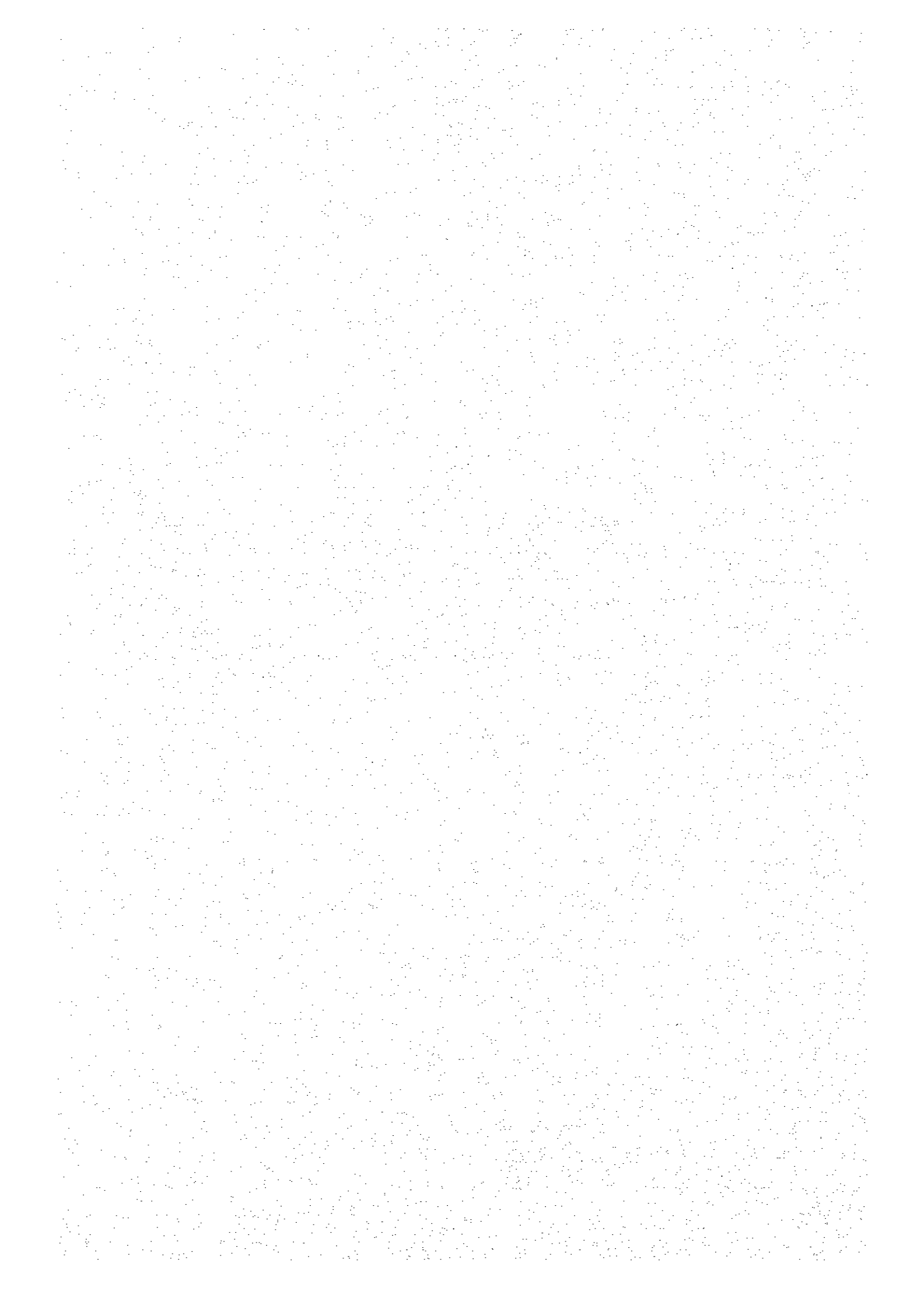
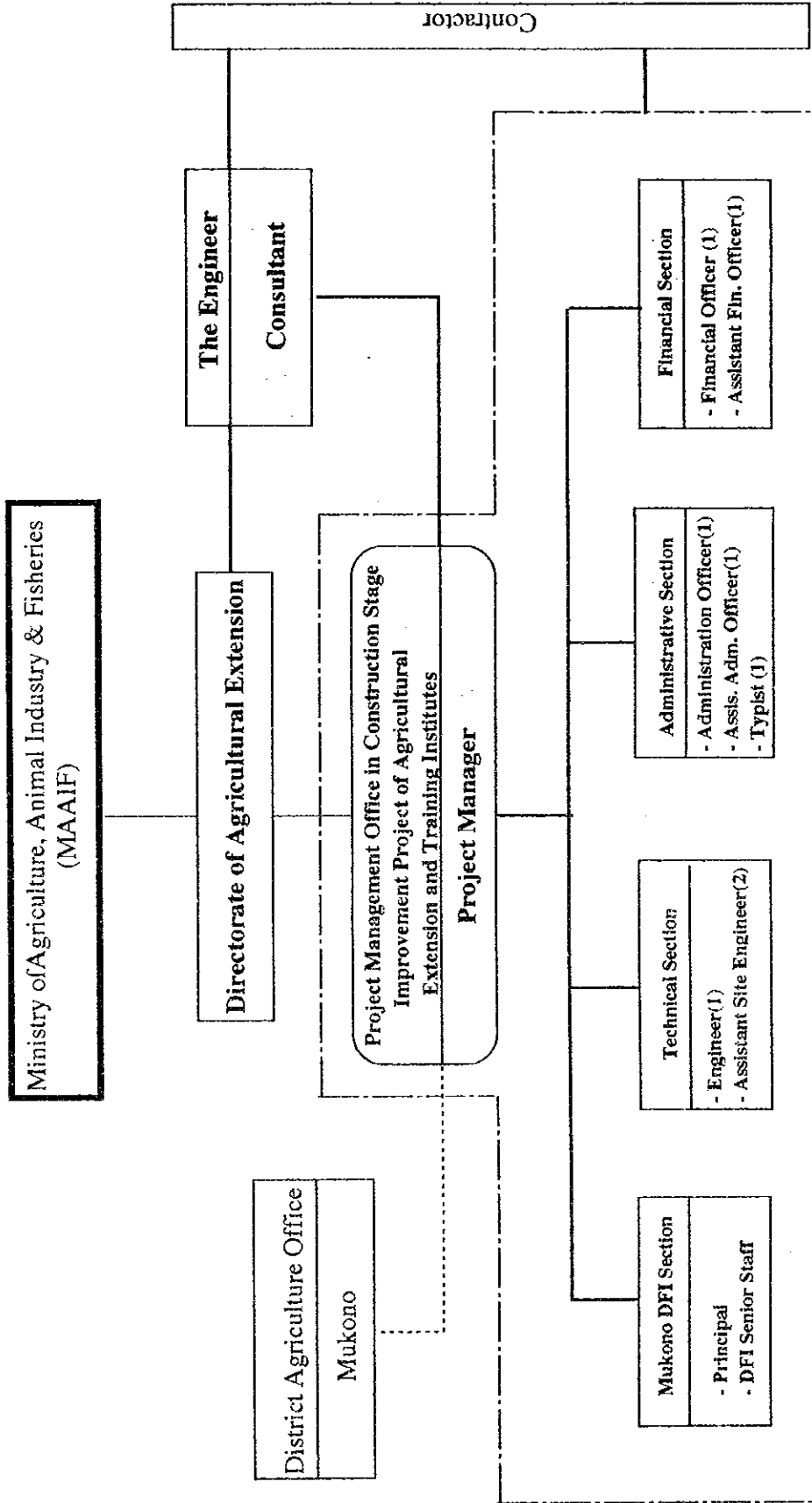


## 6 その他のデータ

- 6.1 農業普及局による事業実施体制の確認
- 6.2 農業普及局による運営・維持管理組織の確認
- 6.3 農業畜産漁業省からウガンダChurch Commissionersに  
対する土地借用申請書簡
- 6.4 ウガンダChurch Commissionersから農業畜産漁業省に  
対する土地提供確認書
- 6.5 マサカ農業普及・訓練所改善参考計画及び自助努力目標の概要
  - 6.6 簡易貫入試験記録
  - 6.7 水質試験結果





*M. Y. G.*  
\*+

## Project Implementation Organization

6.1 農業普及局による事業実施体制の確認



correspondence on AGR. 262  
ject please quote No.....



THE REPUBLIC OF UGANDA

MINISTRY OF AGRICULTURE,  
ANIMAL INDUSTRY AND FISHERIES.

P.O. BOX 102, ENTEBBE, UGANDA  
TELEGRAMS: "NATURE ENTEBBE"  
TELEPHONE: 20980/3, 20987/8, 20322/3, 20327/8  
FAX: 256-042-21047, 256-042-21010  
TELEX: 61287

13<sup>th</sup> August, 1997

The Executive Secretary,  
Church Commissioner,  
P. O. Box 14123,  
**KAMPALA**

6.3 農業畜産漁業省からウガンダChurch Commissionersに対  
する土地借用申請書簡

Re: **OUR APPLICATION TO LEASE PART OF CHURCH LAND FOR WATER  
PROVISION TO THE DISTRICT FARM INSTITUTE**

I am in receipt of your letter ref. LP1/1 of the 11th instant in response to  
our request to lease 1500m<sup>2</sup> of Church Land.

I take this opportunity to thank you for positively considering to offer to  
the Ministry the lease applied for and I wish to inform you that the  
Ministry accepts to pay the lease fees of the equivalent of US \$ 2400 and  
the yearly ground rent of the equivalent of US \$ 240 as stipulated in your  
offer.

We are looking forward to signing the documents when they are ready.

A handwritten signature in black ink, appearing to read 'W. Kabunga'.

C. Kabunga  
**UNDER SECRETARY FINANCE & ADMINISTRATION**  
for: **PERMANENT SECRETARY**

THE CHURCH OF THE PROVINCE OF UGANDA  
CHURCH COMMISSIONERS

WILLIS ROAD, NAMIREMBE.

TELEPHONES:  
ARCHBISHOP  
PROVINCIAL SECRETARY  
PROVINCIAL TREASURER  
EXECUTIVE SECRETARY,  
CHURCH COMMISSIONERS

KAMPALA  
OFFICE RESIDENCE  
270218 271081  
270219 272504  
270218/9 270218/9



P.O. BOX 14123  
KAMPALA  
UGANDA

OUR REF:  
YOUR REF: LP1/1

DATE: 11/08/1997

The Permanent Secretary,  
Ministry of Agriculture, Animal Industry and Fisheries,  
P.O. Box 102,  
ENTEbbe.

6.4 ウガンダ Church Commissioners から 農業 畜産 漁業 省  
する 土地 提供 確認 書

Dear Sir,

Re: APPLICATION TO LEASE PART OF CHURCH LAND FOR WATER  
PROVISION TO THE DISTRICT FARM INSTITUTE.

Further to our letter of even Ref. LP1/1 dated 11/08/1997 in connection to the above underlined subject, we write to inform you that we have already had a meeting with the Church of Uganda Quantity Surveyor.

He has assessed the Premium for the piece of land (1500 M<sup>2</sup>) to be Leased to Mukono D.F.I. Management on behalf of the Permanent Secretary, Ministry of Agriculture, Animal Industry and Fisheries to be US \$ 2400 (United States Dollars Two thousand four hundred only), and the yearly annual ground rent to be US \$ 240 (United States Dollars Two hundred and forty only). The ground rent will be revisable after five years. This payment will be met by the office of the Permanent Secretary Ministry of Agriculture, Animal Industry and Fisheries.

We are in the process of preparing a Lease Agreement which will be sent to you for signature and seal.

Yours faithfully,

  
G.N. Mutegule,

for: EXECUTIVE SECRETARY CHURCH COMMISSIONERS.

- c.c. The Principal/Mukono DFI.
- c.c. The Principal, BTTC.
- c.c. The District Extension Co-ordinator  
Mukono.
- c.c. The District Gender Officer.

## 6.5. マサカ農業普及・訓練所改善参考計画及び自助努力目標の概要

### (1) 概要

マサカ農業普及・訓練所では、普及・訓練活動の基盤である上水の確保が緊急課題である。また、荒廃した実習農場の整備の必要性が認められる。しかしながら現状の活動状況をみると、施設上の障害が軽微な展示、生産分野において、活動を自助努力により拡大できる余地があり、それらを先行実施すべきである。従って、施設の整備改修等の着手は、組織・職員体制の整備、生産活動の拡大、これらに必要な予算措置の確保等を自助努力で行い、現有施設の有効活用がなされ、一定の普及・訓練活動水準に達した段階で行うことが現実的である。従って、現況調査結果に基づく参考計画について、以下に述べる。

### (2) 農業普及・訓練実施計画方針

マサカ農業普及・訓練所における農業普及・訓練計画内容は、大別するとムコノ農業普及・訓練所同様に次の通りである。

- ① 農民研修
- ② 農業普及関係職員向け研修
- ③ 農業外研修
- ④ その他農業普及関連活動（種苗配布等）

各コースの内容は、以下の通りである。また、スケジュールを表 C6.5.1 に示す。

#### 1) 農民研修

##### (i) 青年層を対象とする中・長期研修

マサカ農業普及・訓練所では、施設整備前は長期研修は行わない。施設整備後は、中・長期研修の将来最終目標として、作物および畜産コース共に各1コース、計2コース（作物10名、畜産5名、年間計15名程度）が望ましい。

##### (ii) 短期研修

マサカ農業普及・訓練所では、施設整備前は自助努力目標として、青年層と壮年層を対象とする一泊研修として、作物および畜産コース共に各2コース、計4コース（1コース5名、計20名程度）が望ましい。施設整備後は、農村壮年層を対象とした6日間研修を、作物および畜産コース共に各2コース、計4コース（1コース5名、計20名程度）が望ましい。

##### (iii) 日帰り研修

日帰り研修は、(i)上記中・長期研修、短期研修予定者を対象とした、研修内容と農業普及・訓練所の施設・活動に関する概要説明、(ii)特定の栽培技術の視察研修、(iii)農業普及・訓練所が生産す

る優良種苗の入手等を目的に実施する。日帰り研修は、各郡レベルで郡普及調整員、普及員の公報により参加者を募り、1回当たりの参加者を30名程度とし、月1度程度の頻度が望ましい。

## 2) 農業普及関係職員向け研修

マサカ農業普及・訓練所では、施設整備前の自助努力目標として、滞在期間を標準の6日間から3日間に短縮した職員向け研修が考えられる。普及員を対象とした研修は、1度に70名を収容できる施設が無いため、30名規模（滞在期間3日間）の研修が望ましい。研修回数は普及員の日帰り研修会議を年10回、その他2日間研修を年2回実施することが考えられる。

## 3) 農業外研修

農業外研修は、他機関の要請で実施されるため、計画できないが、これまでの実施実績に基づき、上記各研修の実施と競合しない範囲で、20名規模の宿泊研修と30名規模の日帰り研修が想定される。

## (3) 農業生産計画方針

施設整備前は、自助努力により実施可能な生産活動として、まず果樹の苗木、野菜苗の増産、コーヒー苗木の生産再開、トウモロコシ、大豆の生産着手、マサカ県における畜産の重要性に鑑み、養豚の再開が必要である。さらに将来施設整備を行った場合には、耕種および畜産部門の生産品目、規模の拡大を図ることが考えられる。

マサカ農業普及・訓練所における施設整備前の自助努力による達成可能な生産目標と、将来施設整備を行った場合の最終生産目標として以下の目標数値が考えられる。

マサカ農業普及・訓練所の生産目標概要

項目	自助努力目標		最終目標	
	作付け面積/ 初期頭数	生産量	作付け面積/ 初期頭数	生産量
<b>耕種部門</b>				
1.種苗生産	m <sup>2</sup>	本	m <sup>2</sup>	本
果樹	300	3,000	300	10,000
コーヒー	600	2,750	600	55,000
野菜	-	108,000	300	1,080,000
2.作物生産	ha	ton	ha	ton
トウモロコシ	1.7	7	8.4	32
大豆	1.6	3	8.2	15
野菜類	-	-	2.6	28
<b>畜産部門</b>				
乳牛	-	-	雌3頭	10,700 リットル
	-	-	子牛 3	頭
豚	雌3,雄1頭	子豚45 頭	雌5,雄1頭	子豚90 頭



マサカ農業普及・訓練所の自助努力により、既存施設を利用した果樹、コーヒーの苗木、野菜苗の生産拡大、トウモロコシ（0.85ha）、大豆（0.80ha）の二期作、雌豚3頭、雄豚1頭規模の養豚等の農業生産の拡大が可能と考えられる。これら生産に必要な予算、組織強化措置が、農業畜産漁業省により行われる必要がある。

#### (4) 実習農場整備計画方針

マサカ農業普及・訓練所は、127.8 haの広大な敷地面積を有するが、現状の農地利用は8.4 haに限定されている。職員数、農業普及・訓練活動の現状から当面一度に可耕地全体を開発する必要は無いと判断される。既述の農業生産計画方針に基づき、実習農場は、野菜用地2.6 ha、単年生作物（トウモロコシ4.2 ha、大豆4.1 ha）8.3 ha、既存種苗木生産地（換金作物）2.4 ha、牧草池0.9 ha、既存既存放牧地6.9 ha、既存試験圃場6.1 haの計27.2 haが必要と考えられる。現況の土地利用及び実習農場用地27.2 haから、将来の土地利用計画は以下の通りとなる。また、添付図に示す。

地 目	面積 (ha)
(1) 事務所・教室及び住居	8.4
(2) 作物生産圃場	27.2
単年生作物圃場	9.6
試験圃場	6.1
飼料作物圃場、放牧地	9.1
換金作物圃場(コーヒー、カカオ)	2.4
(3) 農業生産施設	
畜産センター	0.9
種苗生育用施設・圃場	1.5
(4) その他	89.8
合計	127.8

実習農場では、農業普及・訓練における研修生への展示、実習の場を提供するとともに、農業生産活動が行われる。現況では、場内道路がほとんど無いため展示効果が十分に発揮されていないこと、農業投入資機材及び生産物の搬入・搬出を人力に頼っている状況である。従って、ムコノ農業普及・訓練所同様に、まず農道整備が必要である。

既述の農業生産計画方針よると、乾期の野菜栽培を2.6 haまで拡大することになる。このためには灌漑施設の整備が必要である。地表灌漑用地としては既存の地表勾配が急なため、緩傾斜にするためのテラス工を行なう必要がある。また、一部、抜根等の農場の再生作業が必要である。

(5) 農業普及・訓練所施設改善計画方針

上記で策定した普及・訓練計画及び農業生産計画を効率的に実施運営するために、農業普及・訓練所の施設改善を計画する。農業生産及び訓練に必要な機材の購入を含め、施設改善内容は①訓練所建屋、②農業施設、③電力供給施設、④飲料水供給施設、⑤圃場整備、⑥訓練機材・農業生産機械の供与の6項目である。今後の維持管理体制を考慮しながら各項目毎に検討結果を以下に示す。

(イ) 訓練所建屋

現況調査結果と普及訓練計画方針に基づく所要建屋の種類と数量の検討結果から、多目的ホール1棟の新築及び老朽化した既存教室／管理棟1棟と既存寄宿舍2棟の改修が必要と考えられる。それぞれの収容人数は、既存教室40名・2室、既存寄宿舍1棟16名・2棟である。多目的ホールは集会場、40名以上の研修の場としての利用とともに、図書・資料置き場等が設置される。多目的ホールの規模は、過去の農業研修実績から60名程度が上限と考えられる。

(ロ) 農業施設

現況調査結果、既述の農業普及・訓練実施計画方針と農業生産計画方針に基づく野菜苗の生産用ネットハウス1棟、牛舎1棟、豚舎1棟、倉庫1棟の計4棟の新築が必要と考えられる。

(ハ) 電力供給施設

実習農場整備計画方針に基づく灌漑用及び水供給施設用揚水機の動力源の確保のため、訓練所敷地外の変圧器の交換と動力源の引き込みが必要と考えられる。また、安全燈の修理が必要と認められるが、小規模な修理であるためマサカ農業普及・訓練所の通常の維持管理の一環として修理すべきものと考えられる。

(ニ) 飲料水供給施設

現在は訓練所内の沼沢池からポンプで取水し、一旦高架水槽に貯水した後、重力式で生活用水と灌漑用水として供給している。近隣の井戸水は鉄分を多く含み、所員も使用しておらず、一方、沼沢池の水質は比較的良好であることから、既存の沼沢池を水源として利用することが考えられる。取水・圧送用ポンプは老朽化が進み維持に多大の労力が必要となっていること、配管系統が劣化し、満足な給水ができない状態であるため給水施設を更新する必要が認められる。

(ホ) 圃場整備

農業普及・訓練計画方針及び実習農場整備計画方針に基づき、テラス工による圃場造成の3.1 ha（純面積2.6 ha）、農場再生作業のための農地整備工14.8 ha（純面積12.6 ha）、所内の道路整備8.5 kmが必要と考えられる。灌漑施設については、2.6 haを対象とする整備が必要と考えられる。

(へ) 訓練機材・農業生産機械の供与

検討の結果、新設する多目的ホールの椅子などの資材、訓練機材としてタイプライター、既存OHP用のスクリーン及び研修用拡声器、また作物展示・生産活動に不可欠と判断されるトラクターと付帯農機具、無線通信施設、小型貨物自動車、乾湿温度計が必要と考えられる。

(6) 運営・維持管理計画方針

既存のマサカ両農業普及・訓練所が運営し、施設・機材の維持管理を行う。これに対して、従来通り農業畜産漁業省・普及訓練部は県農業事務所と共に技術面での支援及び財政面でも支援を継続して行うことが不可欠である。また、上記各方針で述べた農民研修の強化と効率的実施及び実習農場自身の農業生産性の向上を図るために、訓練所の既存組織を一部改組し強化する必要がある。そのために要員の増強が必要である。

農業普及・訓練所の運営・維持管理に必要な経費は、職員給与・手当、施設・機材の維持管理費、研修費用、農業生産費及びその他展示用諸費である。この運営・維持管理費の財源は、農業畜産漁業省及び県農業事務所の予算（公的資金）と農業普及・訓練所の研修収益・商業生産収益の2本建てとする。

(7) 施設・機材の改善項目の概要

以上の基本方針に基づくマサカ農業普及・訓練所の建物、農場、農場施設及び機材の改善内容は下記の改善内容が考えられる。

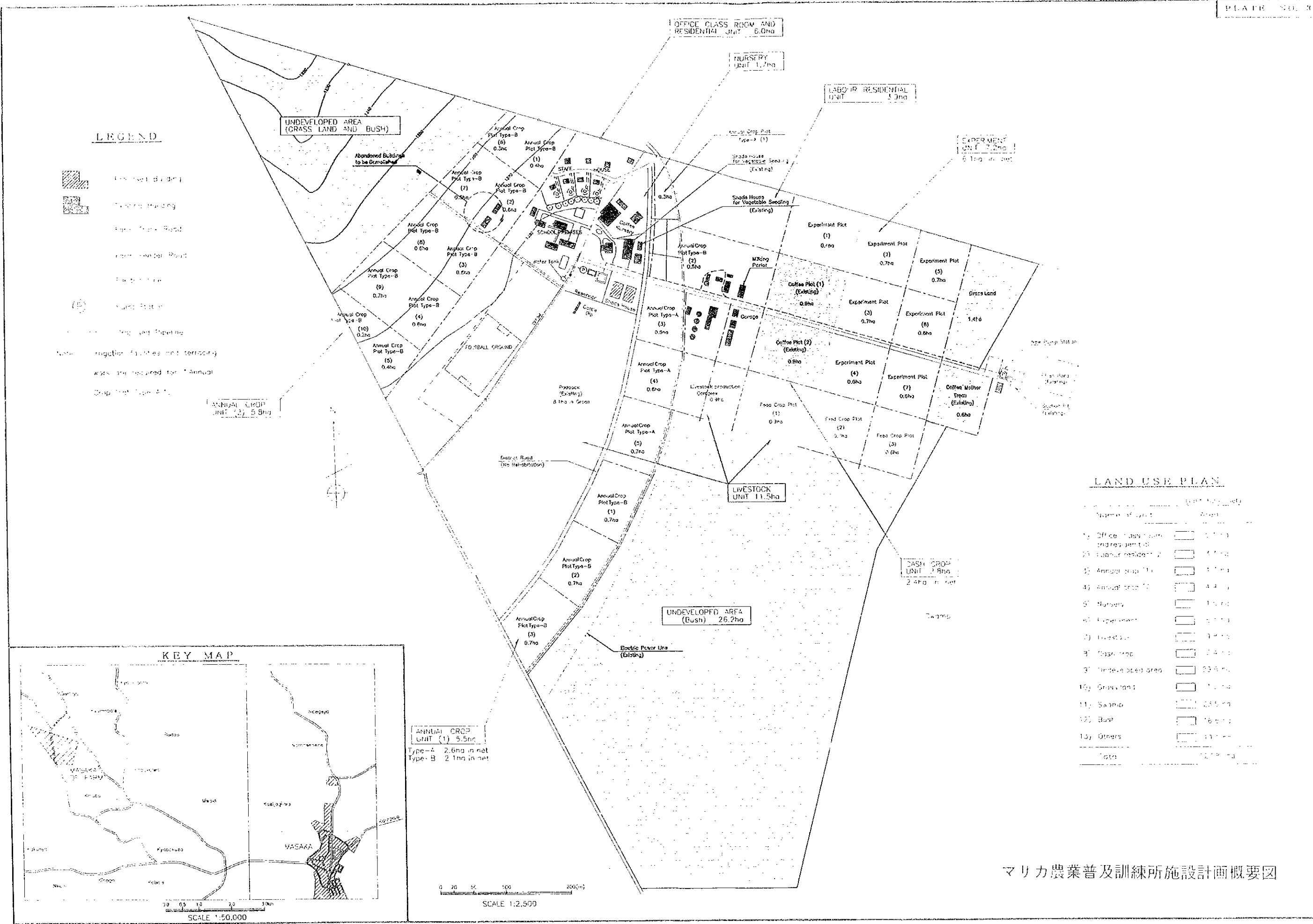
マサカ農業普及・訓練所の参考改善概要

<p>1. 建屋</p> <p>1.1 新設</p> <p>多目的ホール 1棟 (104 m<sup>2</sup>)</p> <p>1.2 改修</p> <p>管理棟 1棟 (43.5 m<sup>2</sup>)</p> <p>寄宿舎 2棟 (21 m<sup>2</sup>)</p> <p>2. 農場施設</p> <p>ネットハウス 2棟 (620 m<sup>2</sup>)</p> <p>畜舎 2棟 (152.4 m<sup>2</sup>)</p> <p>倉庫 1棟 (161 m<sup>2</sup>)</p> <p>3. 飲料水供給施設</p> <p>給配水施設更新 一式</p> <p>給配水施設拡張 一式</p>	<p>4. 圃場整備</p> <p>農地整備 12.6 ha</p> <p>圃場造成(テラス工) 2.6 ha</p> <p>場内農道</p> <p>幹線 2.5 km</p> <p>支線 6.0 km</p> <p>調整池 1ヶ所</p> <p>灌漑施設 2.6 ha</p> <p>5. 機材</p> <p>多目的ホール用機材 3点</p> <p>訓練用機材 7点</p> <p>農業生産機材、他</p>
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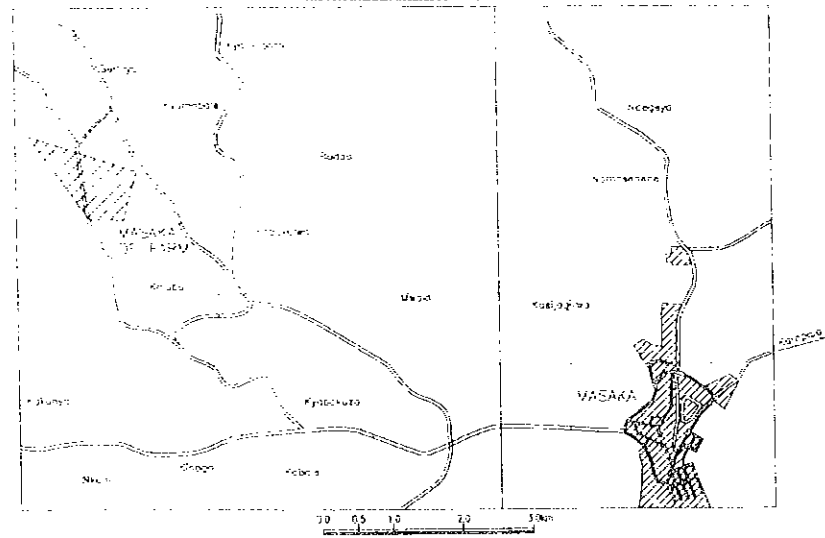
LEGEND

- Existing building
- Existing building
- Experimental Road
- Farm Access Road
- Electric Line
- Water Point
- Sewerage Pipe
- Area required for Annual Crop Plot Type-A

LAND USE PLAN

Name of Unit	Area
1) Office class room and residential	6.0 ha
2) Labor residential	1.3 ha
3) Annual crop (1)	1.1 ha
4) Annual crop (2)	4.4 ha
5) Nursery	1.7 ha
6) Experiment	7.2 ha
7) Livestock	11.5 ha
8) Cash crop	7.8 ha
9) Undeveloped area	25.2 ha
10) Grassland	1.4 ha
11) Swamp	23.5 ha
12) Bush	16.0 ha
13) Others	11.1 ha
<b>Total</b>	<b>127.5 ha</b>

KEY MAP



ANNUAL CROP UNIT (1) 5.5ha  
 Type-A 2.6ha in net  
 Type-B 2.1ha in net

SCALE 1:2,500

マリカ農業普及訓練所施設計画概要図









**NATIONAL WATER AND SEWERAGE CORPORATION  
CENTRAL LABORATORY**

**DISCUSSION AND RECOMMENDATION FOR WATER TREATMENT OF  
MUKONO DFI AND KAMENYAMIGO DFI WATER.**

**Raw Water (Swamp/River) Quality:**

The physico-chemical analysis done on the water shows that the raw water sources are good for the production of potable water. Potable water could be produced without intensive use of treatment chemicals but minimal doses because the parameter deviation from the standard is not so great.

The bacteriological examination results showed heavy faecal contamination of the Mukono source which is typical of most swampy water sources in Uganda; while the Kamenyamigo source had no faecal or total coliform growth at all! This is also characteristic of most of the swamp water around Masaka, e.g. Raw Water source, River Nabajuzi, for Masaka Town has usually mild or no faecal contamination.

**Treatment:**

Taking into account the current quality and changes in water quality that normally occur with change in weather (rainy or dry season), it is advisable that the following water treatment stages or some of them be adopted to ensure continuous supply of good quality water fit for both human and farm use;

Stage 1: The raw water should be pumped into a settlement tank or the intake point dammed and widened to allow for sedimentation of any settleable solids and aeration of the water. This helps in reducing suspended solids and oxidizing dissolved Iron, respectively and hence improving the Turbidity, Colour and Iron content of the water.

Stage 2: Dosing of the water with Alum (Aluminium sulphate) solution or other coagulants to help in the removal of non-settleable suspended matter in water. Here alum mixing tank, doser and reasonable sized clarifier are required. This has the effect of reducing further the Turbidity, Colour and other dissolved solids in water. It should be noted that the appropriate alum dose ought to be determined, depending on the raw water quality, for each season.

Stage 3: Filtration of the water after or without clarification can be achieved using rapid gravity sand filters. This has an advantage of being cheap and efficient compared to other types of filters but need regular cleaning (back-wash) during rainy season when the water is dirty if no alum dosing and clarification is done. Filtration helps in the removal of suspended solids, any floc carried over from the clarifier and trap some of the micro-organisms hence reduction in Turbidity, Colour and Coliform count, respectively.

Stage 4: Disinfection of water by use of Chlorine. This can be done using either powder/granular Calcium Hypo chlorite or compressed liquid Chlorine gas in cylinders. For easy management powder/granular type could be used and all that is needed is a plastic mixing tank, Plastic dosing tank and a doser. There should be a fairly sized concrete contact tank after the doser to allow for enough reaction time between Chlorine and water before water is pumped for distribution (supply).

Disinfection helps remove(kill) all the disease causing bacteria in water and also bleach any remaining colour.

**Note:** In the absence of disinfection, boiling water is the best remedy for the removal of disease causing bacteria and it can then be used for human consumption.

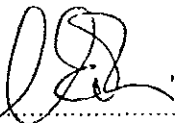
**Bore-Hole water:**

The water had high Colour, Turbidity, Suspended Solids and Total Iron.

Colour of the water is mainly caused by dissolved Iron which can be removed if the water is aerated. Aeration of the water can be achieved by allowing it to stand in an open container and a brownish-red precipitate of oxidized Iron settles at the bottom and some remains suspended. Filtration using a clean cloth helps remove the precipitate and the suspension.

Iron has not been known to cause any serious medical implications to consumers except causing staining and colouring of utensils and clothes, respectively, when in high quantities.

The rest of the parameters tested and not discussed were within or slightly above the standards for drinking water and can be controlled or reduced by the above outlined water treatment methods.

Compiled by:  .....

**OKWEREDE LANCE**  
**Chemist/Analyst.**

## CERTIFICATE OF ANALYSIS

### NATIONAL WATER AND SEWERAGE CORPORATION CENTRAL LABORATORY

P.O. Box 7053  
Tel. 257548  
KAMPALA.

Date: 01/8/97

Tel.

TO : JAPAN INTERNATIONAL COOPERATION AGENCY  
STUDY TEAM

Sample Source/Characteristics : Kamenyamigo DFI/Surface & Bore-hole Water

Date & Time of Sampling : 30/7/97 at 11.30 a.m.

Sampled by: Okwerede.L


Date & Time Analysis started : 30/7/97 at 5.15 p.m.


Oba.S.

#### Table of Analysis Results

PARAMETER	Units	Raw Water (LusamatuSwamp)	Stand-Tap at DFI	Bore-Hole at Misanvu	Uganda National Drinking water Std (Limit)
pH	-	6.75	6.85	6.62	6.0-8.5
Conductivity	uS/cm	44	50	72	1000
Colour	Pt	77	29	547	10
Turbidity	NTU	10	3.5	100	5
Total Dissolved Solids	mg/L	35	37.5	54	500
Total Suspended Solids	mg/L	5	7.0	148	10
Alkalinity(Total) as CaCO <sub>3</sub>	mg/L	13	10	32	250
Aluminium	mg/L				
Calcium as CaCO <sub>3</sub>	mg/L	12	8.0	11	75
Chloride	mg/L	6.7	6.7	3.3	250
Fluoride	mg/L				3.0
Hardness(Total) as CaCO <sub>3</sub>	mg/L	21	30	34	500
Iron(Total)	mg/L	0.50	0.03	57.0	0.3
Manganese	mg/L				0.1
Nitrite-Nitrogen	mg/L	1.40	3.7	35.0	
Nitrate-Nitrogen	mg/L	0.10	0.002	0.15	10
Phosphate(Reactive)	mg/L	0.05	0.08	1.15	0.2
Coliform-Total (count/100ml)	No.	Nil	140	Nil	Nil
Coliform-Faecal "	No.	Nil	70	Nil	Nil

**Remarks:** From the results of analysis most of the parameters tested do not satisfy the Uganda National Standards(Guide-line limits) for drinking water. The water, therefore, should be treated and disinfected to make it fit for human consumption.

Analysed by: 

Signed by: 

for CENTRAL LABORATORY

# CERTIFICATE OF ANALYSIS

## NATIONAL WATER AND SEWERAGE CORPORATION

CENTRAL LABORATORY

P.O. Box 7053

Tel. 257548

KAMPALA.

Date: 01/8/97

**TO : JAPAN INTERNATIONAL COOPERATION AGENCY  
STUDY TEAM**

Sample Source/Characteristics : Mukono DFI/Surface & Spring Water

Date & Time of Sampling : 29/7/97 at 10 a.m.

Sampled by: Okwerede.L

Date & Time Analysis started : 29/7/97 at 2 p.m.

Mutaasa.A.

Table of Analysis Results

PARAMETER	Units	Raw Water (Rwajjali Swamp)	KitchenWorkers' Quarters Tap	Bishop Tucker Farm (Spring Well)	Uganda National Drinking water Std (Limit)
Temperature	°C				
pH	-	6.91	7.15	6.45	6.0-8.5
Conductivity	uS/cm	100	90	50	1000
Colour	Pt	151	133	88	10
Turbidity	NTU	16	24	15	5
Dissolved Oxygen	mg/L				
Total Dissolved Solids	mg/L	75	67.5	37.5	500
Total Suspended Solids	mg/L	14	14	12	10
Alkalinity(Total) as CaCO <sub>3</sub>	mg/L	53	42	18	250
Aluminium	mg/L				
Calcium as CaCO <sub>3</sub>	mg/L	21	19	8	75
Chloride	mg/L	2.1	2.3	2.6	250
Chlorine: Free residual	mg/L				
Chlorine: Total residual	mg/L				
Fluoride	mg/L	0.45	0.52	0.70	3.0
Hardness(Total) as CaCO <sub>3</sub>	mg/L	43	42	18	500
Iron(Total)	mg/L	2.6	0.25	0.25	0.3
Manganese	mg/L	0.275	0.11	0.22	0.1
Ammonia-Nitrogen	mg/L				
Nitrite-Nitrogen	mg/L				
Nitrate-Nitrogen	mg/L				
Phosphate(Reactive)	mg/L	0.63	0.60	0.30	0.2
Silica	mg/L				
Sulphate	mg/L				
Coliform-Total (count/100ml)	No.	1100	180	190	Nil
Coliform-Faecal "	No.	500	20	90	Nil

**Remarks:** The results of analysis show that the water needs treatment and disinfection to make it fit for human consumption.

Analysed by: 

Signed by:   
for **CENTRAL LABORATORY**

## 7 収集資料リスト

## 7. 収集資料リスト

No.	資料名	発行年	発行者
1.	Finance Bill 1997.	1997	
2.	Annual Report Volume 4-1994/95 Coffee Season	Oct., 1994 - Sep., 1995	Uganda Coffee Development Authority.
3.	Operationization of the Medium-term Plan for Modernization of Agriculture - 1996/97-2000/2001	April, 1997	Ministry of Planning and Economic Development Agricultural Policy Committee
4.	Reading Material, Technical Workshops	March, 1996	Directorate of Agricultural Extension Ministry of Agriculture, Animal Industry and Fisheries (MAAIF)
5.	Ministry Corporate Plan 1995/96-1997/98 Draft	July, 1995	Department of Agricultural Planning
6.	Agricultural Extension Project (AEP) Work Plan and Programme Vol.1	Jan.,- Dec., 1997	MAAIF
7.	The National Agricultural Extension Programme (NAEP)	March, 1997	MAAIF
8.	Project for Farmers' Training and Development of Agriculture, Agro-Forestry and Animal Husbandry in the West Nile region, UGANDA 1480/ACAV/HG FINAL REPORT	December, 1995	A.C.A.V.
9.	Road Design Manual	November., 1994	Ministry of Works, Transport & Communications
10.	Background to the Budget 1997/98	June, 1997	Ministry of Planning and Economic Development.
11.	Rehabilitation and Development Plan 1993/94-1995/96 Vol. 1	December, 1993	Ministry of Finance
12.	Uganda Building Regulations	1968	The Local Government Order
13.	Livestock Technical Hand book		Department of Animal Production MAAIF
14.	Zero Grazing (A Guideline for Extension Workers)	1984	Ministery of Agriculture and Livestock Development

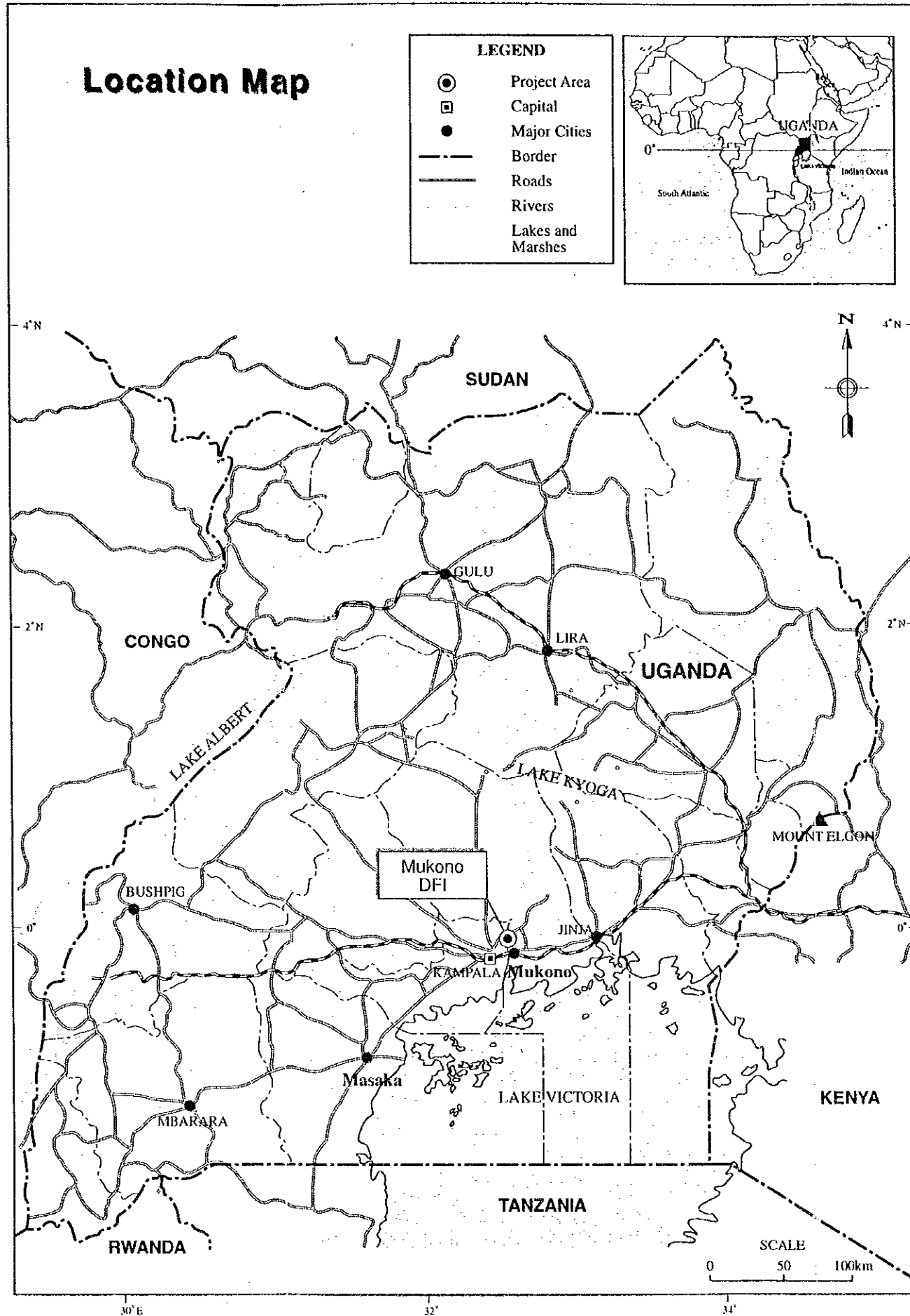


## 8 基本設計図

## 基本設計図面リスト

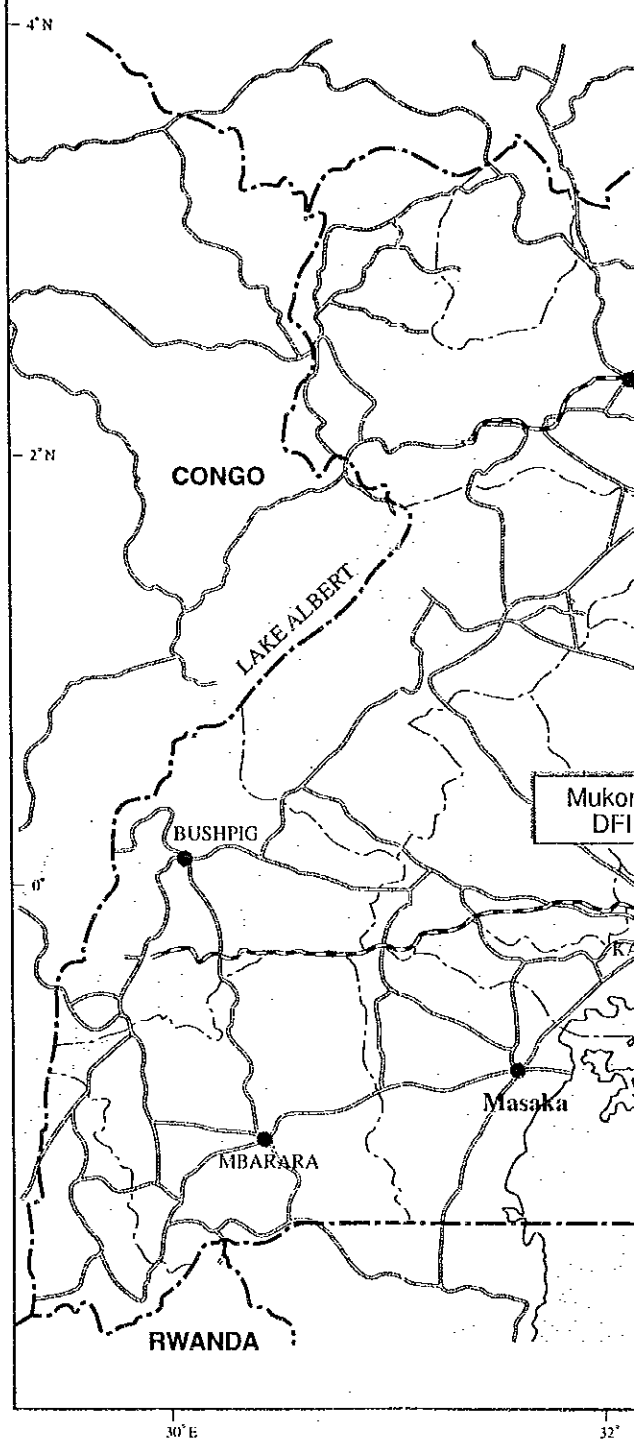
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ムコノ農業普及・訓練所		
一般図 (MP)		
1	MUMP-01	計画位置図
2	MUMP-02	施設計画概要図
農業普及・訓練所建屋 (TB)		
3	MUTB-01	建築計画概要図
4	MUTB-02	メインホール
5	MUTB-03	教室
6	MUTB-04	寄宿舎
7	MUTB-05	食堂/厨房
農業施設 (AF)		
8	MUAF-01	農業施設計画概要図
9	MUAF-02	苗木用ネット・ハウス
10	MUAF-03	牛舎
11	MUAF-04	豚舎
12	MUAF-05	鶏舎 (ブロイラー用)
13	MUAF-06	鶏舎 (産卵鶏用)
14	MUAF-07	ウサギ小屋
15	MUAF-08	倉庫
場内道路 (FR)		
16	MUFR-01	道路計画概要図
17	MUFR-02	道路標準断面図
18	MUFR-03	道路付帯構造物 (横断暗きよ)
給水施設 (WS)		
19	MUWS-01	給水施設計画概要図
20	MUWS-02	ポンプ場集水池及び集水トレンチ
21	MUWS-03	ポンプ場詳細図
22	MUWS-04	深井戸、ポンプ施設
23	MUWS-05	調整池A (灌漑、生活雑用水用)
24	MUWS-06	ポンプ室 (調整池A)
25	MUWS-07	調整池B (灌漑用)
26	MUWS-08	高架水槽 (飲料水用)
27	MUWS-09	高架水槽 (生活雑用水用)
灌漑施設 (IF)		
28	MUIF-01	灌漑施設計画概要図及び給水栓、空気弁、排泥施設
圃場整備 (LR)		
29	MULR-01	圃場整備計画概要図





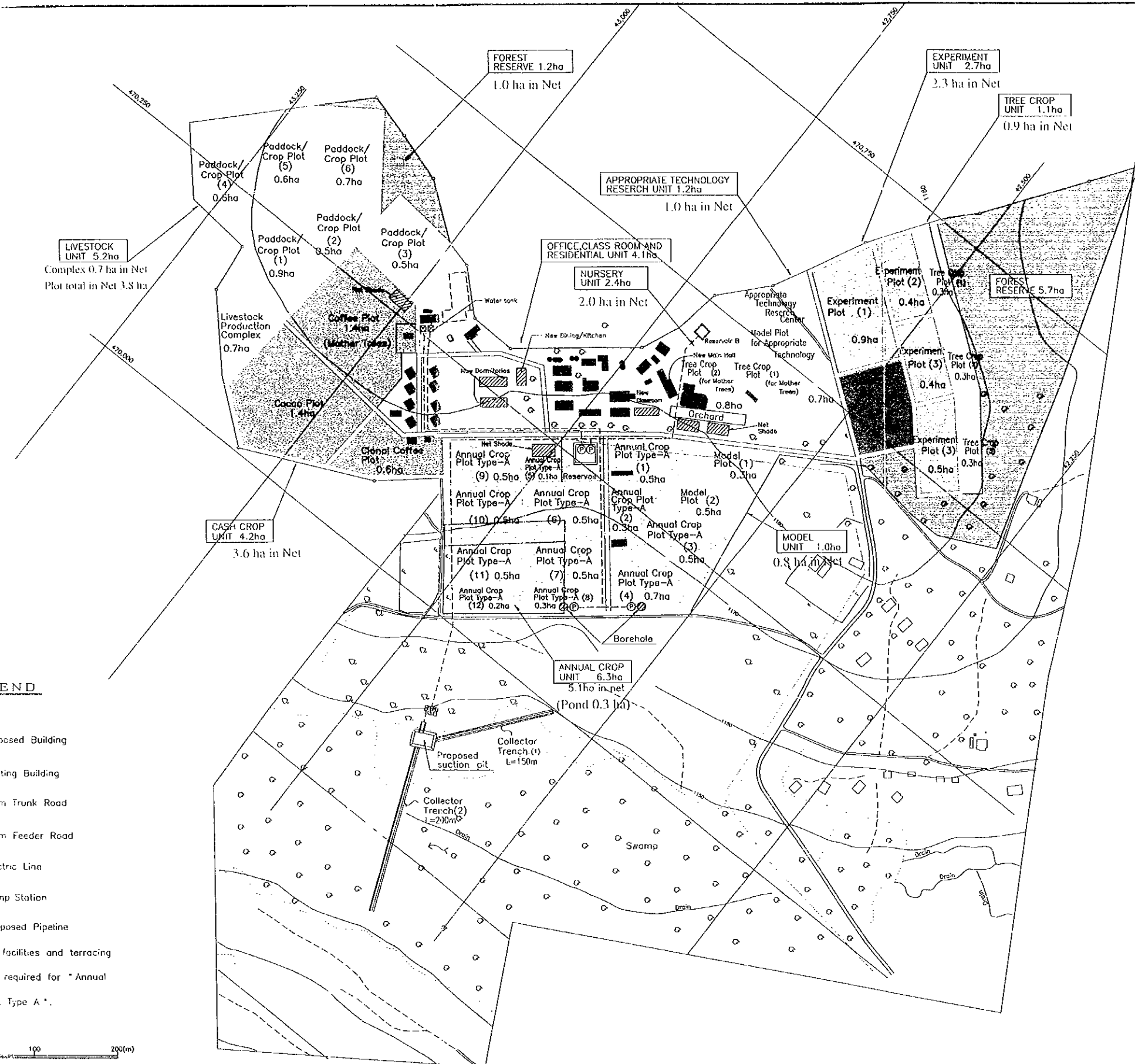
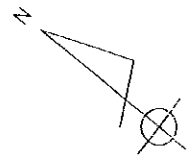
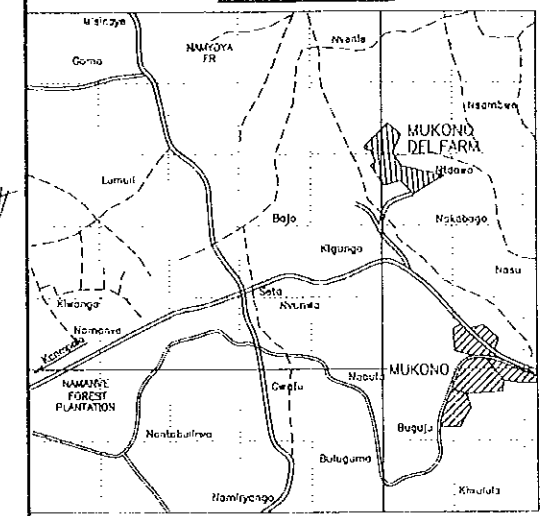
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THE PROJECT FOR IMPROVEMENT OF AGRICULTURAL EXTENSION AND TRAINING INSTITUTES			
TITLE OF DRAWING 一般図 計画位置図			
DATE	OCT. 1997	DRAWING NO.	MUMP-01
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# Location Map





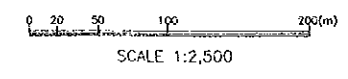
KEY MAP



LEGEND

- Proposed Building
- Existing Building
- Farm Trunk Road
- Farm Feeder Road
- Electric Line
- Pump Station
- Proposed Pipeline

Note : Irrigation facilities and terracing work are required for \*Annual Crop Plot Type A\*.



LAND USE PLAN

(unit: ha in net)	
Name of Unit	Area
1) Office, Class room and residential	3.5 ha
2) Annual crop	5.1 ha
3) Nursery	2.0 ha
4) Experiment	2.3 ha
5) Livestock	4.5 ha
6) Cash crop	3.6 ha
7) Model	0.8 ha
8) Forest reserve	5.9 ha
9) Tree crop	0.9 ha
10) Appropriate technology	1.0 ha
11) Play ground	0.7 ha
12) Others	5.1 ha
<b>Total</b>	<b>35.4 ha</b>

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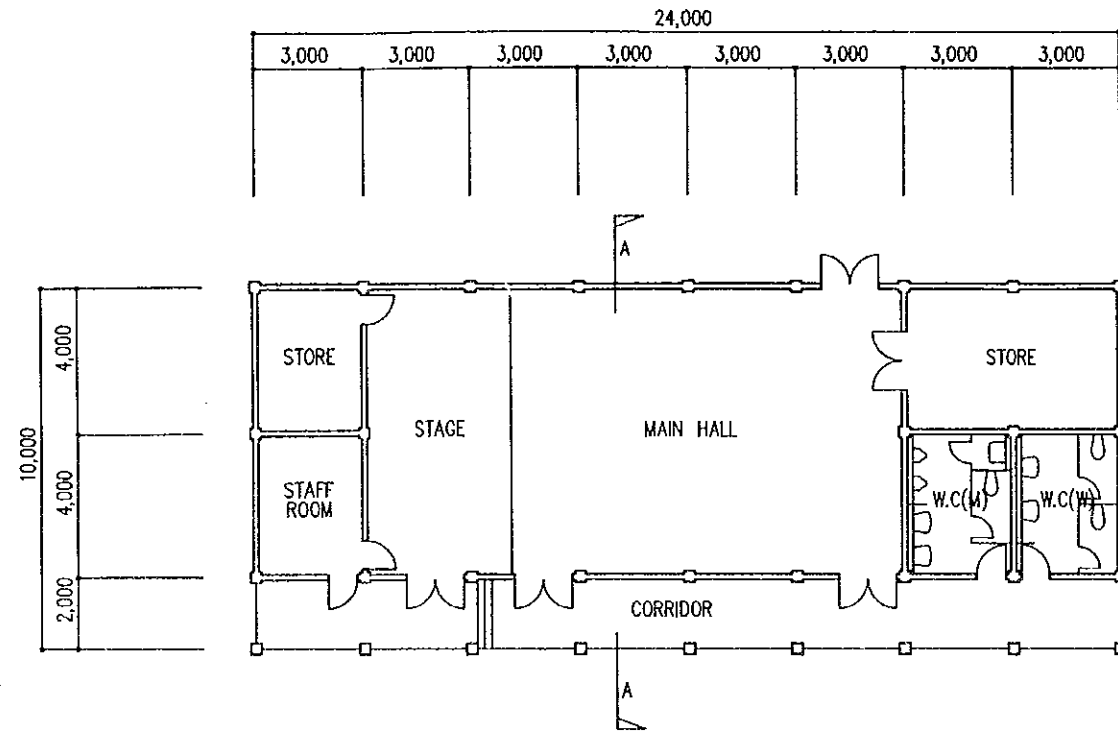
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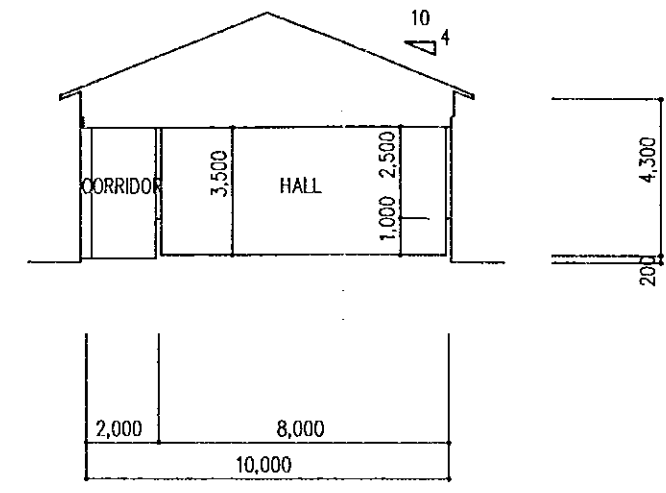
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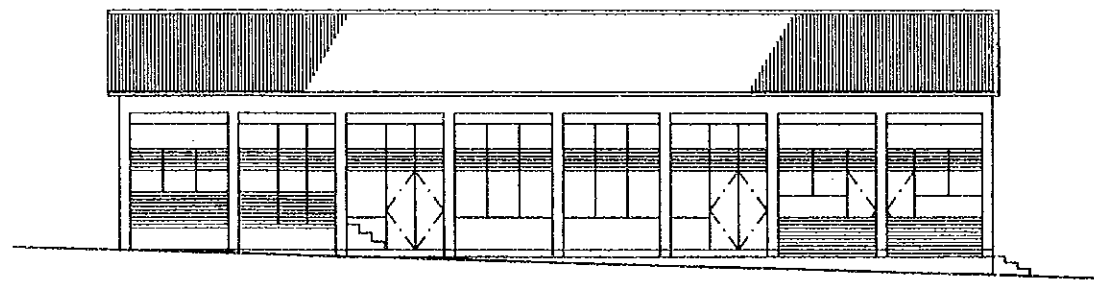




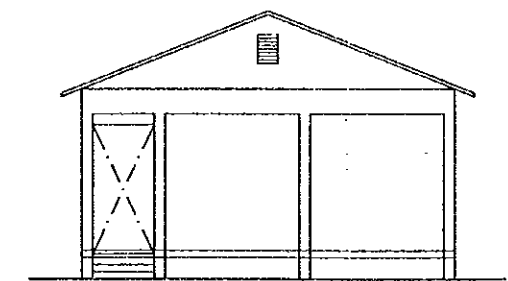
GROUND FLOOR



A-A SECTION

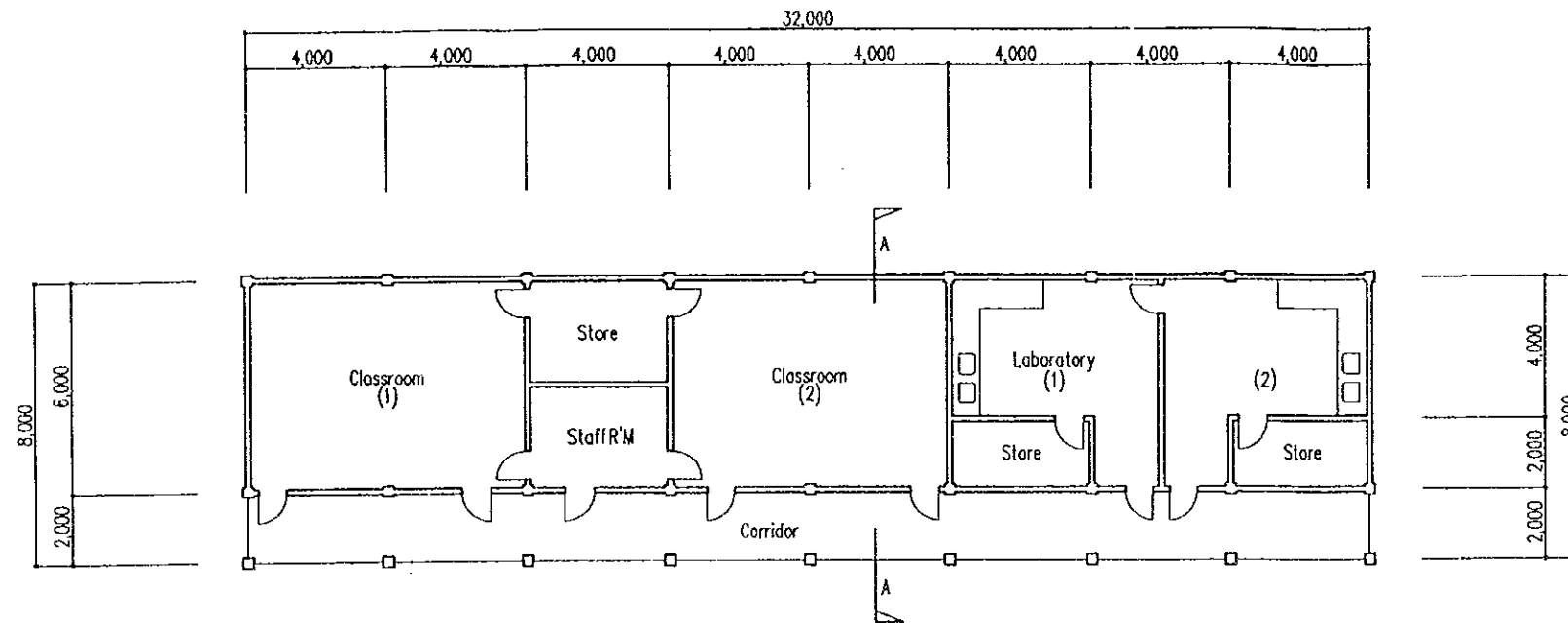


FRONT ELEVATION

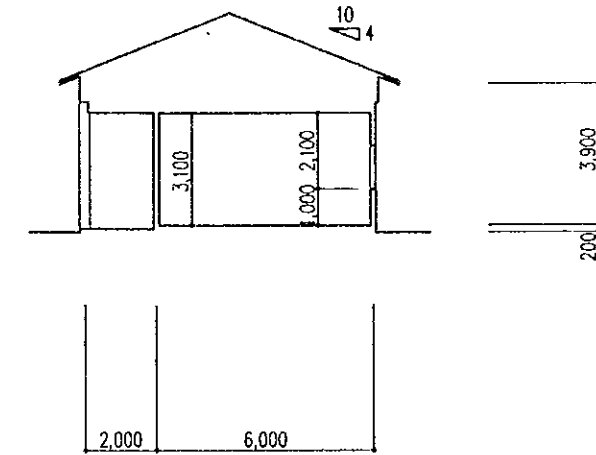


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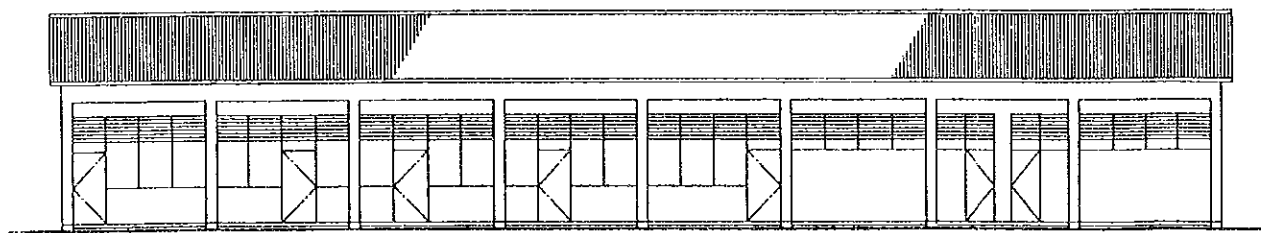
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DATE	OCT. 1997	DRAWING NO.	MUTB-02
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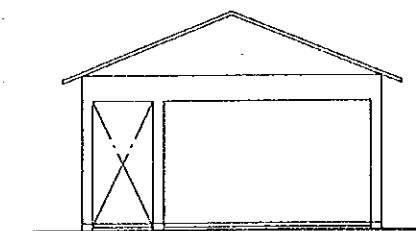
GROUND FLOOR



A-A SECTION

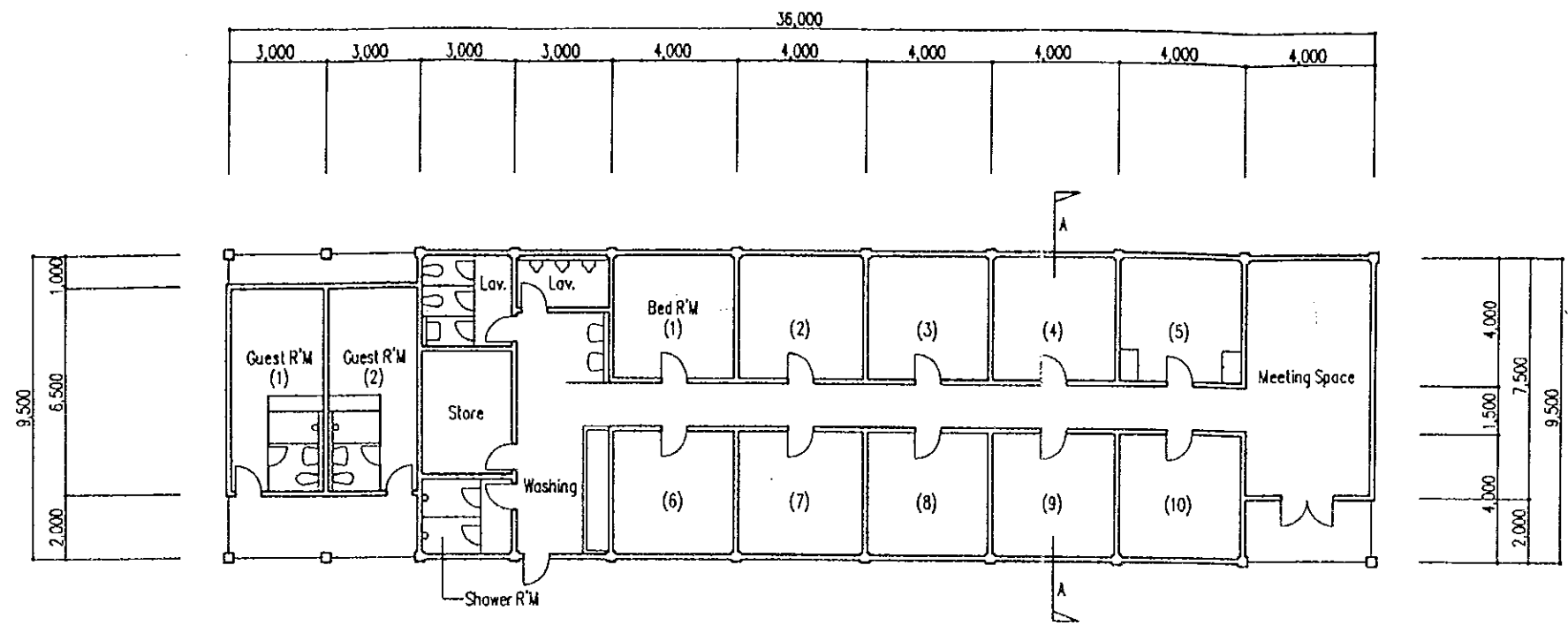


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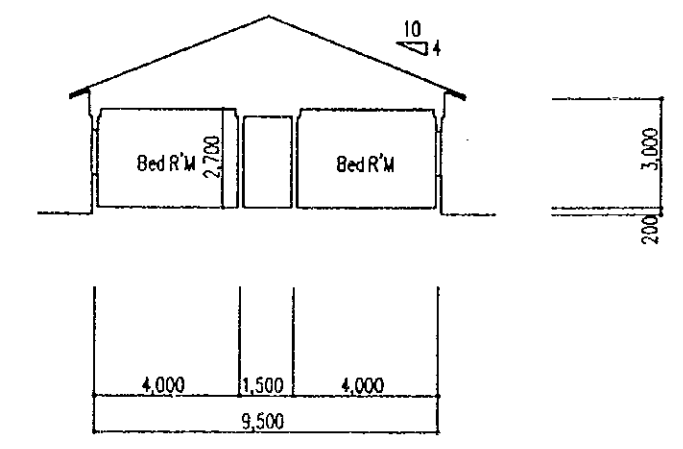


ELEVATION

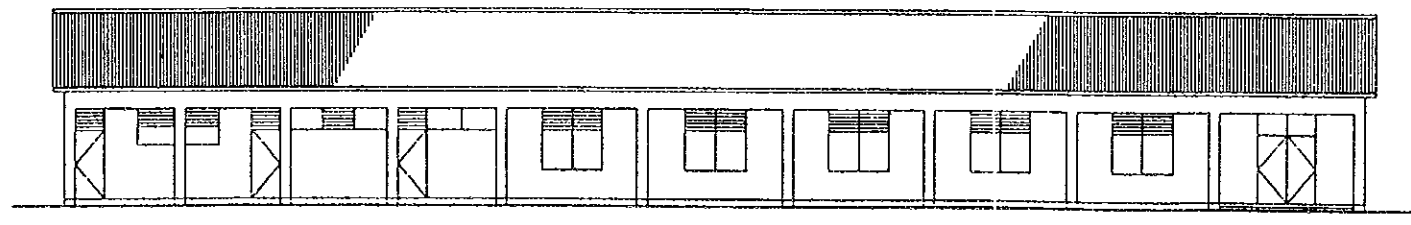
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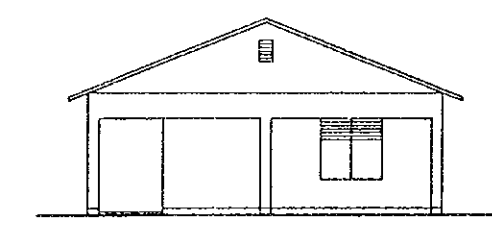
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A-A SECTION

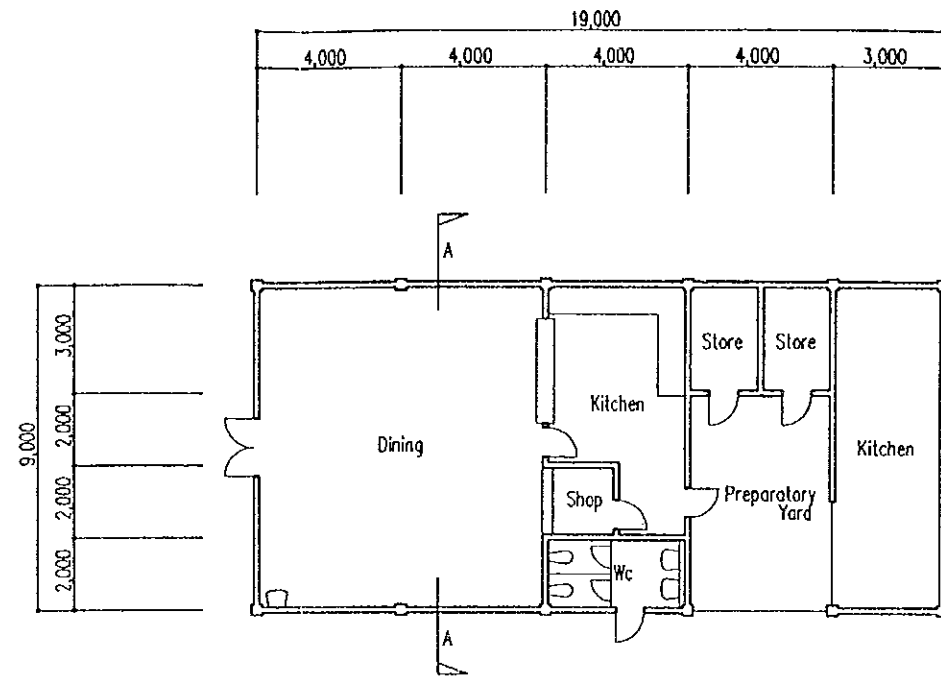


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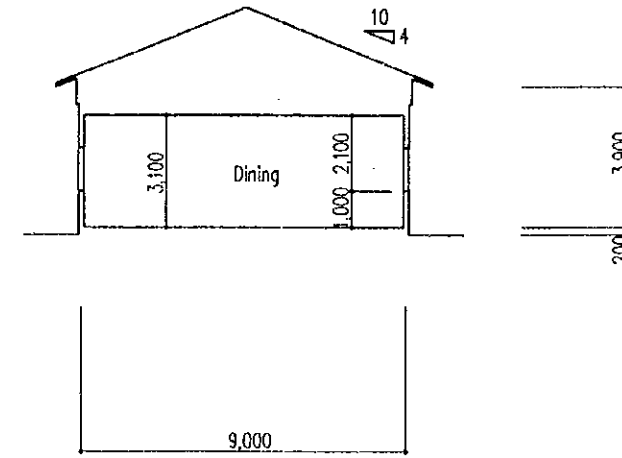


SIDE ELEVATION

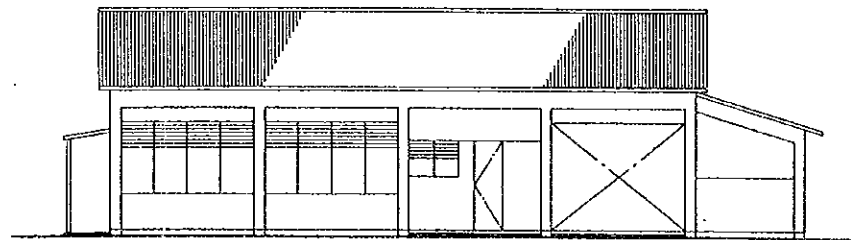
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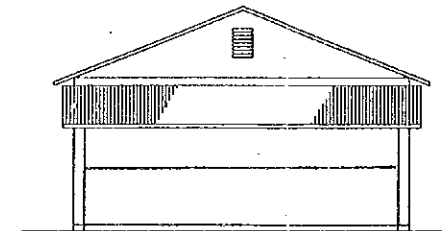
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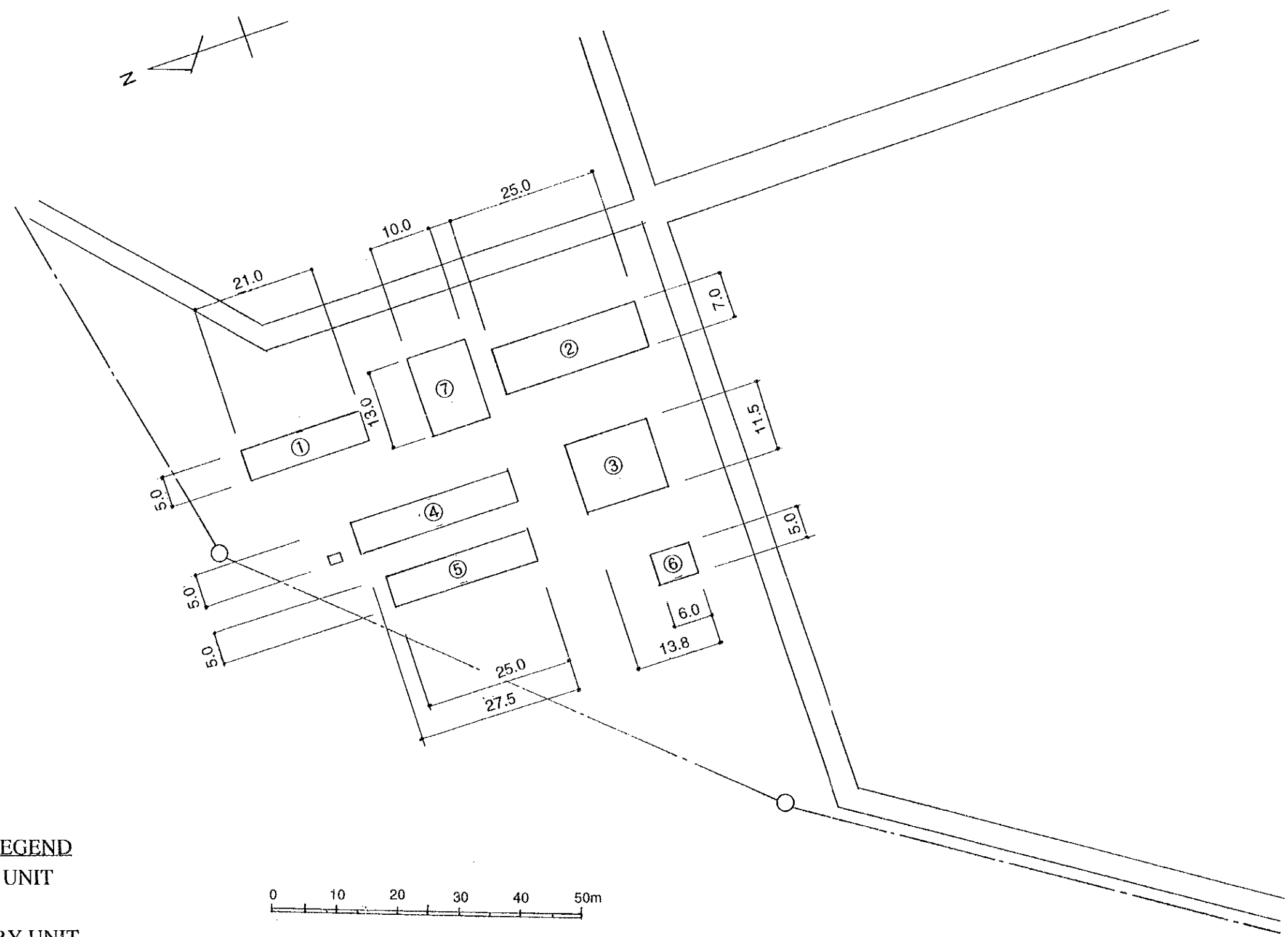


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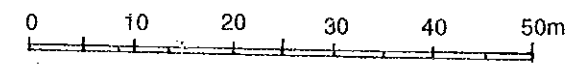
ELEVATION

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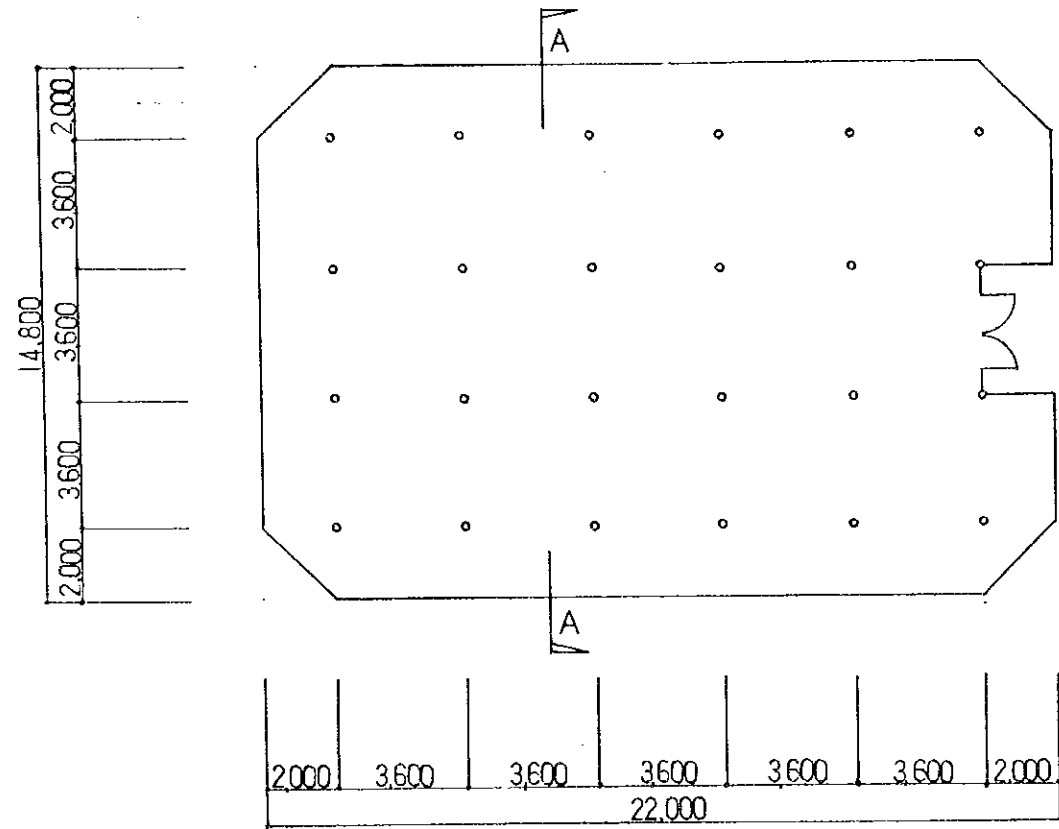


**LEGEND**

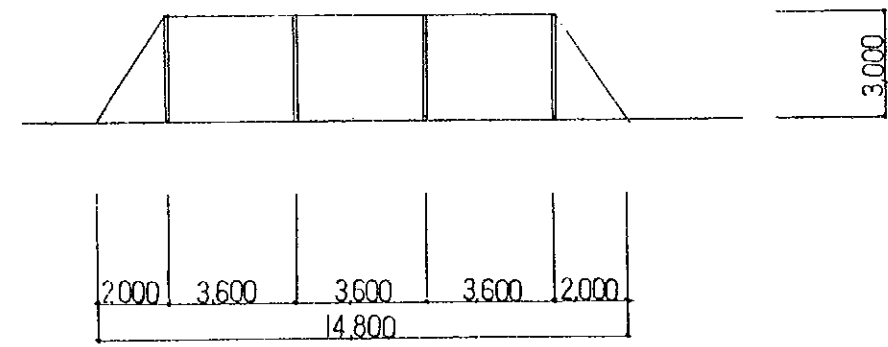
- ① DAIRY UNIT
- ② STORE
- ③ PIGGERY UNIT
- ④ POULTRY UNIT-1
- ⑤ POULTRY UNIT-2
- ⑥ RABBIT UNIT
- ⑦ SUN-DRYING FLOOR



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DATE	OCT. 1997	DRAWING NO.	MUAF-01
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GROUND FLOOR

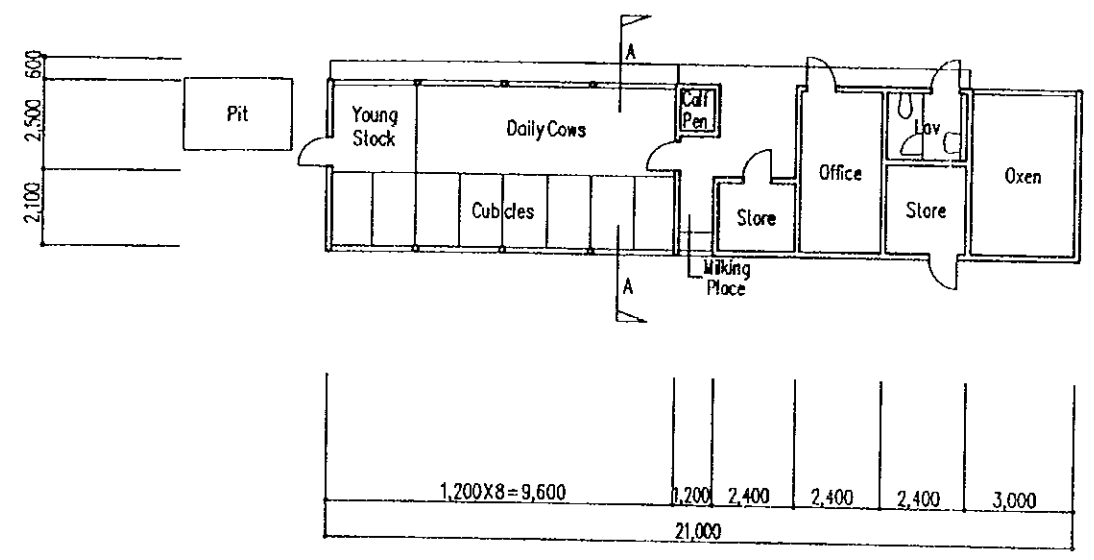


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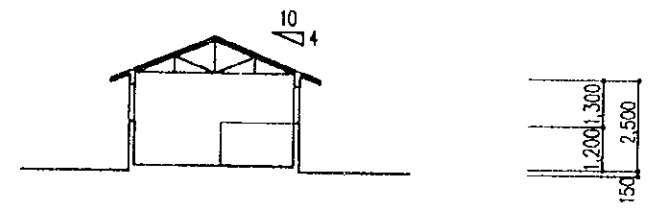


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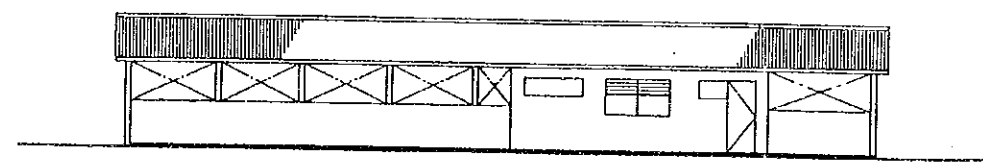
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GROUND FLOOR

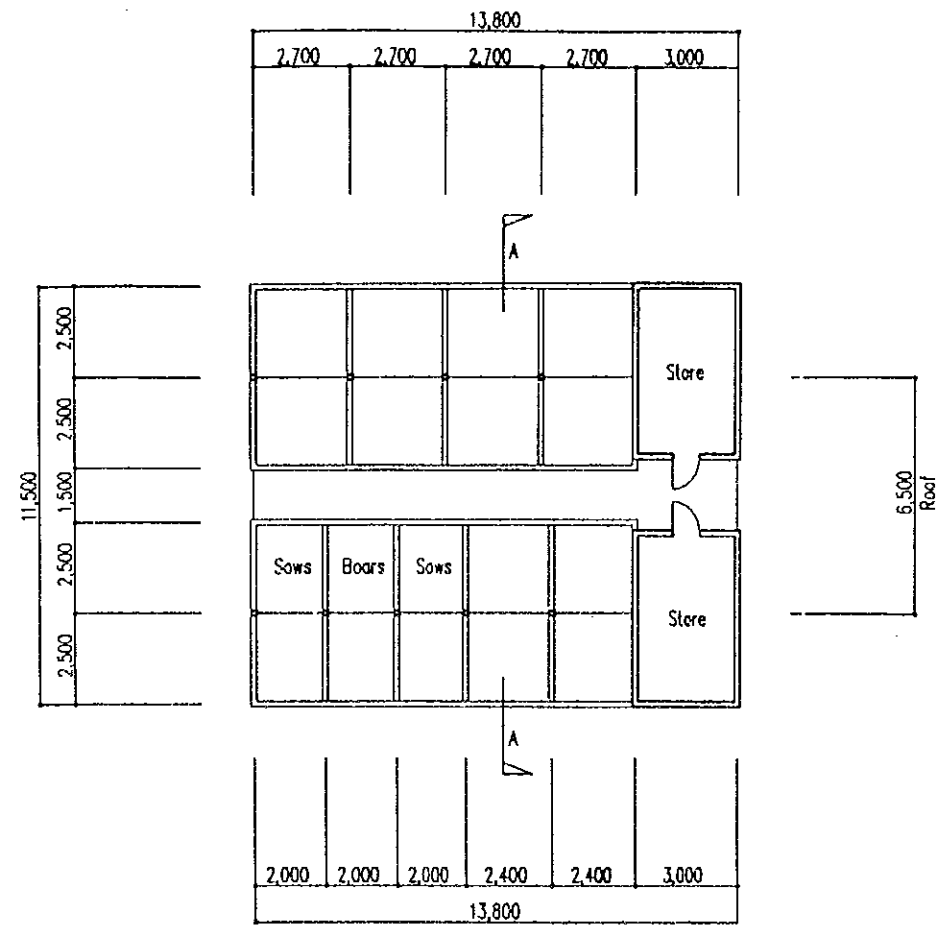


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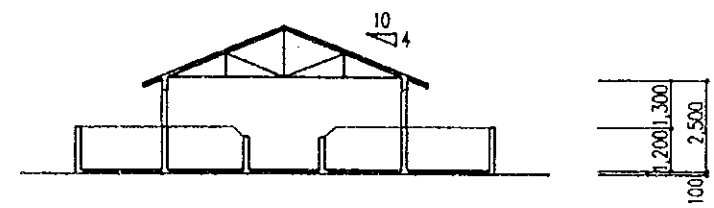


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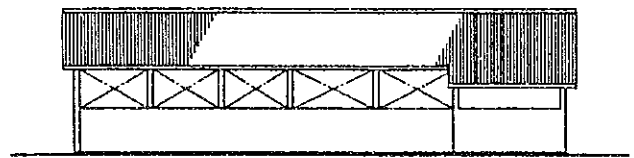
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GROUND FLOOR



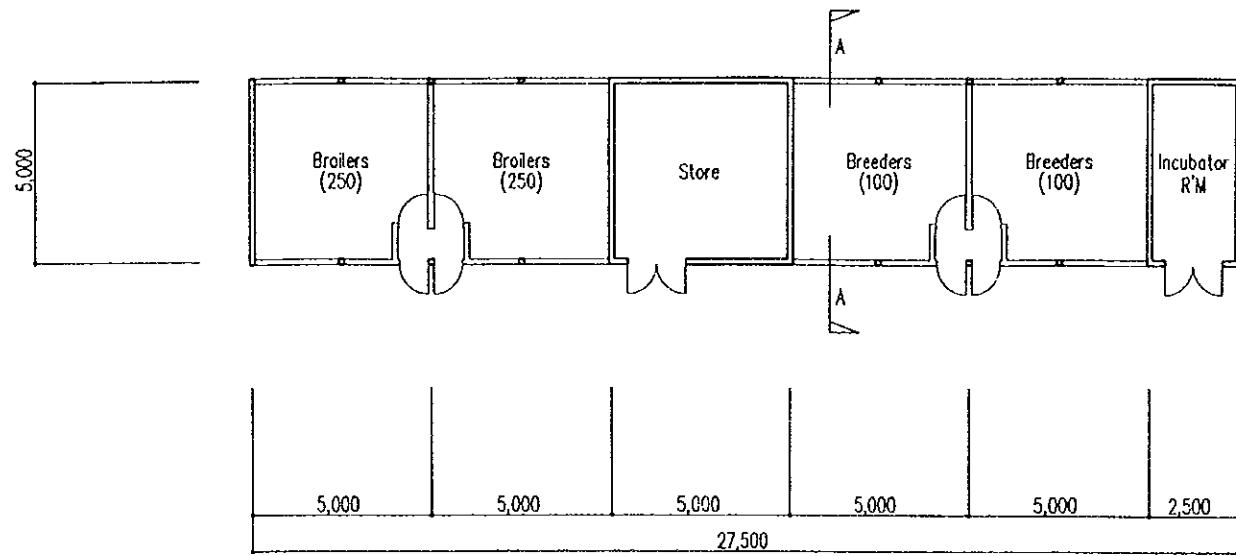
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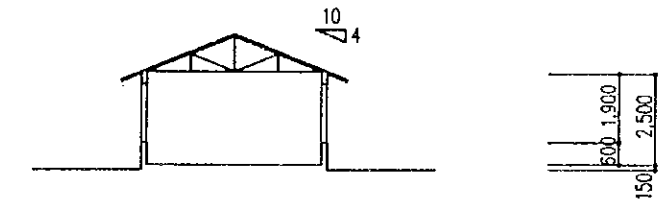
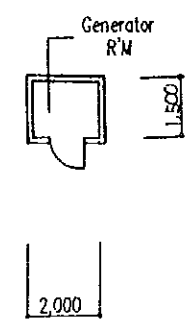
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DATE	OCT. 1997	DRAWING NO.	MUAF-04
NIPPON KOEI CO., LTD. TOKYO, JAPAN			

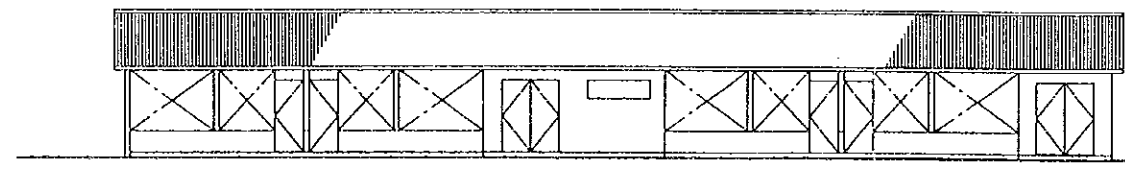




GROUND FLOOR

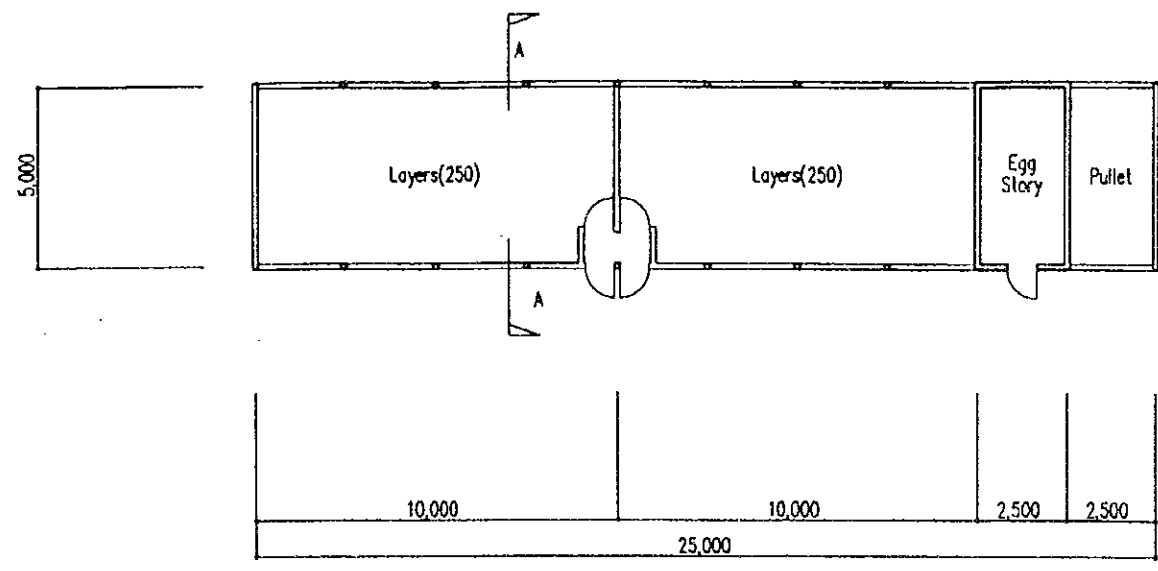


A-A SECTION

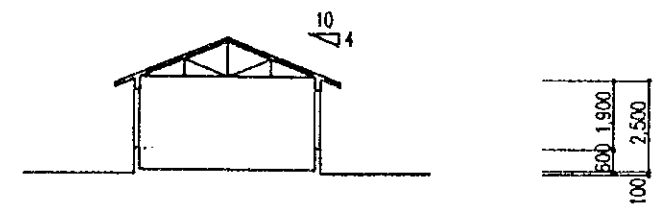


FRONT ELEVATION

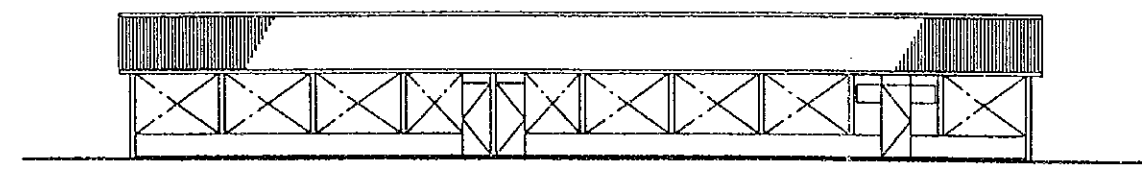
THE REPUBLIC OF UGANDA			
THE PROJECT FOR IMPROVEMENT OF AGRICULTURAL EXTENSION AND TRAINING INSTITUTES			
TITLE OF DRAWING 農業施設 鶏舎(ブロイラー用)			
DATE	OCT. 1997	DRAWING NO.	MUAF-05
NIPPON KOEI CO., LTD. TOKYO, JAPAN			



GROUND FLOOR

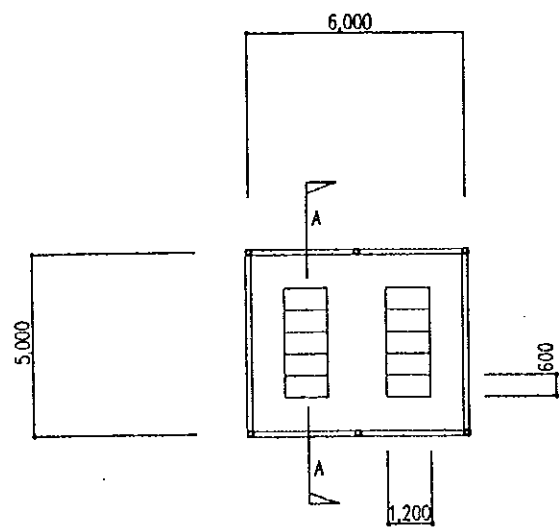


A-A SECTION

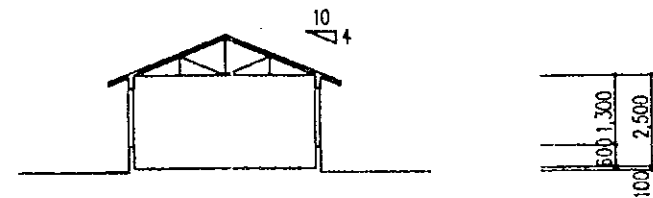


FRONT ELEVATION

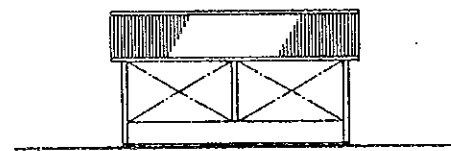
THE REPUBLIC OF UGANDA			
THE PROJECT FOR IMPROVEMENT OF AGRICULTURAL EXTENSION AND TRAINING INSTITUTES			
TITLE OF DRAWING 農業施設 鶏舎(卵用)			
DATE	OCT. 1997	DRAWING NO.	MUAF-06
NIPPON KOEI CO., LTD. TOKYO, JAPAN			



GROUND FLOOR

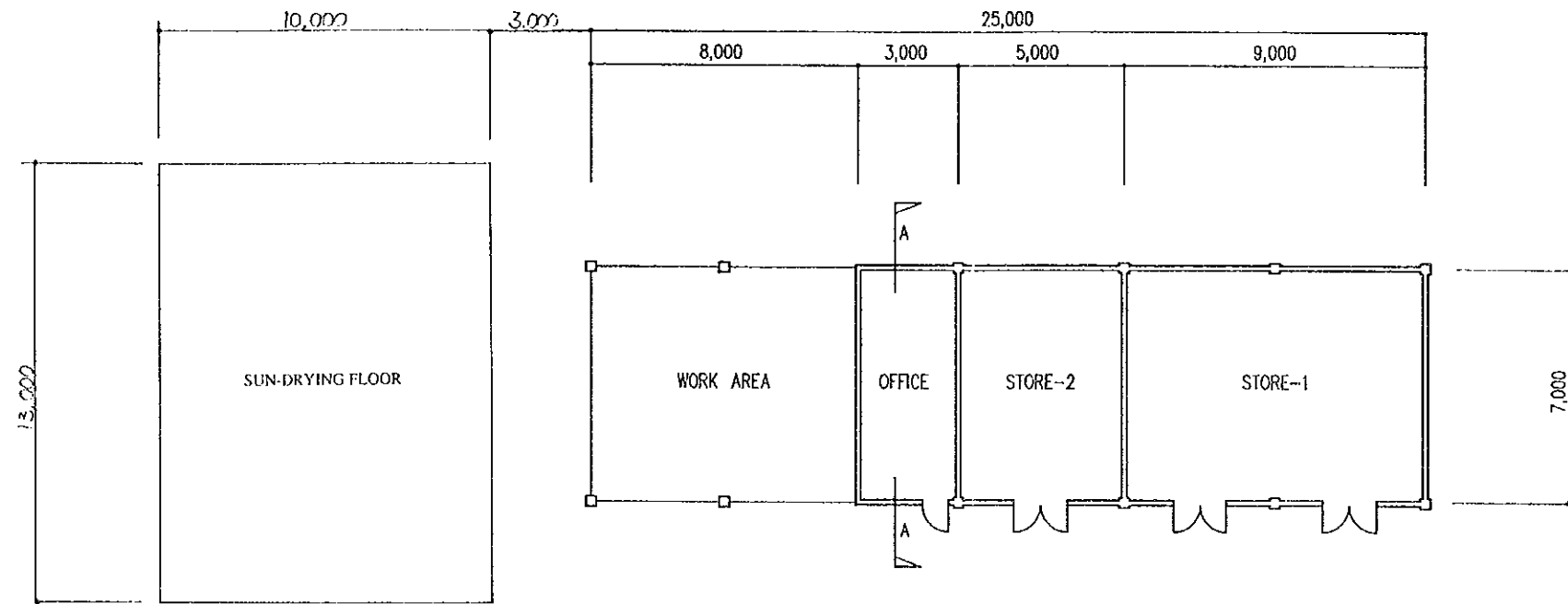


A-A SECTION

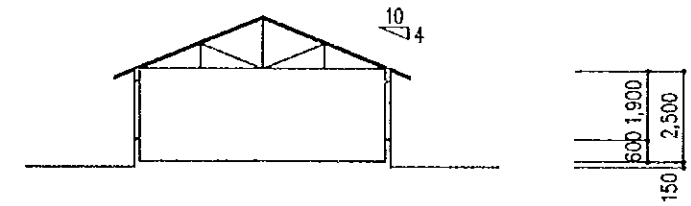


FRONT ELEVATION

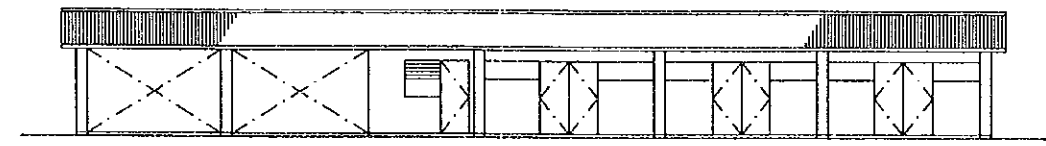
THE REPUBLIC OF UGANDA			
THE PROJECT FOR IMPROVEMENT OF AGRICULTURAL EXTENSION AND TRAINING INSTITUTES			
TITLE OF DRAWING 農業施設 ウサギ小屋			
DATE	OCT. 1997	DRAWING NO.	MUAF-07
NIPPON KOEI CO., LTD. TOKYO, JAPAN			



GROUND FLOOR

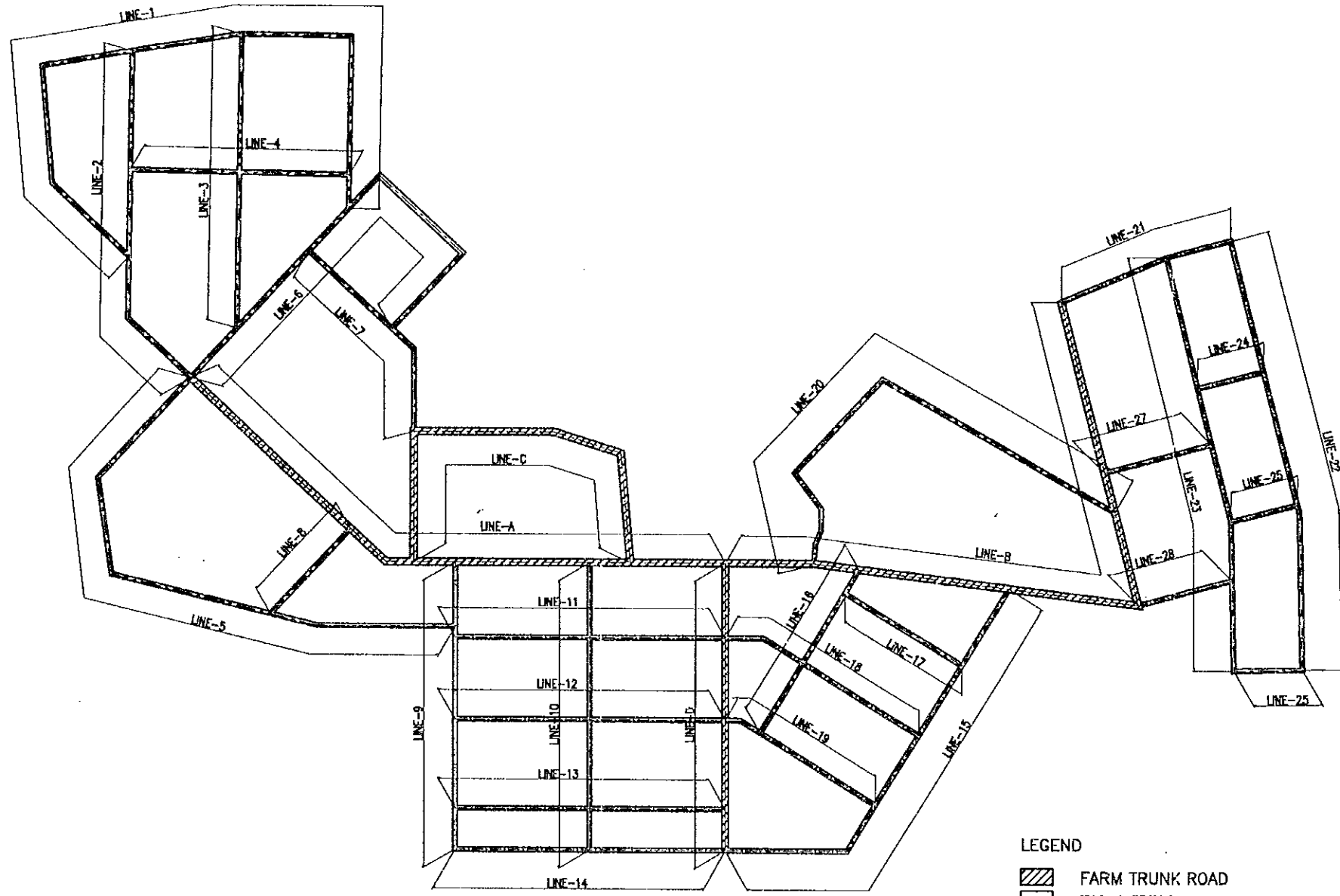


A-A SECTION



FRONT ELEVATION

THE REPUBLIC OF UGANDA			
THE PROJECT FOR IMPROVEMENT OF AGRICULTURAL EXTENSION AND TRAINING INSTITUTES			
TITLE OF DRAWING 農業施設 倉庫			
DATE	OCT. 1997	DRAWING NO.	MUAF-08
NIPPON KOEI CO., LTD. TOKYO, JAPAN			



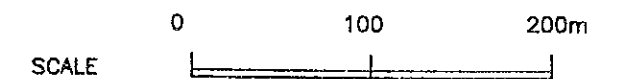
Farm Trunk Roads		
	Length (m)	Culverts (Nos.)
L - A	445.0	4
L - B	533.0	1
L - C	330.3	-
L - D	210.0	6
Sub-total	1,518.3	11

Farm Feeder Roads		
	Length (m)	Culverts (Nos.)
L - 01	516.6	3
L - 02	256.8	3
L - 03	213.3	2
L - 04	160.0	-
L - 05	426.9	1
L - 06	359.0	1
L - 07	163.9	-
L - 08	85.7	-
L - 09	210.0	4
L - 10	210.0	6
L - 11	200.0	-
L - 12	200.0	-
L - 13	200.0	-
L - 14	200.0	-
L - 15	315.7	3
L - 16	140.1	4
L - 17	100.0	-
L - 18	161.9	-
L - 19	126.4	-
L - 20	363.4	-
L - 21	133.9	2
L - 22	318.6	3
L - 23	307.1	3
L - 24	50.0	-
L - 25	50.0	-
L - 26	50.0	-
L - 27	83.0	-
L - 28	73.0	-
Sub-total	5,675.3	35
Total	7,193.6	46

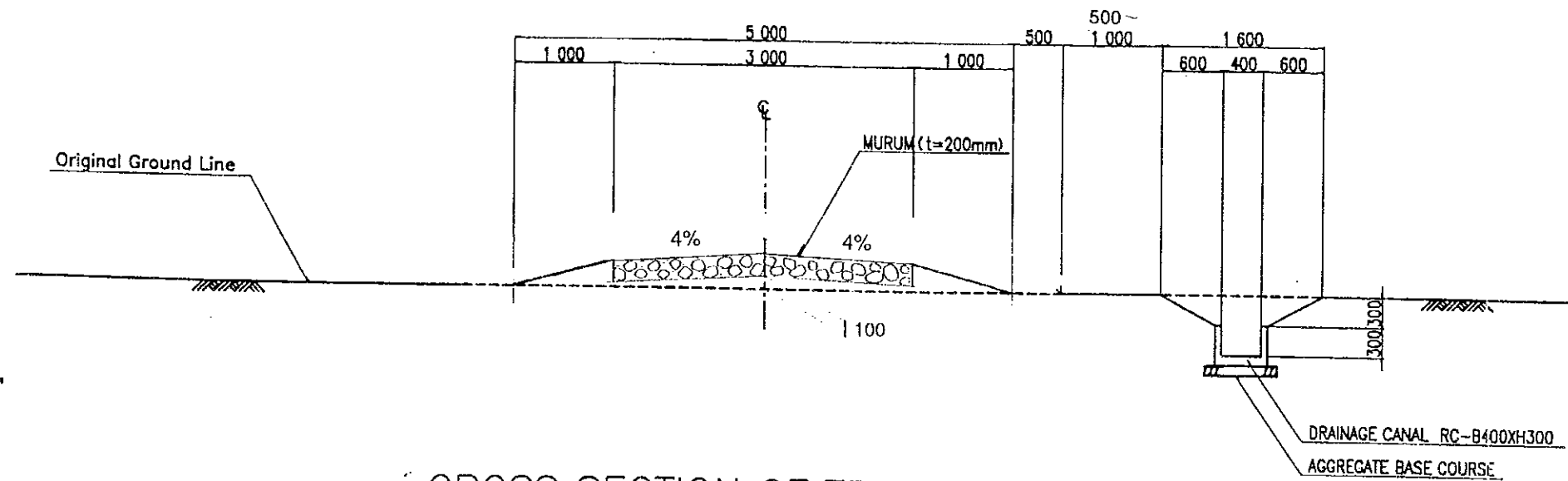
GENERAL PLAN OF FARM ROAD

LEGEND

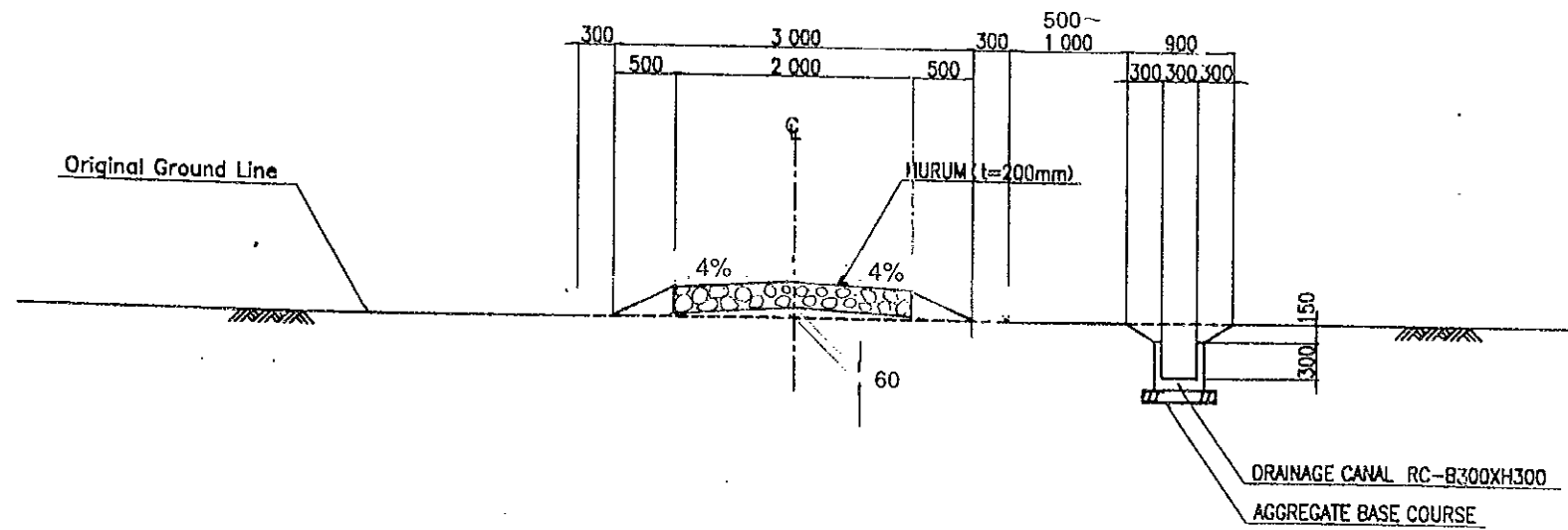
- FARM TRUNK ROAD
- FARM FEEDER ROAD



THE REPUBLIC OF UGANDA			
THE PROJECT FOR IMPROVEMENT OF AGRICULTURAL EXTENSION AND TRAINING INSTITUTES			
TITLE OF DRAWING 場内道路 道路計画概要図			
DATE	OCT. 1997	DRAWING NO.	MUFR-01
NIPPON KOEI CO., LTD. TOKYO, JAPAN			



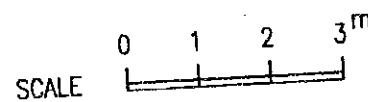
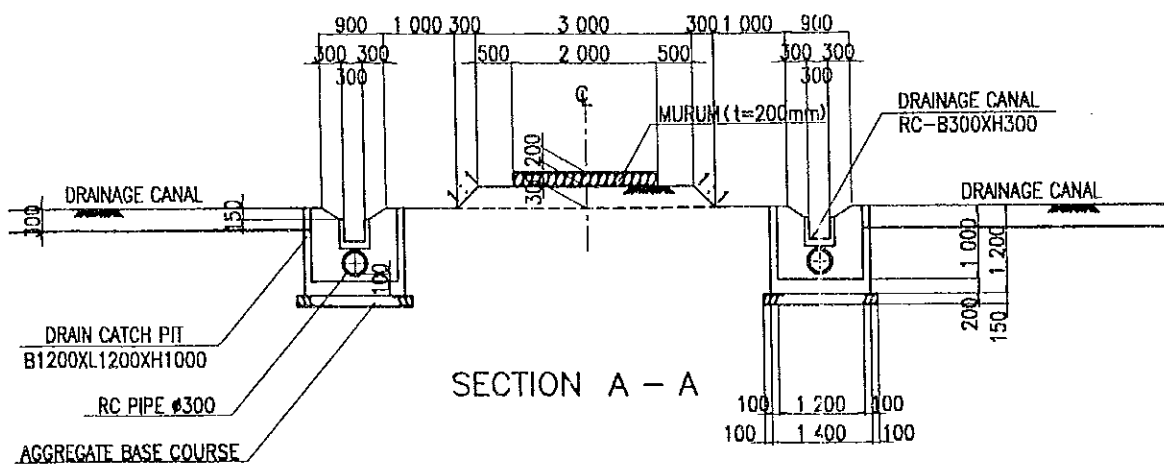
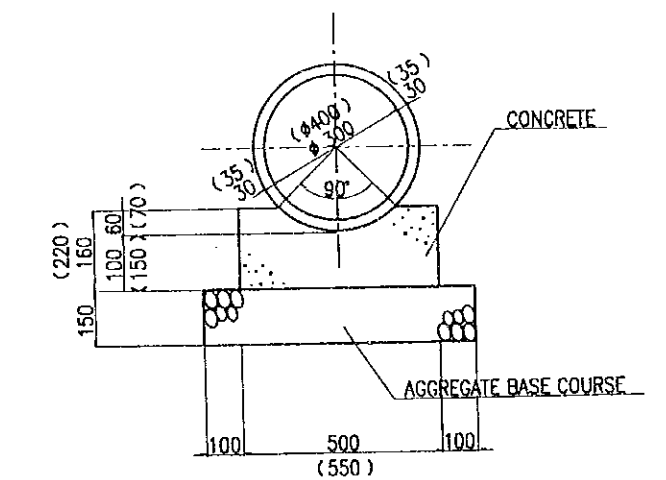
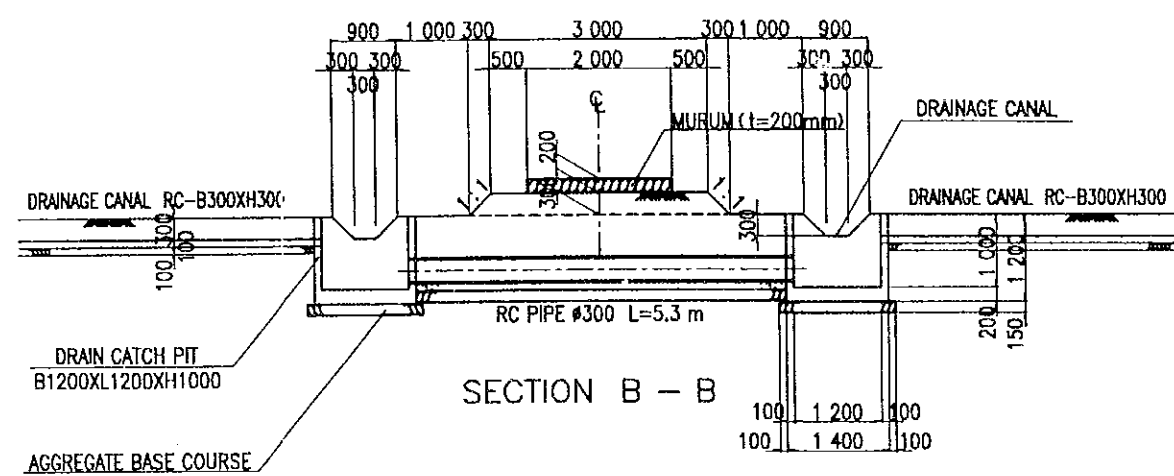
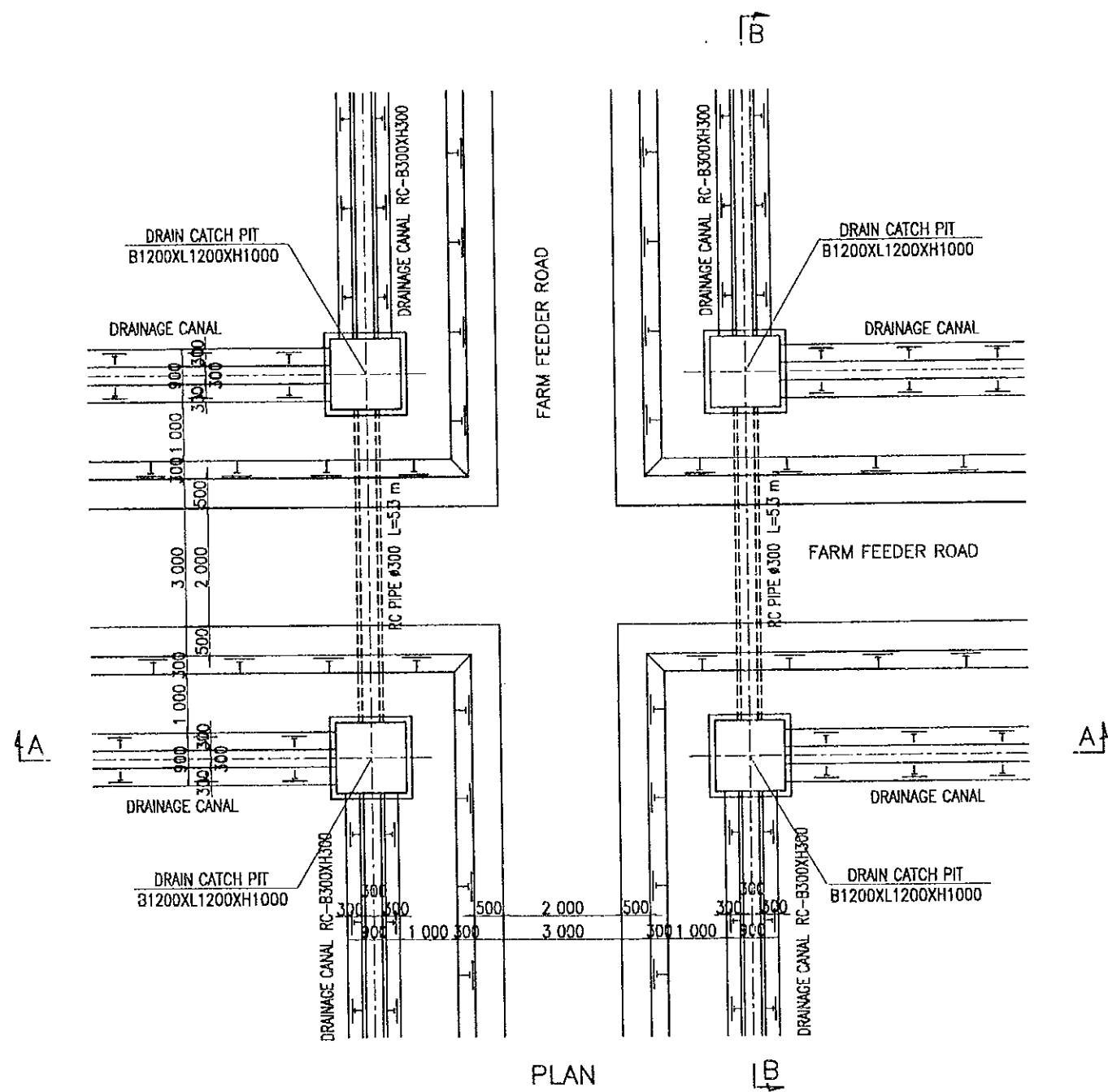
CROSS SECTION OF TRUNK ROAD



CROSS SECTION OF FEEDER ROAD

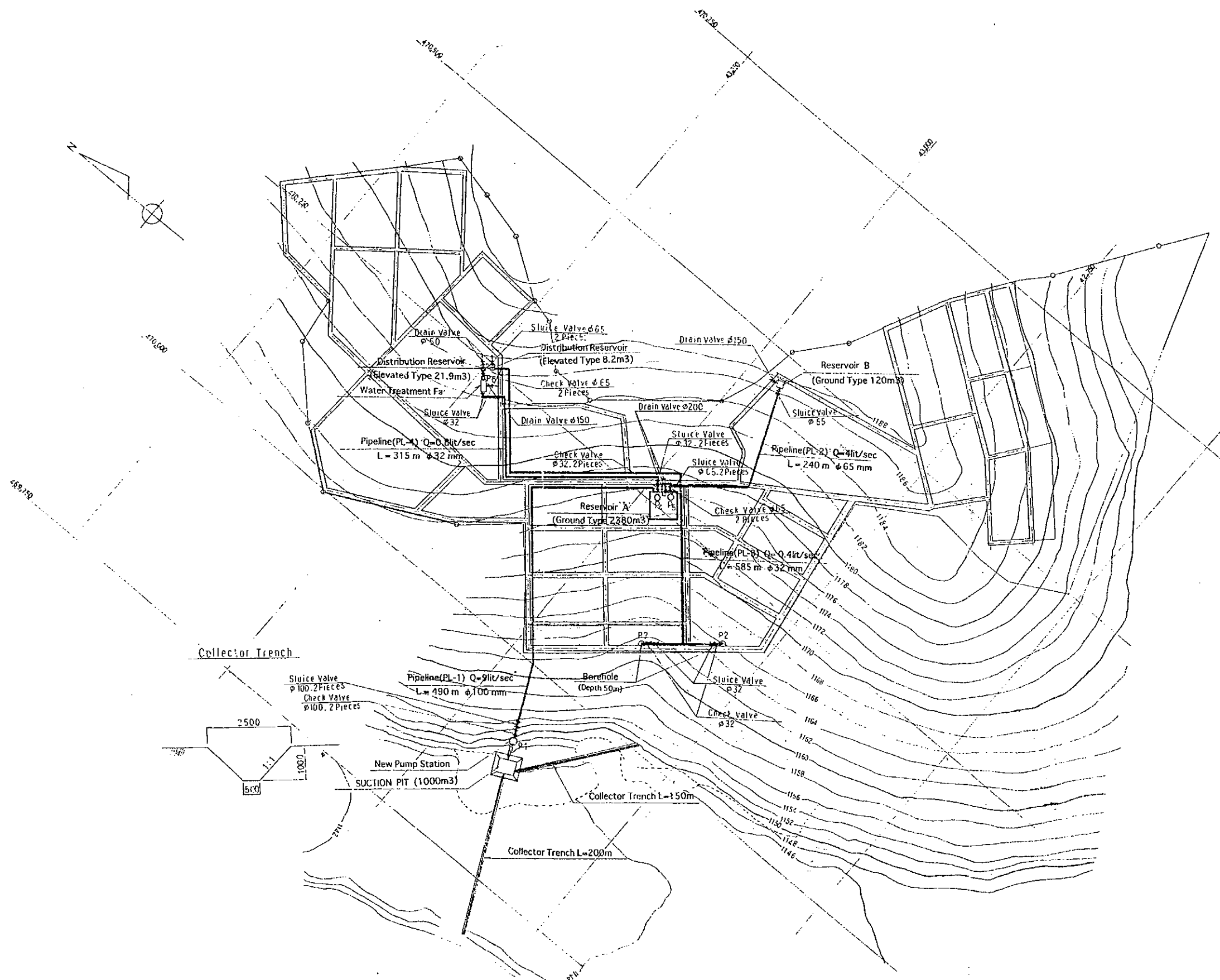


THE REPUBLIC OF UGANDA			
THE PROJECT FOR IMPROVEMENT OF AGRICULTURAL EXTENSION AND TRAINING INSTITUTES			
TITLE OF DRAWING 場内道路 道路標準断面図			
DATE	OCT. 1997	DRAWING NO.	MUFR-02
NIPPON KOEI CO., LTD. TOKYO, JAPAN			

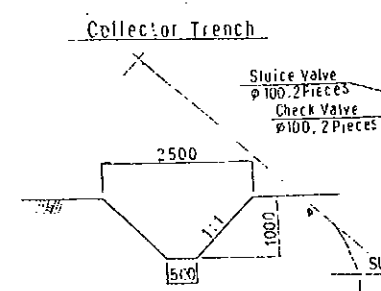
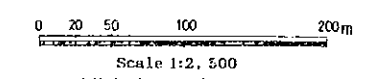


DRAINAGE CANAL TYPICAL DRAWING

THE REPUBLIC OF UGANDA			
THE PROJECT FOR IMPROVEMENT OF AGRICULTURAL EXTENSION AND TRAINING INSTITUTES			
TITLE OF DRAWING 場内道路 道路付帯構造物(横断暗渠)			
DATE	OCT. 1997	DRAWING NO.	MUFR-03
NIPPON KOEI CO., LTD. TOKYO, JAPAN			

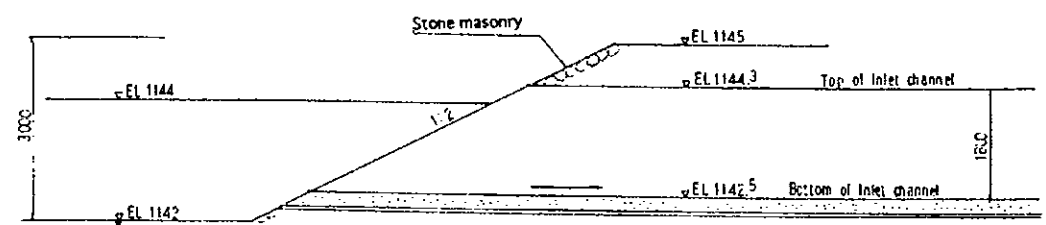
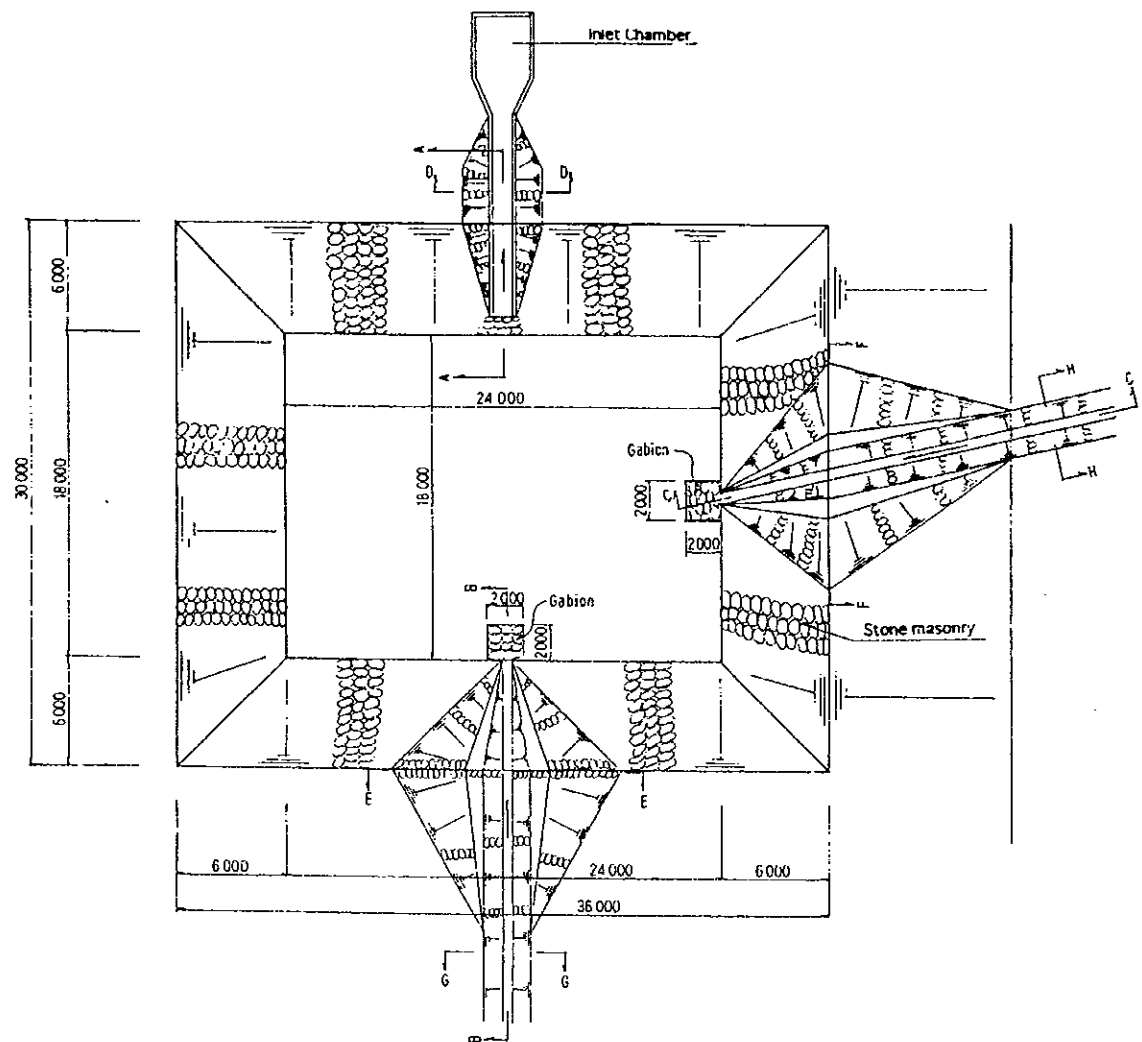


Pump List				
	D (mm)	Q (m³/min)	H (m)	kw
P1	100	0.54	46	7.5
P2	32	0.015	106	1.5
P3	32	0.015	106	1.5
P4	32	0.048	39	3.7
P5	65	0.24	26	2.2
P6	65	0.24	11	1.5

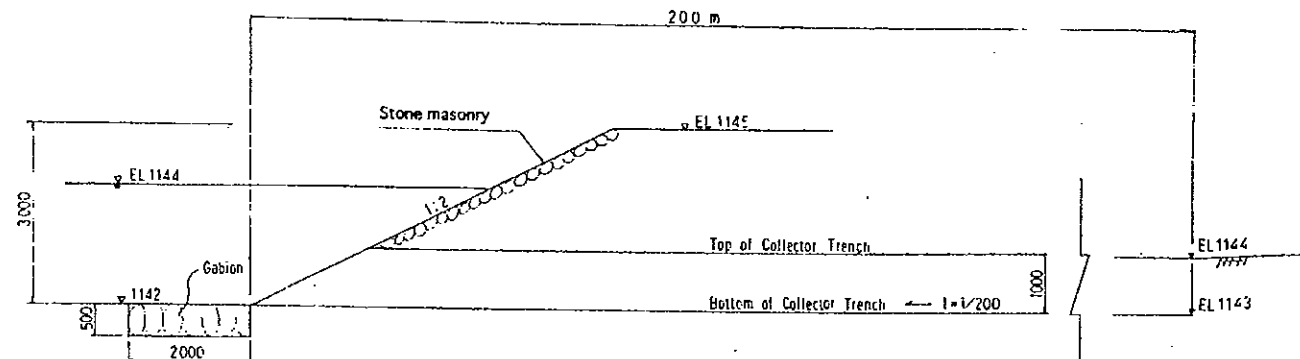


THE REPUBLIC OF UGANDA			
THE PROJECT FOR IMPROVEMENT OF AGRICULTURAL EXTENSION AND TRAINING INSTITUTES			
TITLE OF DRAWING 給水施設 給水施設計画概要図			
DATE	OCT. 1997	DRAWING NO.	MUWS-01
NIPPON KOEI CO., LTD. TOKYO, JAPAN			

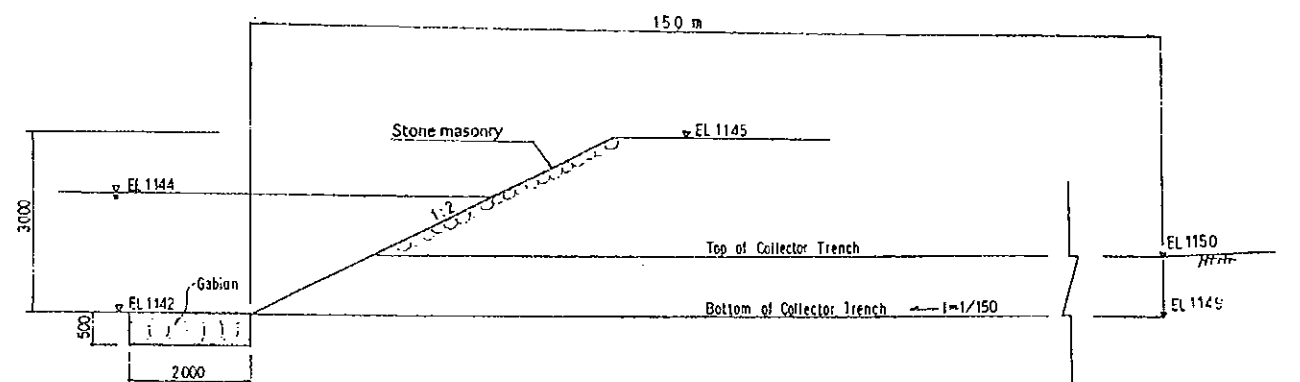




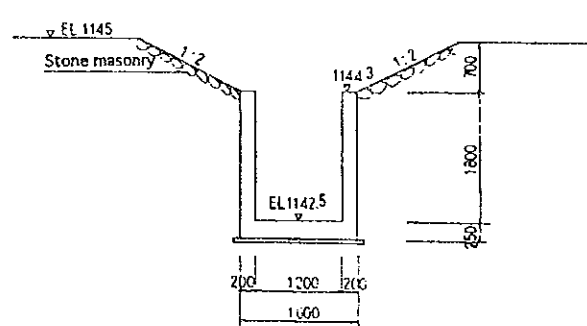
SECTION A-A



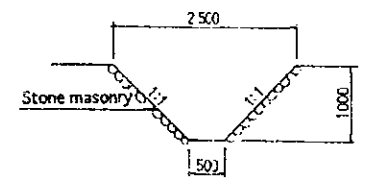
SECTION B-B



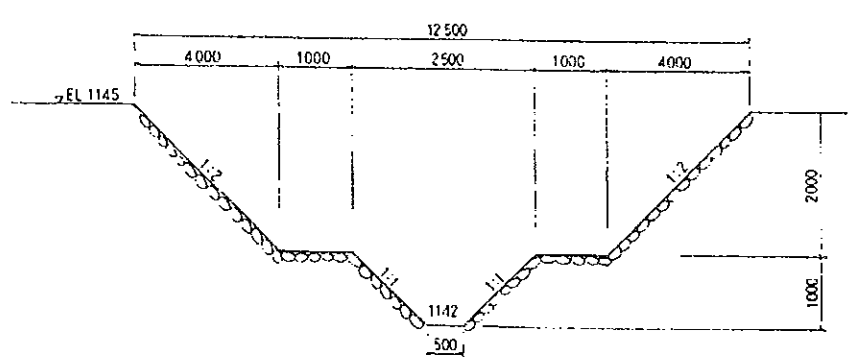
SECTION C-C



SECTION D-D

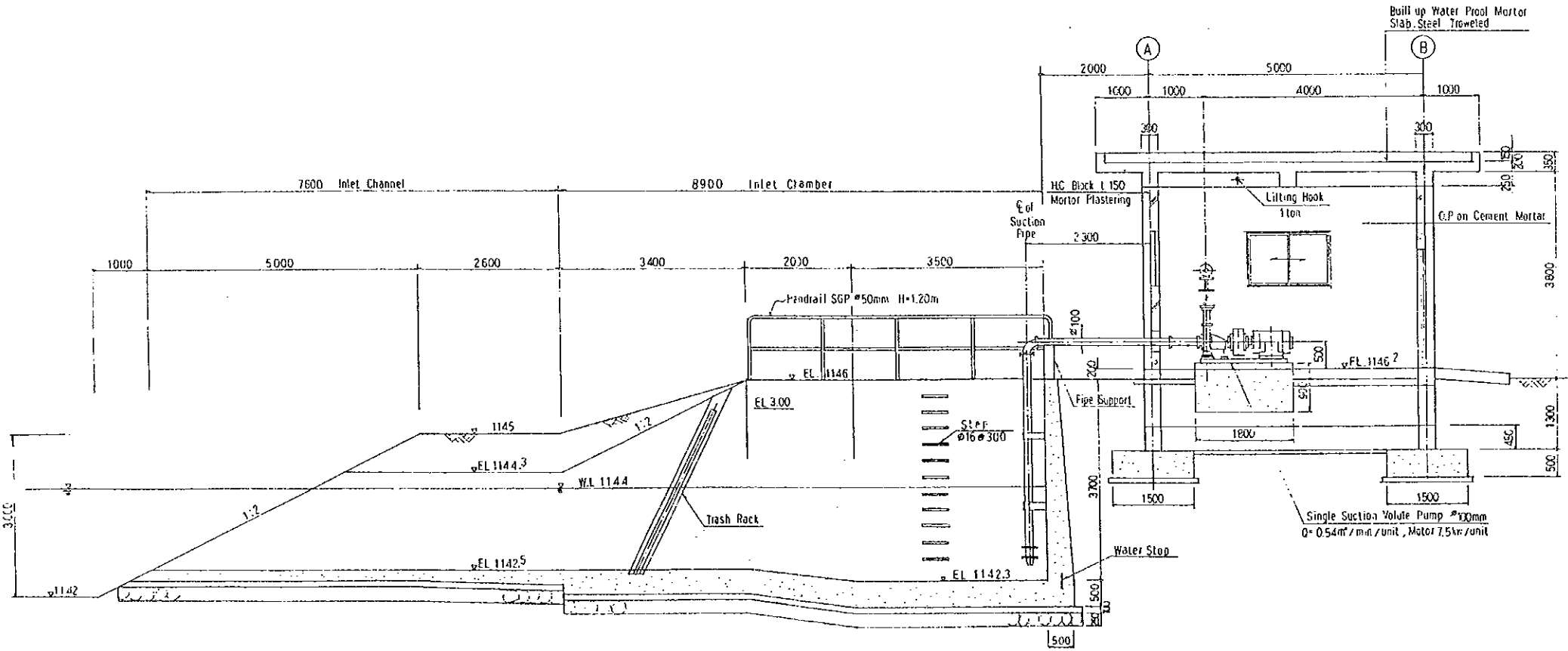
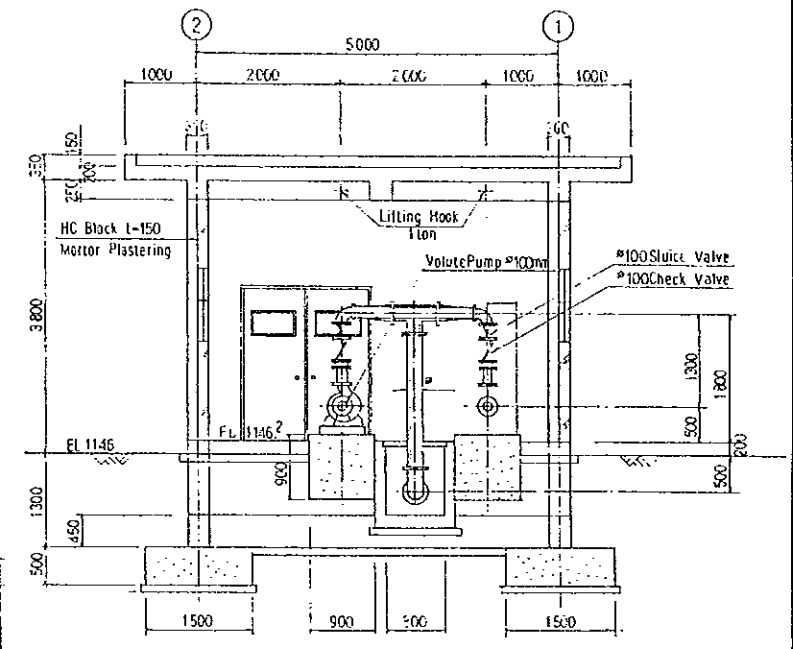
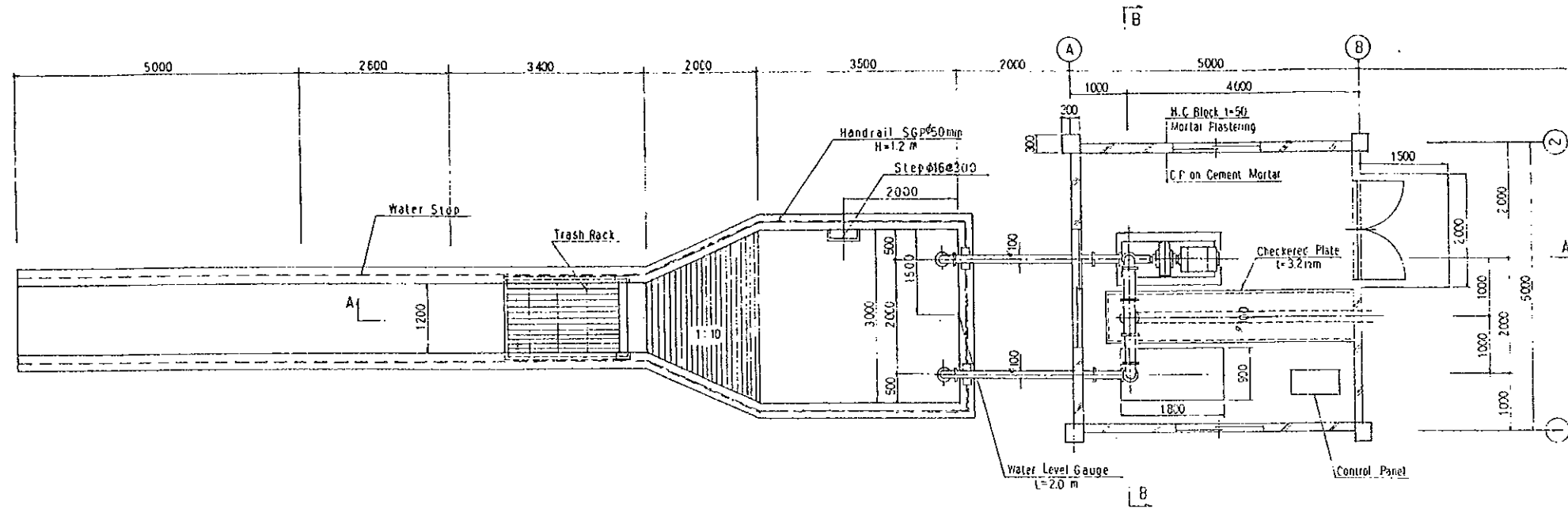


SECTION G-G, H-H

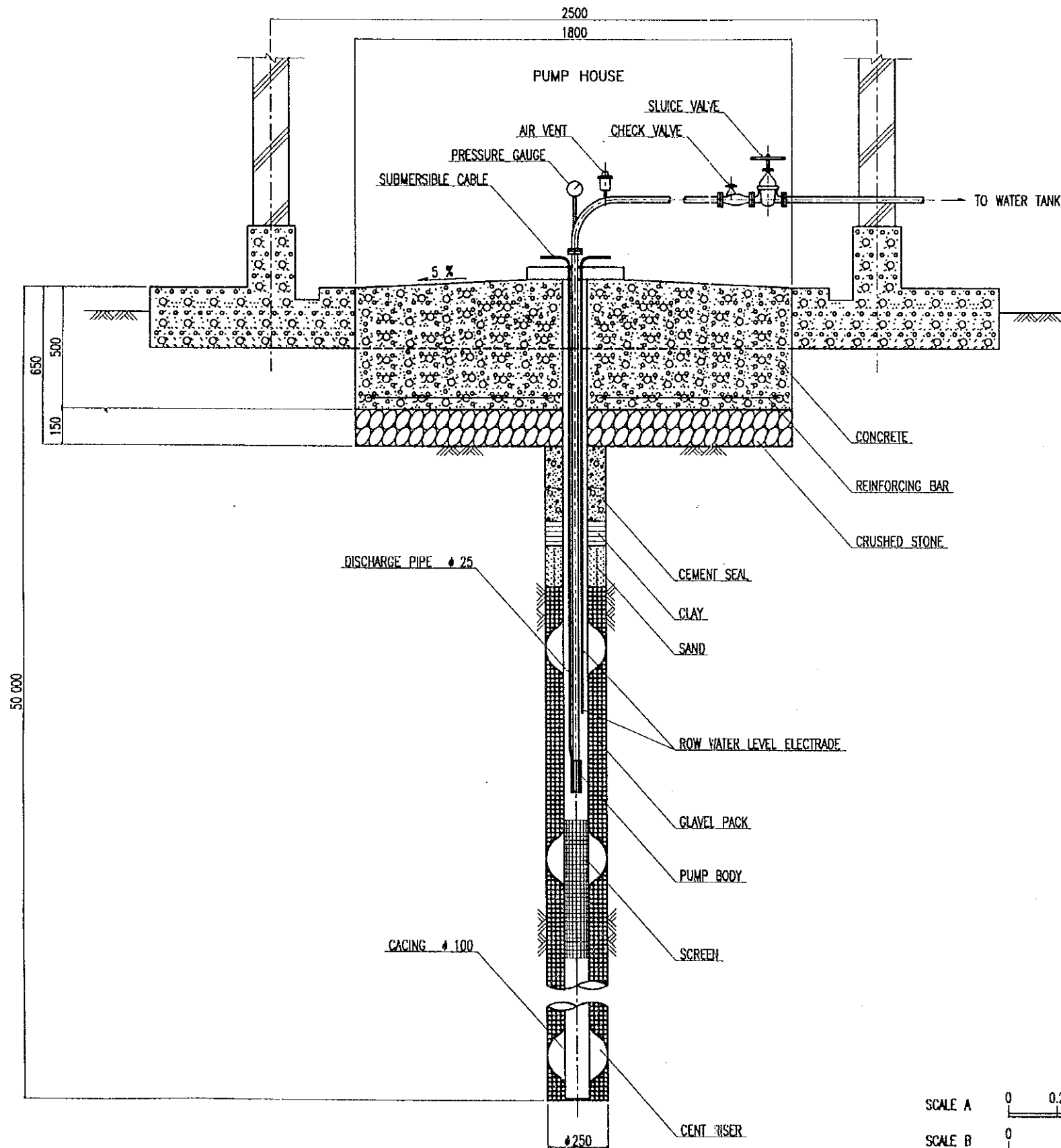


SECTION E-E, F-F

THE REPUBLIC OF UGANDA			
THE PROJECT FOR IMPROVEMENT OF AGRICULTURAL EXTENSION AND TRAINING INSTITUTES			
TITLE OF DRAWING 給水施設 ポンプ場兼水池及び集水トレンチ			
DATE	OCT. 1997	DRAWING NO.	MUWS-02
NIPPON KOEI CO., LTD. TOKYO, JAPAN			

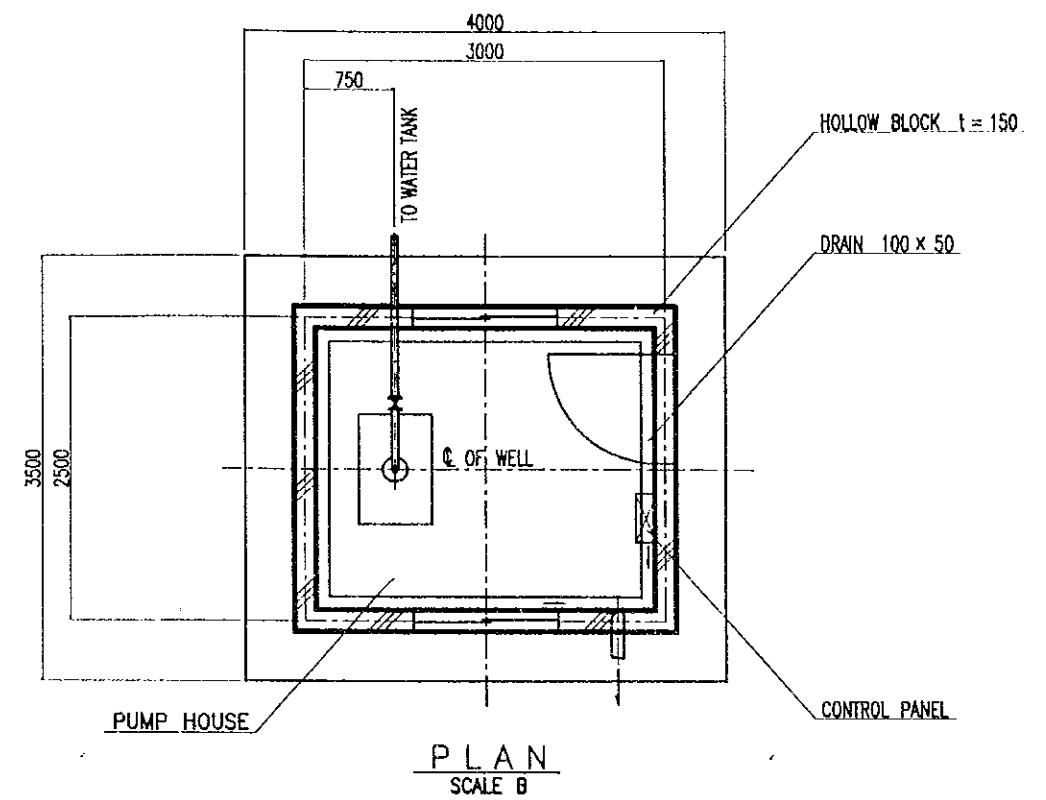
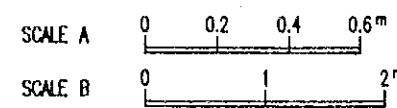


THE REPUBLIC OF UGANDA			
THE PROJECT FOR IMPROVEMENT OF AGRICULTURAL EXTENSION AND TRAINING INSTITUTES			
TITLE OF DRAWING 給水施設 ポンプ場詳細図			
DATE	OCT. 1997	DRAWING NO.	MUWS-03
NIPPON KOEI CO., LTD. TOKYO, JAPAN			

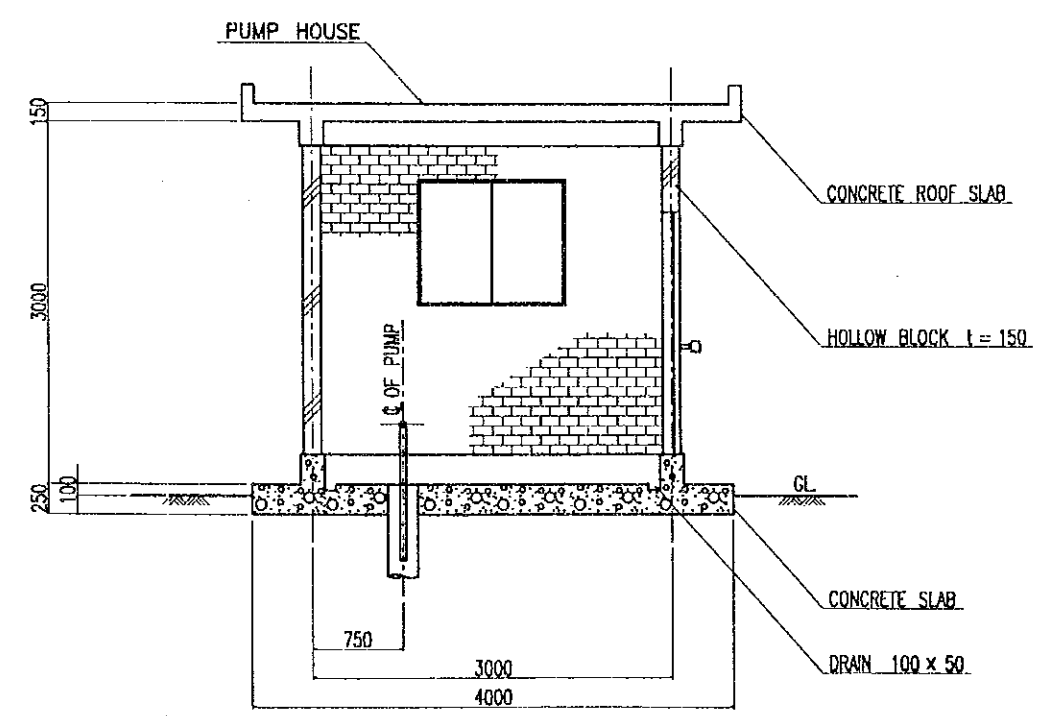


DETAIL OF DEEP TUBE WELL  
SCALE A

DEEP TUBE WELL

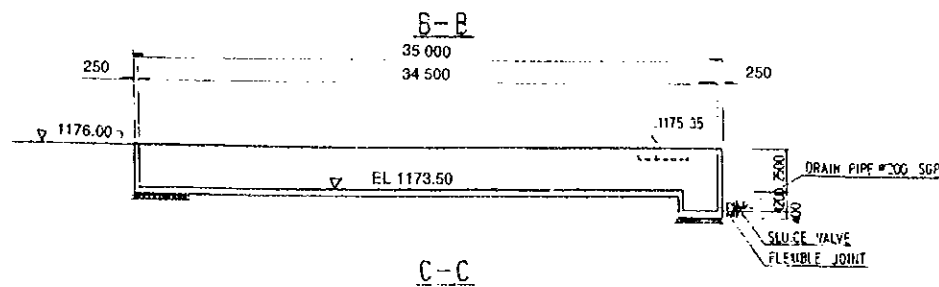
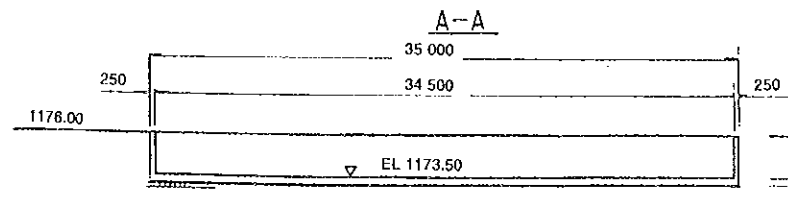
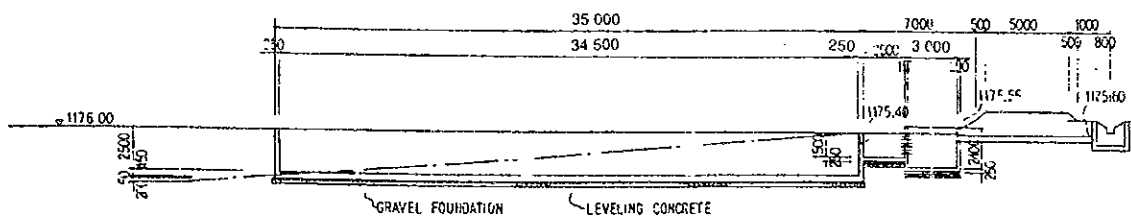
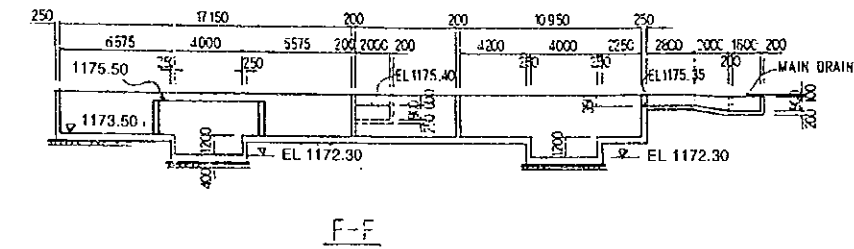
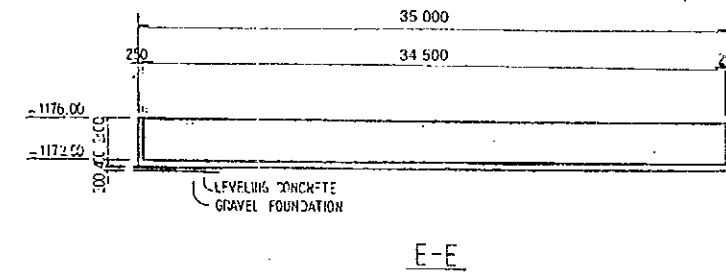
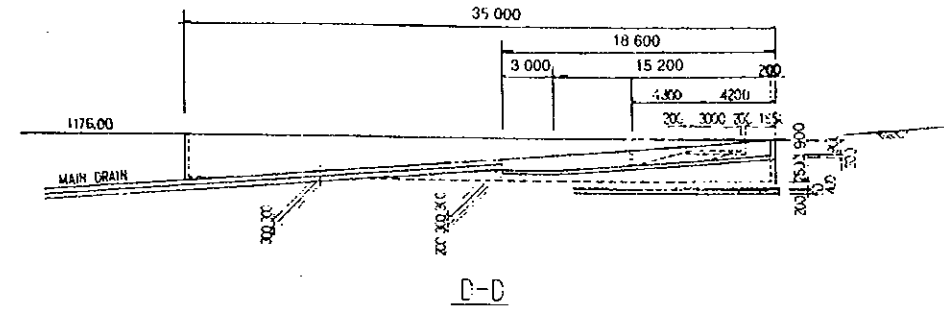
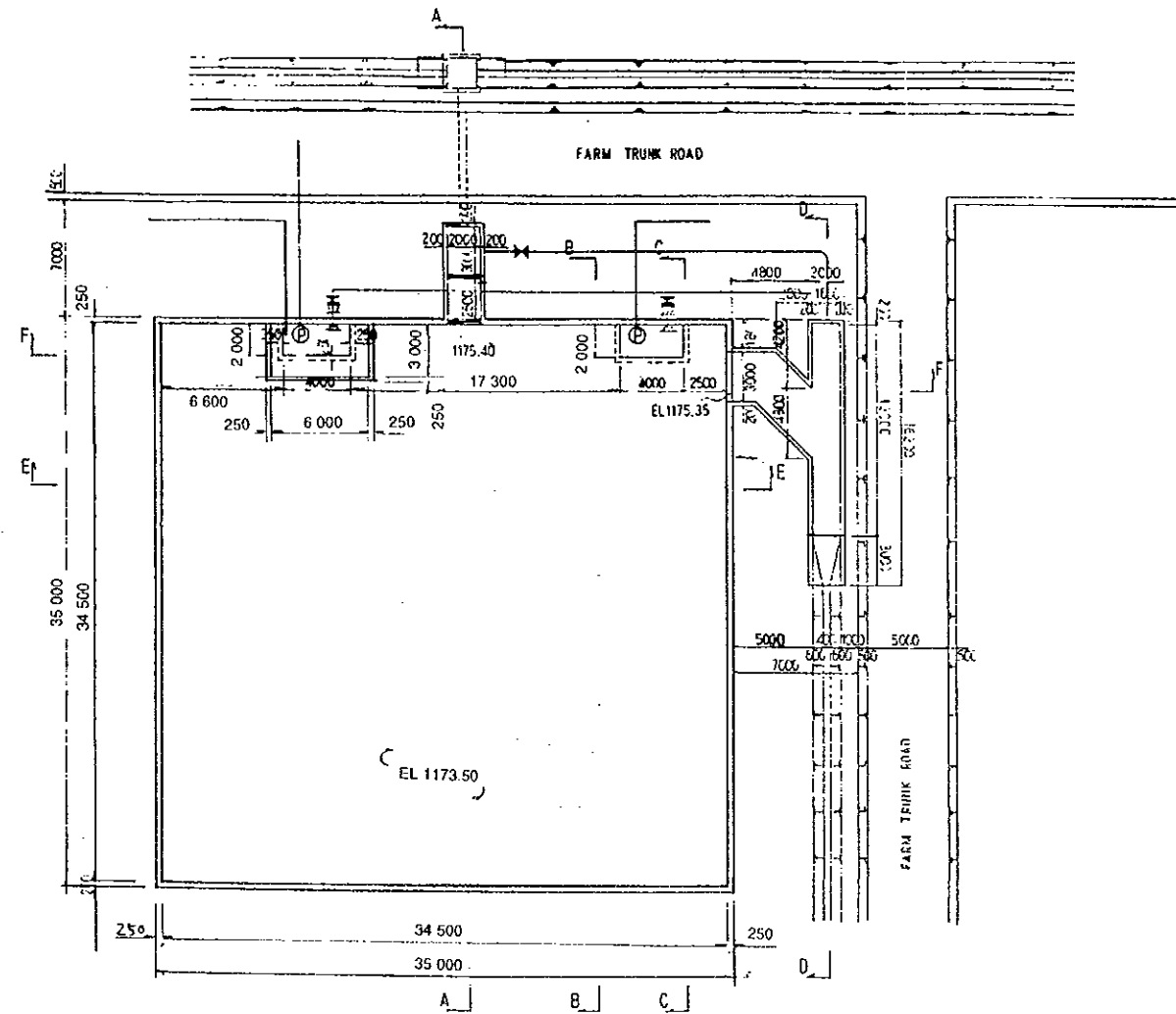


PLAN  
SCALE B



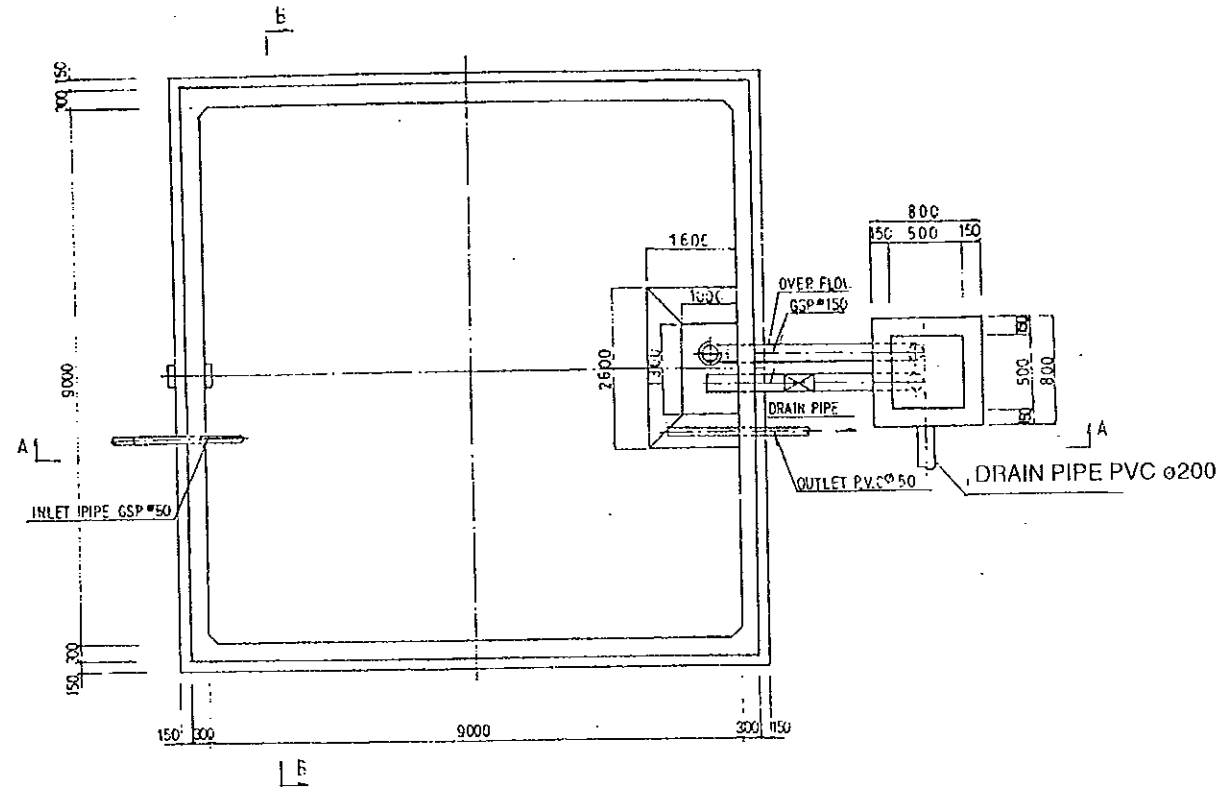
SECTION  
SCALE B

THE REPUBLIC OF UGANDA			
THE PROJECT FOR IMPROVEMENT OF AGRICULTURAL EXTENSION AND TRAINING INSTITUTES			
TITLE OF DRAWING 給水施設 深井戸、ポンプ施設			
DATE	OCT. 1997	DRAWING NO.	MUWS-04
NIPPON KOEI CO., LTD. TOKYO, JAPAN			

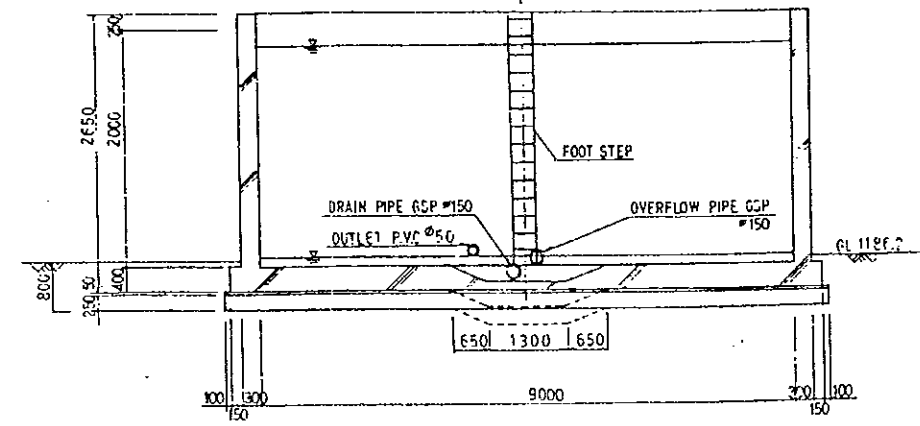


THE REPUBLIC OF UGANDA			
THE PROJECT FOR IMPROVEMENT OF AGRICULTURAL EXTENSION AND TRAINING INSTITUTES			
TITLE OF DRAWING 給水施設 調整池A (かんがい、生活雑用水用)			
DATE	OCT. 1997	DRAWING NO.	MUWS-05
NIPPON KOEI CO., LTD. TOKYO, JAPAN			

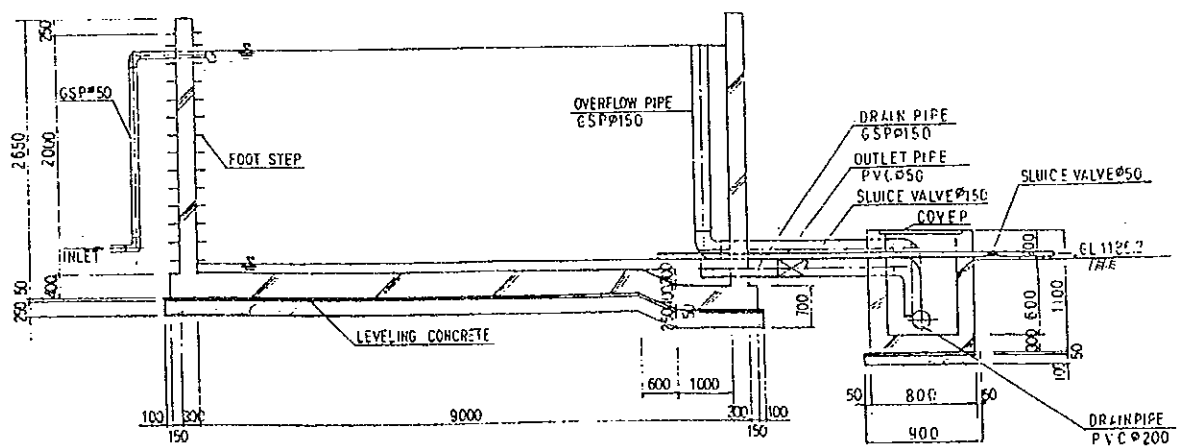




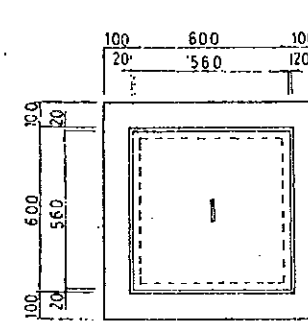
SECTIONAL PLAN



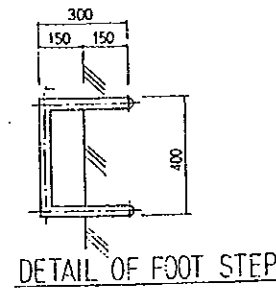
SECTION B-B



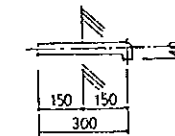
SECTION A-A



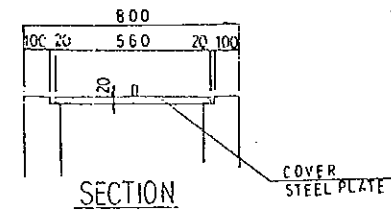
DETAIL OF COVER



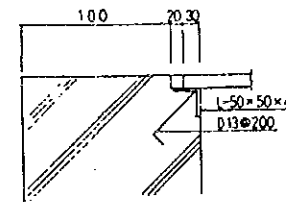
DETAIL OF FOOT STEP



SECTION



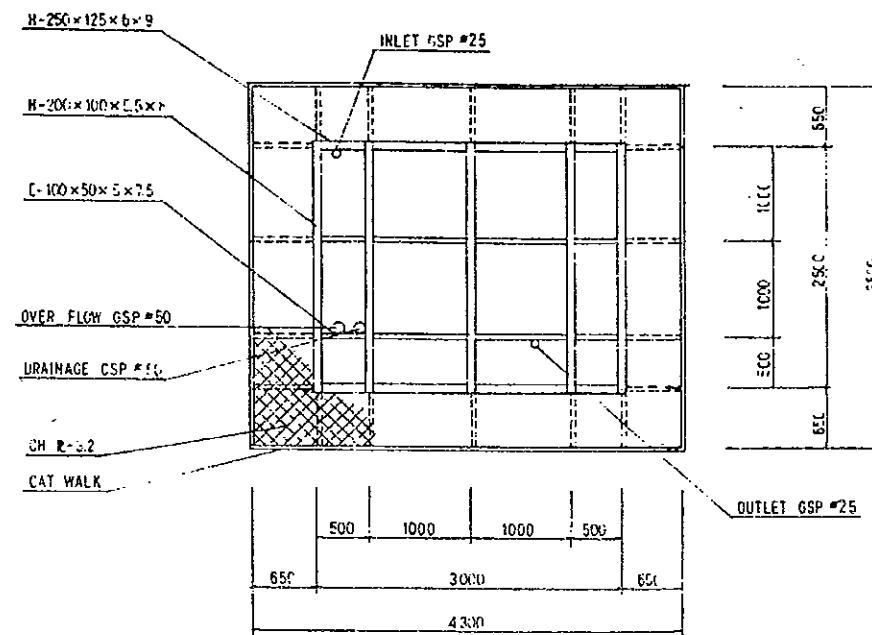
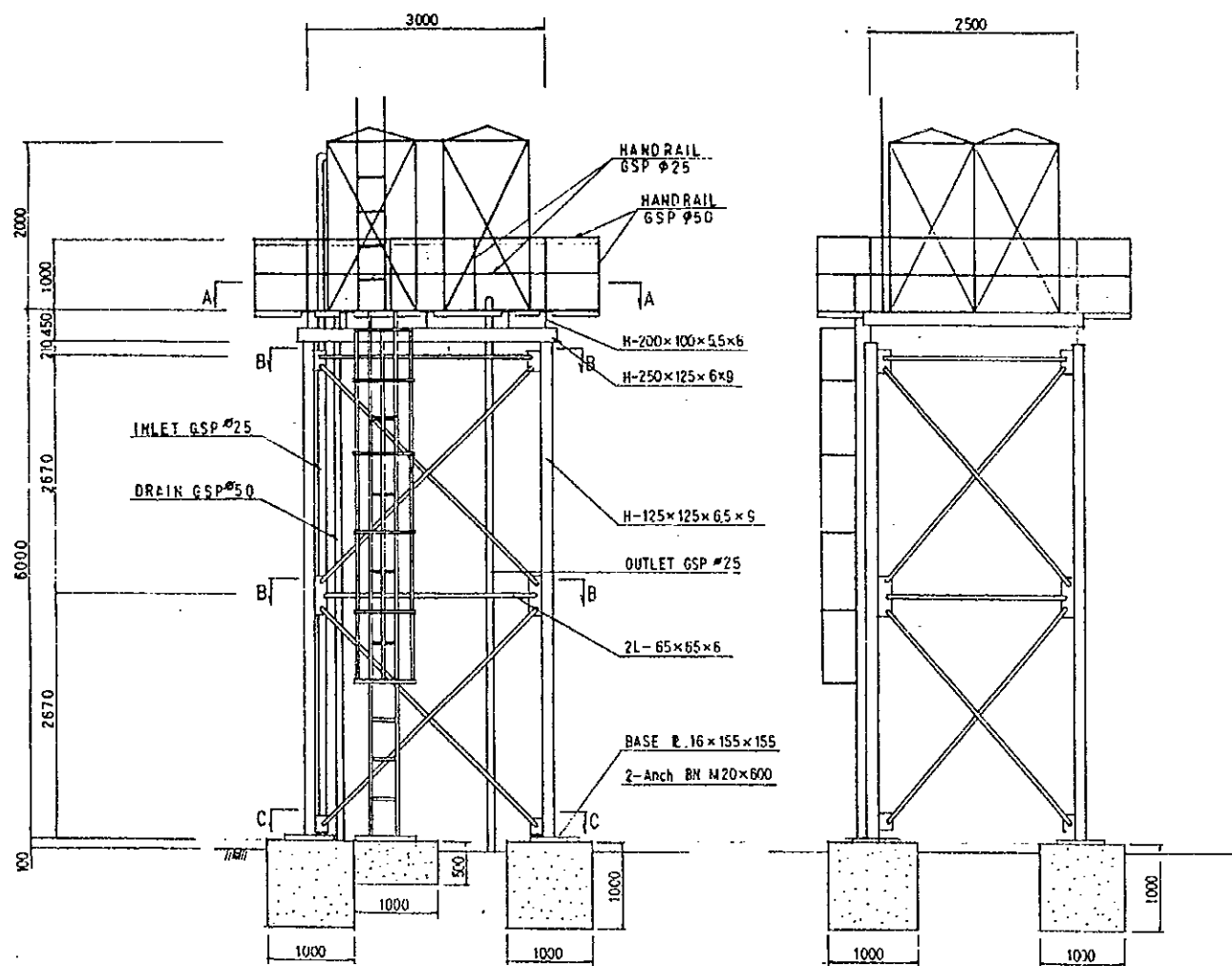
SECTION



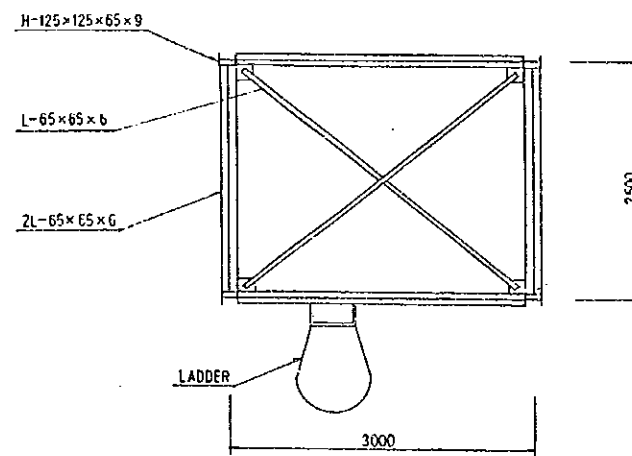
DETAIL

THE REPUBLIC OF UGANDA			
THE PROJECT FOR IMPROVEMENT OF AGRICULTURAL EXTENSION AND TRAINING INSTITUTES			
TITLE OF DRAWING 給水施設 調整池B(かんがい用)			
DATE	OCT. 1997	DRAWING NO.	MUWS-07
NIPPON KOEI CO., LTD. TOKYO, JAPAN			

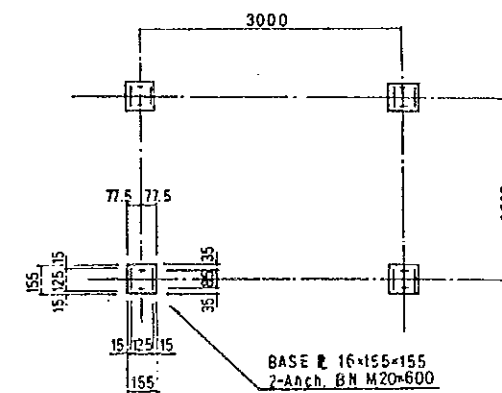
DISTRIBUTION RESERVOIR (ELEVATED TYPE) 8.2m



SECTION A-A



SECTION B-B

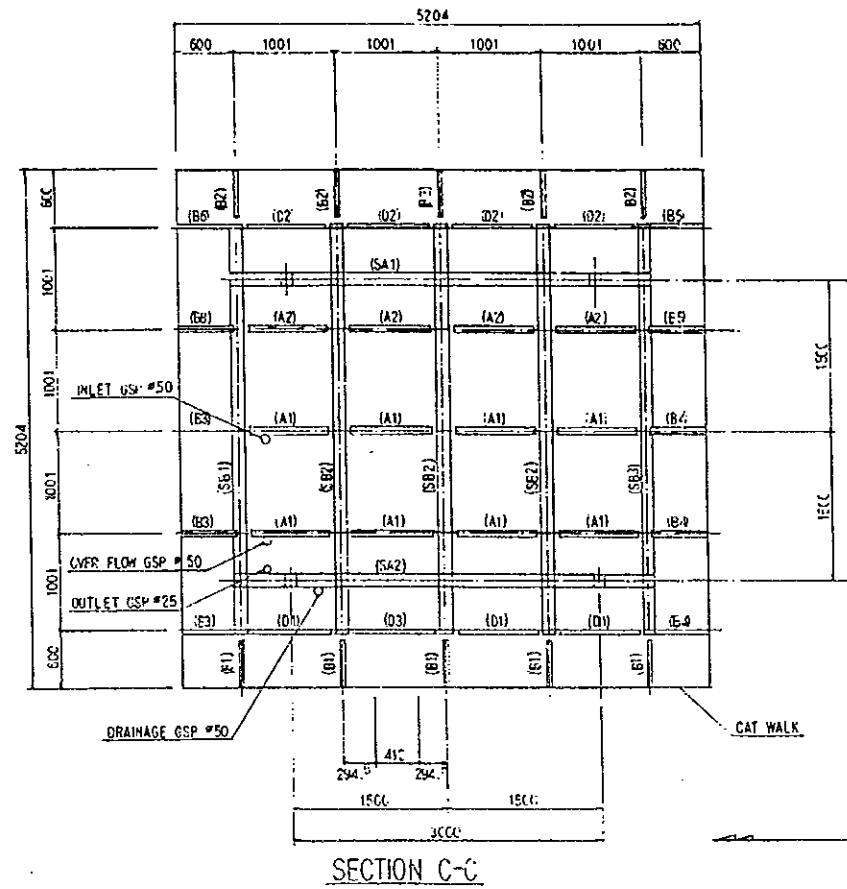
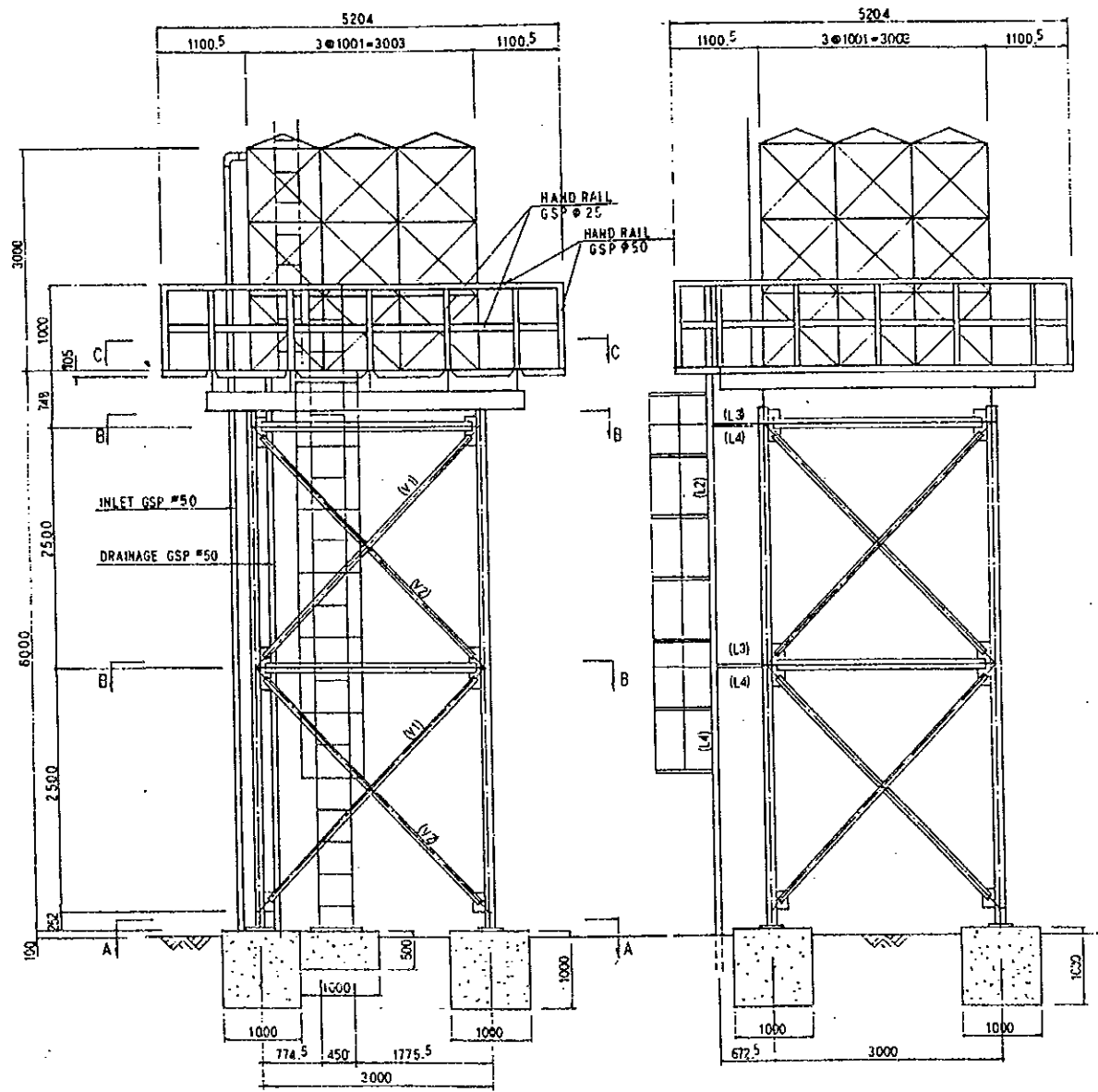


ANCHOR PLAN  
SECTION C-C

GENERAL NOTE  
 1. ALL MATERIAL IS GALVANIZED.  
 (JIS G 3101 SS400)  
 2. BOLT IS GALVANIZED  
 (equivalent JIS B 1186 F8T)

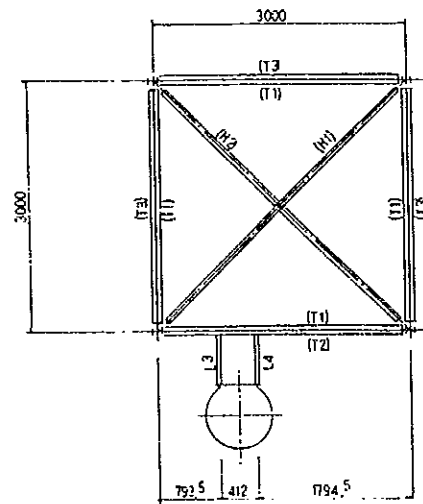
THE REPUBLIC OF UGANDA			
THE PROJECT FOR IMPROVEMENT OF AGRICULTURAL EXTENSION AND TRAINING INSTITUTES			
TITLE OF DRAWING 給水施設 高架水槽 (飲料水用)			
DATE	OCT. 1997	DRAWING NO.	MUWS-08
NIPPON KOEI CO., LTD. TOKYO, JAPAN			

DISTRIBUTION RESERVOIR (ELEVATED TYPE) 21.9m<sup>3</sup>

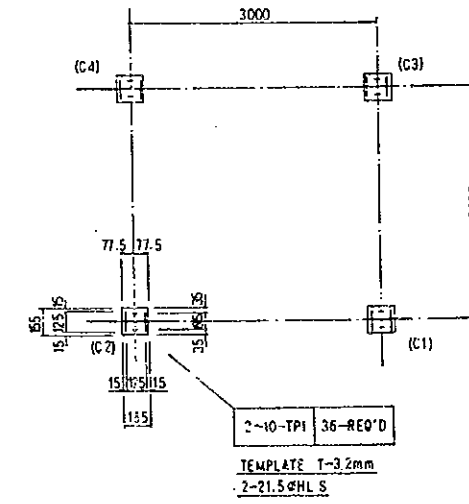


MEMBERS LIST

C	H-125x125x6.5x9
SA	H-248x124x5x8
SB	H-248x124x5x8
H	L-65x65x6
V	L-65x65x6
T	L-65x65x6
L	L-50x50x6
A	(-100x50x5x7.5
B	(-75x40x5x7.5
D	(-100x50x5x7.5



SECTION B-B

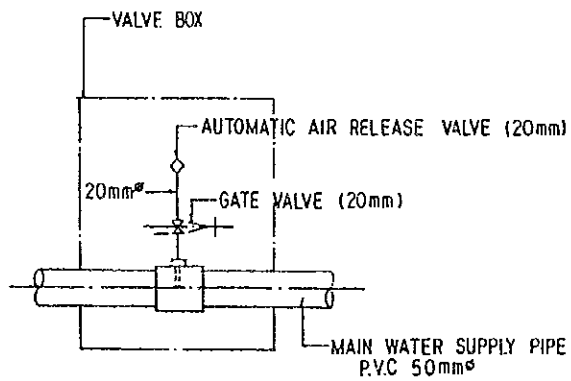
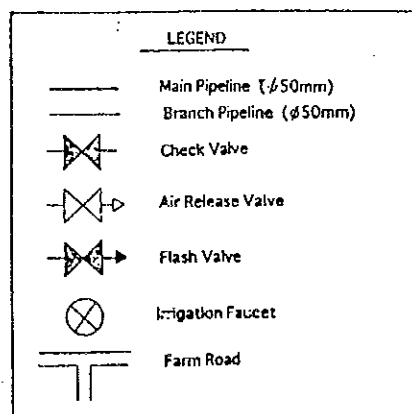
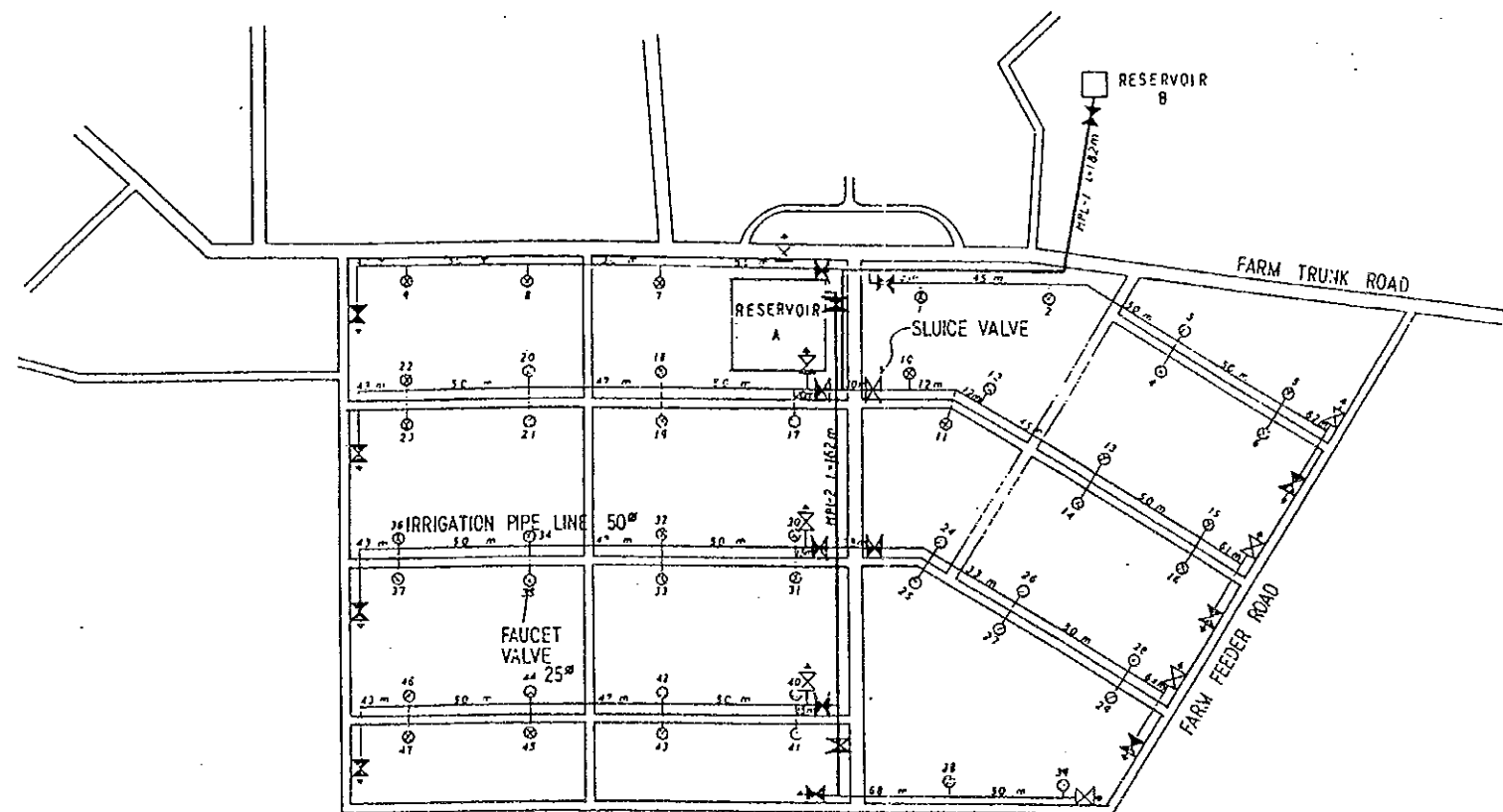


ANCHOR PLAN  
SECTION A-A

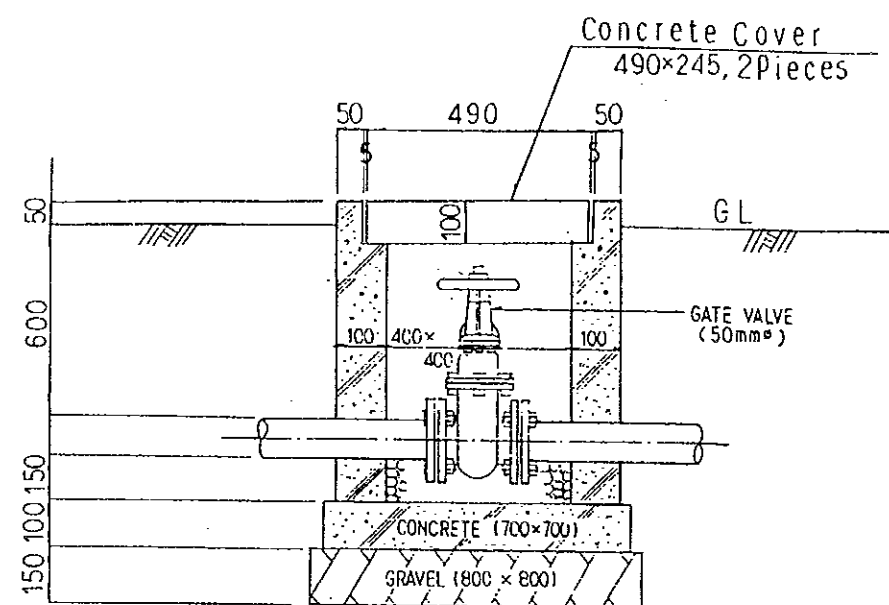
GENERAL NOTE  
 1. ALL MATERIAL IS GALVANIZED  
 (JIS G 3101 SS400)  
 2. BOLT IS GALVANIZED  
 (equivalent JIS B 1188 FBT)

THE REPUBLIC OF UGANDA			
THE PROJECT FOR IMPROVEMENT OF AGRICULTURAL EXTENSION AND TRAINING INSTITUTES			
TITLE OF DRAWING 給水施設 高架水槽 (生活雑用水用)			
DATE	OCT. 1997	DRAWING NO.	MUWS-09
NIPPON KOEI CO., LTD. TOKYO, JAPAN			

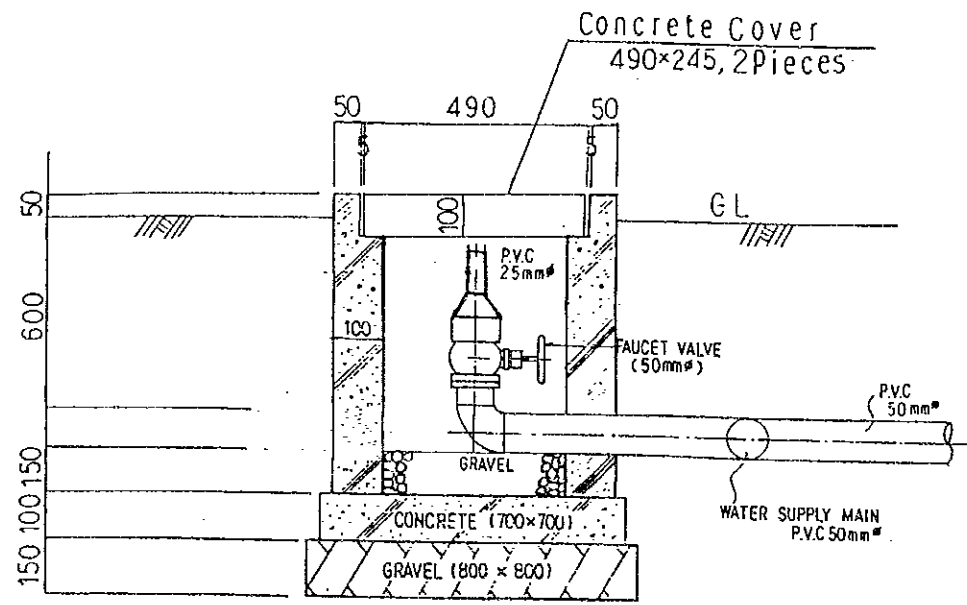




Detail of Air Release Valve

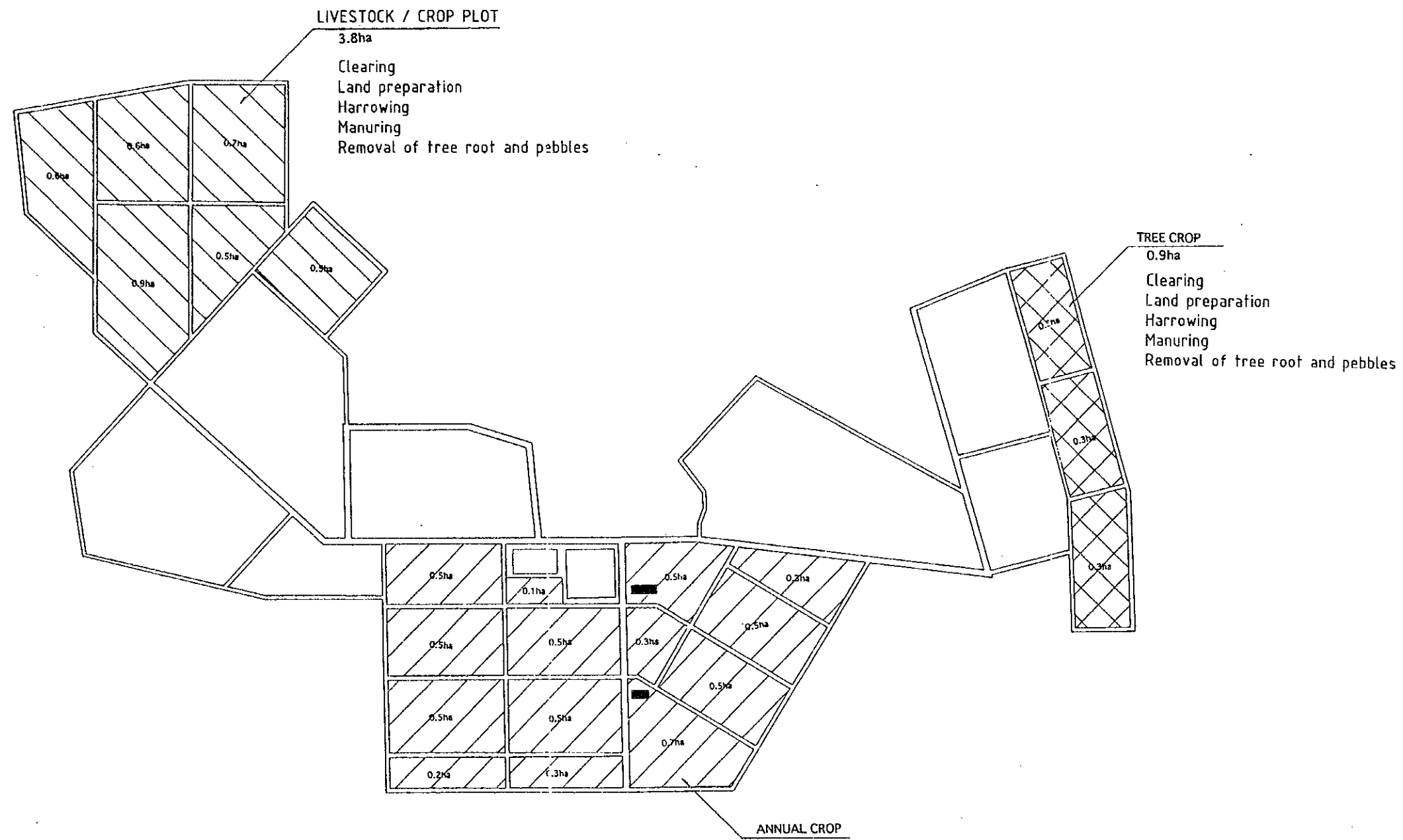


Detail of Flash/Check Valve



Detail of Irrigation Faucet

THE REPUBLIC OF UGANDA			
THE PROJECT FOR IMPROVEMENT OF AGRICULTURAL EXTENSION AND TRAINING INSTITUTES			
TITLE OF DRAWING かんがい施設 かんがい施設計画概要図 及び給水栓、空気弁、排泥施設			
DATE	OCT. 1997	DRAWING NO.	MUIF-01
NIPPON KOEI CO., LTD. TOKYO, JAPAN			



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THE PROJECT FOR IMPROVEMENT OF AGRICULTURAL EXTENSION AND TRAINING INSTITUTES			
TITLE OF DRAWING 園場整備 園場整備計画概要図			
DATE	OCT. 1997	DRAWING NO.	MULR-01
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