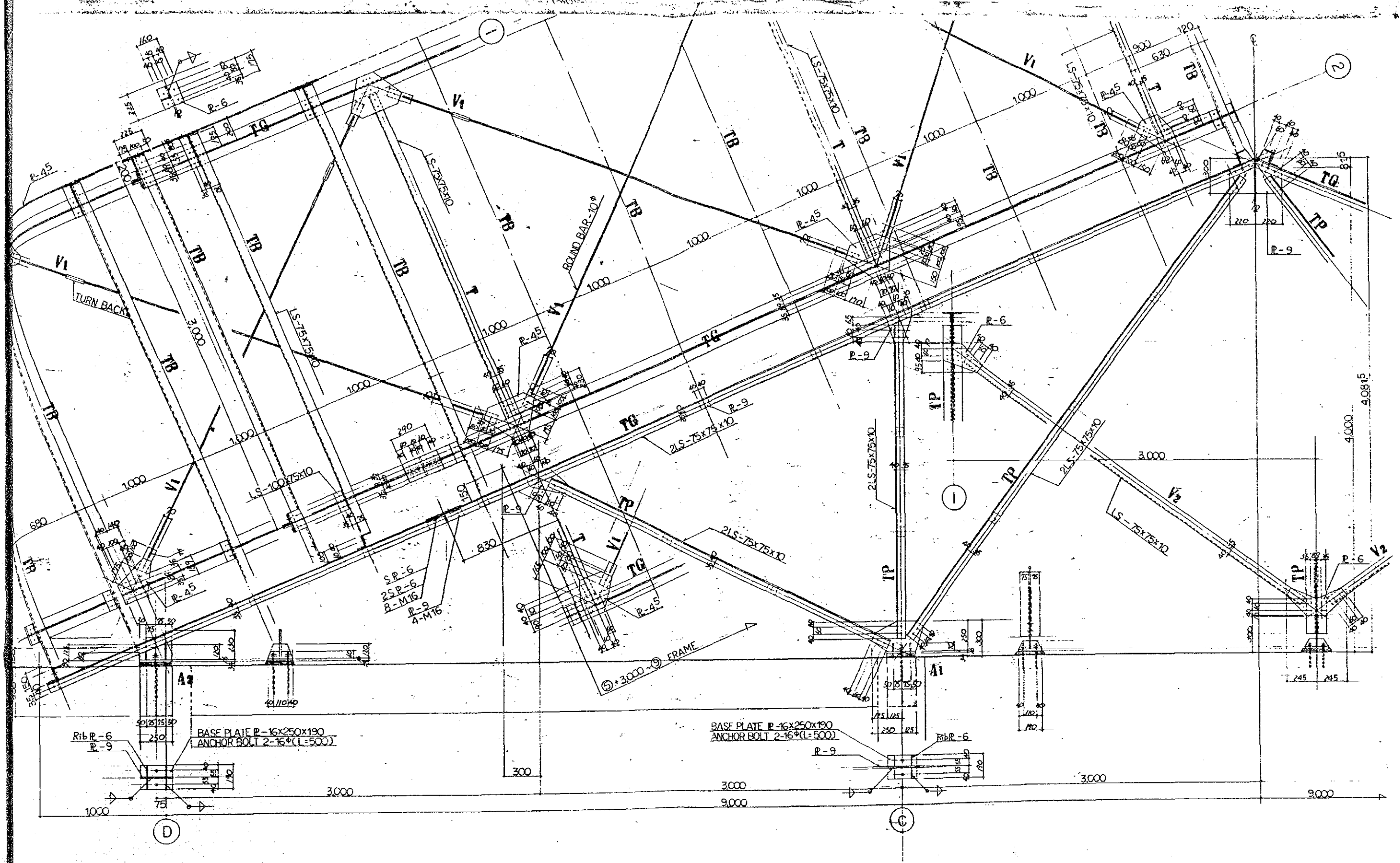


TIE		BRACING	
TG	2L _s - 75 x 75 x 10	V1	10 ϕ
TP	2L _s - 75 x 75 x 10	V2	L _s - 75 x 75 x 10
T	L _s - 75 x 75 x 10		
TB	2L _s - 75 x 75 x 10		

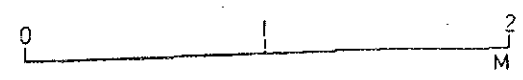


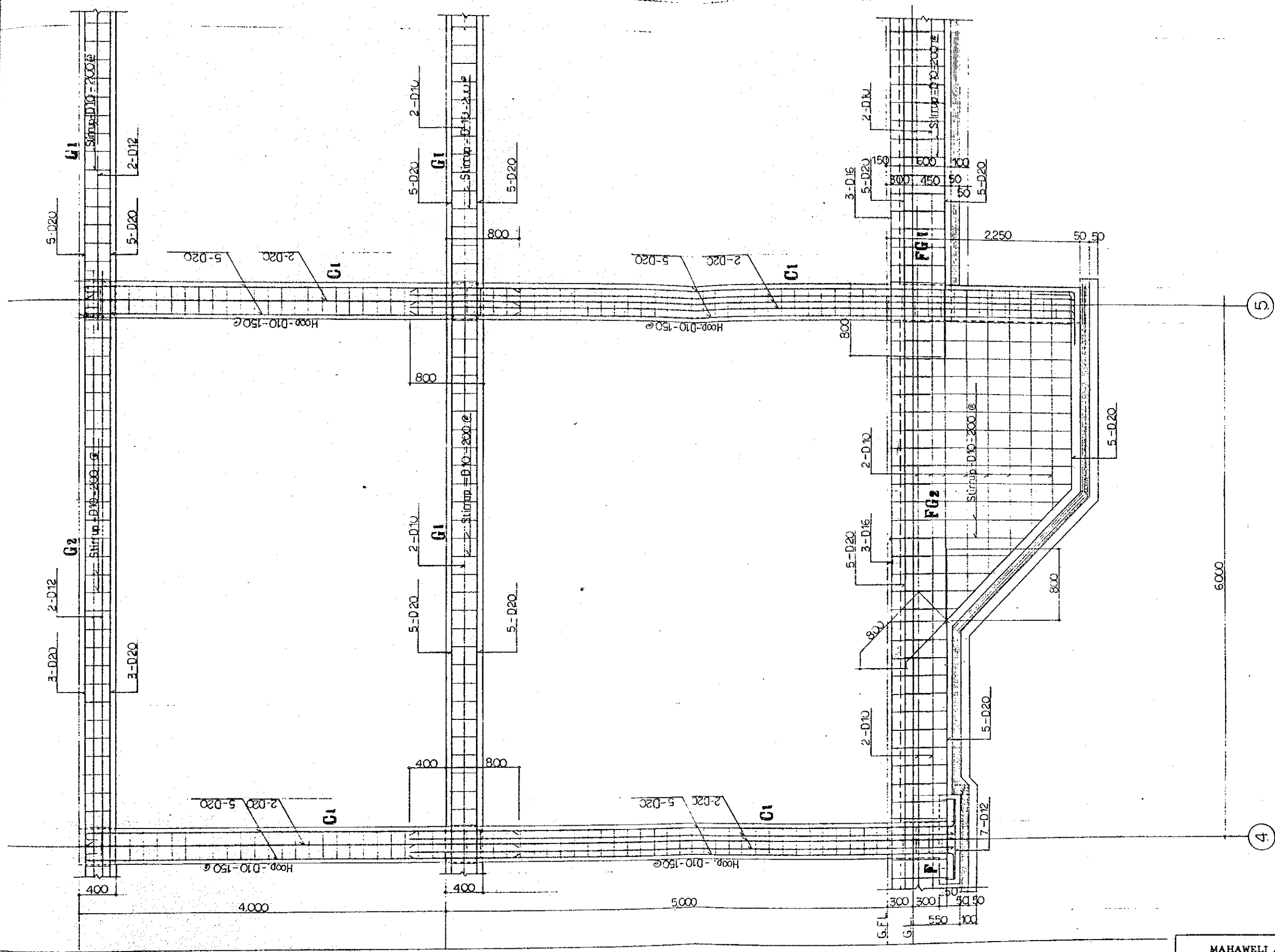
NOTE

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 PLANT BUILDING
 STRUCTURE DETAILS (12)
 JAPAN INTERNATIONAL COOPERATION AGENCY
 TOKYO, JAPAN DWG No. B-19

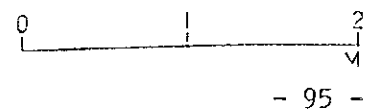


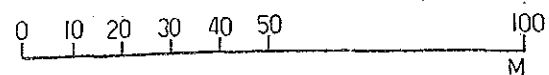
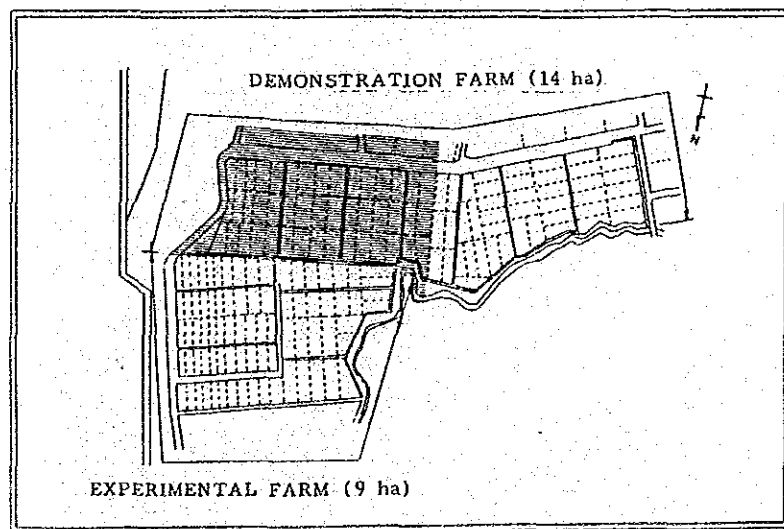


C. FRAME DETAIL ELEV. 1/30

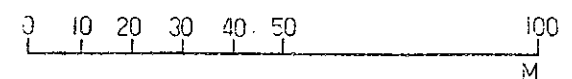
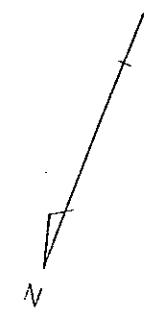
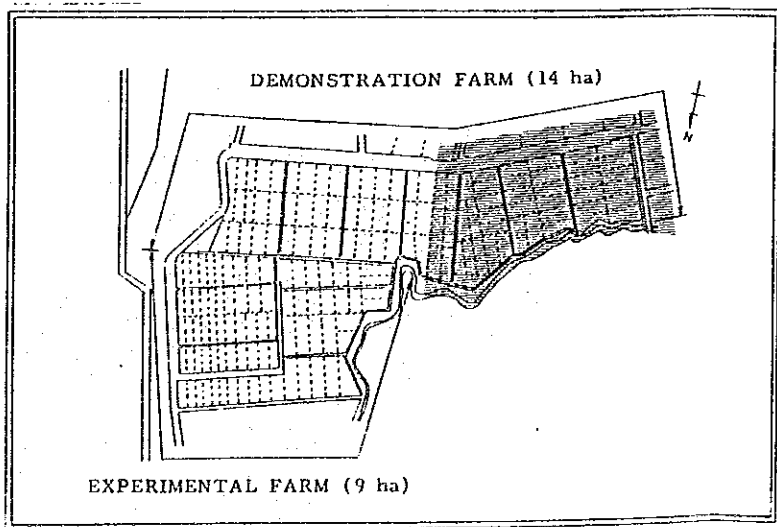
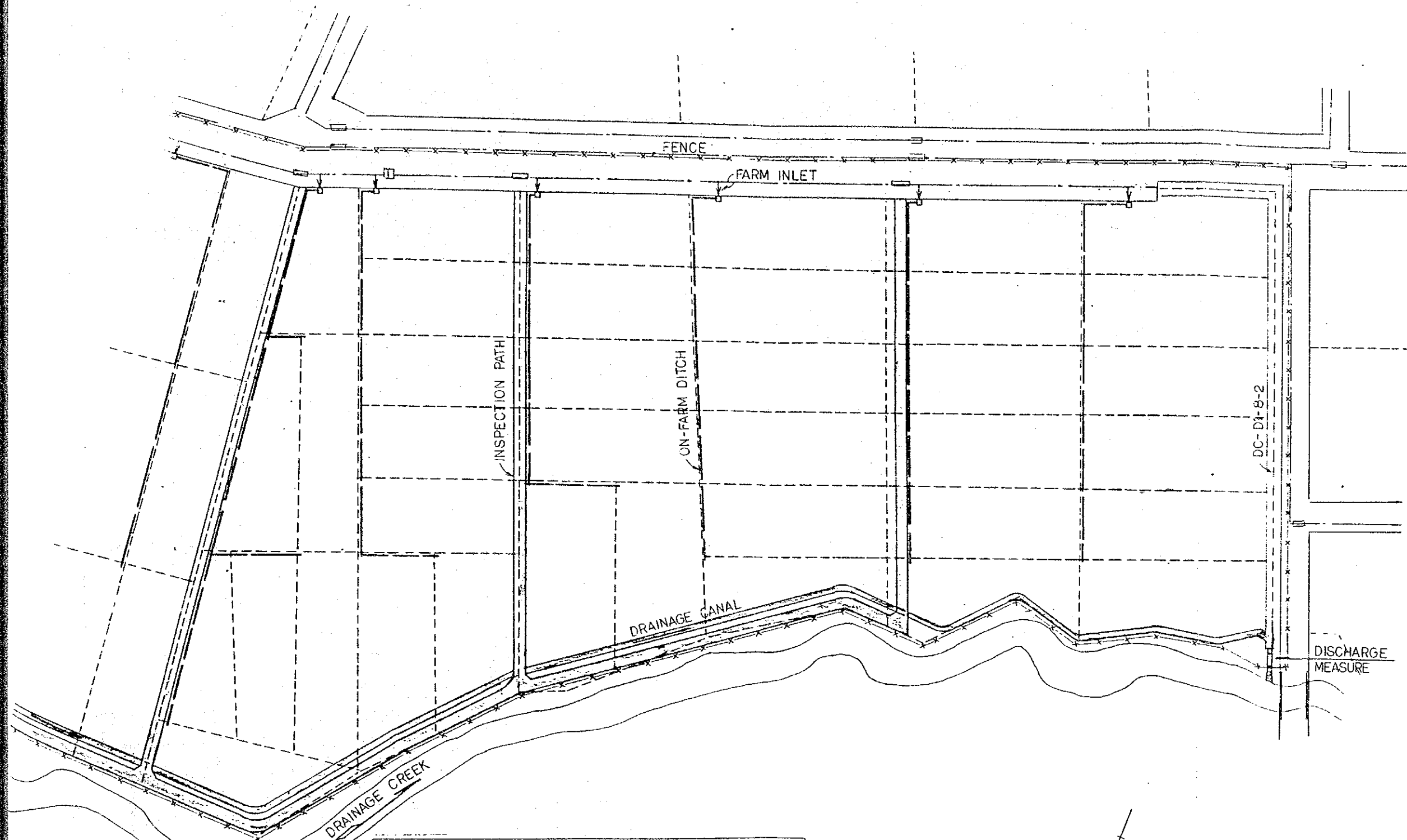
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 DEMONSTRATION PROJECT IN MAHAWELI AREA
 PLANT BUILDING
 STRUCTURE DETAILS (13)

JAPAN INTERNATIONAL COOPERATION AGENCY
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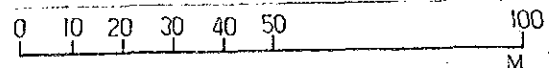
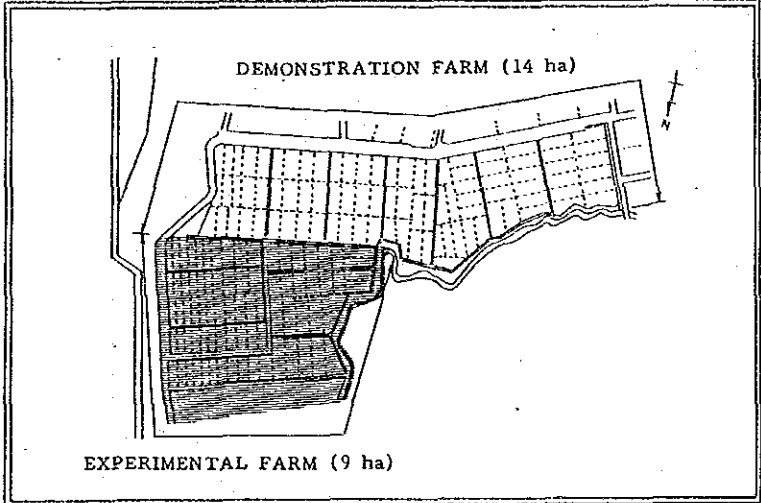
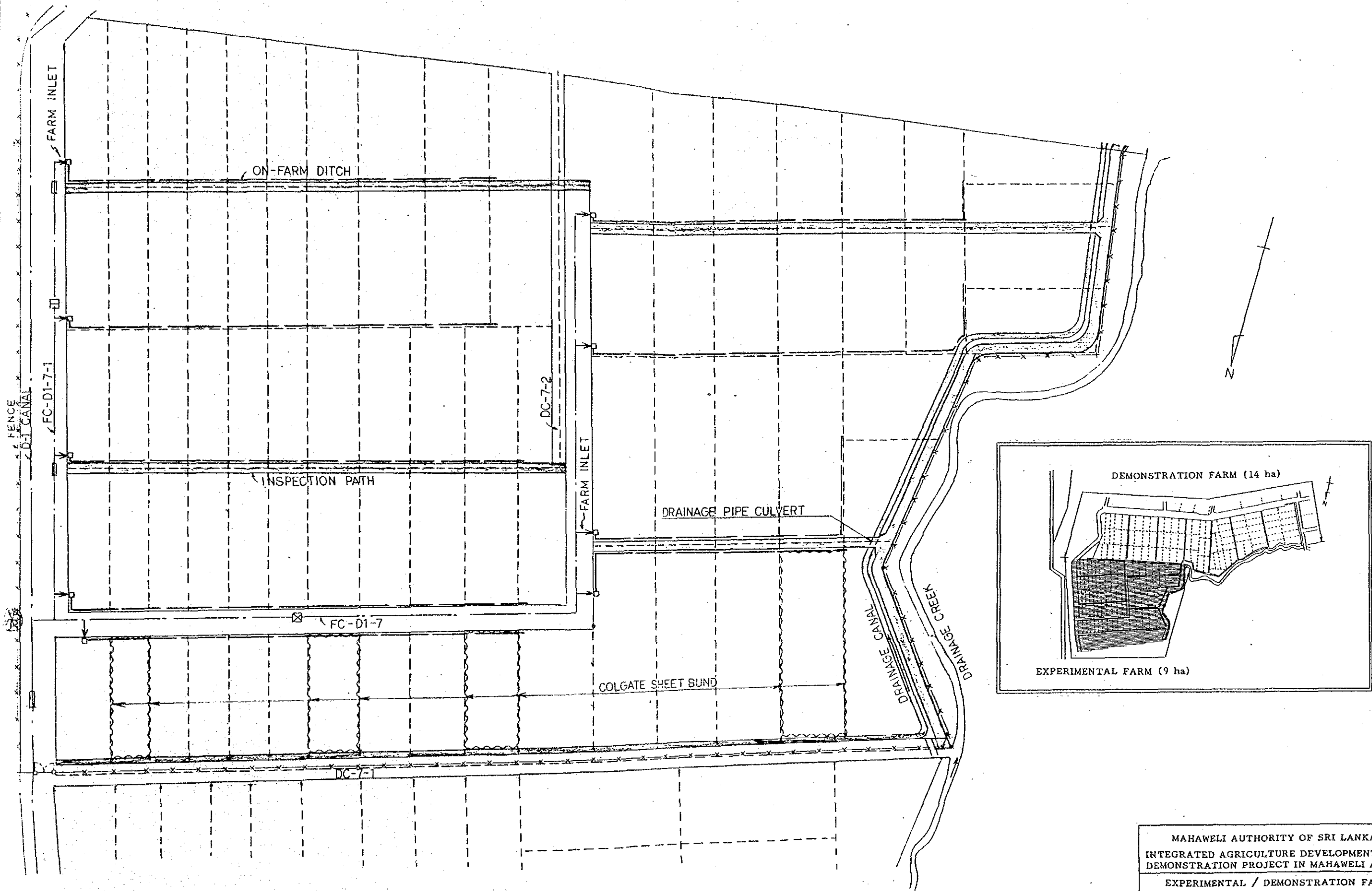


MAHAWELI AUTHORITY OF SRI LANKA INTEGRATED AGRICULTURE DEVELOPMENT DEMONSTRATION PROJECT IN MAHAWELI AREA	
EXPERIMENTAL / DEMONSTRATION FARM	
LAYOUT PLAN	
JAPAN INTERNATIONAL COOPERATION AGENCY	
TOKYO, JAPAN	DWG No. F-1

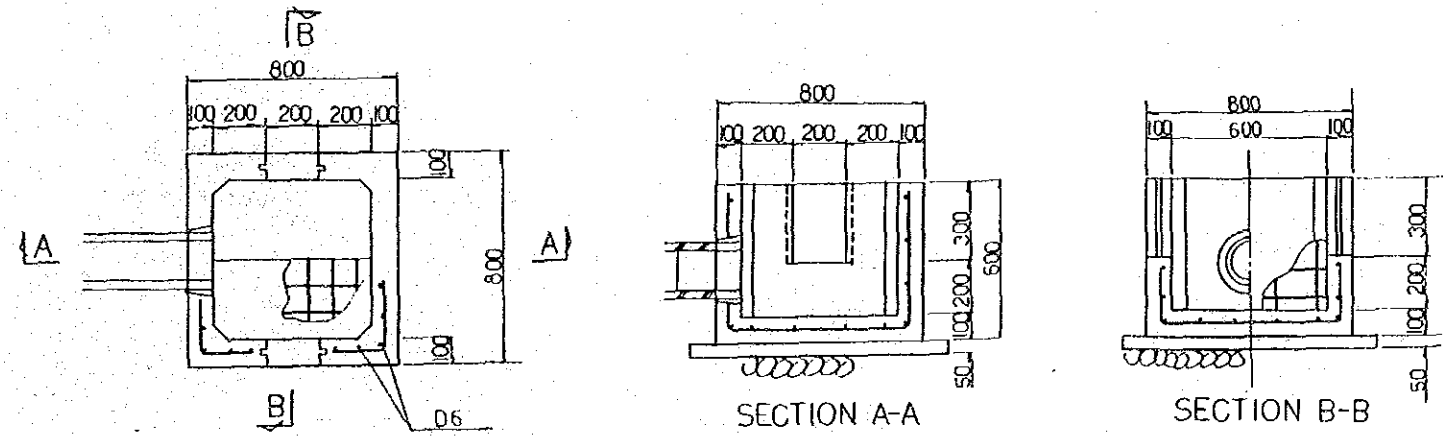
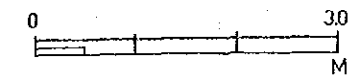
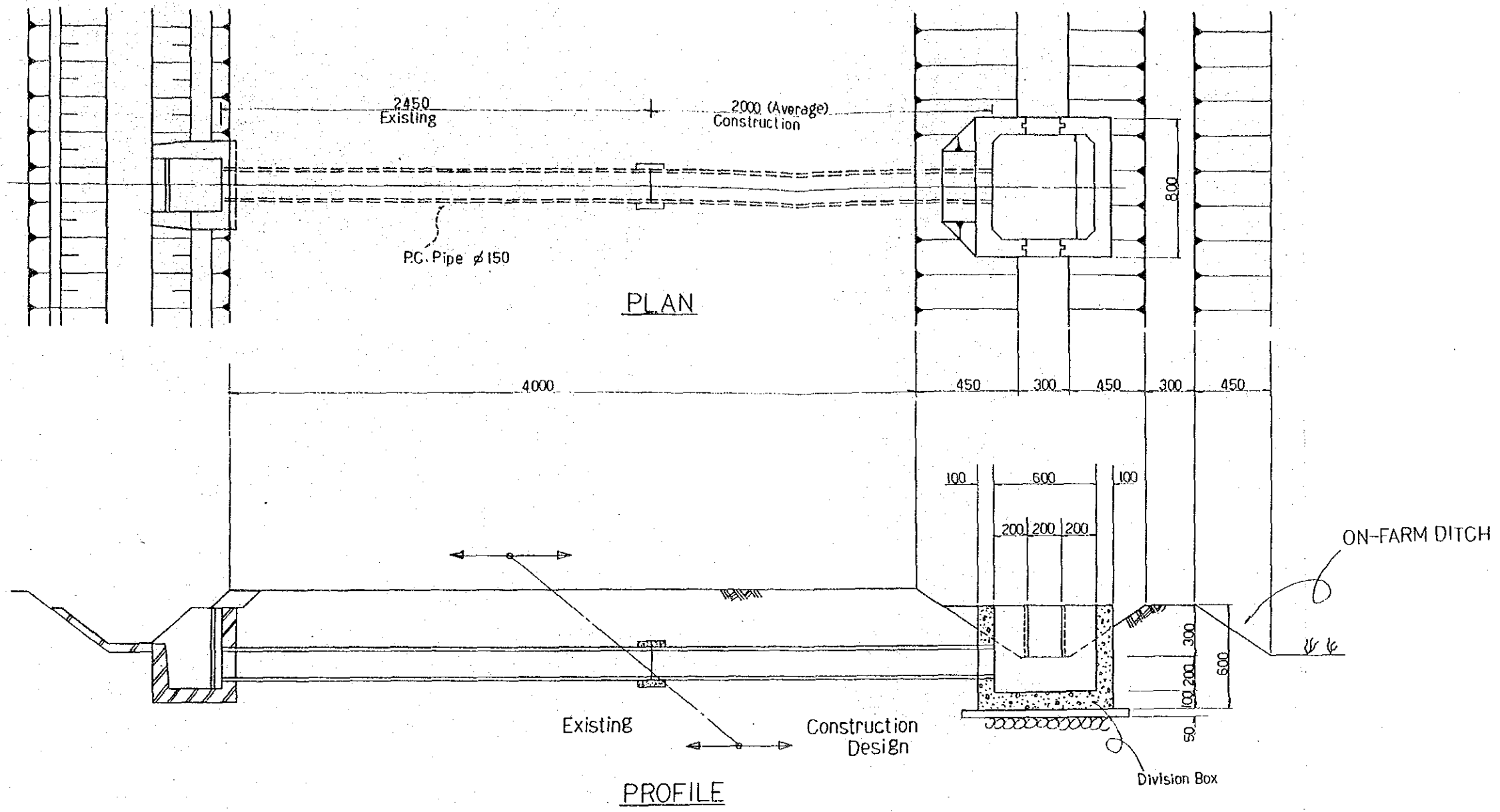


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 INTEGRATED AGRICULTURE DEVELOPMENT
 DEMONSTRATION PROJECT IN MAHAWELI AREA
 EXPERIMENTAL / DEMONSTRATION FARM
 LAYOUT PLAN

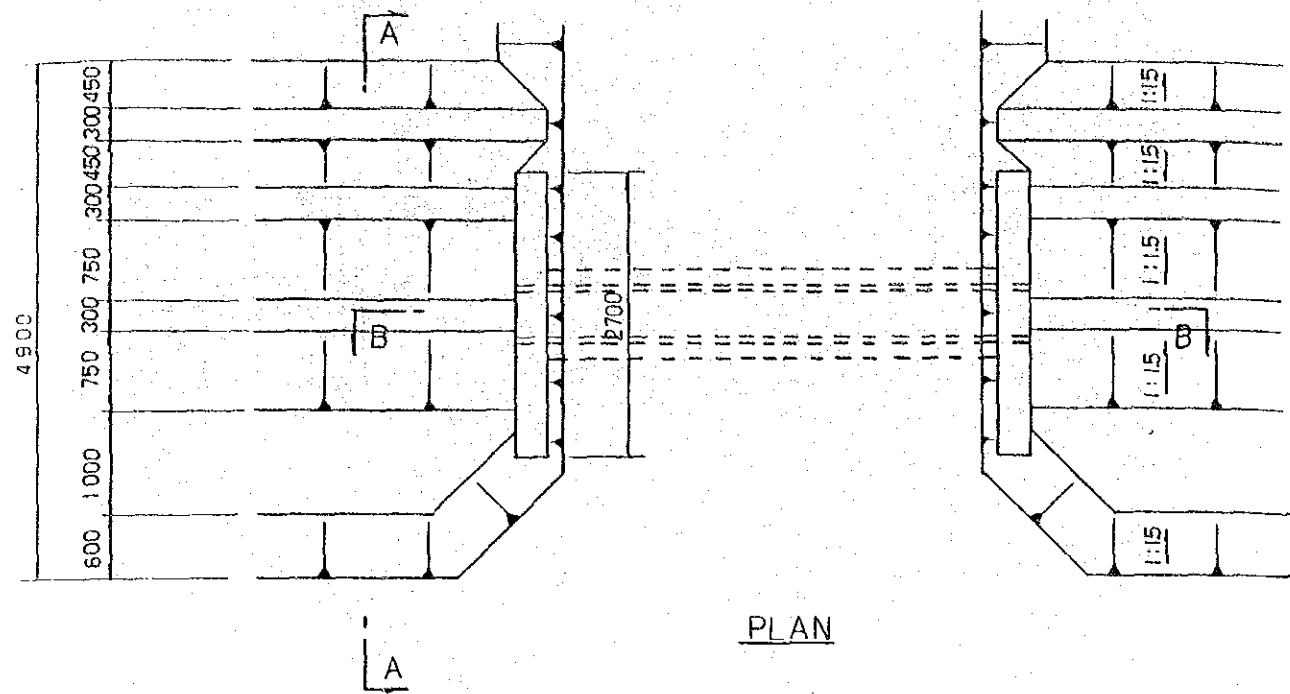
JAPAN INTERNATIONAL COOPERATION AGENCY
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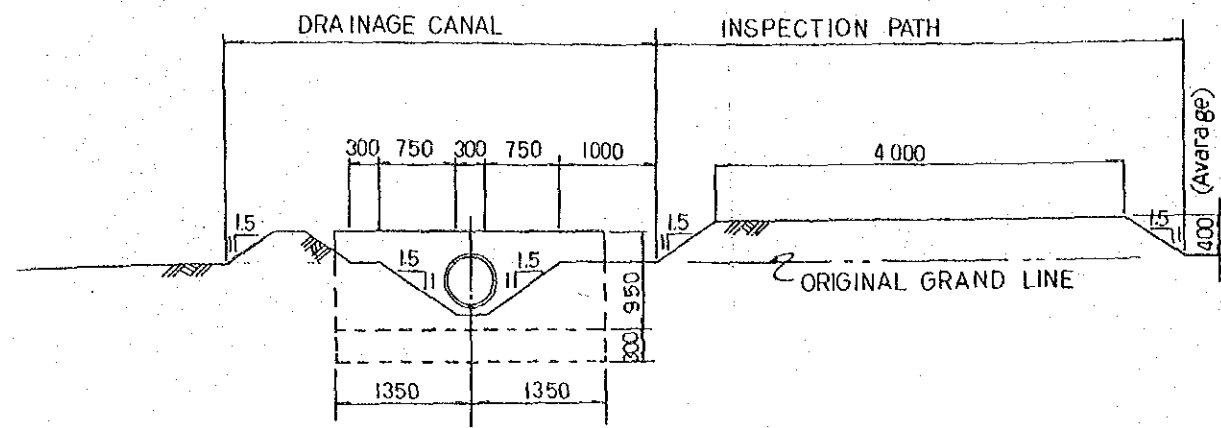
MAHAWELI AUTHORITY OF SRI LANKA
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 EXPERIMENTAL / DEMONSTRATION FARM
 LAYOUT PLAN
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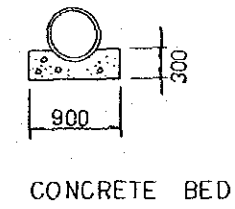
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DEMONSTRATION PROJECT IN MAHAWELI AREA	
EXPERIMENTAL/DEMONSTRATION FARM	
FARM INLET	
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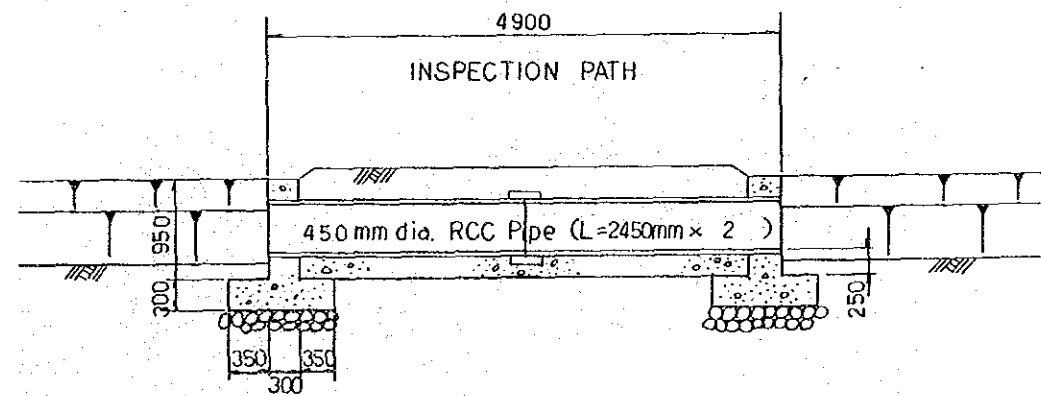
PLAN



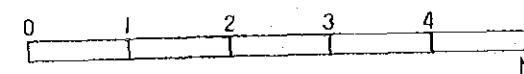
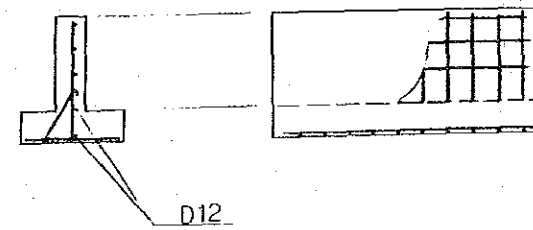
SECTION A-A



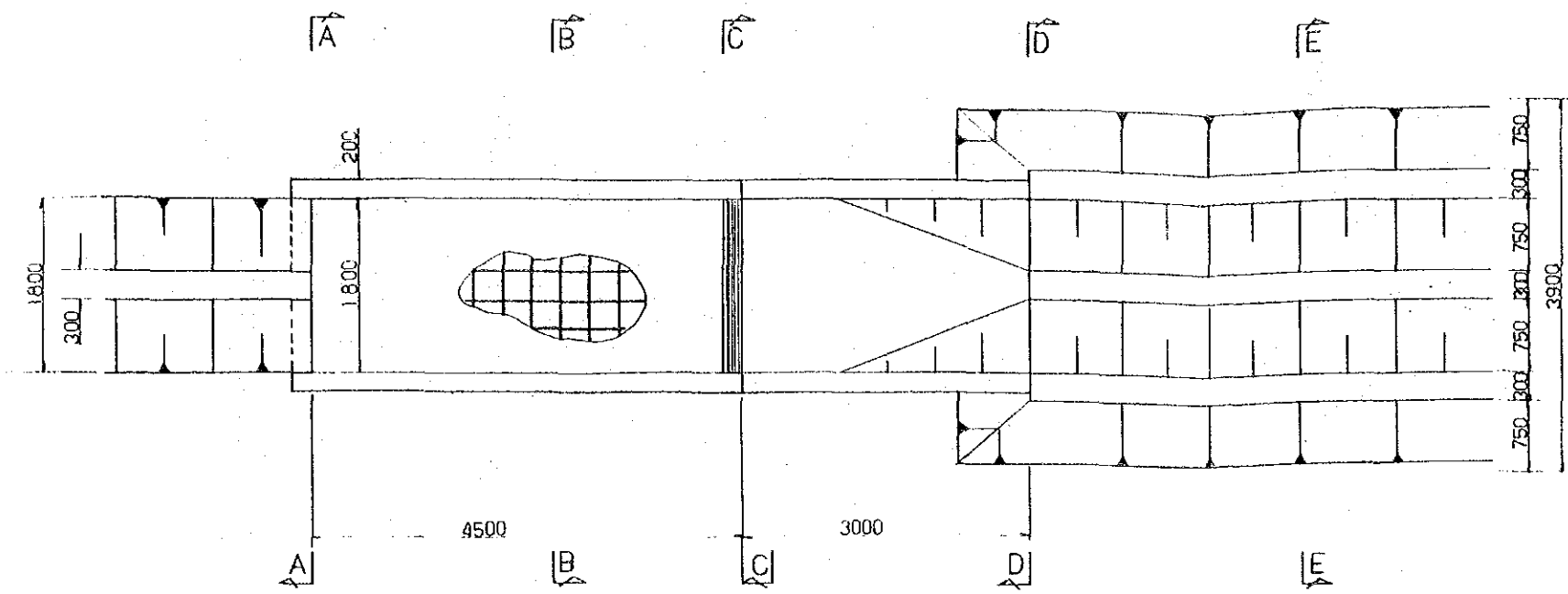
CONCRETE BED



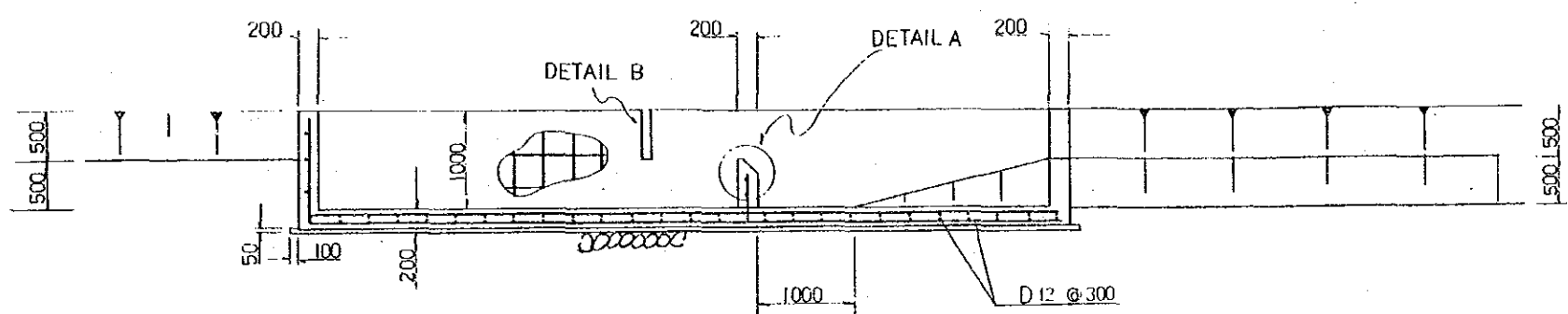
SECTION B-B



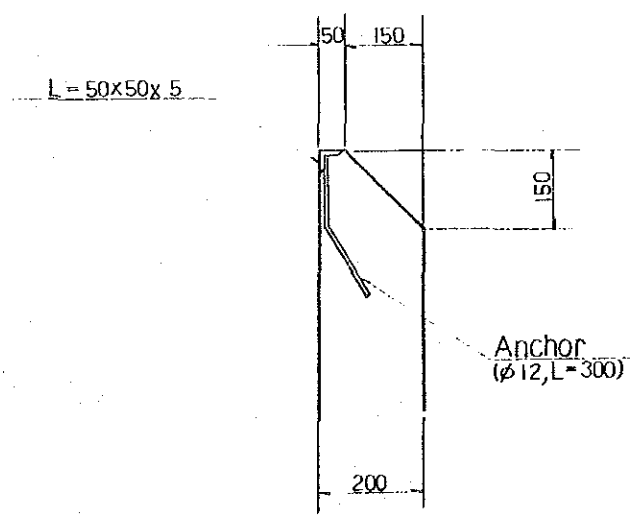
MAHAWELI AUTHORITY OF SRI LANKA	
INTEGRATED AGRICULTURE DEVELOPMENT	
DEMONSTRATION PROJECT IN MAHAWELI AREA	
EXPERIMENTAL/DEMONSTRATION FARM	
INSPECTION PATH & DRAINAGE UNDER	
CROSSING	
JAPAN INTERNATIONAL COOPERATION AGENCY	
TOKYO, JAPAN	DWG No. F-5



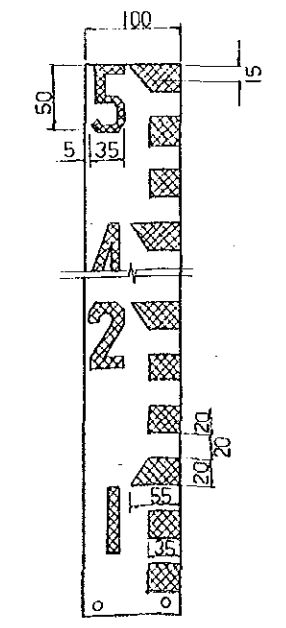
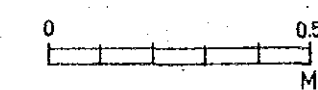
PLAN



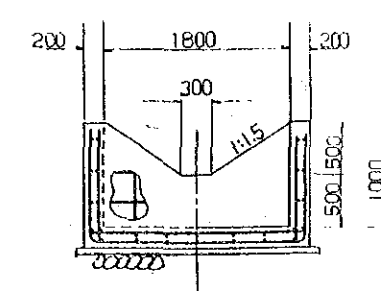
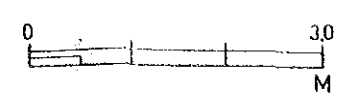
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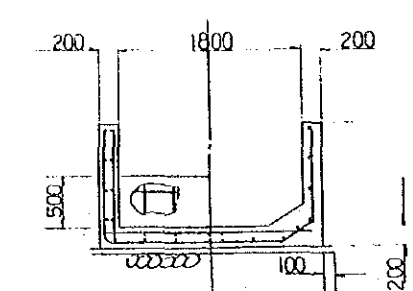
DETAIL A



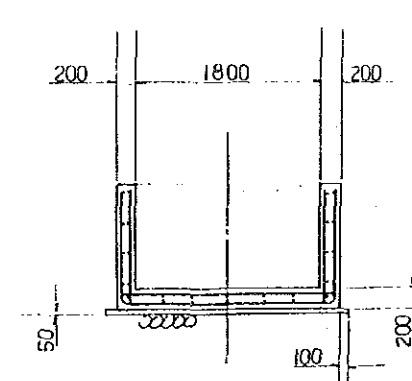
DETAIL B



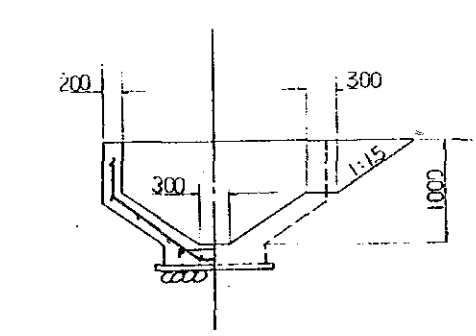
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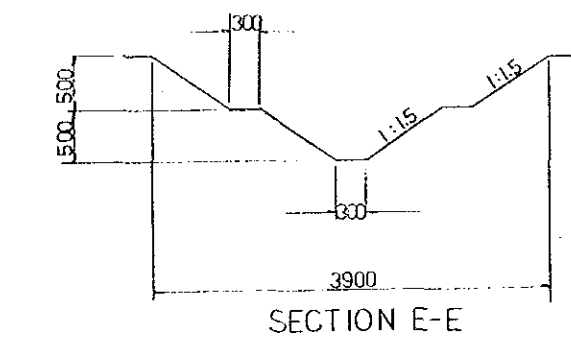
SECTION C-C



SECTION B-B

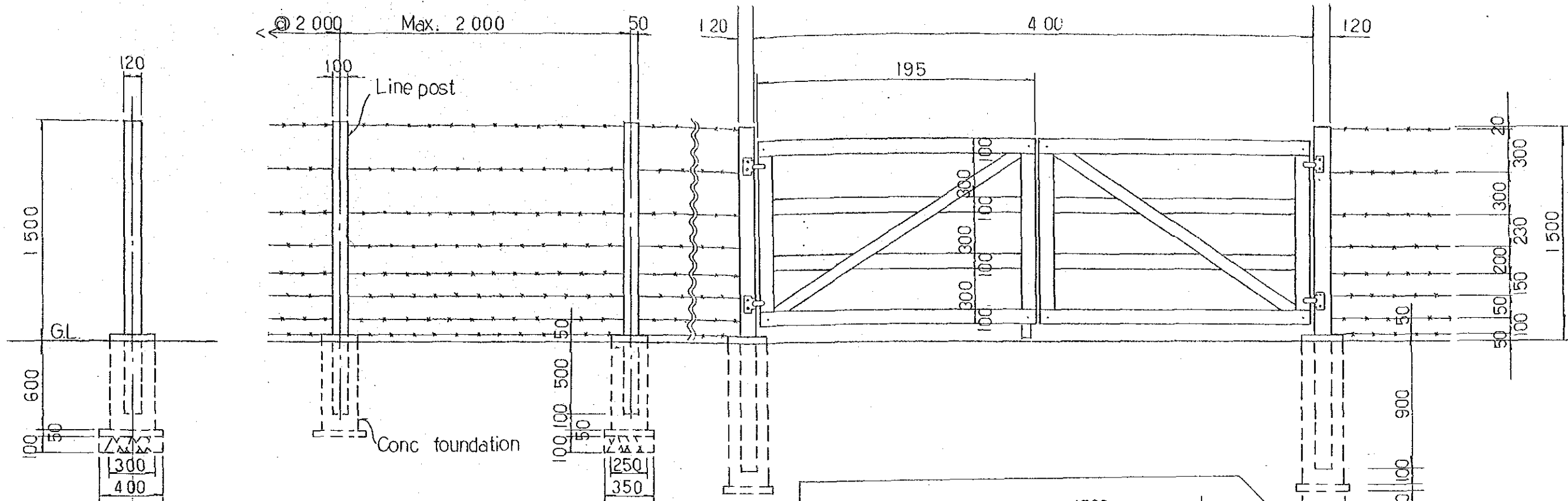


SECTION D-D

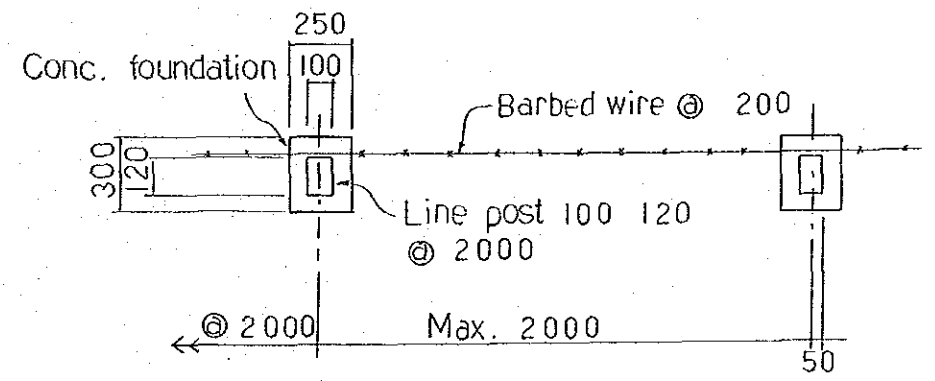
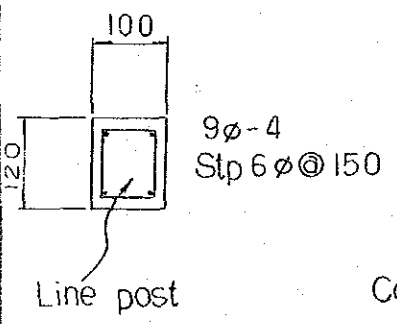
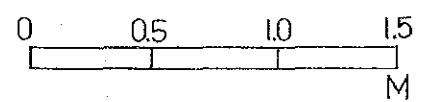


SECTION E-E

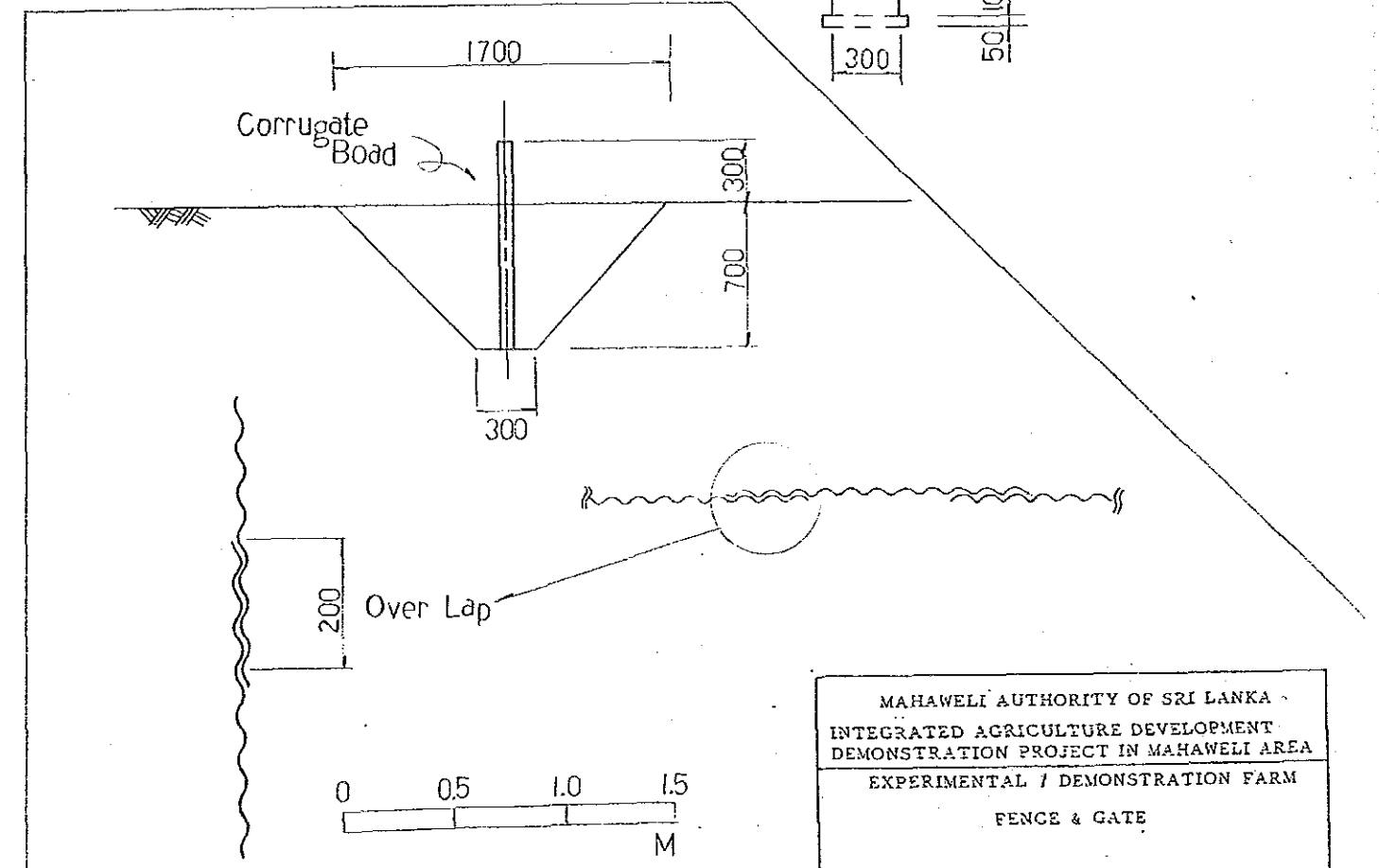
MAHAWELI AUTHORITY OF SRI LANKA
 INTEGRATED AGRICULTURE DEVELOPMENT
 DEMONSTRATION PROJECT IN MAHAWELI AREA
 EXPERIMENTAL/DEMONSTRATION FARM
 SHARP CRESTED WEIR
 JAPAN INTERNATIONAL COOPERATION AGENCY
 TOKYO, JAPAN DWG No. F-6



SECTION



PLAN



CORRUGATE SHEET BUND

MAHAWELI AUTHORITY OF SRI LANKA -	
INTEGRATED AGRICULTURE DEVELOPMENT	
DEMONSTRATION PROJECT IN MAHAWELI AREA	
EXPERIMENTAL / DEMONSTRATION FARM	
FENCE & GATE	
JAPAN INTERNATIONAL COOPERATION AGENCY	
TOKYO, JAPAN	DWG No. F-7

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APPENDIXES

- I. FIELD REPORT
- II. REVISED ELECTRIC LAYOUT
- III. ADDITIONAL DESIGN DRAWINGS

DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

MINISTRY OF MAHAWELI DEVELOPMENT

MAHAWELI AUTHORITY OF SRI LANKA

MAHAWELI ECONOMIC AGENCY

FIELD REPORT

ON

DETAIL DESIGN STUDY

OF

INTEGRATED AGRICULTURAL DEVELOPMENT DEMONSTRATION PROJECT

IN

MAHAWELI AREA

MARCH 1985

JAPAN INTERNATIONAL CO-OPERATION AGENCY

PREFACE

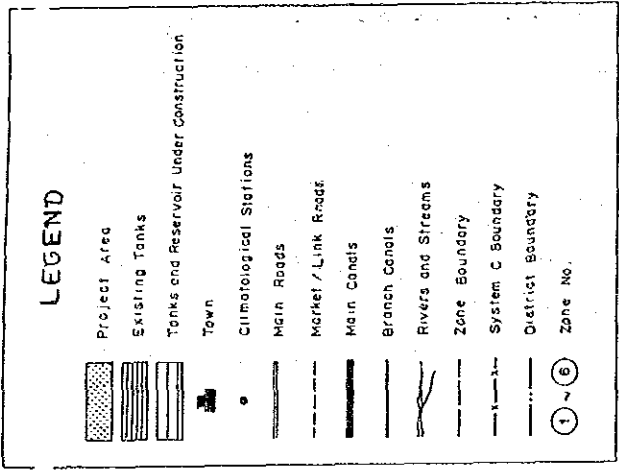
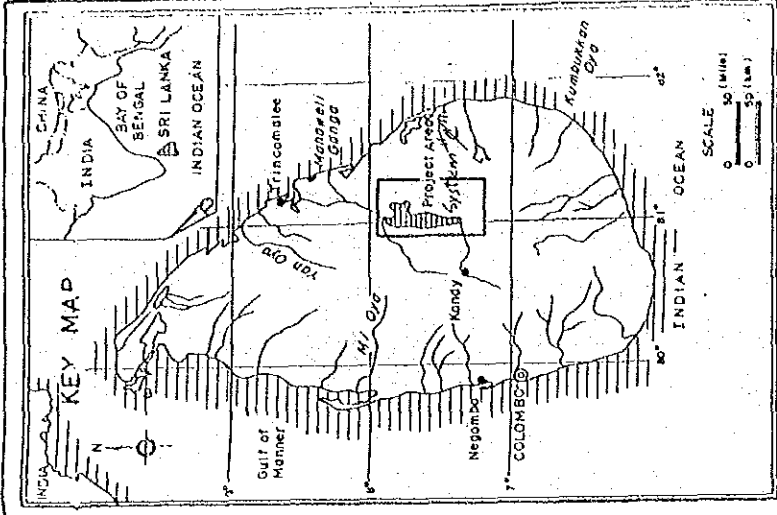
In response to the request made by the Government of the Democratic Socialist Republic of Sri Lanka, the Japan International Cooperation Agency (hereinafter referred to as JICA) as the Executing Agency for Technical Cooperation Programs of the Government of Japan has sent a Japanese expert team (hereinafter referred to as the Team) to Sri Lanka, to conduct a detail design study (hereinafter referred to as the Study) on the Integrated Agricultural Development Demonstration Project in Mahaweli Area (hereinafter referred to as the Project).

The Team arrived at Sri Lanka on 5th February 1985, together with the Implementation Survey Team headed by Mr. T. Tauchi who left Sri Lanka on 13th February after signing of the Record of Discussion (hereinafter referred to as R/D).

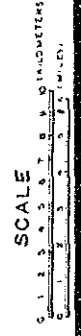
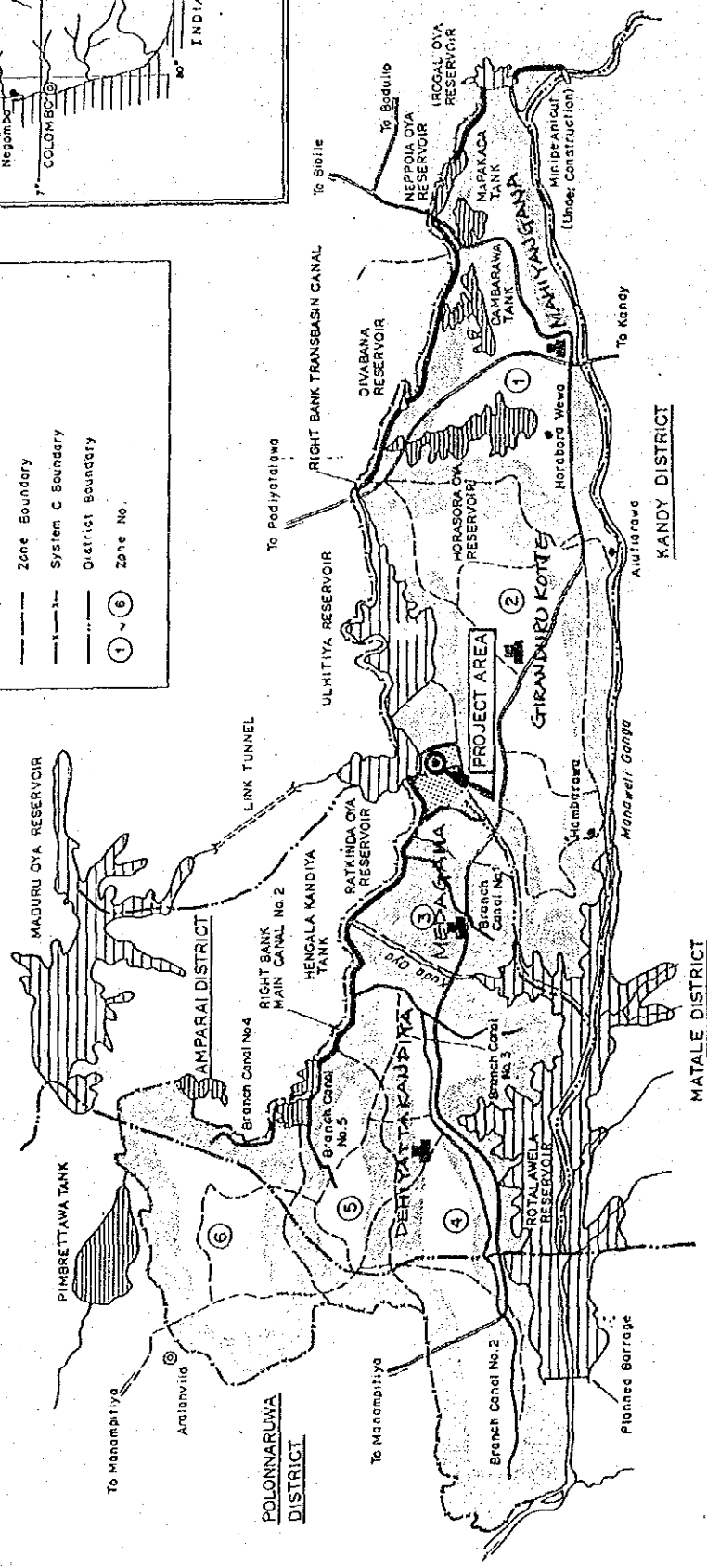
The Team visited the relevant sites of the Project from 8th to 26th February 1985 to undertake the Study and to hold necessary discussions with concerned personnel in the sites.

This Field Report has been prepared in line with the said R/D signed on 11 February 1985, and its contents include the "Design Advice" on the facilities to be promptly constructed by the Government of Sri Lanka and "Preliminary Design" of the remaining facilities which will be finalized in the home office as the detail design.

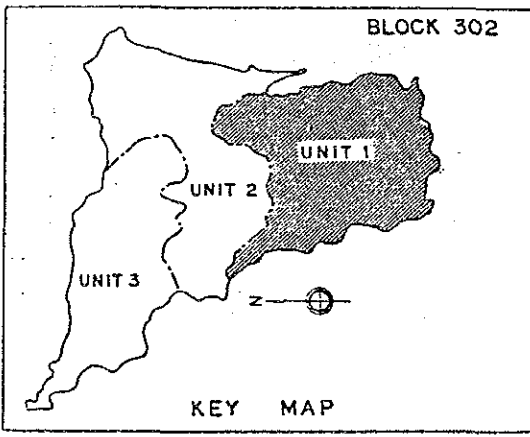
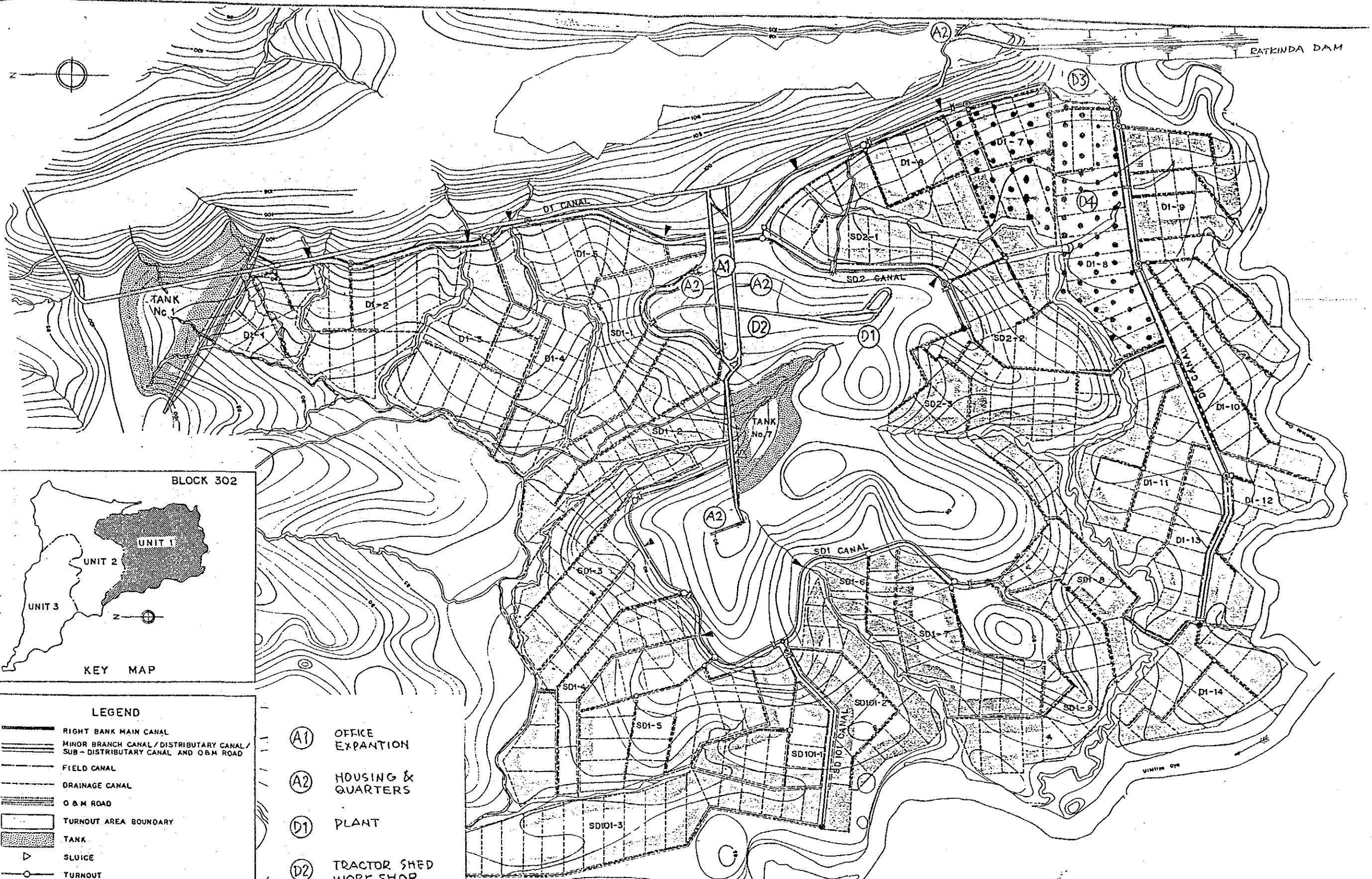
Finally the Team expresses the hearty appreciation to the concerned officials and engineers who extended their close cooperation to the Team.



SYSTEM "C"



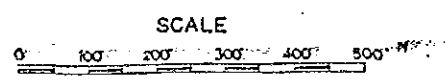
DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
 INTEGRATED AGRICULTURAL DEVELOPMENT
 DEMONSTRATION PROJECT, IN MAHAWEELI
 GENERAL LOCATION MAP



LEGEND

	RIGHT BANK MAIN CANAL
	MINOR BRANCH CANAL/DISTRIBUTARY CANAL/ SUB-DISTRIBUTARY CANAL AND O & M ROAD
	FIELD CANAL
	DRAINAGE CANAL
	O & M ROAD
	TURNOUT AREA BOUNDARY
	TANK
	SLUICE
	TURNOUT
	TURNOUT CUM REGULATOR
	TURNOUT, REGULATOR CUM DROP
	DRAINAGE UNDER CROSSING
	TERMINAL STRUCTURE
	CULVERT
	DIVISION BOX

- (A1) OFFICE EXPANTION
- (A2) HOUSING & QUARTERS
- (D1) PLANT
- (D2) TRACTOR SHED WORK SHOP
- (D3) ON FARM SHED
- (D4) DEMONSTRATION/ EXPERIMENTAL FARM



DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA	
TITLE OF DRAWING	
GENERAL LAYOUT.	
JAPAN INTERNATIONAL COOPERATION AGENCY TOKYO	DWG NO.

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I GENERAL DESCRIPTION

1.1 Scope of the Study

The scope of the study includes principally the following:

- (1) Collection of necessary information and data;
- (2) Site Survey of the project site selected in the Unit 1, Block 302, System 'C'.
- (3) Advice the MEA on designing the necessary facilities for the Project listed in Table -1.
- (4) Detail Design of the facilities listed in Table -1.
- (5) Selection of the machinery and Equipment for the rice processing facilities.
- (6) Detail design of experimental and demonstration farm.
- (7) Preparation of Field Report.
- (8) Preparation of Draft and Final Report after detail design in home office.
- (9) Preparation of Tender Document

The facilities to be advised, designed or selected are tabulated in Table - 1.

Table - 1.

STUDY ITEMS AND SCOPE

Study Items	Study Scope
<u>A. Building for Common Facilities</u>	
1. Tractor Shed	Design
2. Workshop	-do-
3. Buildings for Seed cleaning and parboiling plants	-do-
4. Office expansion	Design Advice
<u>B. Common Utilities</u>	
1. Water supply for:	Design
- plant facilities	Design advice
- office & quarters	-do-
2. Power supply	-do-
3. Telephone facility	-do-
<u>C. Project Facilities</u>	
1. Residence for experts	Design advice
- existing house	-do-
- new house	Design
2. On-farm shed	-do-
3. Mill building	Design
<u>D. Plant Facilities</u>	
1. Layout for seed cleaning and parboiling plants	Design
2. Layout for milling units	-do-
3. Machinery and equipment for:	Selection
- seed cleaning	-do-
- parboiling	-do-
- rice milling	-do-
<u>E. Experimental Farm</u>	
1. On-farm access for observation	Design
2. On-farm ditch	-do-
3. Improvement of on-farm turnout	-do-
4. Fencing work for farm	-do-
5. Experimental and demonstration farm	Adjustment
6. Review of drainage canal	Review & check
7. Concrete paddy dike for water management test lot	Design

1.2 Major Activities and Progress

The major activities of the Team is presented in Table - 2.

The Team has collected the data and information and completed the layout of all necessary facilities in Colombo after site investigation. After submission of this Field Report the Team will depart Colombo on 10 March for Japan to prepare the detail design and other necessary document in their home office and will complete the work by the end of April 1985.

Table - 2

MAJOR ACTIVITIES

<u>Date</u>	<u>Work Item</u>
Feb. 5	Arrived at Colombo
6-7	Courtesy call and data collection
8	(Colombo to System 'C') ^{1/}
9-11	Reconnaissance and data collection
12-15	Inspection of existing rice processing facilities in Anuradhapura.
16	Meeting with RPM and Project Coordinator (Mr. Sakamoto left for Colombo)
17	Data analysis and site reconnaissance
18-23	<u>Plant</u> : Inspection of the existing burner and facilities for rice processing in Anuradhapura <u>Architect</u> : Survey and Basic planning <u>Irrigation</u> : Survey and data collection
24	Data collection, analysis and planning
25	Supplementary investigation and progress reporting to RPM.
26	(Site to Colombo)
27-28	Meeting and data collection at JICA, MEA and MEC
Mar. 1-2	Data collection and layout
3-6	Preparation of Field Report
7	Meeting with MEA, etc.
8	Meeting at JICA office
9	Supplemental work
10	Depart Colombo for Japan

^{1/} Mr. Sakamoto, Team Leader, joined the R/D Mission. He departed Colombo on Feb. 19 for Japan after meeting with MEA on Feb. 18, '85.

CHAPTER II DESIGN ADVICE

2.1 General

A design advice to the entire site plan of rice processing center, office expansion, houses for Japanese expert, electricity, water supply and communication facilities have been prepared based on the field investigation, survey and discussion with the concerned officials of Sri Lanka.

The accelerated action made by the Government of Sri Lanka in order to initiate the necessary construction is strongly recommended in accordance with the following design advice.

2.2 Site Plan of Rice Processing Center

2.2.1 Zoning

Considering the operation of Rice Processing Center and characteristics of each facilities the zoning has been studied as illustrated in Fig. 2-1.

The forthcoming facilities in and around the center is strongly recommended to be constructed in line with the said zoning.

2.2.2 Survey Stakes

The wooden survey stakes which are indicated in the Fig. 2-1 and 2-3 with the mark of "+" were established in this study by the Team and Mr. Sangarandeniya, MEA surveyor, system 'C'. These stakes shall be reserved as it is for the future construction work.

2.2.3 Road

The proposed road has been planned with maximum employment of existing road in due

consideration of future traffic. All proposed road shall be paved with gravel in the earliest stage of construction, however, the main road starting from main gate and ending at plant site shall be repaved by bitumen surfacing providing the pedestrian roads in both side of the said road immediately after the completion of all the plant in order to meet with the future traffic.

2.2.4 Landscaping

All the large and medium trees shall be reserved as it is. The turfing and tree planting shall gradually be arranged along both sides of road and around the buildings and houses.

2.2.5 Levelling for Plant Site

The selected area for the paddy processing and milling plant has very gentle undulation. Therefore, the MEA is expected to carry out the stripping and levelling works in prior to the construction of the building for the above mentioned plant.

2.2.6 Fencing Work

The special consideration for the fencing work shall be paid to the meteorological station, power substation, water source and other necessary area in addition to the outer fencing work for the entire Unit 1 area.

2.3 Building and Housing

2.3.1 Office Expansion

The proposed office expansion is planned as follows: (Fig. 2-2)

- a) Renovation of existing parking space to the office specifically as conference room (office I);

- b) Remodeling of existing large room for Japanese experts and counterparts (office II);
- c) The office III will be the office of Japanese Team Leader;
- d) Construction of laboratory, store and additional toilet;
- e) Construction of display shed.

The first priority shall be placed to the above a). to d). to meet with the arrival of Japanese expert. Accordingly the construction of display shed has second priority.

2.3.2 Houses for Farm Manager and Japanese Experts

(1) New House

A three modified grade IV houses and one modified grade III twin house is planned to be located at Ratkinda lakeside in the vicinity of the north end of Ratkinda Dam (Fig.2-3). The details of the houses are illustrated in Fig. 2-4 for Grade IV and Fig. 2-5 for twin house.

The specific advices are listed as follows;

(2) Existing House in Giranduru Kotte

One existing house in Giranduru Kotte will be provided to one of the Japanese experts after its redecoration. The Team recommends that Mr. Bond's house is the most appropriate to the above mentioned house with the same utilities requested to the aforementioned (1) new house.

HOUSING FOR FARM MANAGER & JAPANESE EXPERTS

Housing areas shall have a harmonious appearance and be in keeping with the Ratkinda environment.

Trees

In areas where construction is to take place only under brushing and removal of small trees.

Rocks

Be available for landscape

Specifications

Specifications are the same as Grade III and Grade IV

Notes

Column for corridor/200D wood painted with varnish, external walls/pointed joint painted white, roof/half round tiles.

Utilities	Hall	Living	Bed R.M I	Bed R.MII	Bath R.M	Etc R.M
Insect screen			All rooms			
Wood Screen (with net)	X					
Fan(ceiling)	X	X	X	X		
Bath tub					X	
Hot water supply (E)					X	
Receptacle (wall mounted)	2	3	3	3	1	

Rain water tank will be provided in accordance with the request made by the Japanese experts.

2.4 Electricity, water supply and communication facilities

2.4.1 Electricity

The peak demand of electricity for the project and required substation capacity have been estimated at 230 KW and 400 KVA respectively.

A sufficiently capacitated 33 KV power transmission line and old substation site are available in the project site (fig.2-6(A)). This substation provided with 250 KVA capacity was established for the construction of Ratkinda dam, however, the electric equipment except pole, wire and foundation had been removed after the completion of the construction work of dam. Although, CEB Mahiyangana suggested the Team to utilize the existing facilities, new construction or sufficient rehabilitation will be necessary to the proposed 400 KVA substation for the project.

After stepped down the voltage from 33 KV to 440 volt at the proposed substation, the distribution line (440 volt, 3 phase, 50 Hz) will be constructed in the earliest time of 1985 for the entire project area which approximate alignment is illustrated in Fig.2-6 (A) to (C). Hence, the peak power demand of the plant facility was estimated at 130 KW.

2.4.2 Water Supply

The maximum daily water supply has been estimated at 80 cu.m based on the daily demand for the rice processing plant and the domestic demand which are analysed on the basis of 20 cu.m for the plant and 50 gallons/head/day for the domestic use respectively.

The existing ground water sources are available at the existing office, Toda's temporary shed and the shallow well along a creek flowing about 400 meter north of the project area. However, the Team judged that the ground water sources in and around the site are relatively poor in both quantity and quality to meet with the project requirement based on the water quality test and the information collected at Water Resources Board.

According to the investigation, the surface water in the existing tanks is broadly utilized in System 'C' area. Therefore, the water from Ratkinda Reservoir can be proposed for the water supply source for the project with simple purification in the concrete tank and necessary disinfection such as chlorination.

The Team's recommendation for the water supply system are presented in Fig. 2-6 (A) to (C).

The water purification tank composed of gravel, fiber, little charcoal or equivalent, etc shall be constructed together with water tank. A sample design for large scale facility is available in MECA for the Area Center of System 'B'.

The proposed pump of the water source for the project can be specified approximately as follows:

- Self priming pump (75 mm dia.)
- Design discharge : 3 liters per second
at 7 meters for static suction head
and 30 meters for total head.

The layout for the water supply system is illustrated in Fig. 2-6 (A) to (C).

2.4.3 Telephone and Radio

1) Telephone

At least one telephone line or preferably two lines are recommended to be installed at office and Farm Manager/Japanese expert quarters. The proposed minimum slave stations of telephone linkage are as follows:

office : 4 linkage telephones

one for Japanese Team Leader
one for Japanese expert's room.

Quarters : 5 linkage telephones

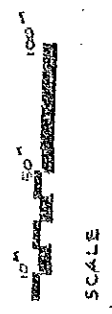
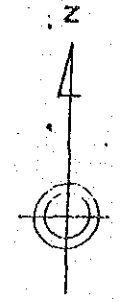
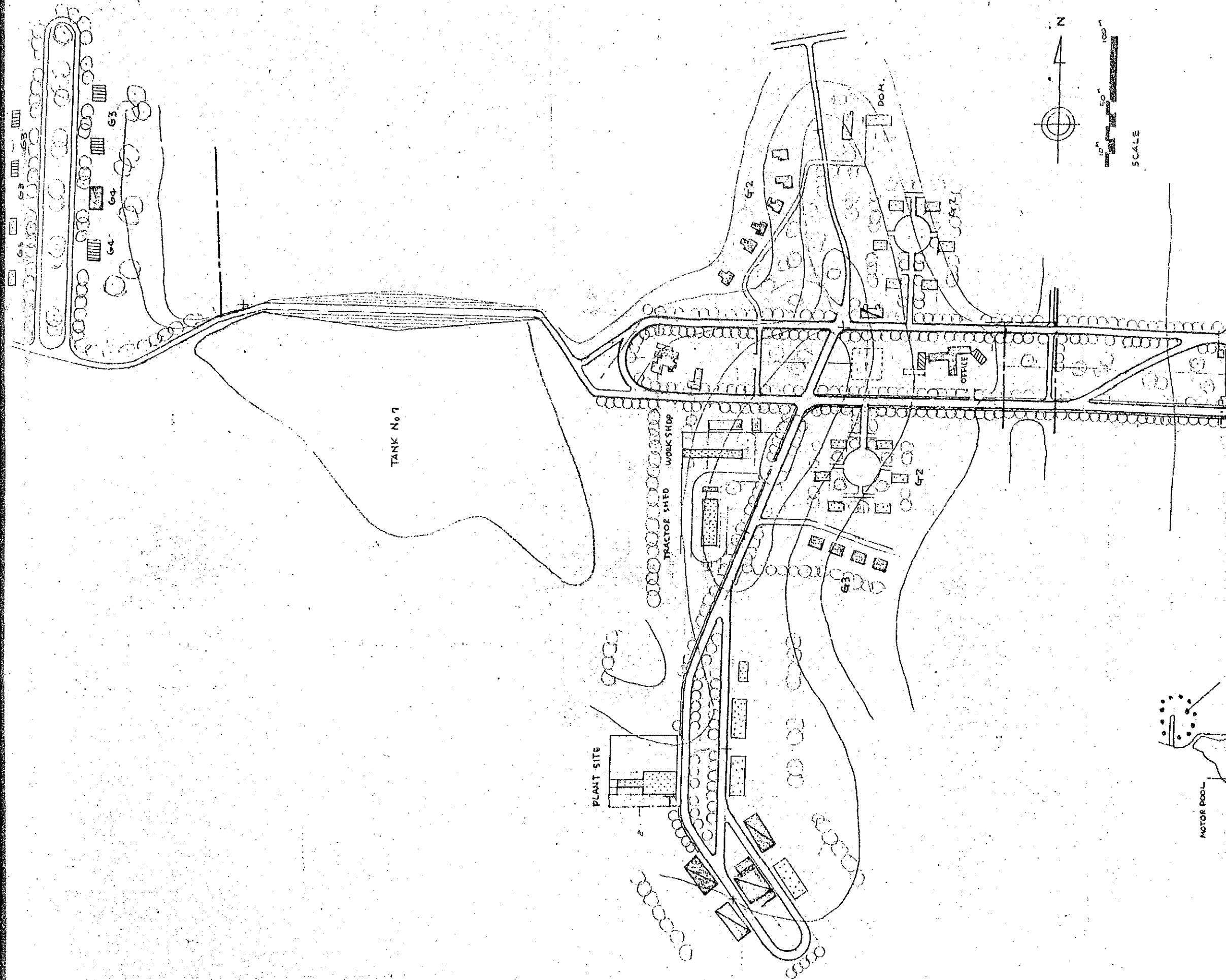
one for Japanese twin house
one of each for two Japanese Gr.IV houses.

In addition to the above, one telephone facility is required to the Japanese expert's house in Giranduru Kotte.

2) Radio

The MECA's radio system communicable to Colombo are established at 18 stations in System 'C' and its nearest station is located at the Ulhitiya Circuit Bungalow. On the other hand, MEA has 29 sets of VHF radio system communicable within the System 'C' area. One of the above system has already installed at existing office in the Project area. The Team recommends that one additional radio set will be installed at proposed Farm Manager's house in the Japanese Expert's Quarters.

FIG. 2-1

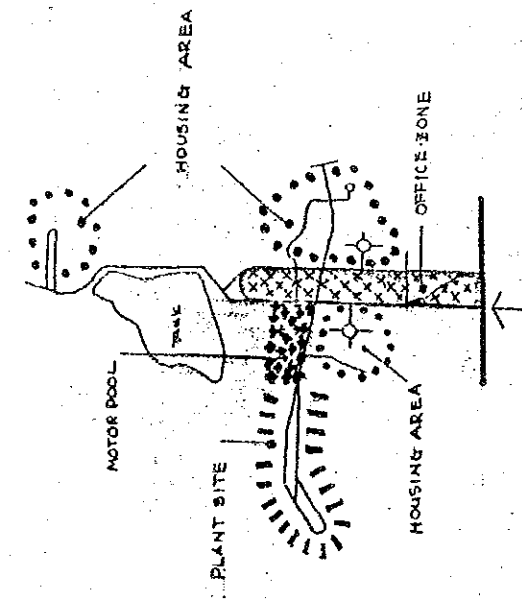


SCALE

LEGEND

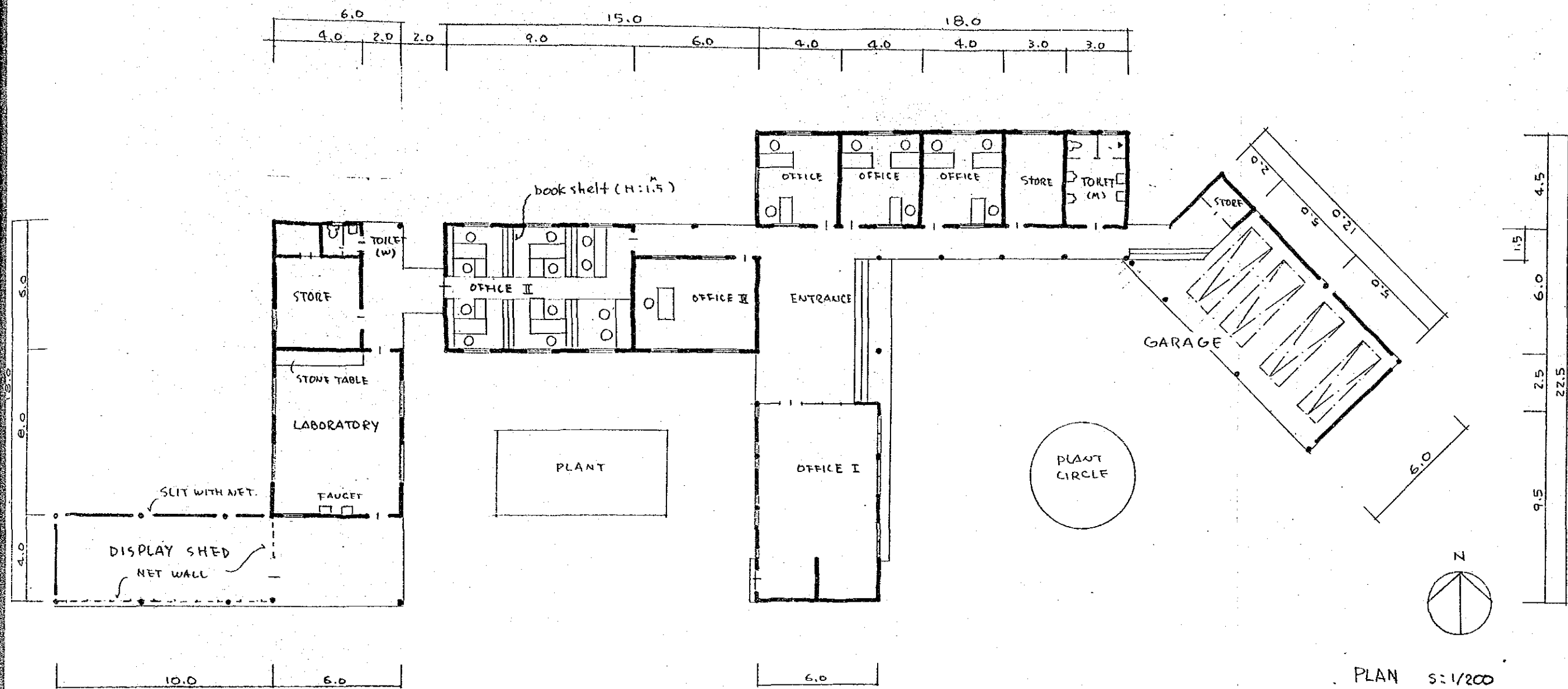
- EXISTING
- UNDER CONST.
- B5
- B6
- OFFICE EXPANSION

PLOT PLAN OF CENTER



ZONING

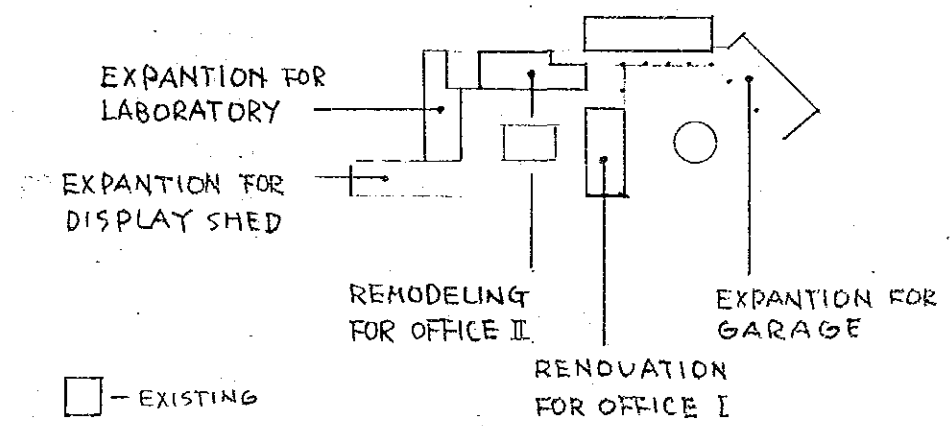
FIG 2-1



UTILITIES	40W FL	CL	SWITCH	RECEPTACLE (WALL MOUNTED)	INSECT SCREEN
OFFICE I	+ 3x2		+ 2	6	○
OFFICE II	—		+ 2	+2	—
LABORATORY	9x2		2	6	○
STORE	2x2		1	2	○
TOILET (w)	—	1	1	1	○
DISPLAY SHED	4x2		2	3	—
GARAGE	5x2		2	1	—

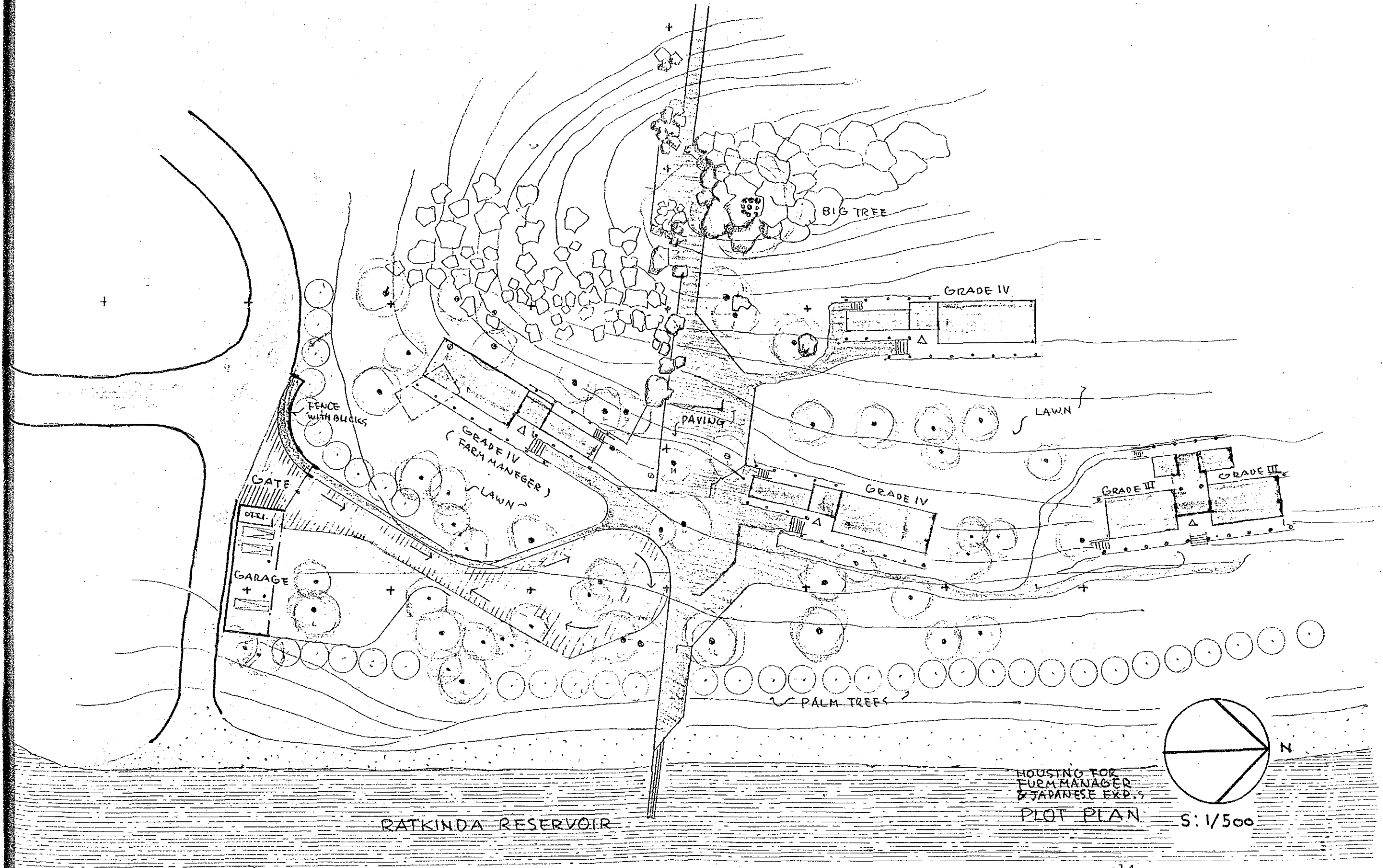
FL: FLUORESCENT TUBE LIGHT
CL: INCANDESCENT LAMP

NOTE: SPEC. & DETAILS ARE THE SAME AS EXISTING.

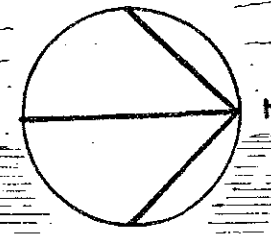


OFFICE PLAN

Fig. 2-3

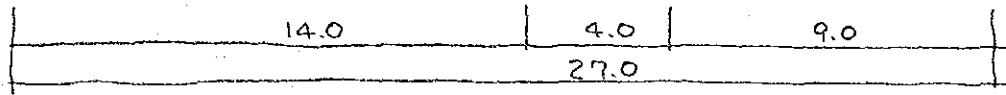
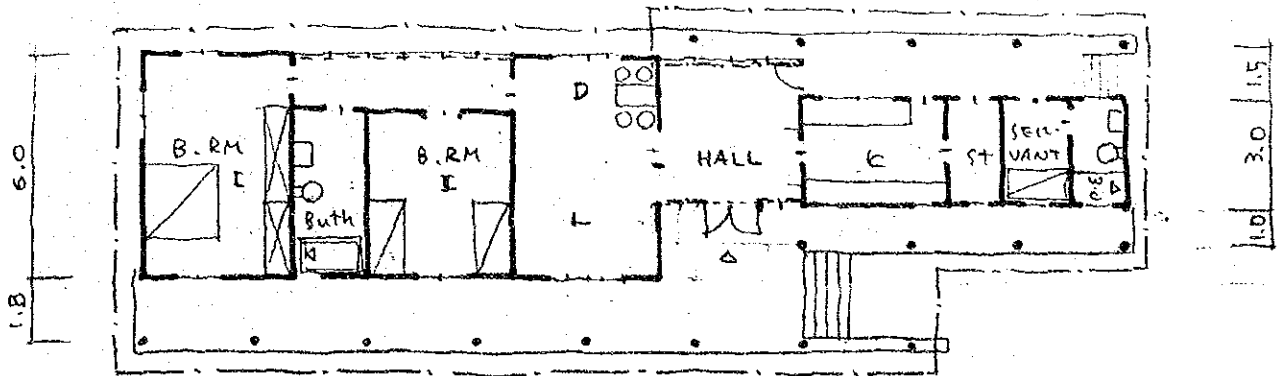


HOUSING FOR
FARM MANAGER
& JAPANESE EXP.S
PLOT PLAN



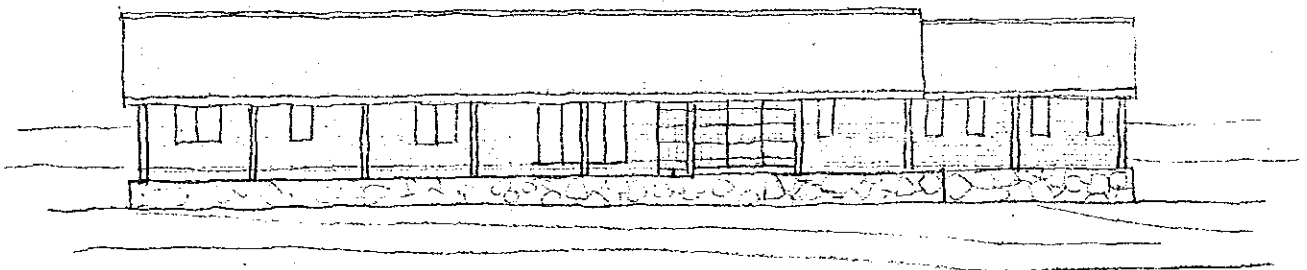
S: 1/500

FIG. 2-4

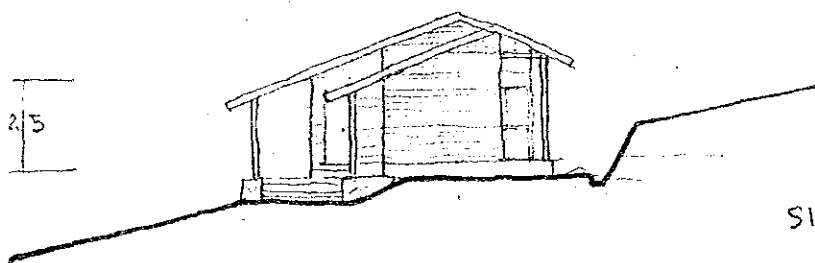


--- WOOD SCREEN WITH NETS

PLAN
S: 1/200



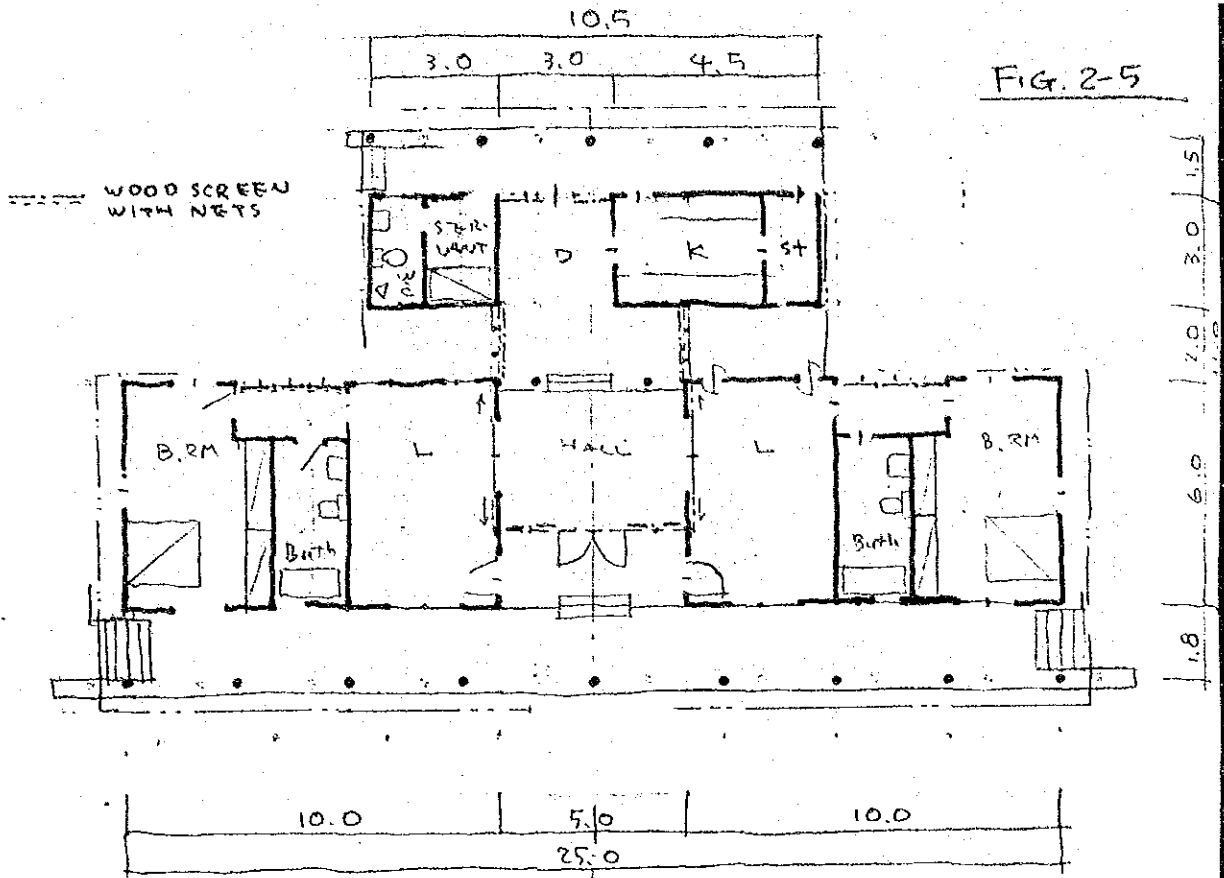
FRONT ELEV.
S: 1/200



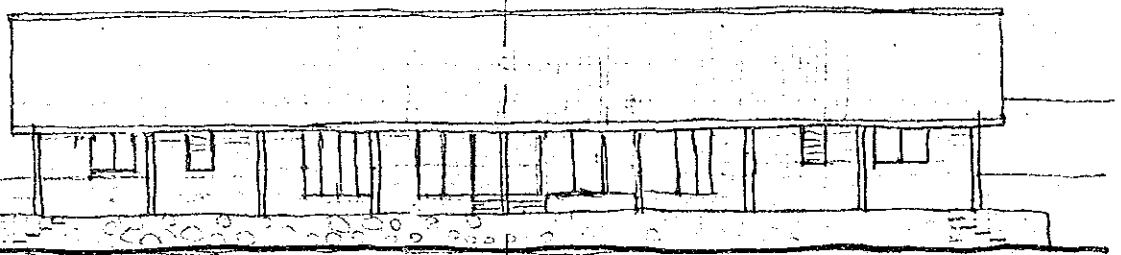
SIDE ELEV.
S: 1/200

GRADE IV

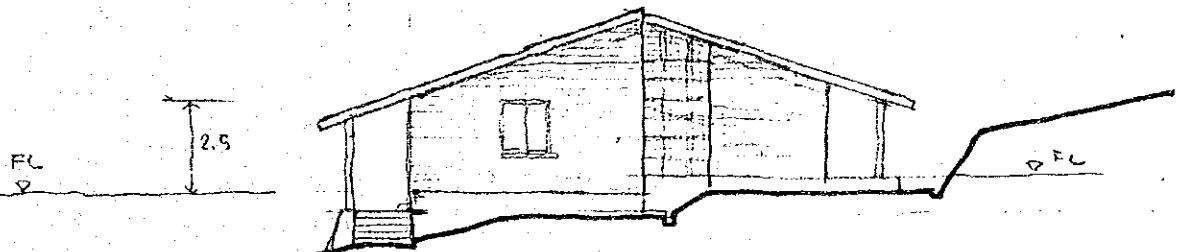
FIG. 2-5



PLAN.
S: 1/200



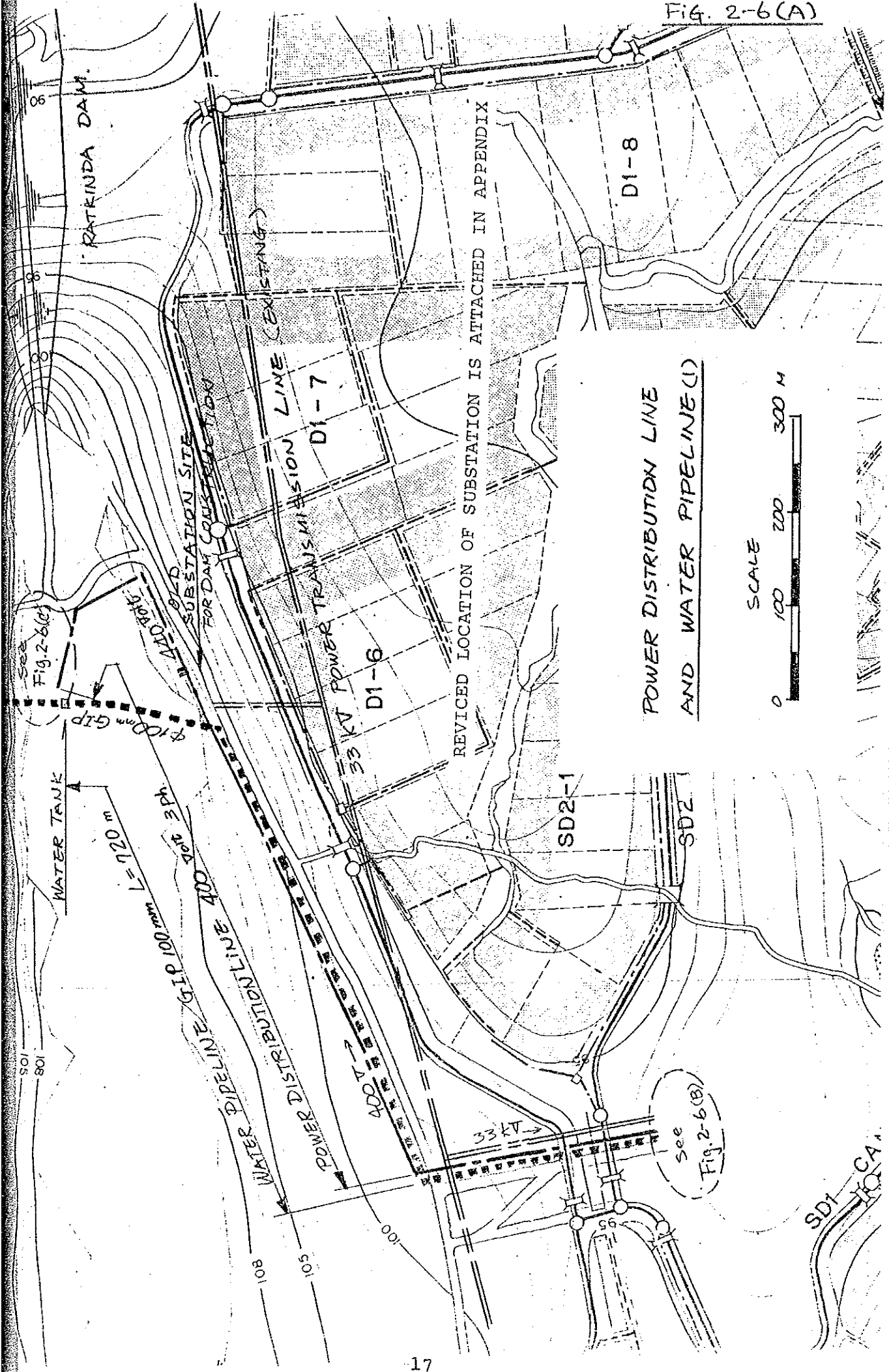
FRONT ELEV.
S: 1/200



SIDE ELEV.
S: 1/200

GRADE III TWIN HOUSE

FIG. 2-6(A)

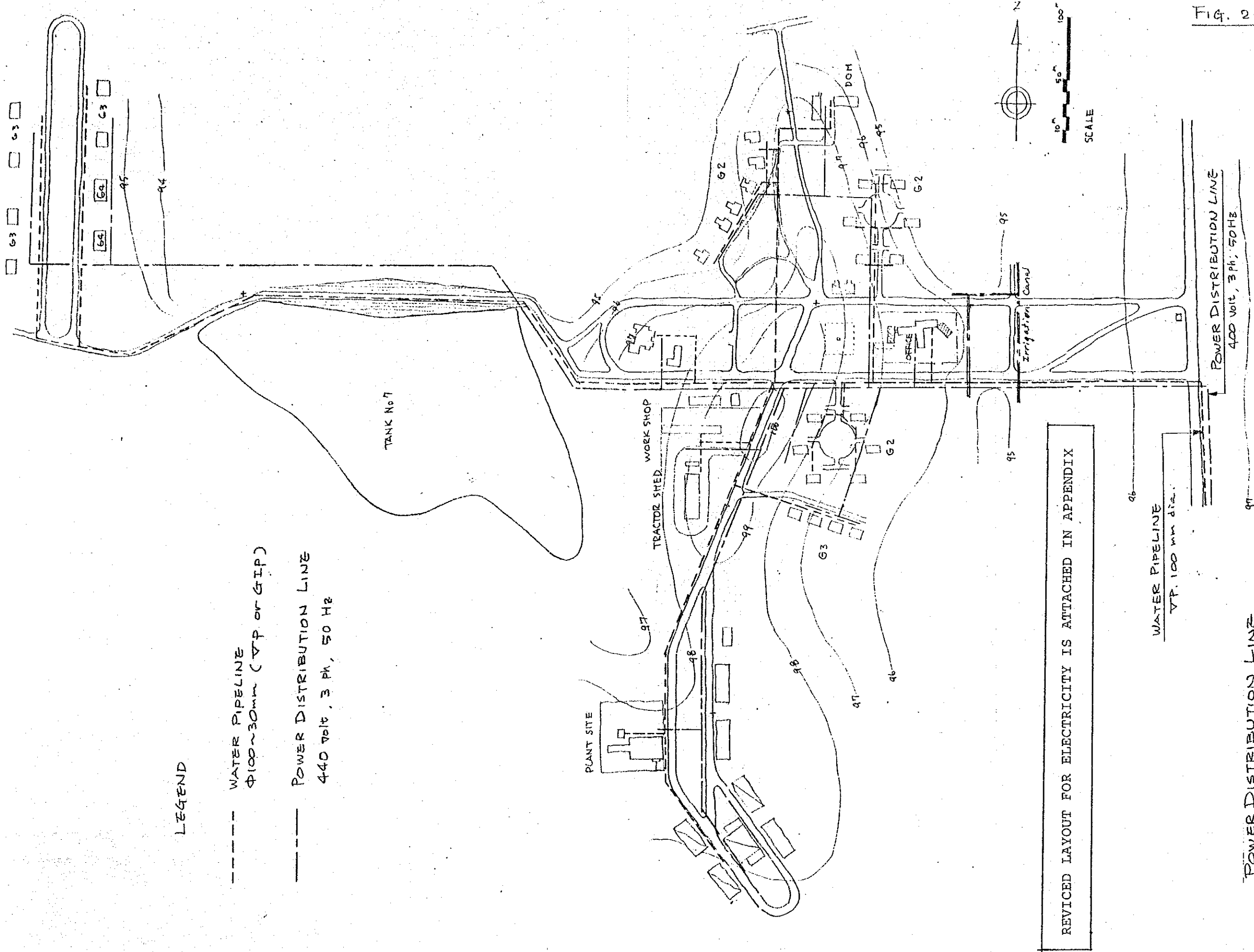


REVISED LOCATION OF SUBSTATION IS ATTACHED IN APPENDIX

POWER DISTRIBUTION LINE
AND WATER PIPELINE (C)

SCALE
0 100 200 300 M

Fig. 2-6(B)



LEGEND

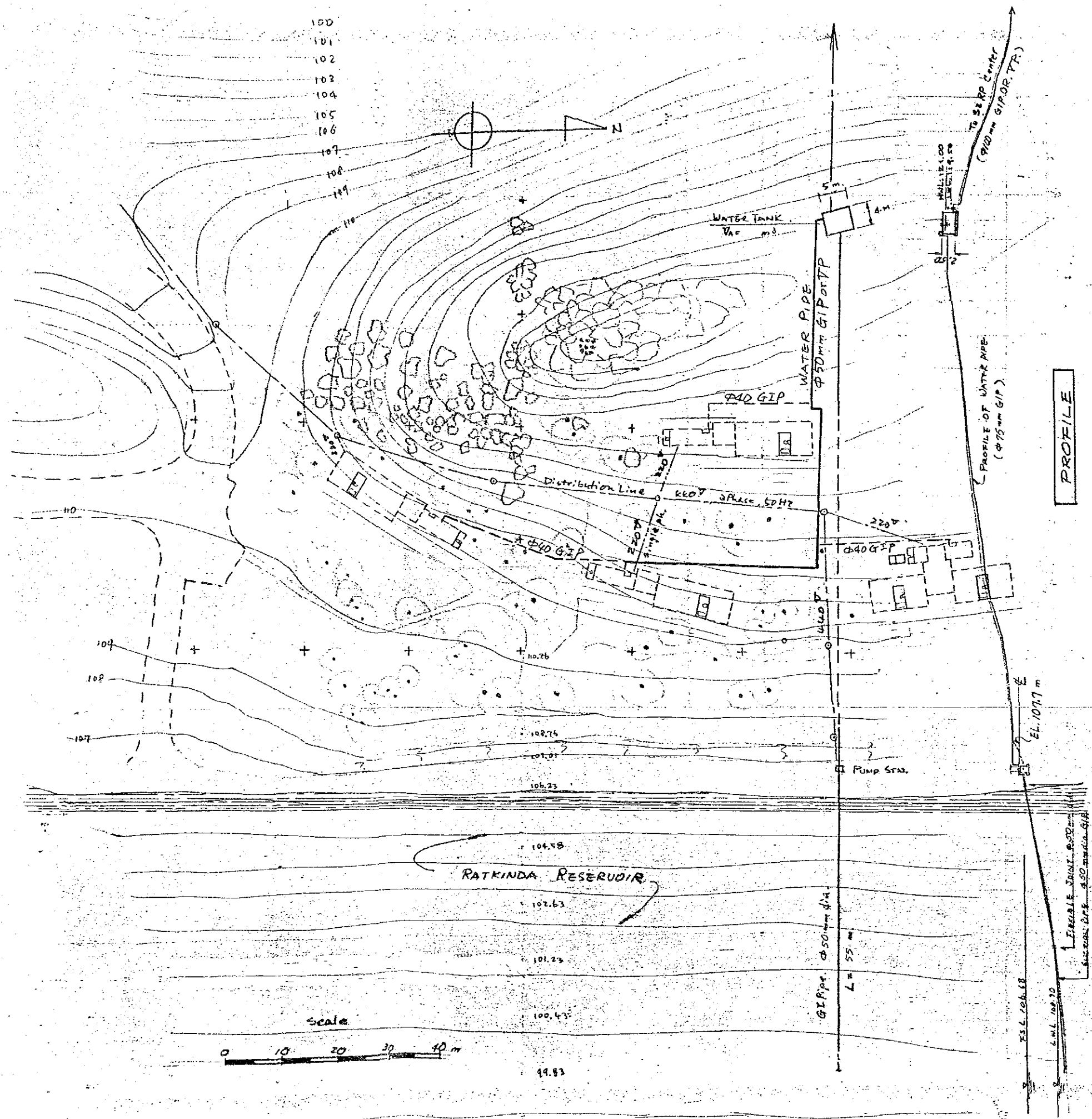
--- WATER PIPELINE
φ100~30mm (VP or GIP)

— POWER DISTRIBUTION LINE
440 volt, 3 ph, 50 Hz

REVISED LAYOUT FOR ELECTRICITY IS ATTACHED IN APPENDIX

WATER PIPELINE
VP, 100 mm dia.

POWER DISTRIBUTION LINE
AND WATER PIPELINE (2)



POWER DISTRIBUTION LINE AND WATER PIPELINE (3)

CHAPTER III PRELIMINARY DESIGN

3.1 General

This chapter abstracts the tentative layout of the facilities which will be finalized in home office as a detailed design.

3.2 Rice Processing Plant.

3.2.1 Cropping Pattern for Seed Farm

Development of an organized production scheme for rice seed has been the focal point of Government of Sri Lanka in its agricultural development programme. The present rate of renewal of the certified seed of improved varieties of paddy in use is insufficiently about 10% in entire Sri Lanka. This level is too low for a systematic seed production, therefore in System 'C', MEA has planned to establish a Government Seed Farm for 22000 ha. of newly developed land. The paddy area of the seed farm is 194 ha, and the cropping pattern, cropping programme and varieties are as follows;

Cropping Pattern (refer to Fig. 3-1)

Cropping Programme:

Age Group (months)	Season	
	Maha	Yala
4-4½	10%	60%
3½	30%	30%
3	60%	10%

Varieties:

Age group (months)	Variety
4-4½	Bg 11-11
	Bg 400-1
3½	Bg 94-1
3	Bg 34-8
	Bg 276-5

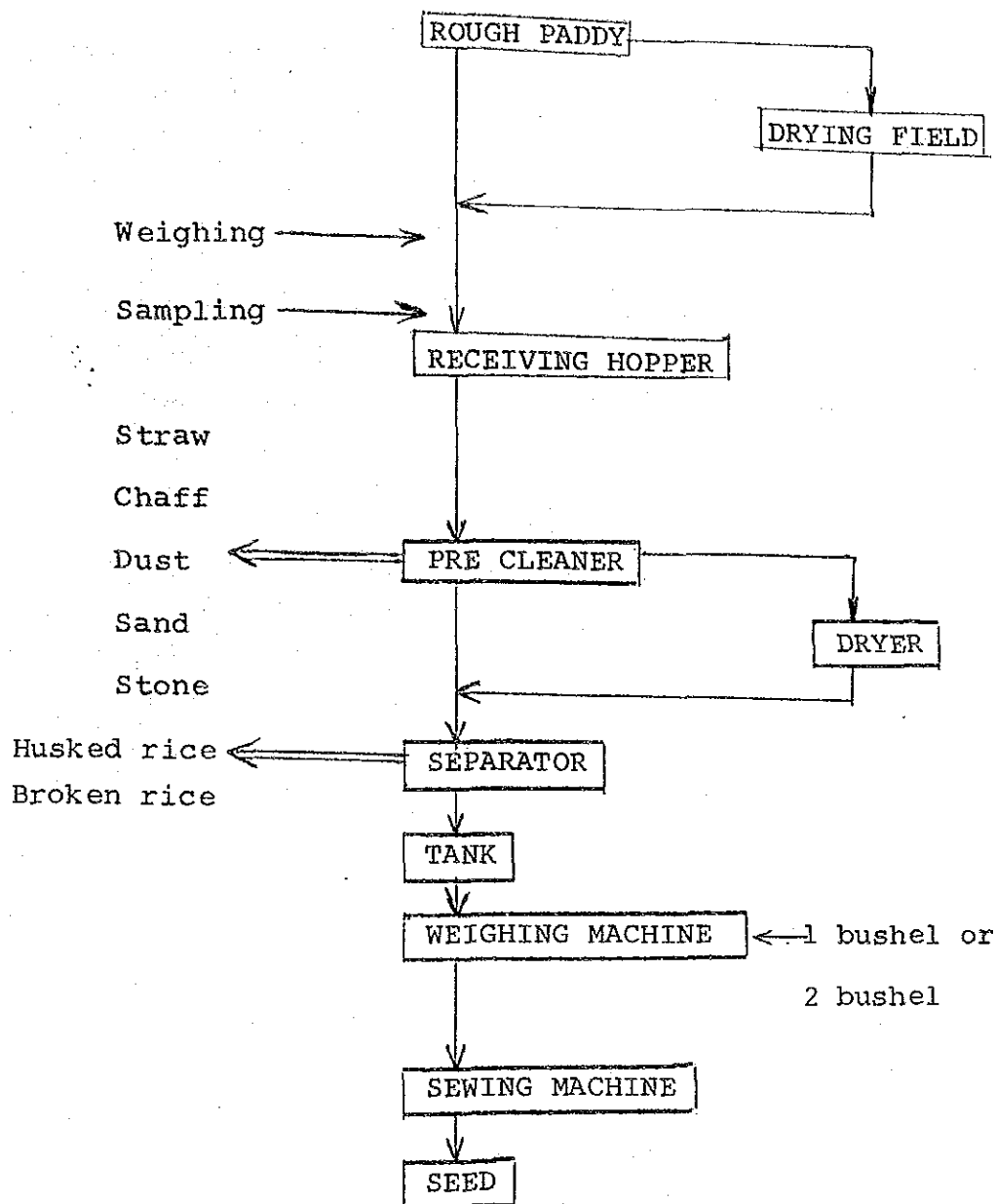
MEA will provide this certified seed for each farmers every 4 seasons. Therefore the expectant rate of renewal of the certified seed is 25% and this is the target for the renewal rate in entire Sri Lanka.

3.2.2 Seed Processing Plant

In this plan, the high quality seed harvested in the seed farm is to be distributed to the farmers for their sowing in subsequent crop season. Accordingly it is necessary to clean the paddy within 45 days as is judged from the fig. 3-1. The capacity of this Seed Processing Plant is as follows;

Seed Requirement Area in System 'C'	22000 ha.
Cropping Intensity	175%
Seed Requirement	5 bushel/ha
Renewal Pattern	25%
Seed Requirement per year	1000t
per season	500t
Available Seed Processing Days per Season	45 days
Max. Cleaning Quantity per Day	12t
Capacity of Seed Processing Plant	1t/hr.
	(at 14% W.E. paddy)
Operating Hours	12 hrs.
	(2 shift at peak time)

The flow-chart for Seed Processing Plant is as follows;



Notes: Traditional threshing method (using cow or tractor) is not recommended for the seed and proposed plant. Since this method not only causes to damage to seed, but also produces heavy impure paddy. The application of the Power thresher or Manual Thresher is recommended.

3.2.3 Parboiling Plant

On the Demonstration Farm, one of the most important purposes is to demonstrate parboiling and milling plant for production of high-quality rice.

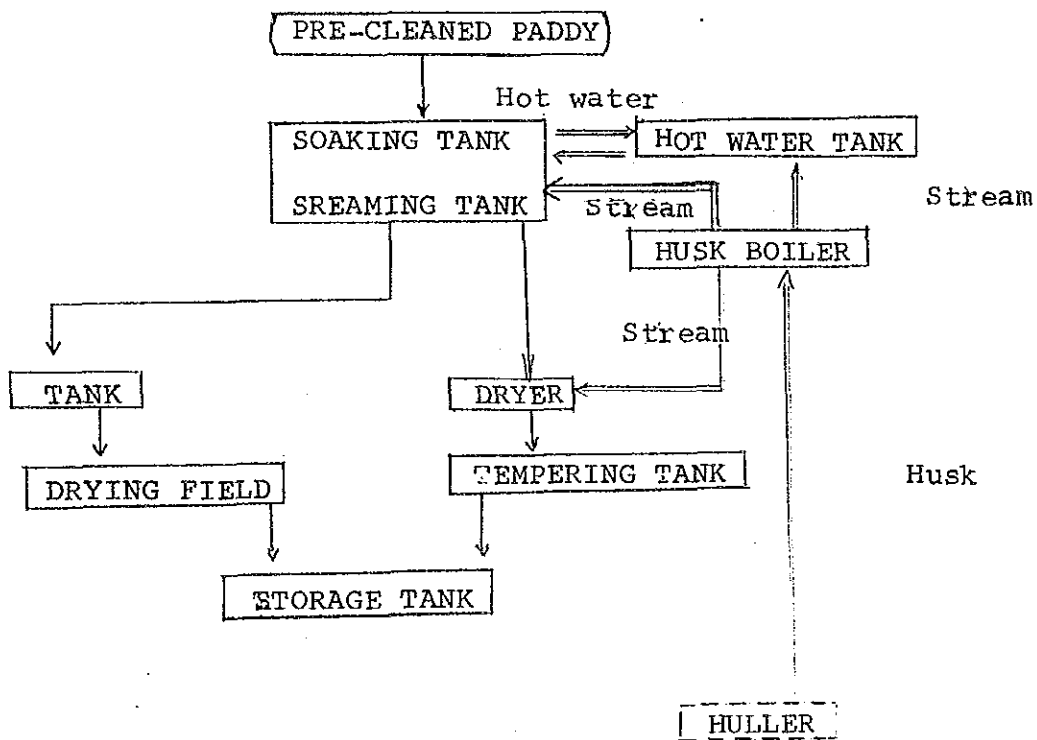
The methods of parboiling are Traditional Process, C.F.T.R.I. Process, Avorio Process, Converted Rice Process, Malek Process, Fernandes Process etc. The most popular method is Traditional Process in Sri Lanka, but this method is disadvantageous to produce the high quality rice because of the strong smell by fermentation. C.F.T.R.I. method is mainly employed by PMB which produces comparatively high quality parboiling rice. The proposed plant will be designed based on the further study in home office with due consideration of operation and maintenance experiences in Sri Lanka, etc.

Paddy for Parboiling in the proposed plant uses the surplus paddy from seed farm. The capacity of the Parboiling Plant is as follows:

Paddy Yield in Seed Farm	100 bushel/acre
Paddy Area for Seed Farm	194 ha
Paddy Yield	997 t
Seed Requirement in System 'C'	500.5t
Surplus of Paddy	496.5t
Available Parboiling Days per season	100 days
Design Processing Capacity	5t/day
Capacity of Parboiling Plant	2.5t/batch-2 units

Operating Hours	Soaking	4.5 h
	Steaming	0.5 h
	Drying (1st)	5h
	Tempering	8h
	Drying (2nd)	4h
	Loading ,	
	<u>Unloading</u>	<u>2h</u>
		24h
	(3 shift)	

The flow-chart for Parboiling Plant is as follows:



Notes: Concerning the runing cost, Husk Boiler is recommended for heat supply.

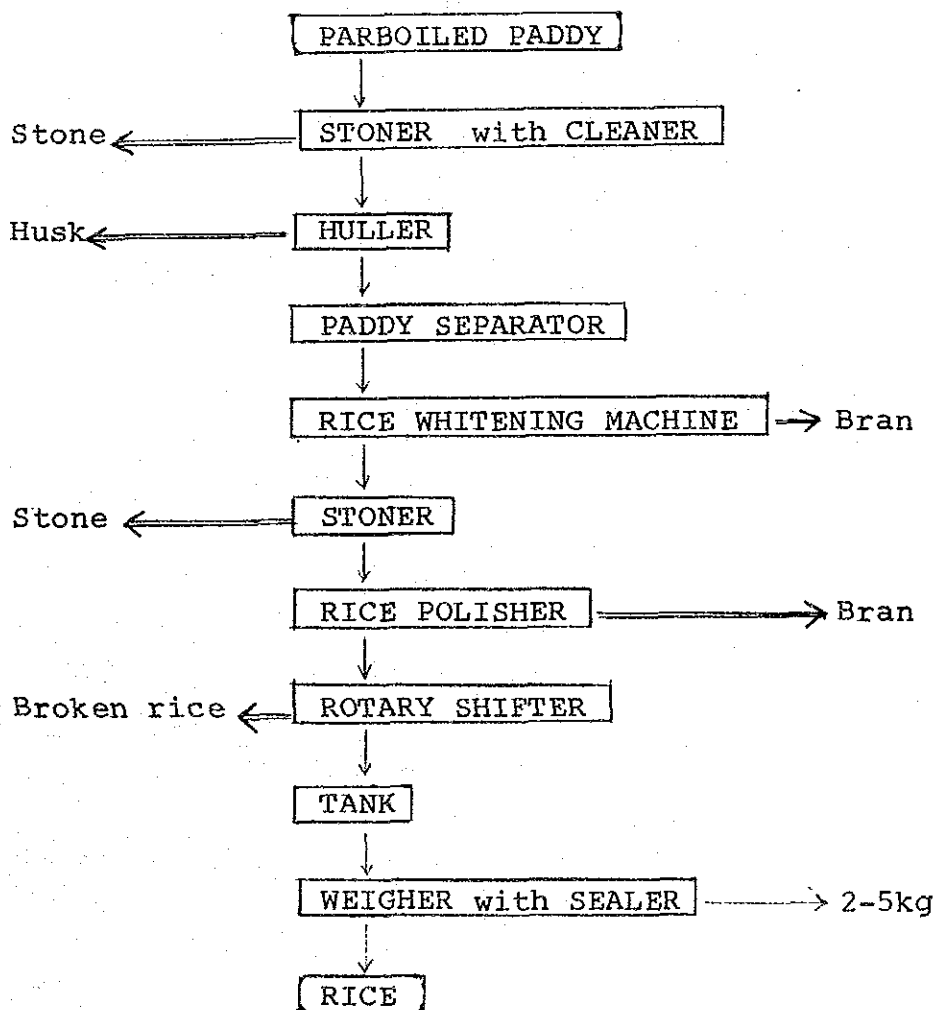
3.2.4 Rice Milling Plant

For the purpose of production of high-quality rice, Rice Milling Plant need rubber roll huller, some variety of separator including de-stoner and rice whitening machine that can be used for Parboiled Paddy.

The capacity for Rice Milling Plant is as follows:

Milling quantity per Day	5t/day
Capacity of Milling Plant	1t/h
Operating Hours	5h

And the flow-chart of Rice Milling Plant is as follows:



3.2.5 Plant Layout

A tentative lay out is illustrated in Fig.3-2

notes: Requirement area of drying field is estimated at as follows

Existing Drying Feild Area	432 m ²
Initial Moisture of Paddy	22%
Drying Quantity of paddy per Day	12t(at 14% w.b.)
Bulk Density (paddy)	580 Kg/m ³
Drying Quantity Parboiled paddy per day	5t(at 14% w.b.)
Bulk Density (parboiled paddy)	600Kg/m ³
Recommended spread Height	2 cm
Necessity Area of Drying Field for paddy	1138m ²
for parboiled paddy	550m ²
Total Requirement of Drying Area	1688m ²
Short-age of Drying Area	1256m ²
	(48m x 26m)

3.3 Plant Building

Based on the aforementioned plant layout, the tentative dimension and basic design has been illustrated as Fig.3-3 (A) & (B).

3.4 Other Buildings

3.4.1 Workshop

After reviewing the necessary working spaces the accommodate all the workshop equipment and machinery, the dimension of 6 meter wide and 36 meter long space has been obtained as Fig.3-4.

3.4.2 Tractor Shed

The dimension of 12 meter wide and 36 meter long space has been employed as Fig.3-5, based on the study of the number and space for each tractor, tractor equipment etc.

3.4.3 On-Farm shed

Based on the discussion with concerned personnels of the existing farm, 5 meter wide and 10 meter long space has been hired as Fig. 3-6.

3.5 Demonstration/Experimental Farm

3.5.1 Existing Condition

The present plan of the proposed demonstration/Experimental farm is presented in Fig. 3-7.

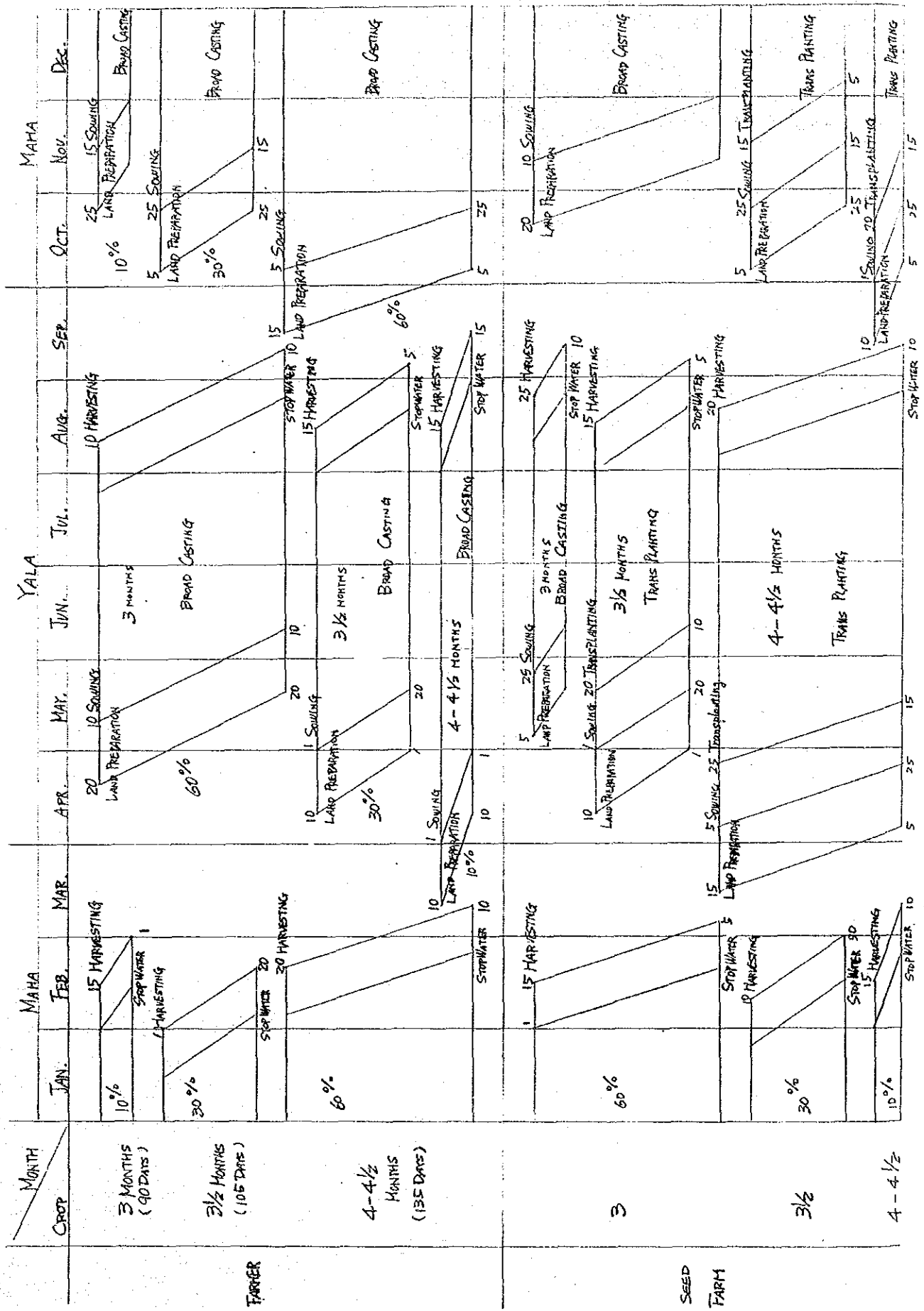
3.5.2 Preliminary Design




Based on the field investigation, survey and discussion with concerned personnel, the terminal on-farm facilities

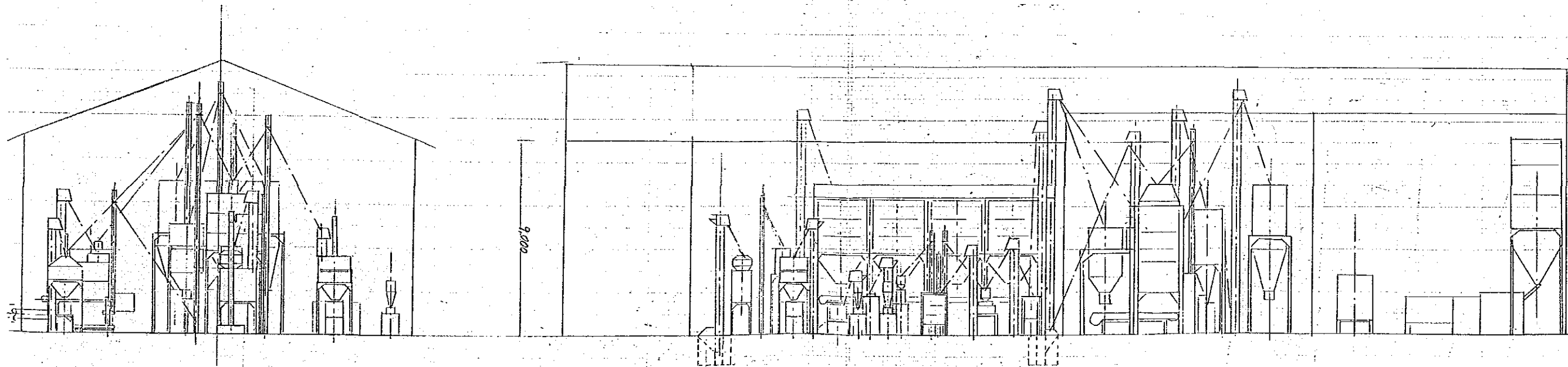
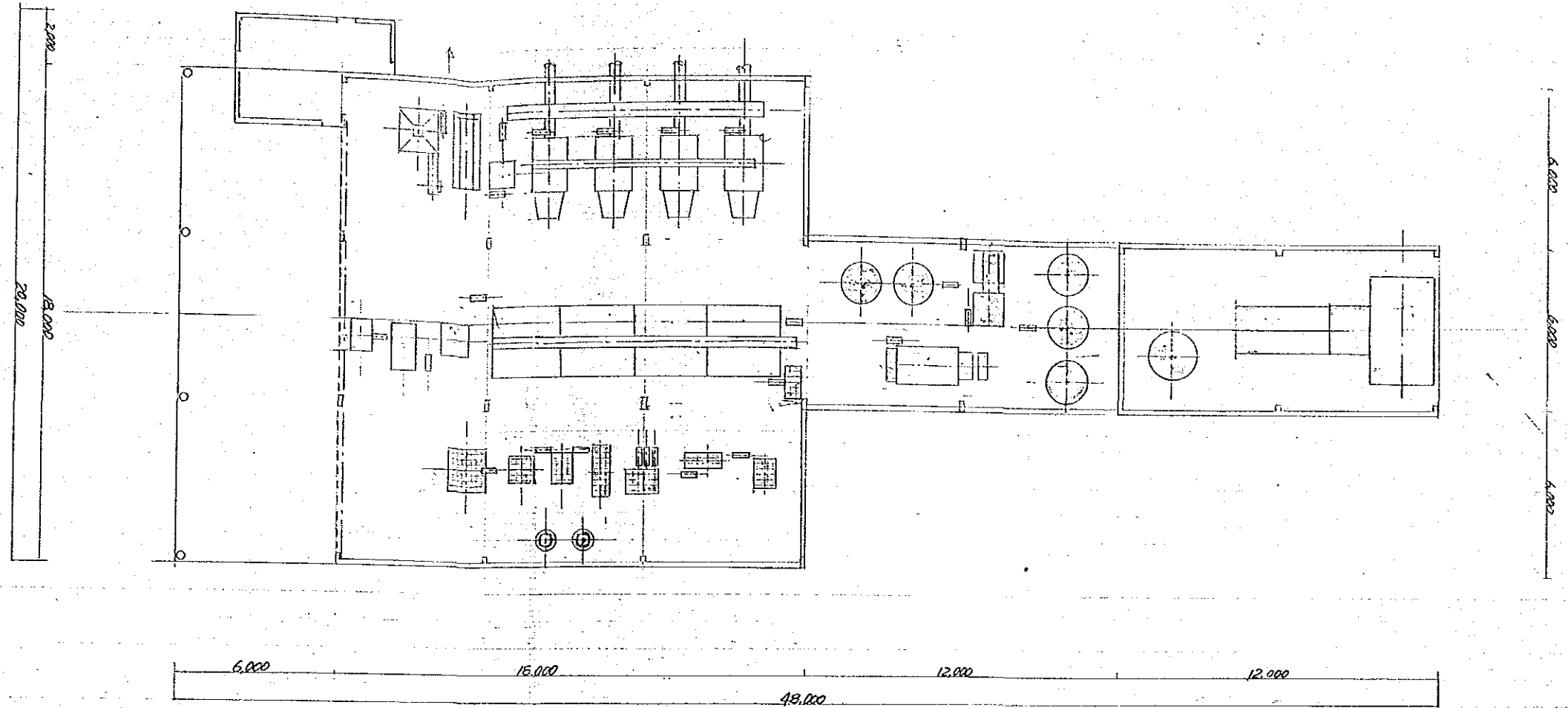
such as inspection path, farm ditch, field drain, fencing and minor improvement facilities have been recommended to construct for future demonstration, experiment and water management practices.

CROPPING PATTERN (FARMERS IN SYSTEM 'C' AND SEED FARM)

FIG. 3-1

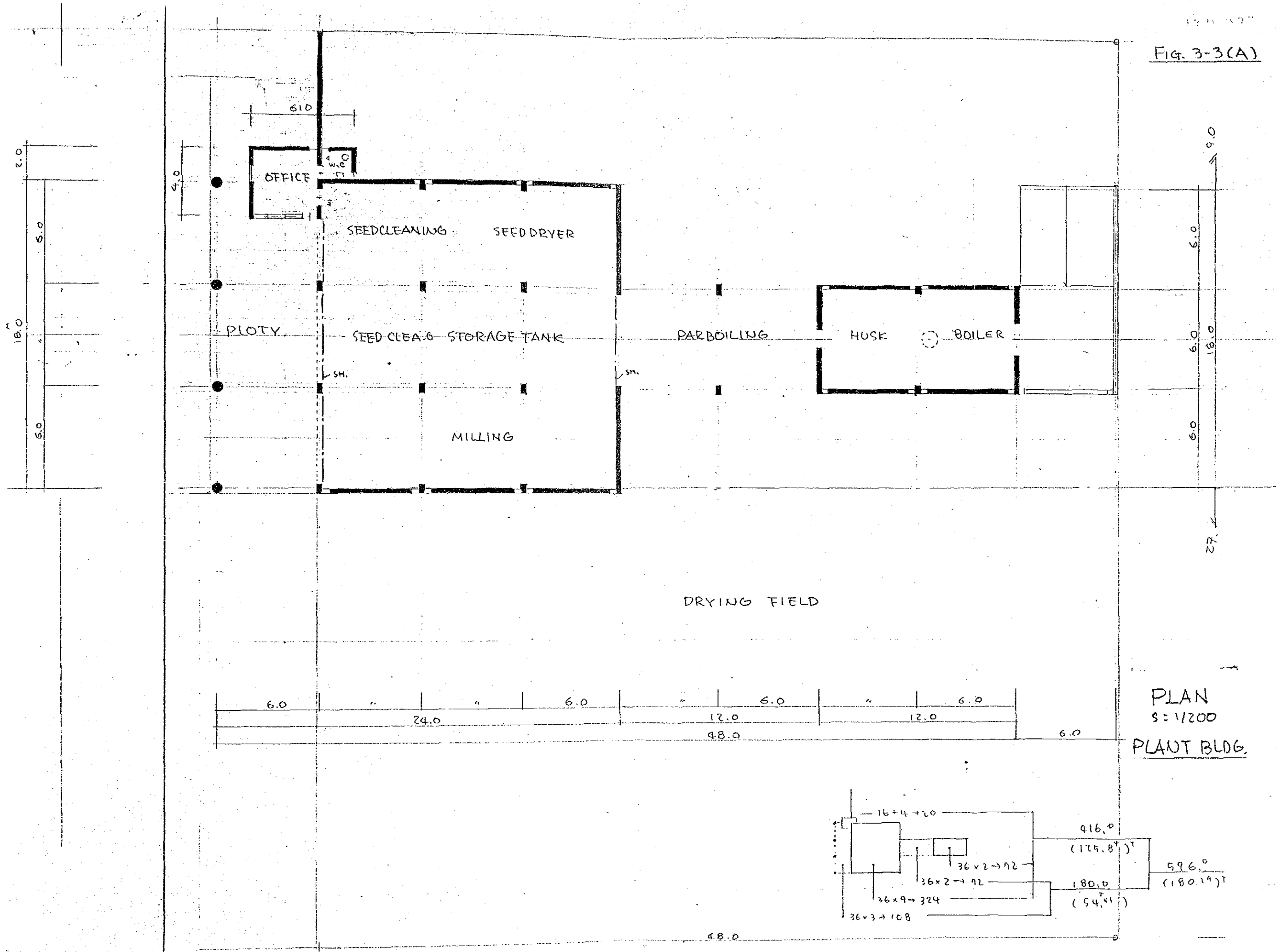


-  SEED CLEANING PLANT
-  PARBOILING RICE PLANT
-  MILLING PLANT



TENTATIVE PLANT LAYOUT

Fig. 3-3(A)



PLAN
S: 1/200
PLANT BLDG.

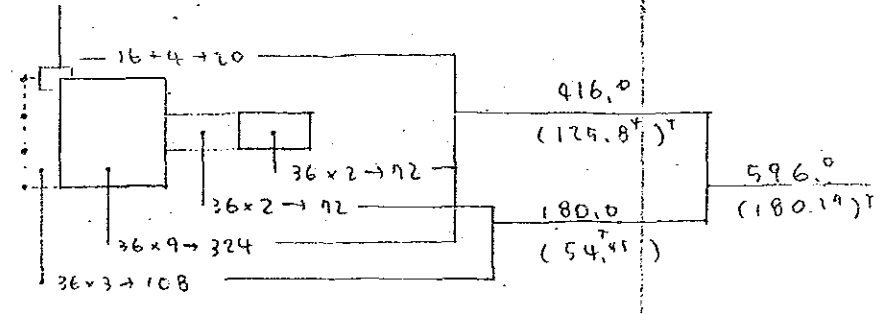
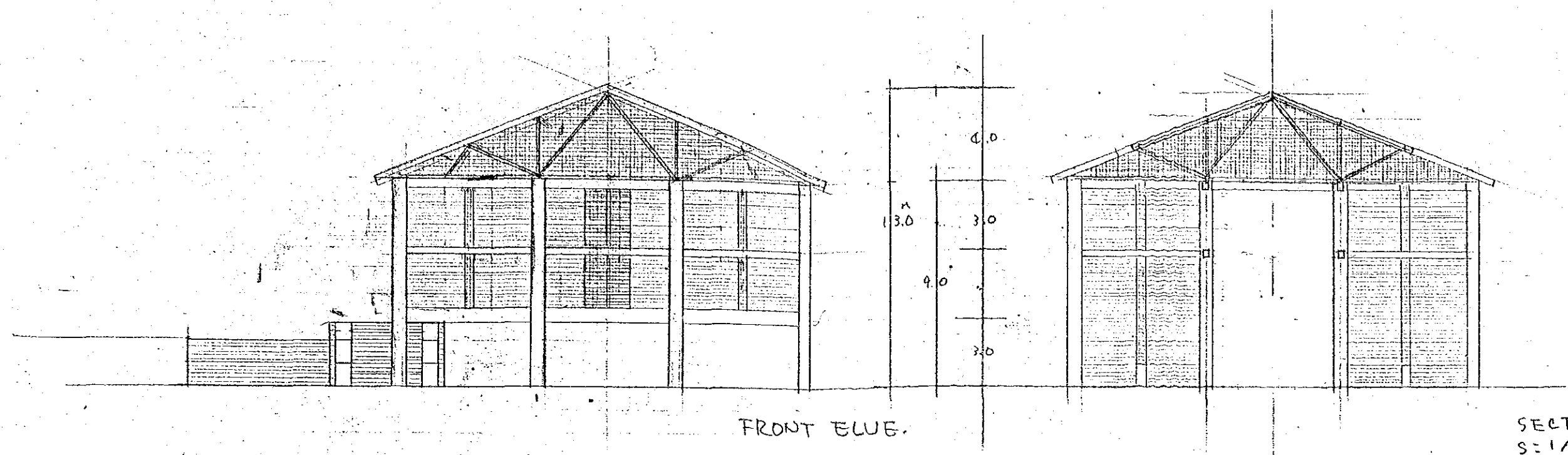
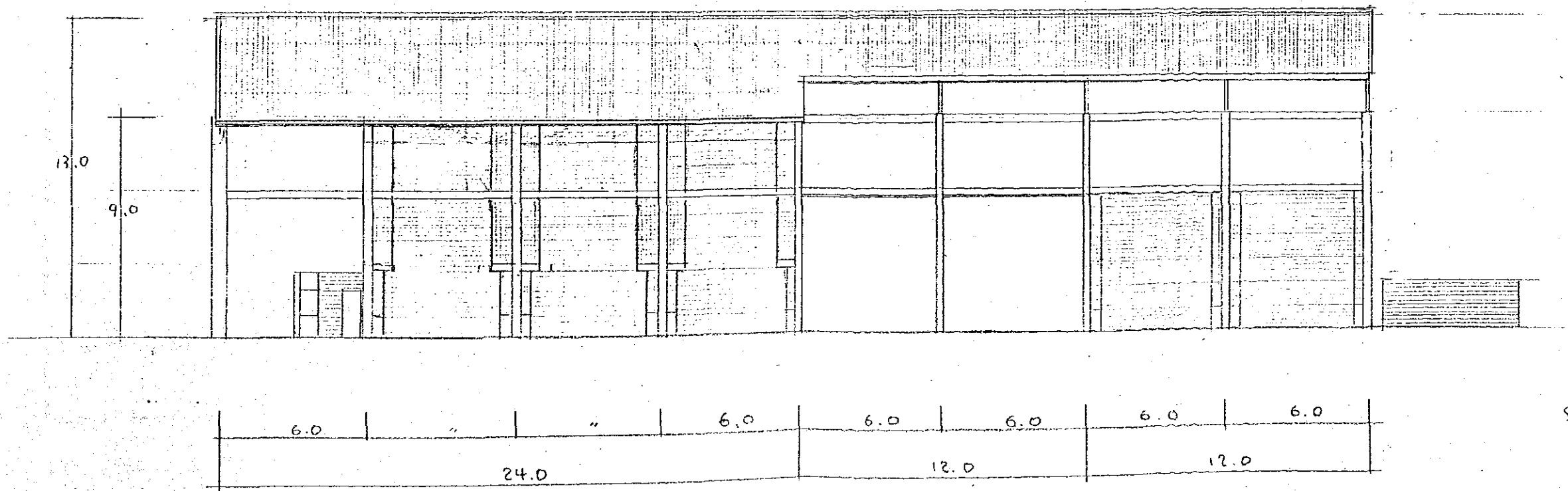


FIG. 3-3 (B)



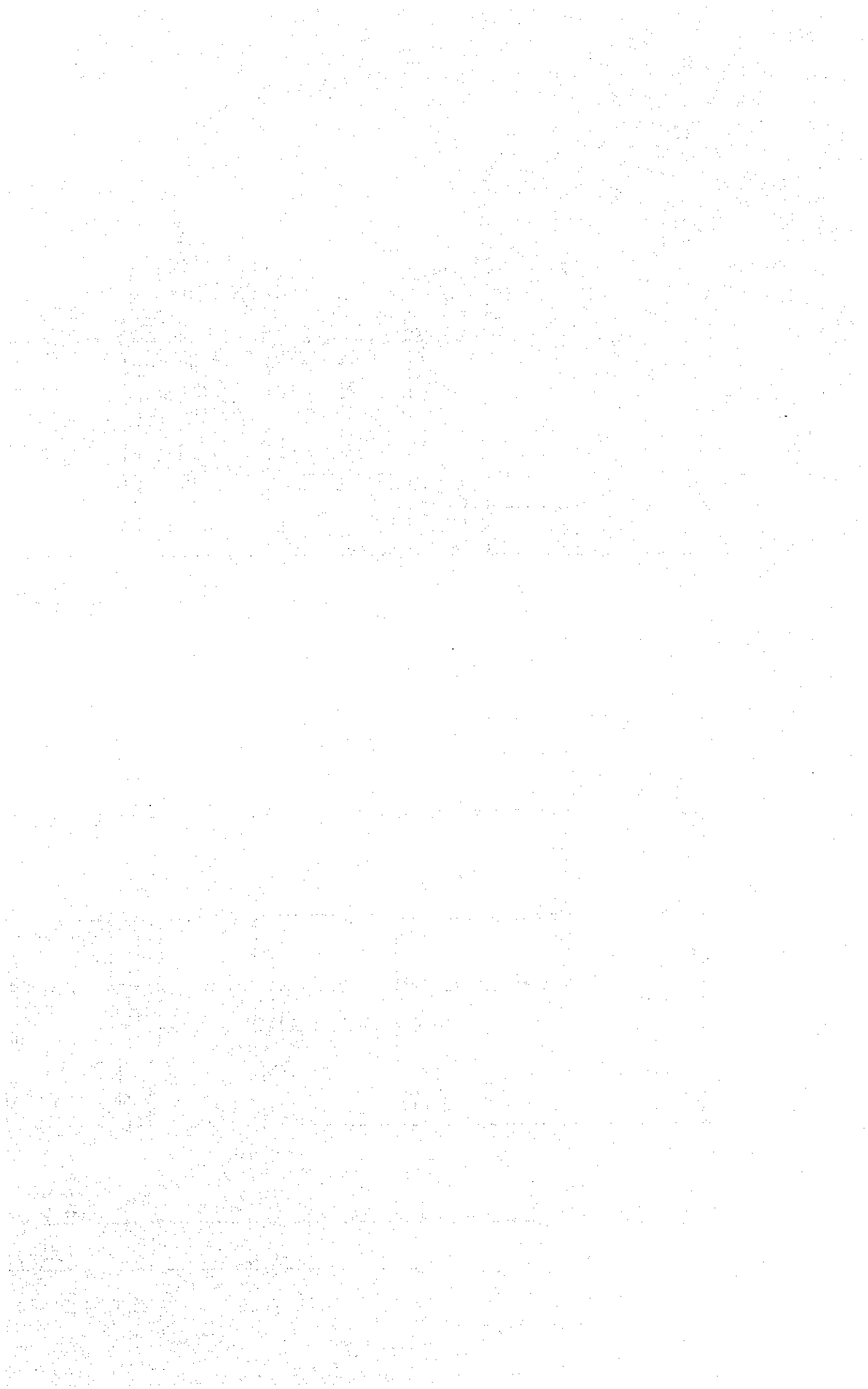
FRONT ELEV.

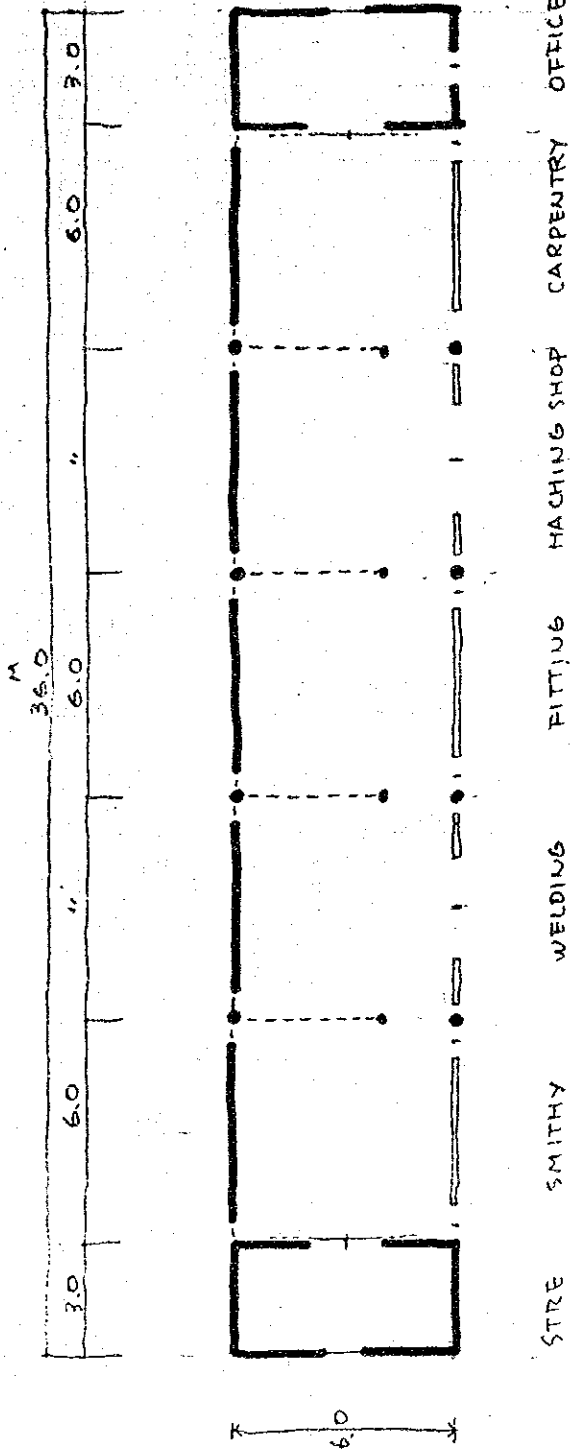
SECT.
S: 1/200



SECT.
S: 1/200

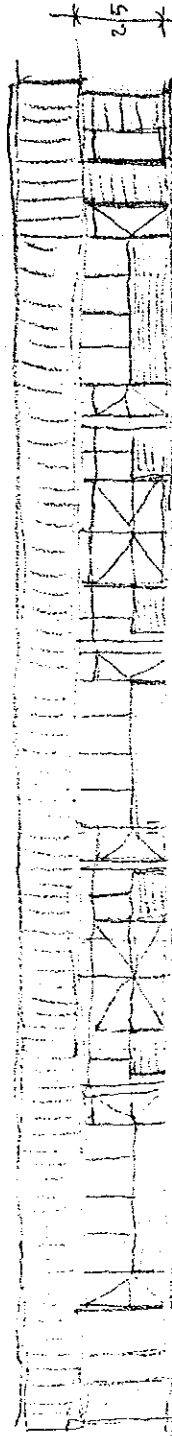
PLANT BLDG.



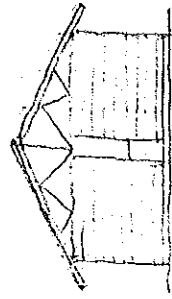


PLAN.

STRE SMITHY WELDING FITTING HACHING SHOP CARPENTRY OFFICE



FRONT ELVE.



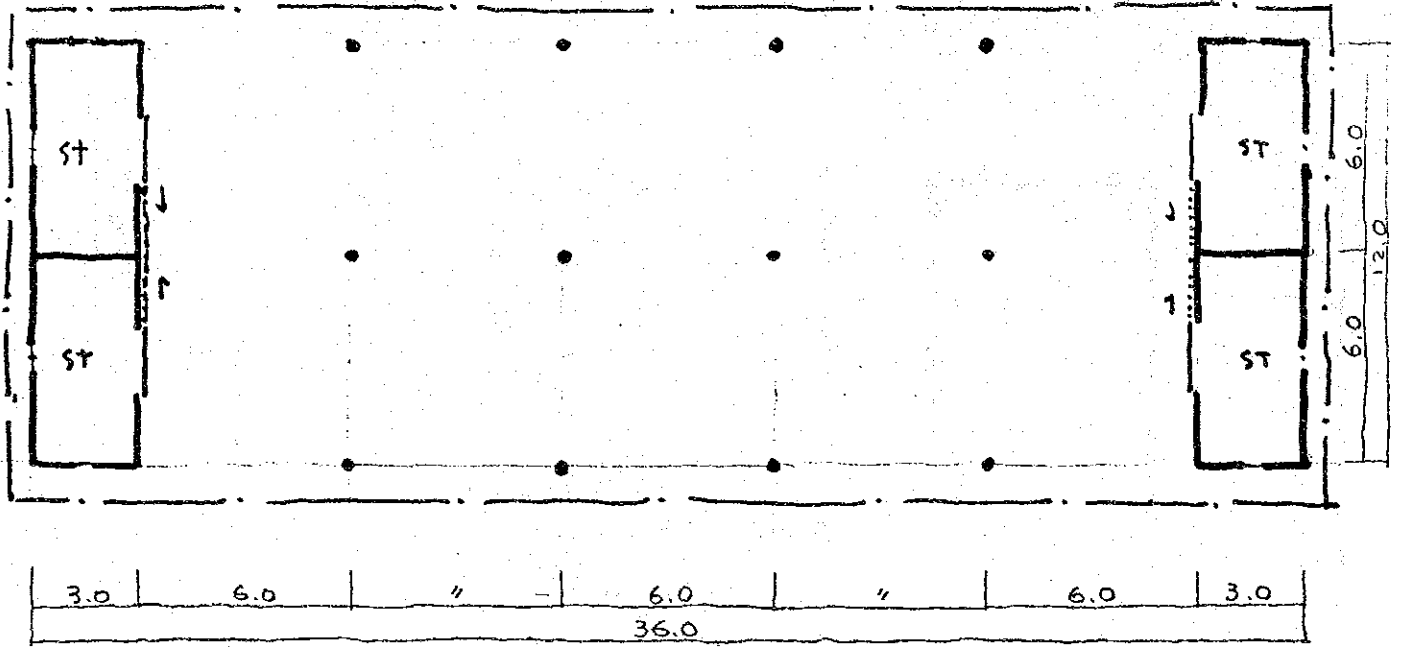
SIDE ELVE.

S = 1/200

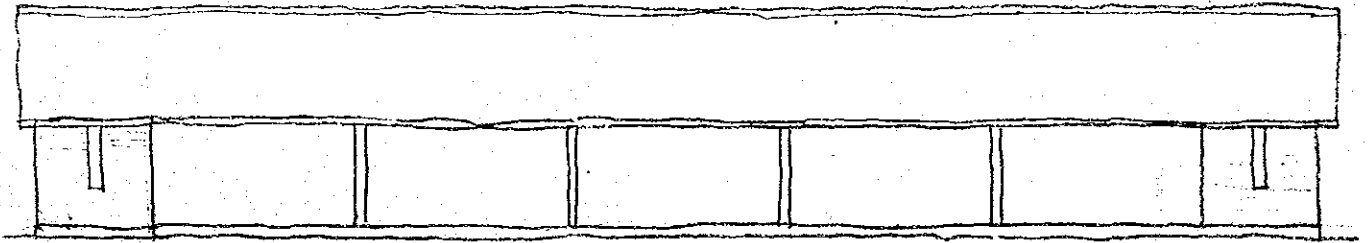
FIG. 3-4

WORK SHOP

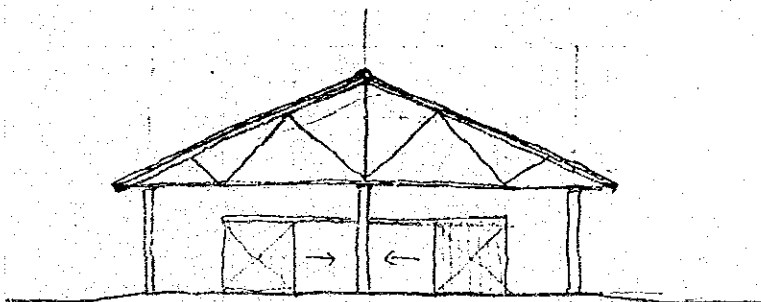
FIG. 3-5



PLAN
S: 1/200



ELEV.
S: 1/200

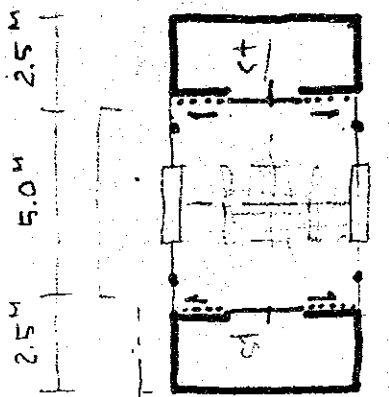


SECT.
S: 1/200

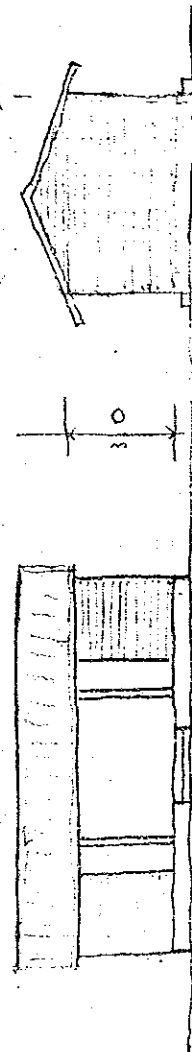
TRACTOR SHED

FIG. 3-6

ON-FARM SHED



PLAN
S: 1/200



FRONT ELEV.

SIDE ELEV.

FIG. 3-7

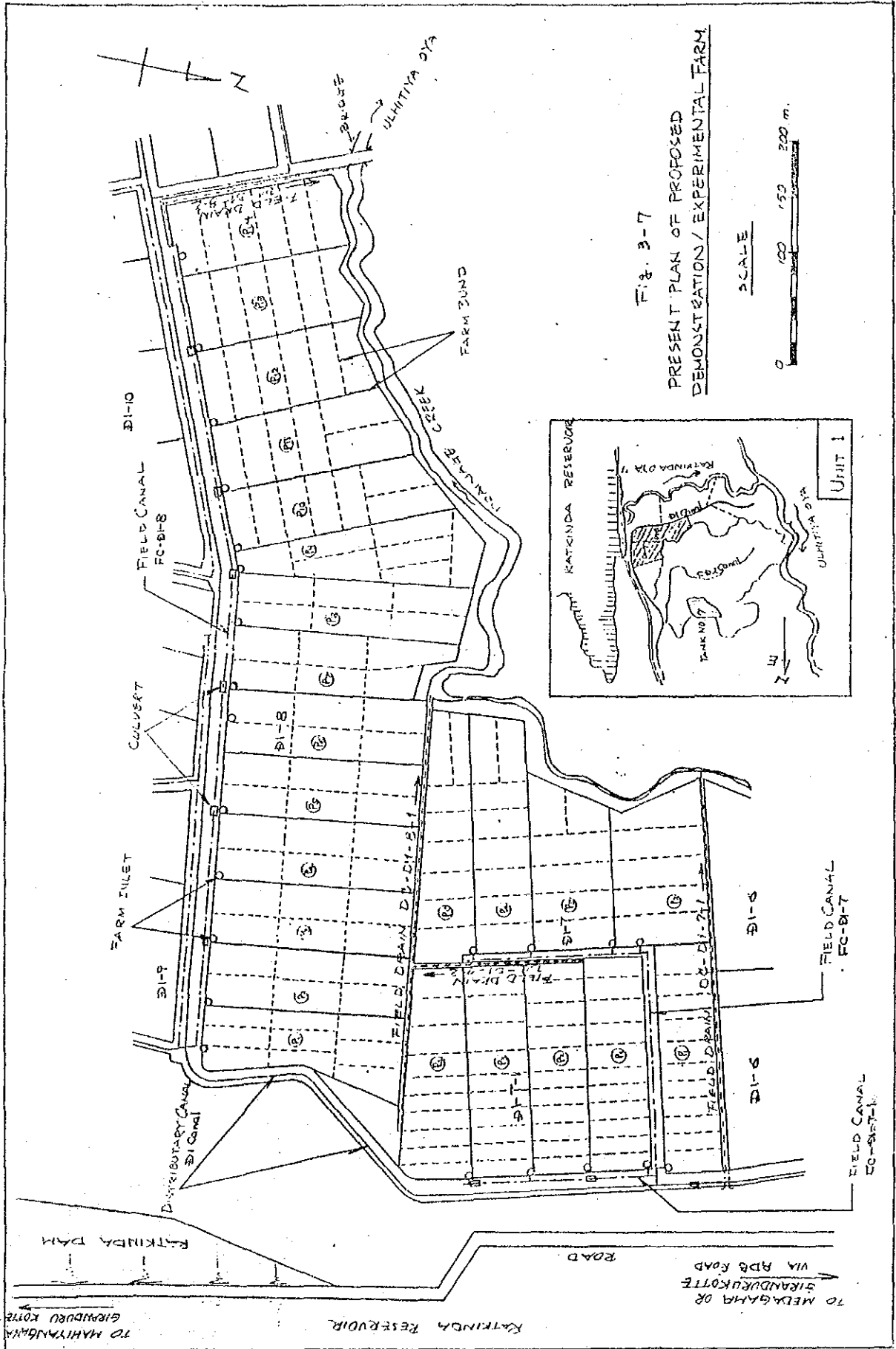
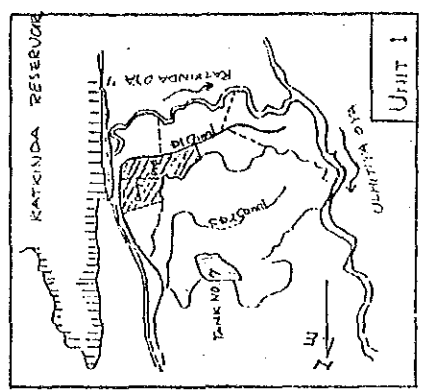
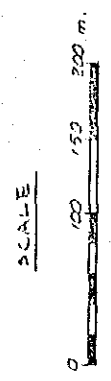
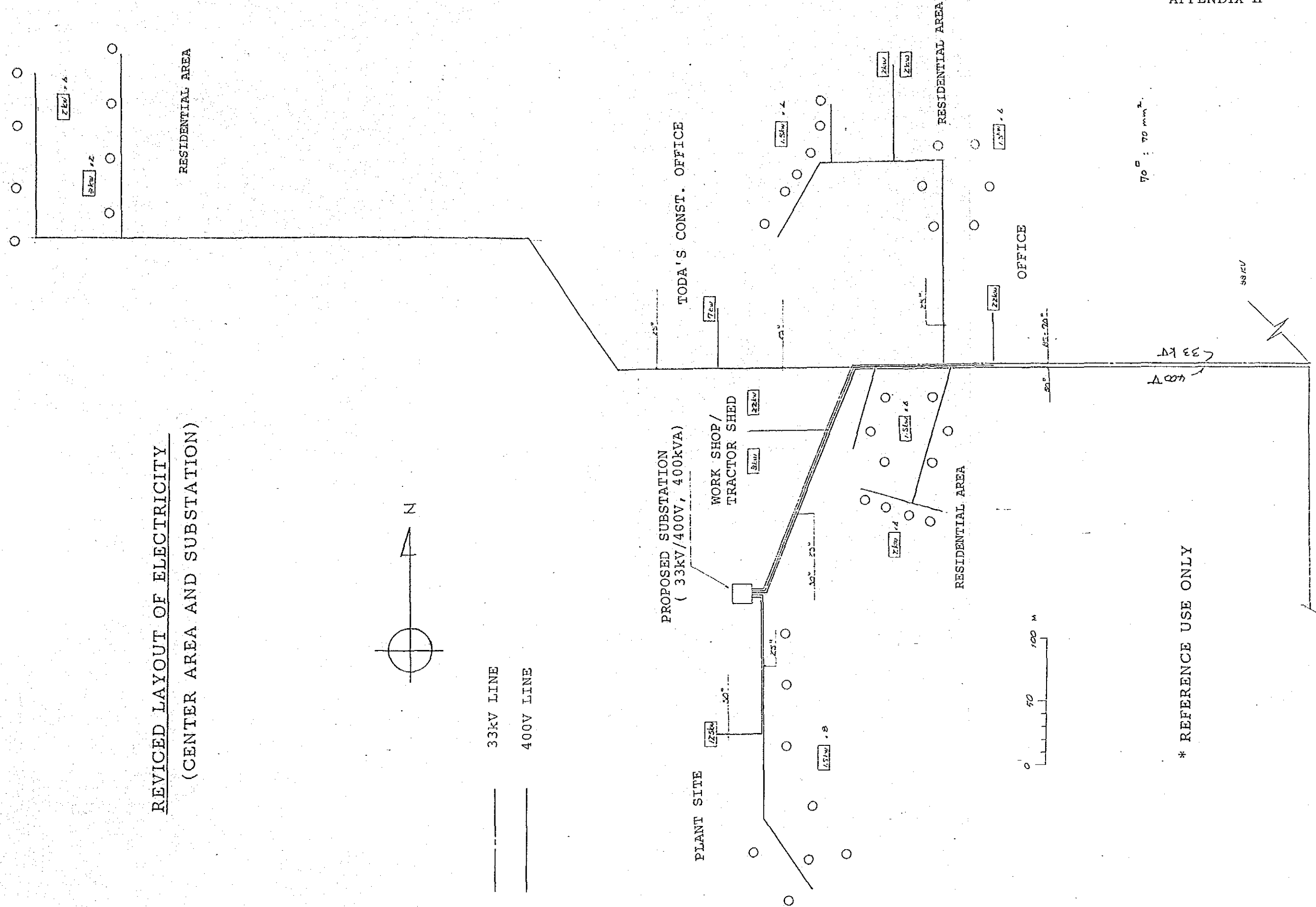


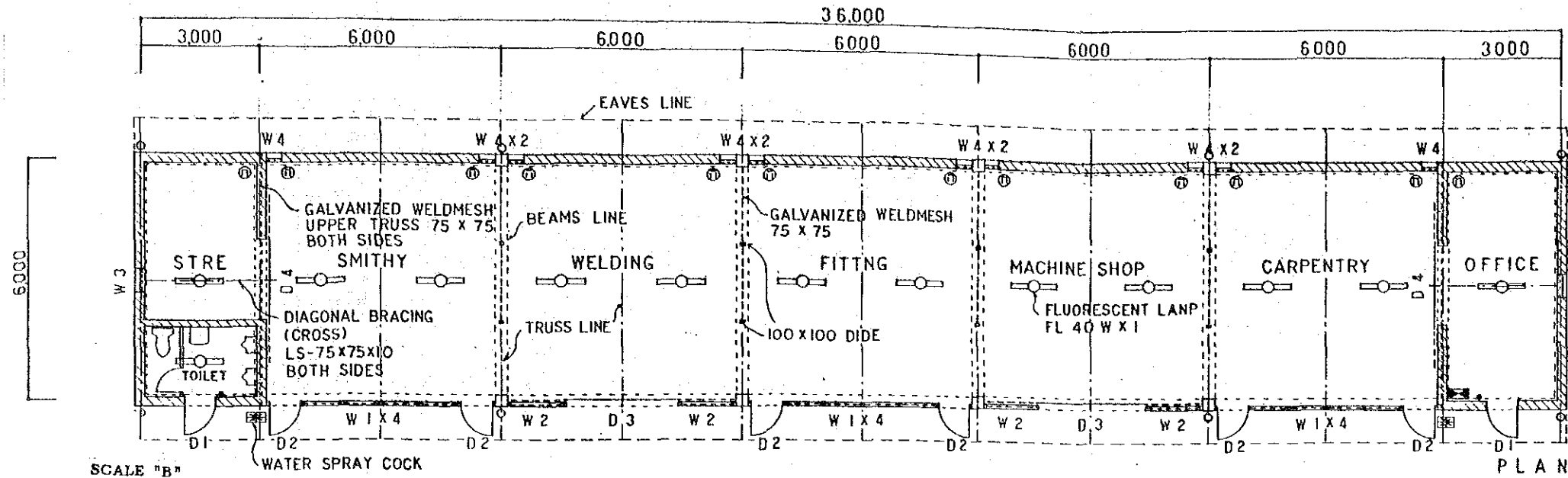
Fig. 3-7
PRESENT PLAN OF PROPOSED
DEMONSTRATION / EXPERIMENTAL FARM



REVISED LAYOUT OF ELECTRICITY
(CENTER AREA AND SUBSTATION)



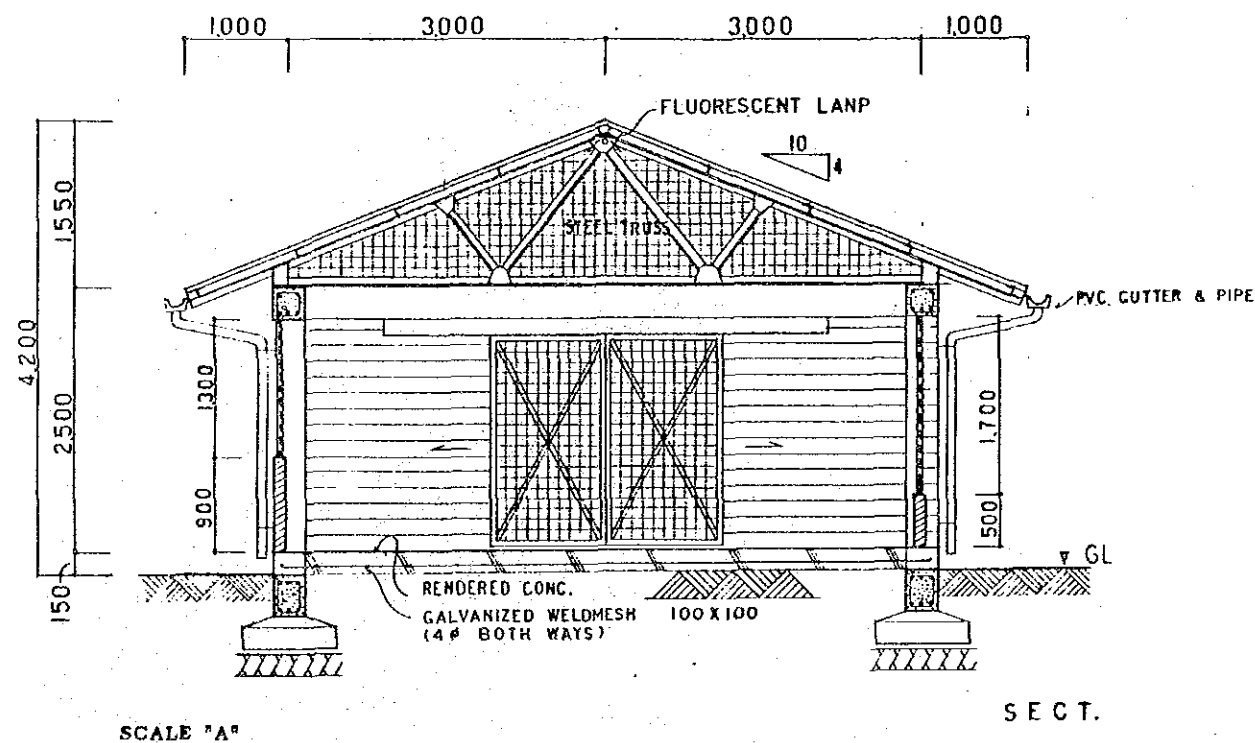
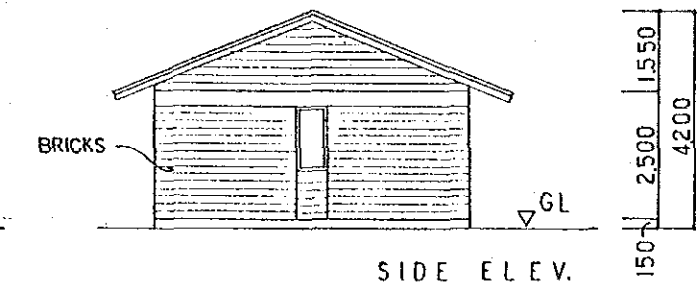
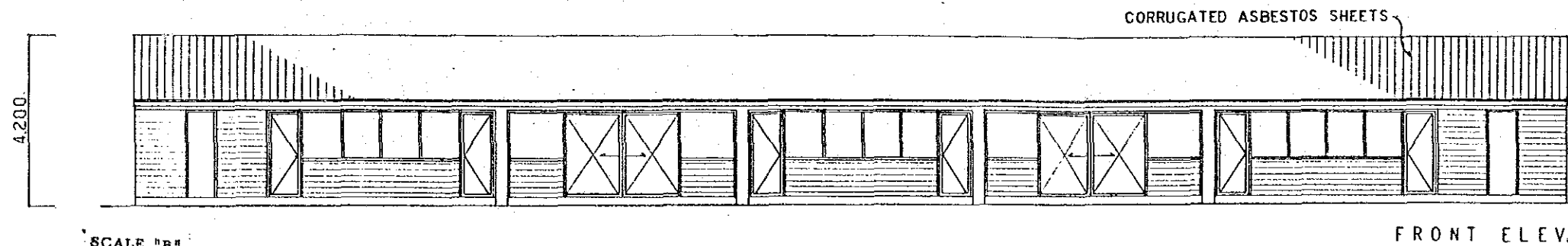
* REFERENCE USE ONLY



SCHEDULE OF DOORS & WINDOWS

TYPE	SIZE	DESCRIPTION	NO.
D 1	800 x 2200	FLASH PANEL MARINE PLYWOOD	2
D 2	800 x 2200	GALVANIZED WELDMESH WITH WELDED BRACING L-45-45	6
D 3	2800 x 2000	(SLIDING DOOR HANG OVER)	2
D 4	2000 x 2000	(DO)	2
W 1	1000 x 1300	GALVANIZED WELDMESH WITH WELDED BRACING L-45-45	12
W 2	1400 x 1300	(DO)	4
W 3	600 x 1300	GALVANIZED WELDMESH	2
W 4	400 x 1700	(DO)	10

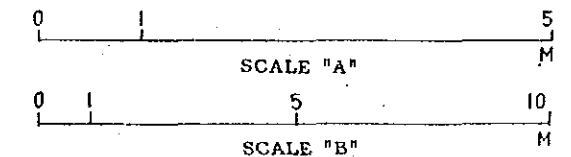
* GALVANIZED WELEDMESH / 50 X 50 3.15 #



NOTE: STRUCTURE SEE THE DETAL FOR TRACTOR SHED.
 CONCRETE STRUCTURAL FRAMES (POST & BEAM) / PAINTED WHITE.
 STEEL TRUSS / PAINTED (VERMILION)
 BRICK WALL (FACE BRICK) / TWO COATS OF COLORED WASH IN LIME. QUARITY & STRENGTH FOR STRUCTURAL USE.

INDEX:

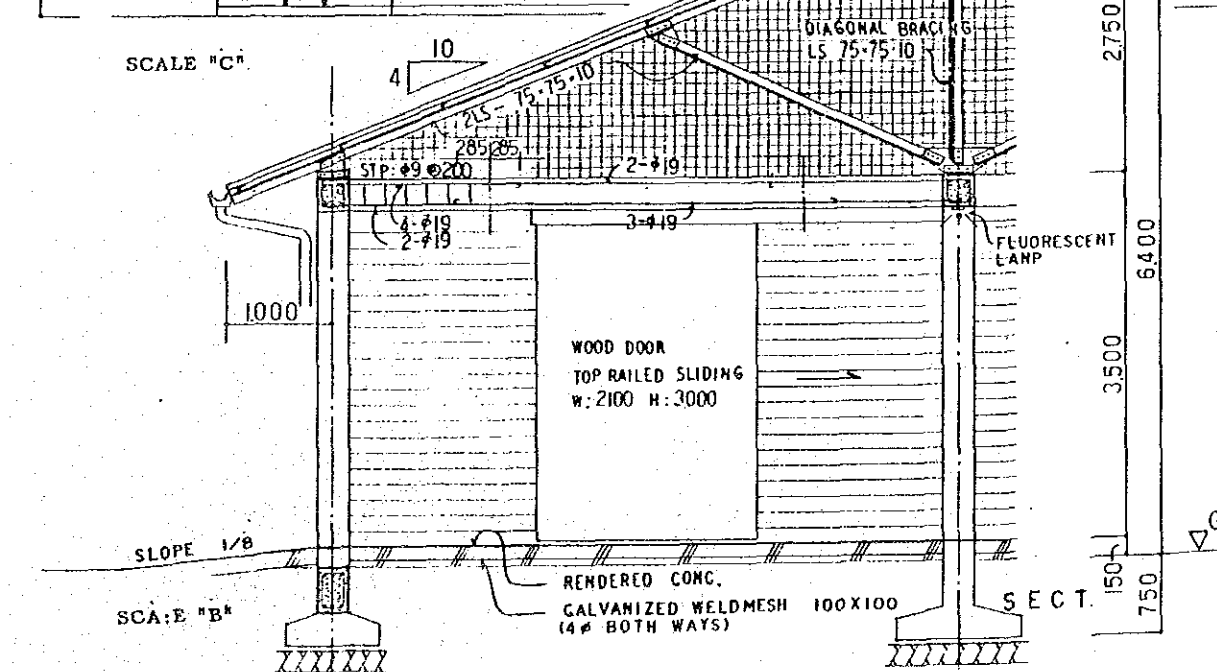
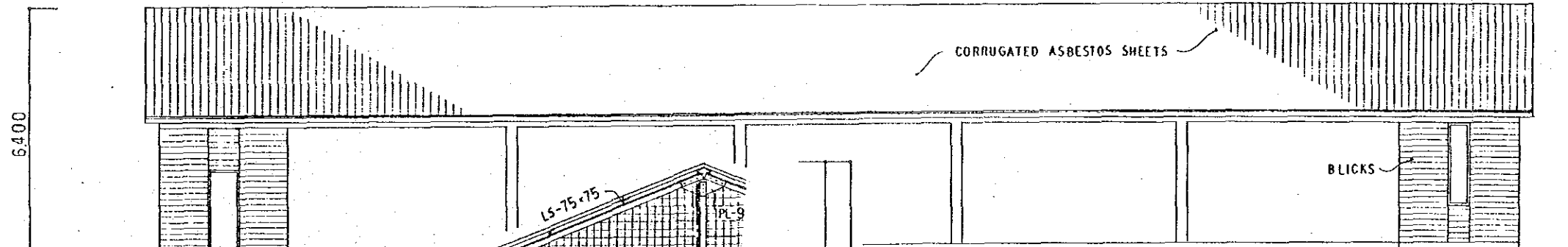
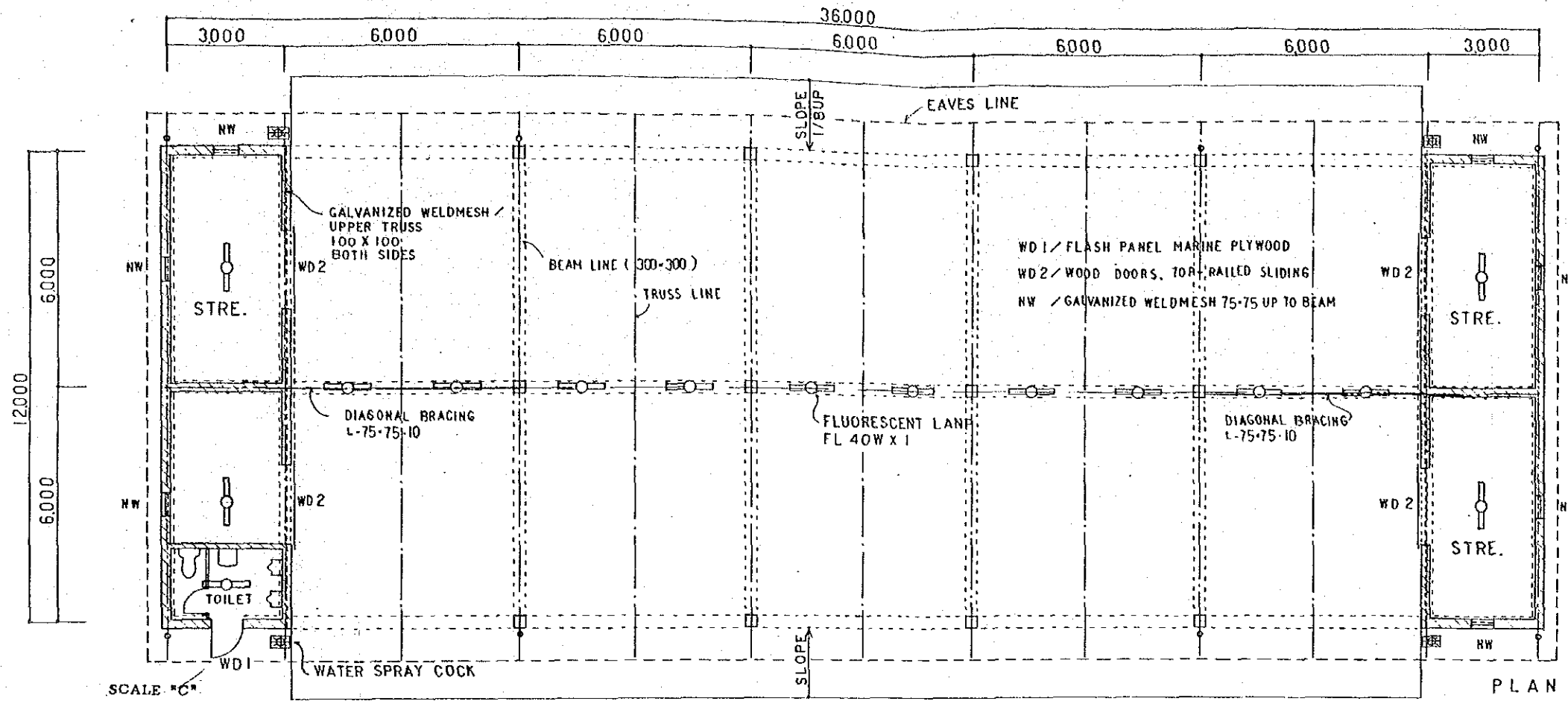
SYMBOL	ITEM
⏏	POWER PANELBOARD
Ⓛ	FLUORESCENT LAMP
Ⓜ	WALL MOUNT RECEPTACLE
•	TUMBLER SWITCH
Ⓢ	WATER SPRAY COCK



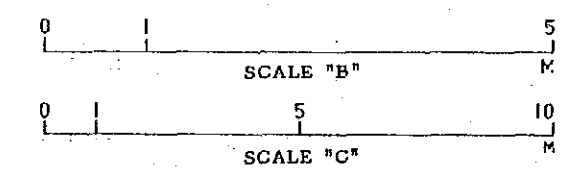
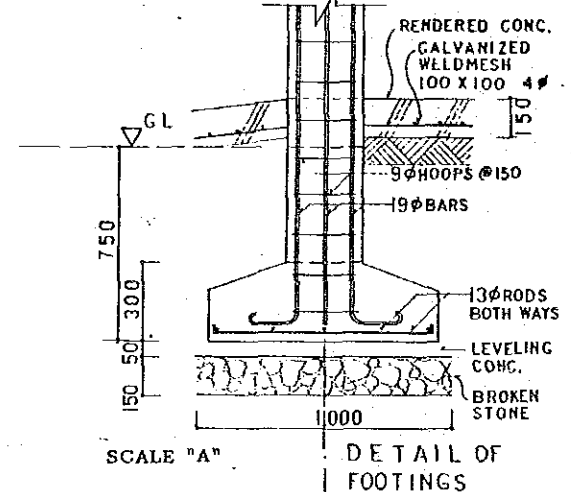
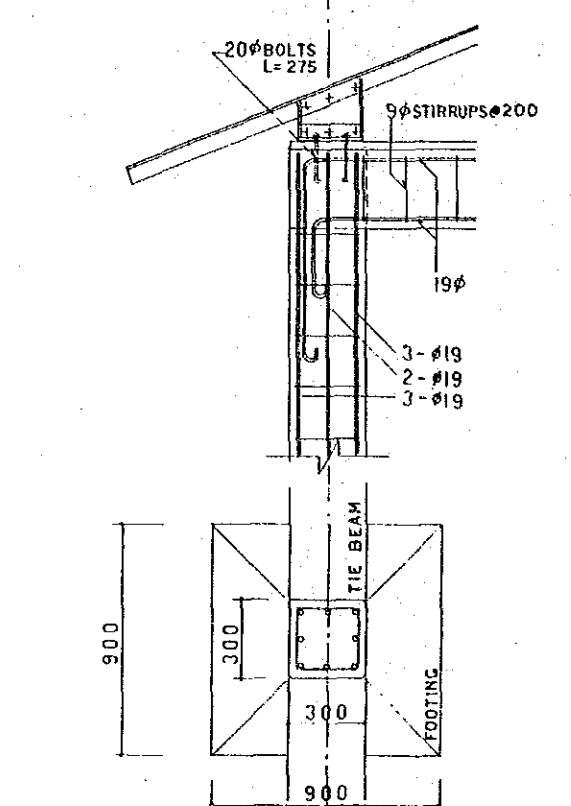
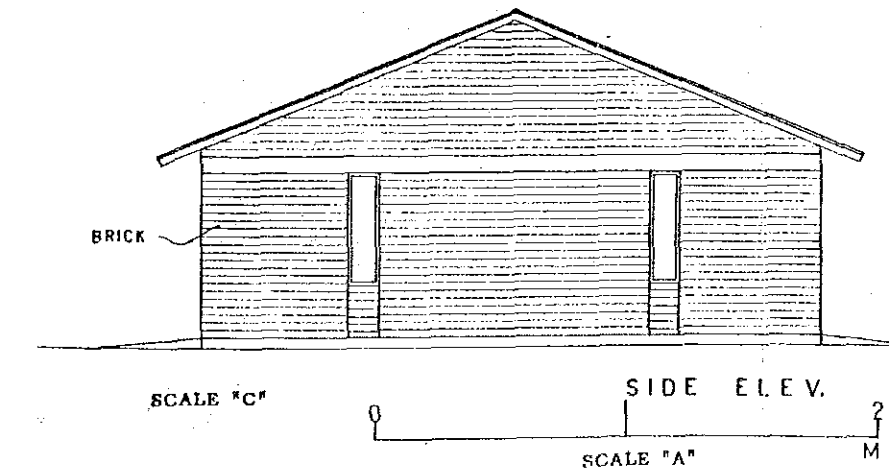
MAHAWELI AUTHORITY OF SRI LANKA
 INTEGRATED AGRICULTURE DEVELOPMENT
 DEMONSTRATION PROJECT IN MAHAWELI AREA

WORKSHOP

JAPAN INTERNATIONAL COOPERATION AGENCY
 TOKYO JAPAN DWG No. 0-1



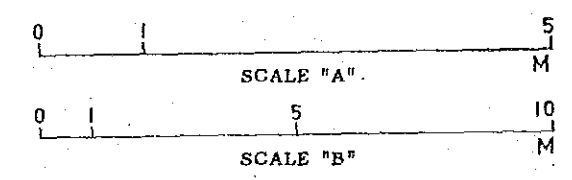
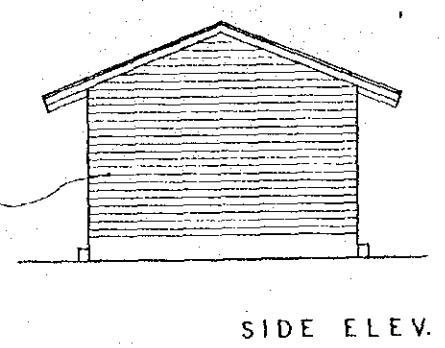
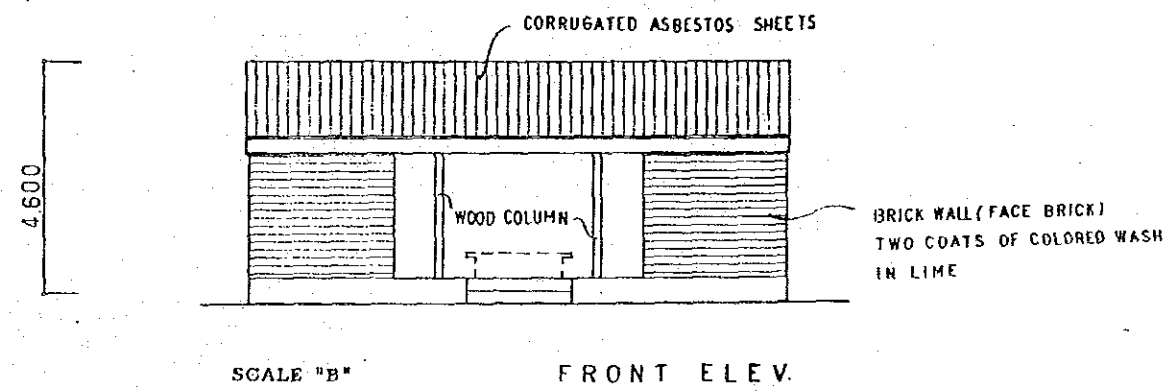
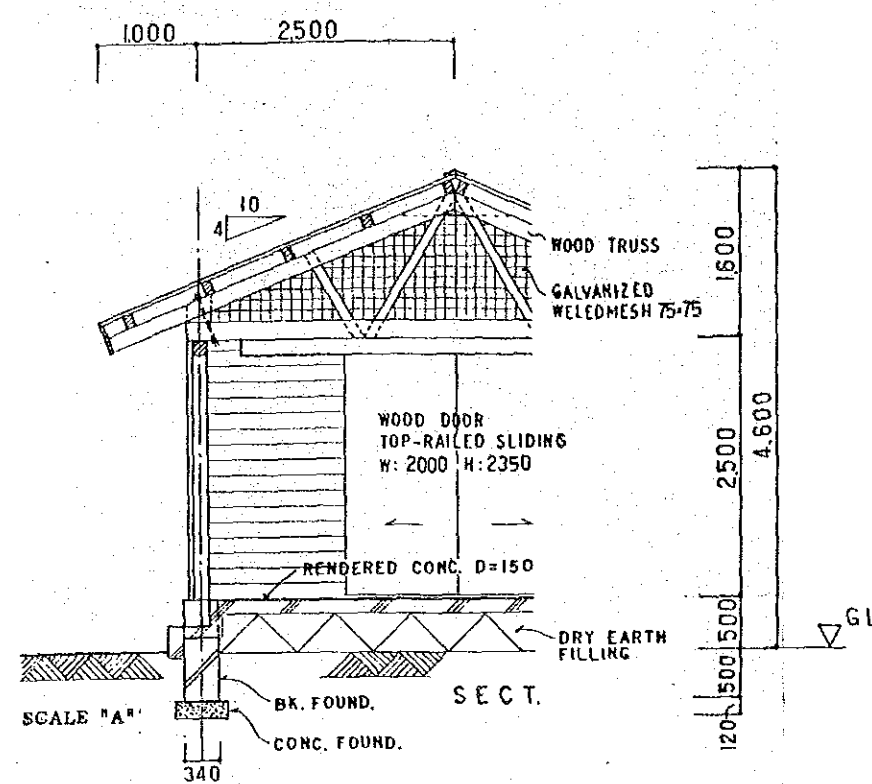
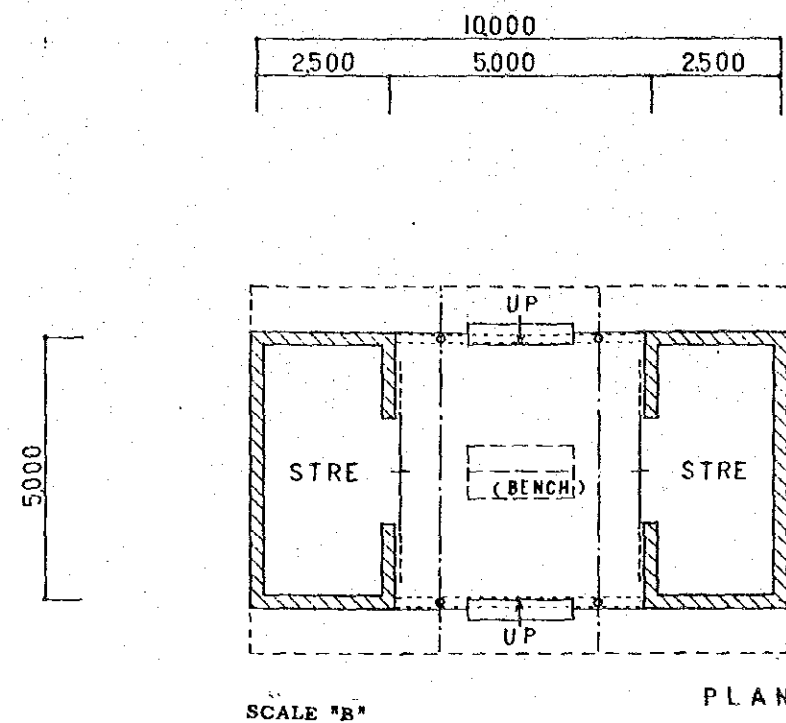
NOTE: CONCRETE STRUCTURAL FRAMES (POST & BEAM) / PAINTED (WHITE)
 STEEL TRUSS / PAINTED (VERMILION)
 BRICK WALLS / FACE BRICK, TWO COATS OF COLORED WASH IN LINE
 / QUALITY & STRENGTH FOR STRUCTURAL USE



MAHAWELI AUTHORITY OF SRI LANKA
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 DEMONSTRATION PROJECT IN MAHAWELI AREA

ON FARM SHED

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