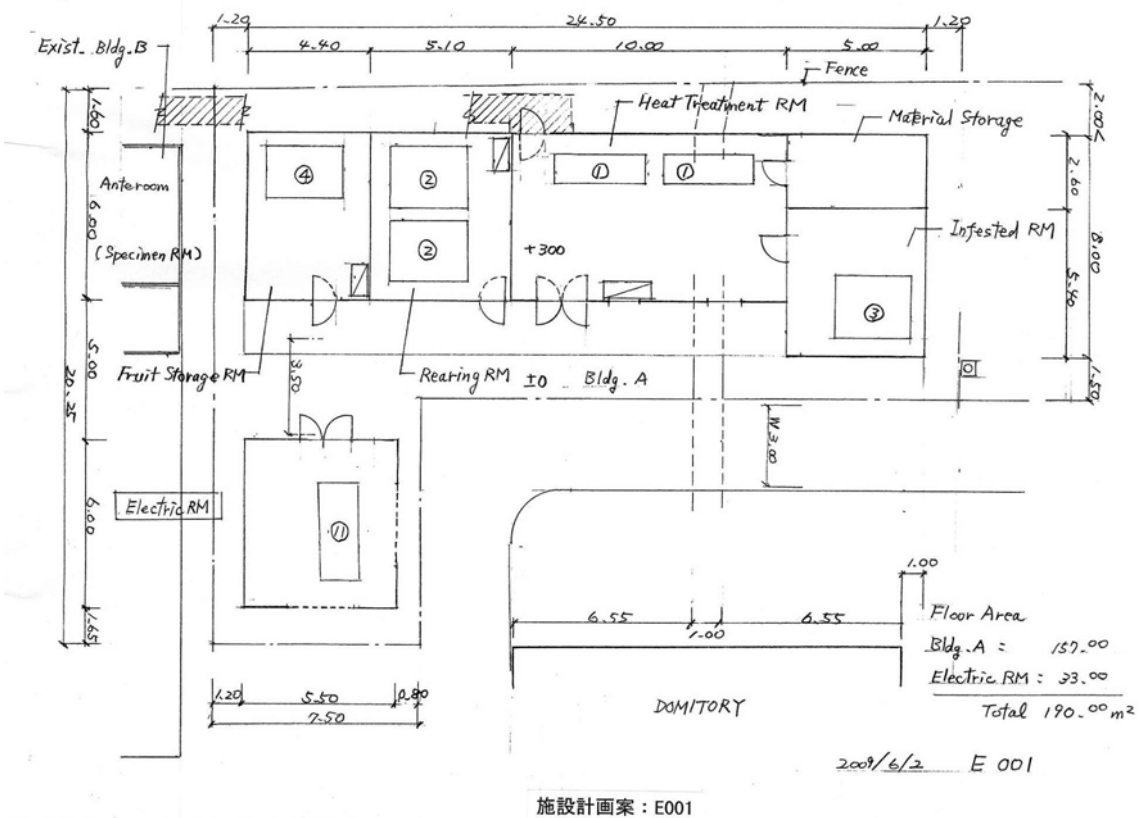
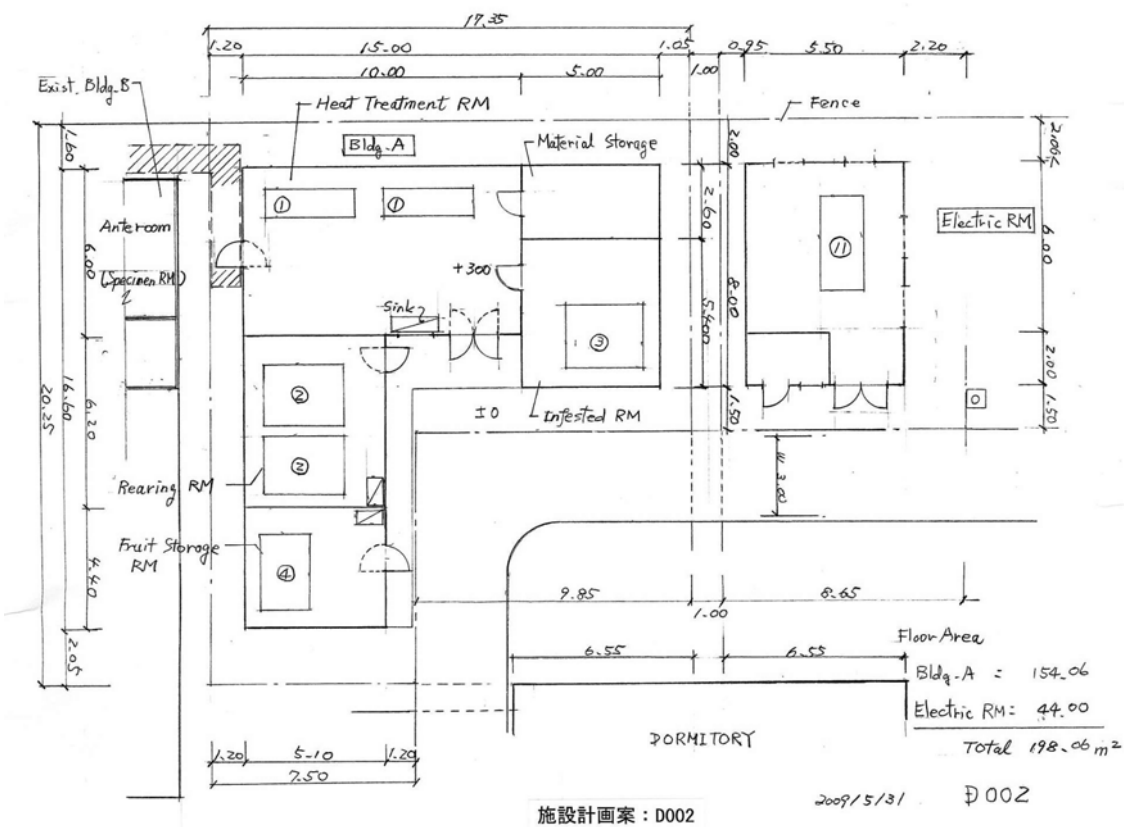


## 付 属 資 料

- 1 . 施設計画検討2案 ( D002、 E001 )
- 2 . 施設・インフラ整備にかかわる合意記録
- 3 . 水質検査データ

1. 施設計画検討 2 案 (D002、E001)



2. 施設・インフラ整備にかかわる合意記録

**RECORD OF SURVEY RESULTS ON THE PROJECT FACILITIES  
JICA DETAILED PLANNING SURVEY TEAM  
MAY 25 – JUNE 16, 2009**

**THE PROJECT FOR STANDARDIZATION FOR HORTICULTURE  
PRODUCTION OF INDONESIA (IMPROVEMENT OF THE THERMAL  
TREATMENT AGAINST FRUIT FLIES ON FRESH MANGO)**

**INDONESIA-JAPAN ECONOMIC PARTNERSHIP AGREEMENT (IJ-EPA)**

**DIRECTORATE GENERAL OF HORTICULTURE  
JAKARTA  
2009**

**RECORD OF SURVEY RESULTS ON THE PROJECT FACILITIES  
JICA DETAILED PLANNING SURVEY TEAM, MAY 25 – JUNE 16, 2009**

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**INDONESIA-JAPAN ECONOMIC PARTNERSHIP AGREEMENT (IJ-EPA)**

1. The objectives of the survey are to confirm an improvement schedule of laboratory facilities for the Project activities and necessary budget arrangement by Indonesian side;
2. Period of Survey: May 25 – June 16, 2009;
3. Site of Works: Pest Forecasting Institute (FPI) under Directorate General of Food Crops, Ministry of Agriculture, in Jatisari, Karawang, West Java;
4. Member of the Team:
  - a. Consultant from JICA:
    - Name : **Mr. Fumio TONAI**
    - Job Title: Facility/Infrastructure Planning
    - Organization/Position: Senior Consultant, Architect, Consultant Department, Overseas Merchandise Inspection Co. Ltd. (OMIC)
  - b. Counterpart (from Indonesia side):
    - Pest Forecasting Institute: Mr. Harsono Lanya, Sugandhi Zaenuddin, Mr. Firdaus, Mr. Mustaghfirin, Mr. Indriyanto, Mr. Wayan Murdhita;
    - Directorate General of Horticulture: Mr. Soekirno, Mr. Supardi, Ms. Cahyaniati, Ms. Anik Kustaryati, Mr. Aceng M. Samsu.
5. **Results of Survey:**
  - 1) Site survey: including existing facilities and infrastructures. Based on the technical point of view and administration condition so the feasibility of project sites are confirmed to renovate existing building of Fruit Fly Laboratory (Collection room and colony rearing room), in backyard side of the main building;

2) Component of the project facilities are as follows

Room	Size (m <sup>2</sup> )
a. Heat Treatment Room:	60
b. Infested Room	27
c. Rearing Room	32
d. Fruit Storage Room	30
e. Specimen and colony Room	14
f. Material Storage Room	13
g. Electric Room	39
h. Toilet	5
<b>Total</b>	<b>220 m<sup>2</sup></b>

- 3) Site Plan: as attached in **Annex 1**.
- 4) Layout of basic planning and lay out of improvement work: as attached in **Annex 2 (2a and 2b)**.
- 5) Facilities requirement for each room, such as water supply, drainage, hot water supply, exhaust air, air-conditioning, lighting, and fire alarm as attached in **Annex 3**.
- 6) List of Electrical Load for project facilities; as attached in **Annex 4**.
- 7) Electric diagram indicating electrical load covered by generator set in case of emergency. The diagram as attached in **Annex 5**.
- 8) Outline of facilities plan, including architectural work, water supply & drainage work, air-conditioning & ventilation work, electrical work, as attached **Annex 6 (6a to 6e)**.
- 9) Electric supply: need to set new transformer (approx. 125 KVA)
- 10) Water supply : need to set new well and water tank tower (height approx. 18 m). The depth of well is approx. 15 to 20 m. Water quality analysis is required.
- 11) Sewage treatment: need to set new septic tank to treat wastewater from project facilities.
- 12) Demarcation list of works, consisting of facilities and equipments, as attached in **Annex 7**.
- 13) **Tentative Implementation Schedule for Project Facilities**, are as follows
  - a. Budget arrangement : June to October 2009
  - b. Detailed design, tender document : September to November 2009
  - c. Selection of contractor : December 2009 to January 2010
  - d. Construction work : early February to end of May 2010
  - e. Electric supply work : April to May 2010
  - f. Water supply work : April to May 2010
  - g. Generator installation work : May 2010
  - h. Large equipment installation work : June 2010

The target time to complete project facilities is the end of May 2010. The installation of equipments will be started after the completion of construction works. The tentative schedule as attached in **Annex 8**.

- 14) General requirements for facilities, as attached in **Annex 9**.
- 15) Budget Estimation, consisting of administration arrangement, building renovation, electric and water supply works, etc. The total budget estimation as amount of IDR 1,400,000,000,- (**Annex 10**).

### **Recommendations**

1. The project activities are related with the beginning of mango harvesting season (August to November 2010), therefore, the implementation works of the project facility and equipment works are recommended to complete by the end of June 2010.
2. The building structure should be enough strong to resist earthquake.
3. Proper measure for drainage work to avoid overflow due to heavy rain.

Jakarta, June 2009

**JICA Consultant,**

免内文男

Fumio TONAI

**Pest Forecasting Institute,**

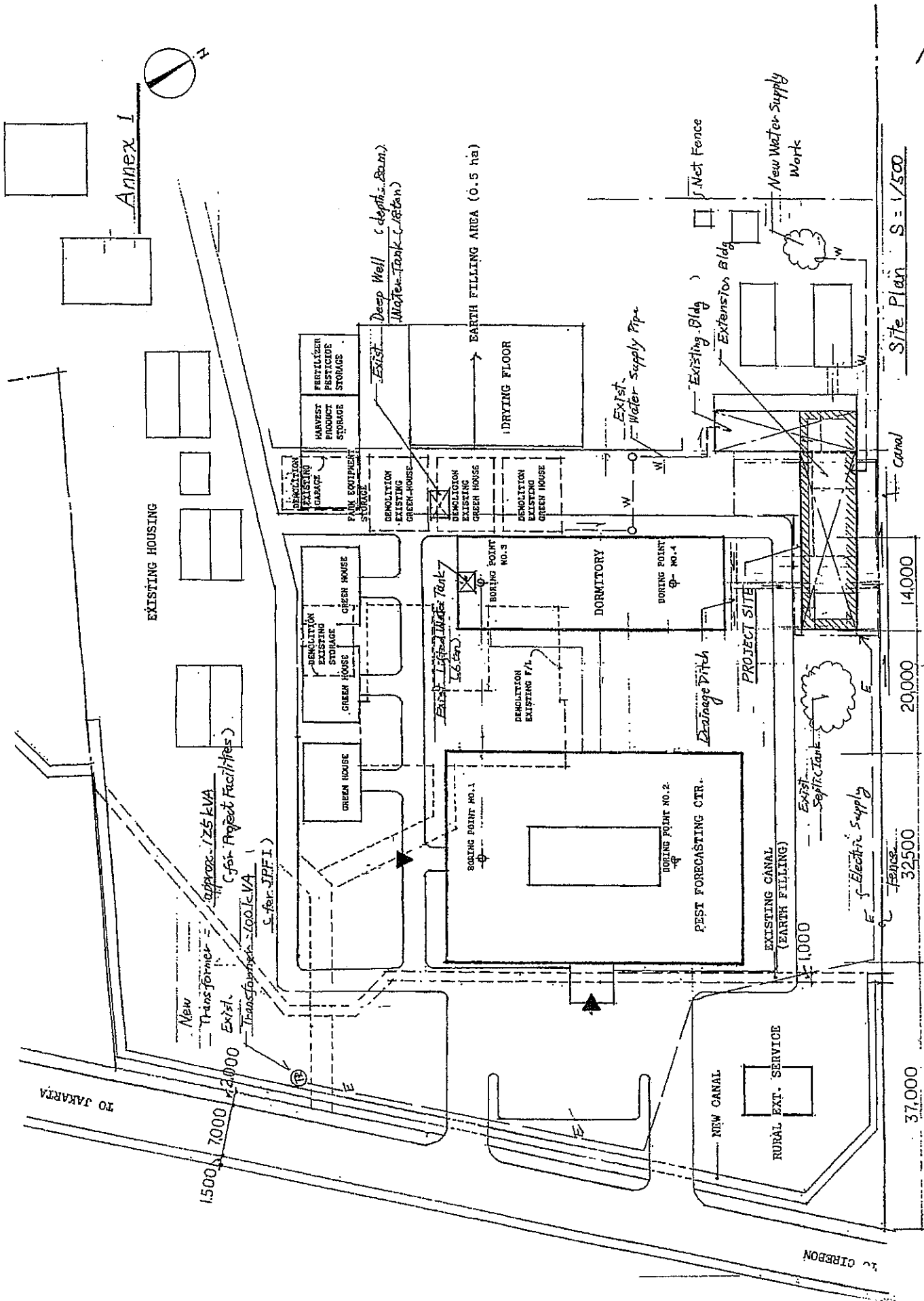


Harsono Lanya

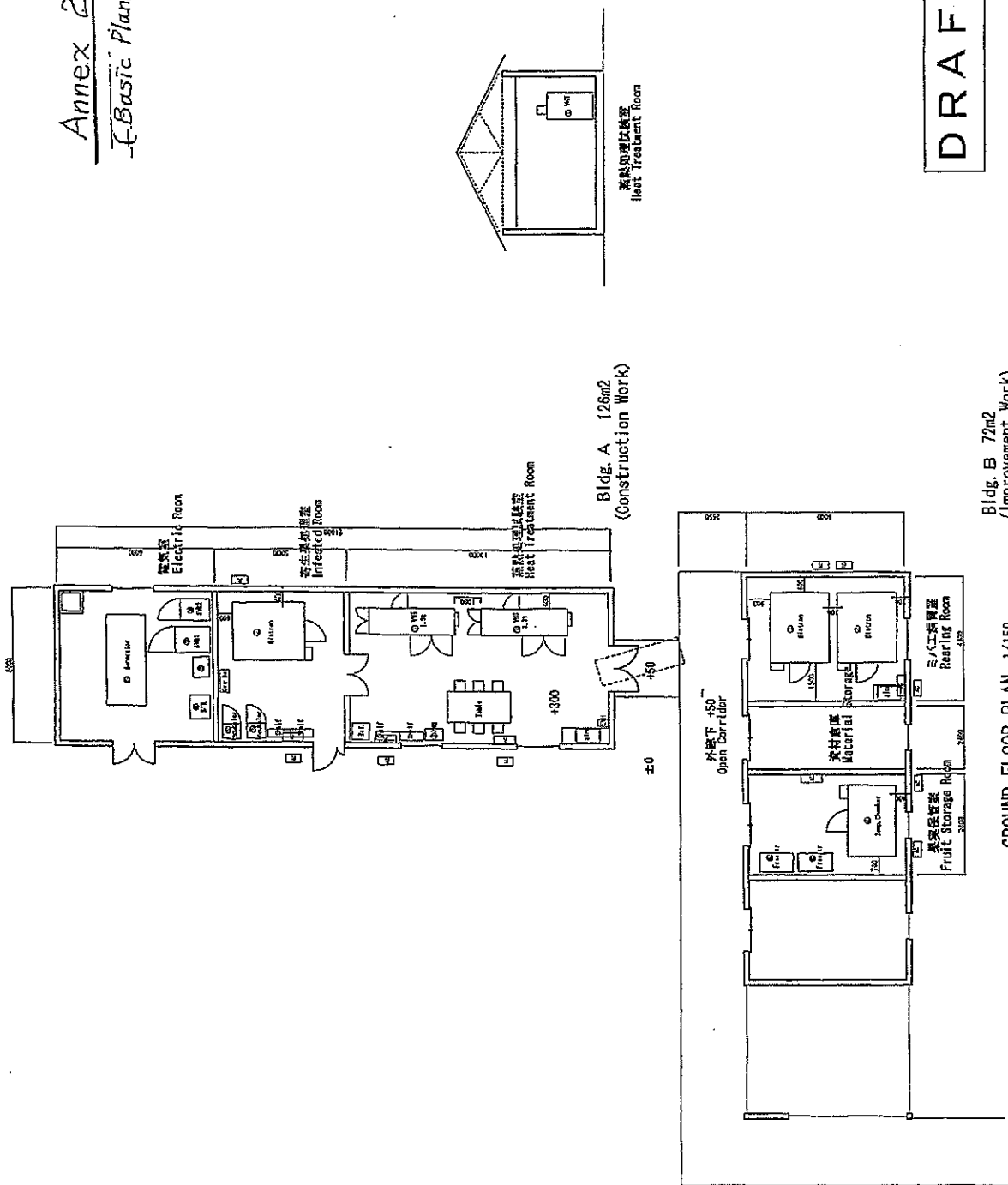
**Directorate of Horticulture  
Crop Protection**



Soekirno



Annex 2a  
(Basic Planning)



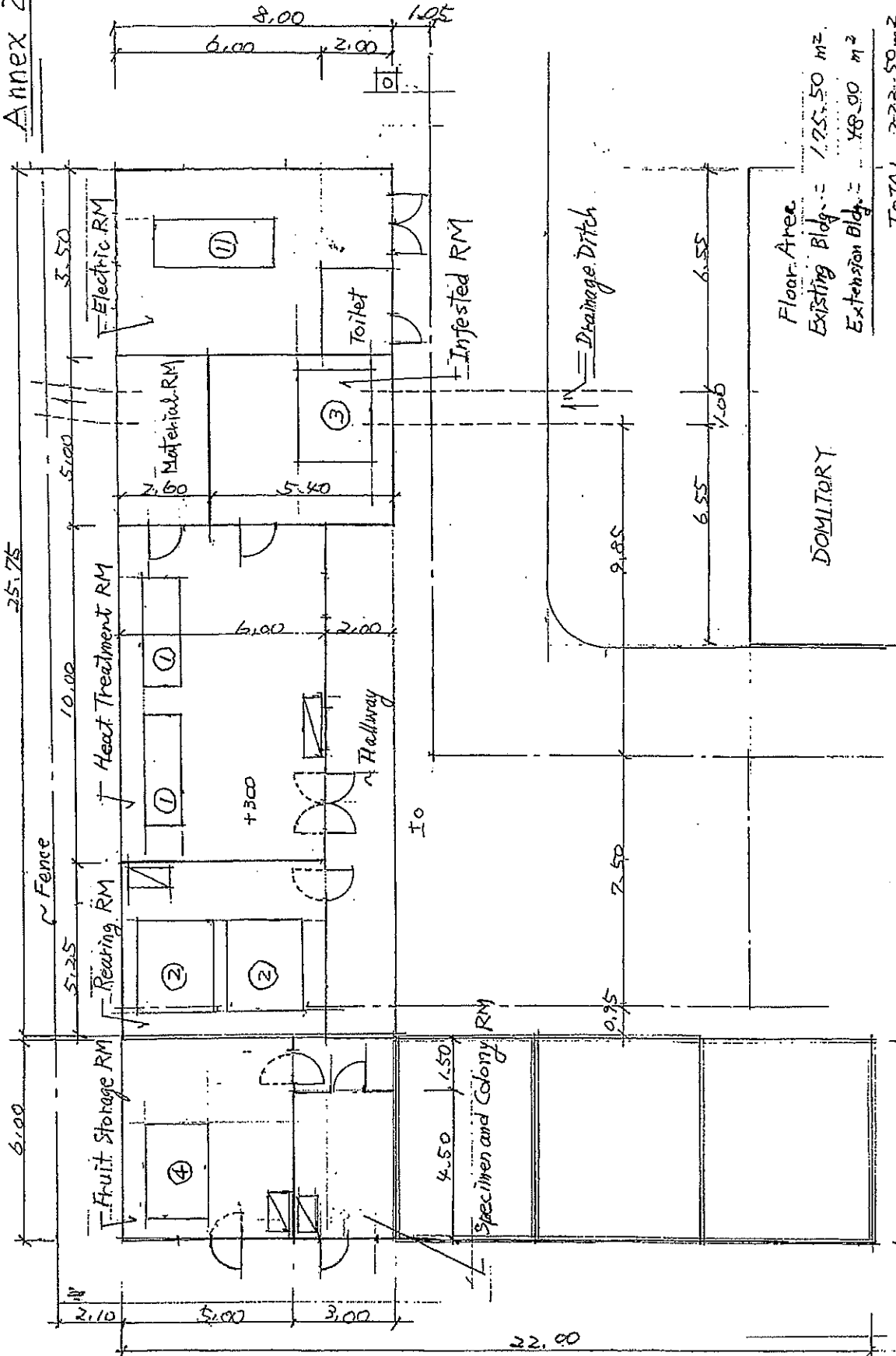
DRAFT

GROUND FLOOR PLAN 1/150

STANDARDIZATION AND QUALITY CONTROL FOR HORTICULTURE PRODUCTION OF INDONESIA (IMPROVEMENT OF THE THERMAL TREATMENT AGAINST FRUIT FLIES ON MANGO)	JICA Detailed Planning Survey Team Consultant: GIC Overseas Merchandise Inspection Co., Ltd.		Laboratory Facilities 1/150 2009.05.24.	C001
	N			



Annex 2b



Existing Bldg. (Renovation)   
 Extension Bldg. (Construction)   
 Floor Area Existing Bldg. = 175.50 m<sup>2</sup>   
 Extension Bldg. = 48.00 m<sup>2</sup>   
 TOTAL 223.50 m<sup>2</sup>   
 LAY-OUT : GROUND FLOOR PLAN   
 2009/6/10 F 001

W

Annex 3

2009/6/10

Facilities requirement for each room

	Water supply	Drainage	Hot water supply	Air supply *	Exhaust air	Air-conditioning	Lighting/ Receptacle	Fire-alarm system	Remarks
a Heat Treatment Room	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	To install LAN cable for PC
b Infested Room	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
c Rearing Room	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
d Fruit Storage Room	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
e Specimen and Colony Room	<input type="radio"/>	<input type="radio"/>				<input type="radio"/>	<input type="radio"/>		
f Material Storage							<input type="radio"/>		
g Electric Room					<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	
h Toilet	<input type="radio"/>	<input type="radio"/>					<input type="radio"/>	<input type="radio"/>	

\* done by architectural work

4

Project Facilities: List of Electrical Load

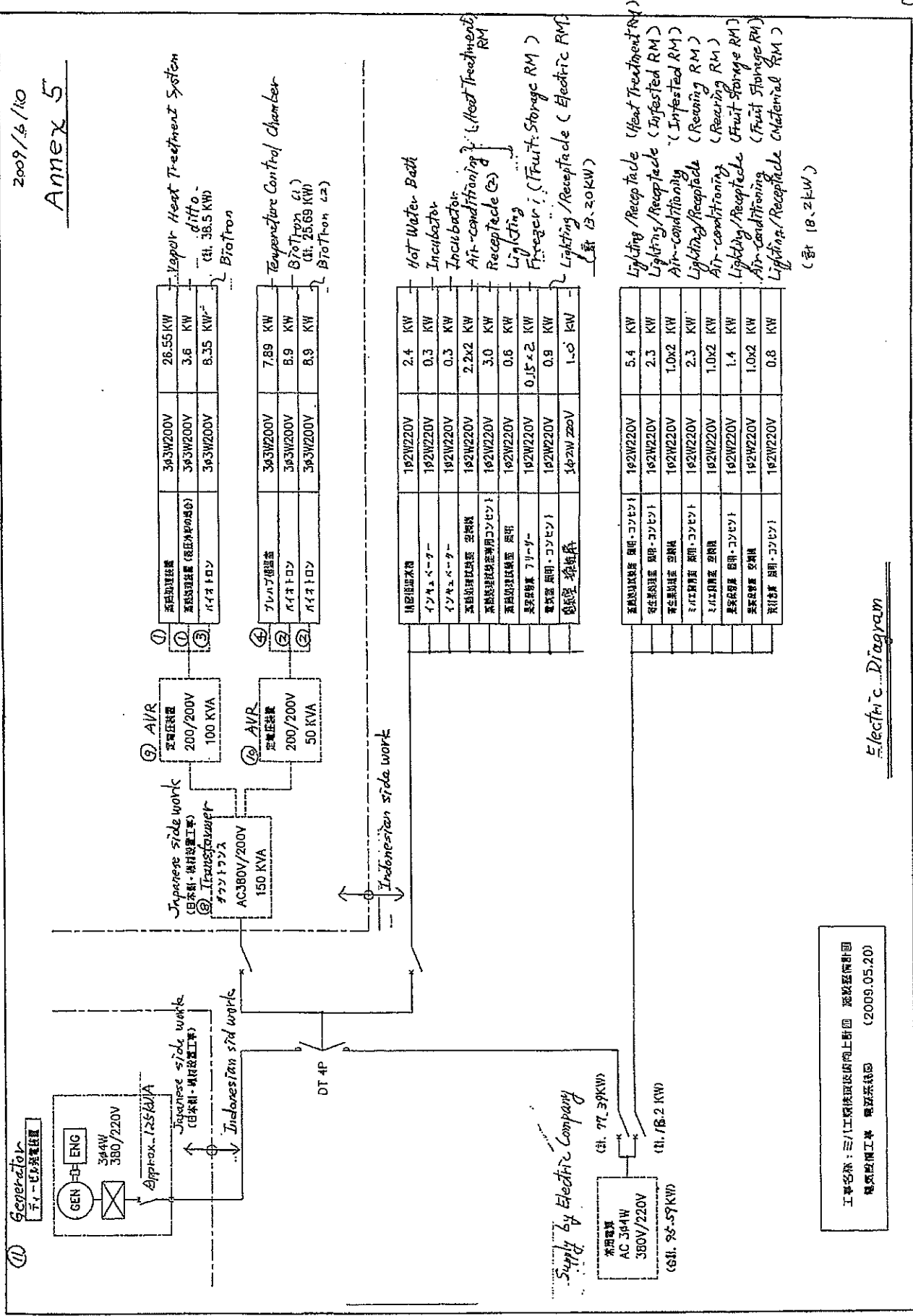
Annex 4 2009/8/10

Name of Room	Electric Load	General Electric Power (AC)			General Electric Power (AC) & Generator			Remarks
		3Φ380V (KW)	3Φ200V (KW)	1Φ220V (KW)	3Φ380V (KW)	3Φ200V (KW)	1Φ220V (KW)	
Heat Treatment Room	Lighting			0.60			0.60	
	Receptacle (1)			1.80				
	Electrical Water Heater			2.00				
	Receptacle (2)						3.00	Dedicated circuit
	Air-conditioner						2.4 x 2	
	Exhaust Fan			1.00				
	Upper Heat Treatment System					26.55*3.6		Equipment Installation Work
Infused Room	Hot Water Bath						2.40	Dedicated circuit
	Lighting			0.60				
	Receptacle			1.20				
	Air-conditioner			1.0 x 2				
	Exhaust Fan			0.50				
	Blotter					8.35		Equipment Installation Work
	Incubator						0.3 x 2	Dedicated circuit
Roaring Room	Lighting			0.60				
	Receptacle (1)			1.20				
	Air-conditioner			1.0 x 2				
	Exhaust Fan			0.50				
	Blotter					8.9X2		Equipment Installation Work
	Lighting			0.30				
	Receptacle			0.60				
Fruit Storage Room	Air-conditioner			1.0 x 2				
	Exhaust Fan			0.50				
	Thermal Control Chamber					7.89		Equipment Installation Work
	Freezer						0.15 x 2	Dedicated circuit
	Lighting			0.20				
	Receptacle			0.60				
	Lighting						0.30	
Material Storage	Receptacle						0.60	
	Exhaust Fan						1.00	
	Lighting						0.30	
Electric Room	Receptacle						0.60	
	Exhaust Fan						1.00	
	Lighting						0.30	
Total			18.20		64.19		13.20	Total Load (05.59KW)

5

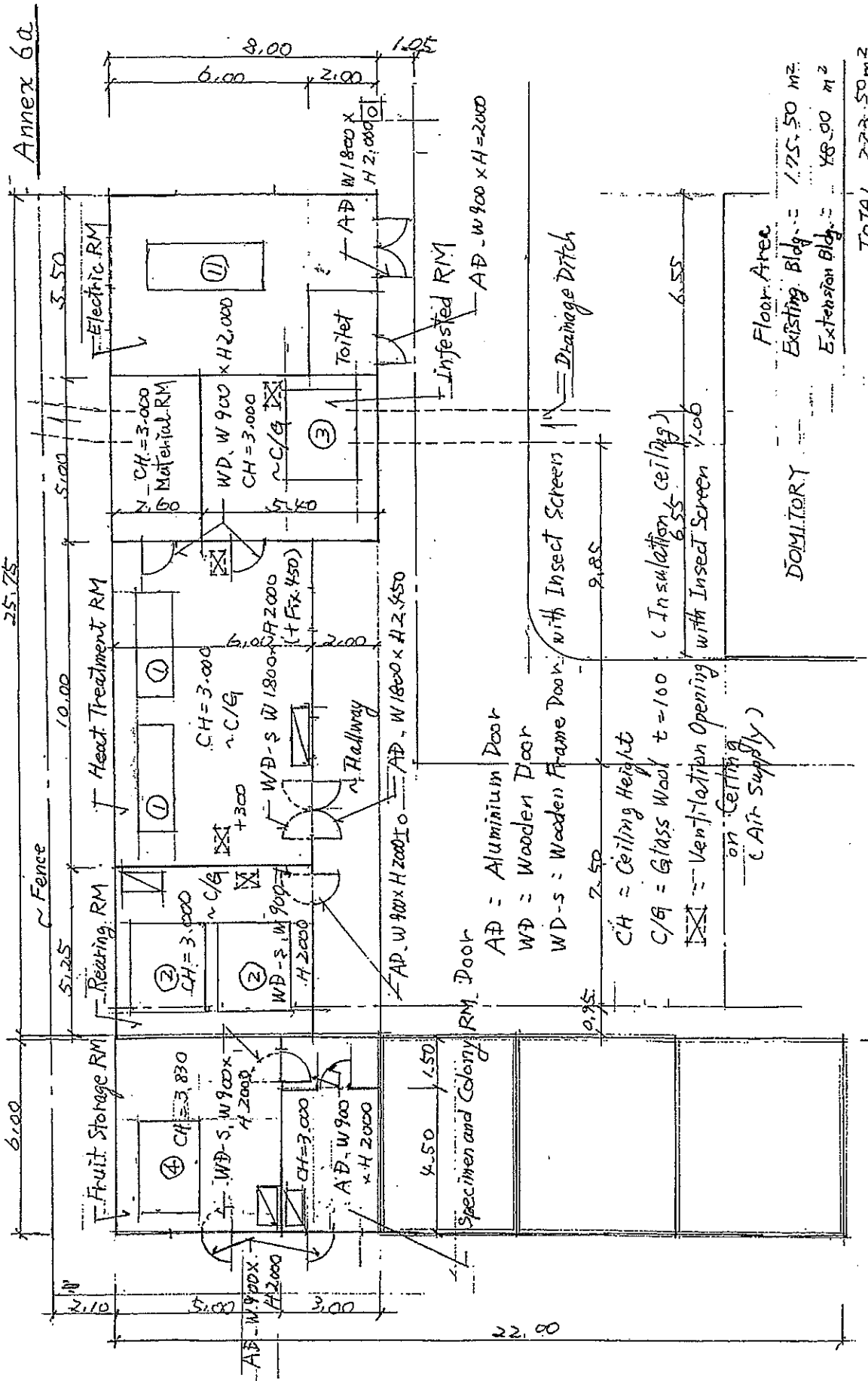
2009/6/10

Annex 5



Electric Diagram

工事名称：三ノ工機株式会社内上野田 施設整備計画  
電気設備工事 電気系統図 (2009.05.20)

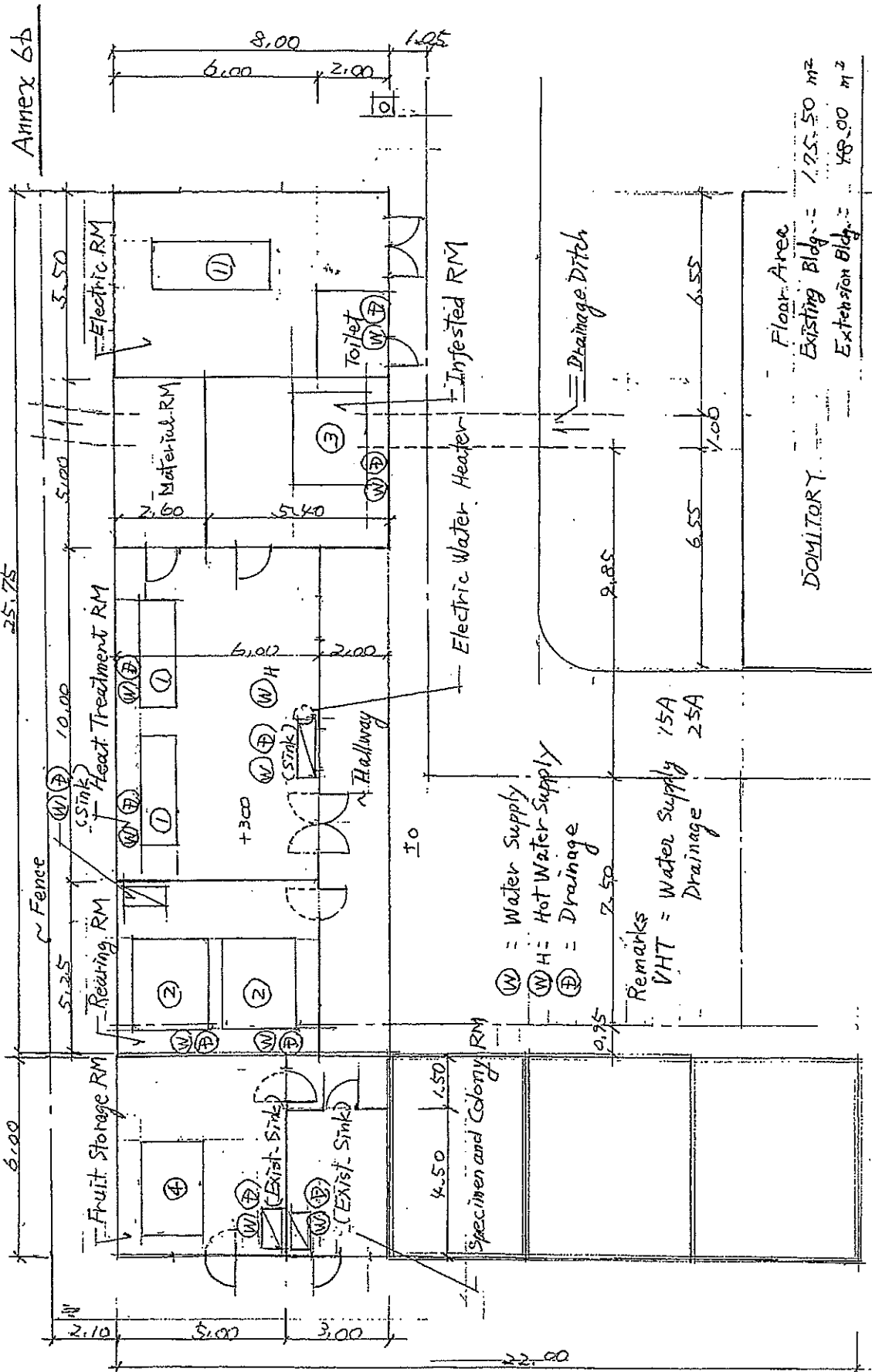


Floor Area	
Existing Bldg.	175.50 m <sup>2</sup>
Extension Bldg.	48.00 m <sup>2</sup>
<b>TOTAL</b>	<b>223.50 m<sup>2</sup></b>

2009/6/10. **F001**

Architectural Work

Existing Bldg. (Renovation)  
 Extension Bldg. (Construction)



Annex 6b

Floor Area  
 Existing Bldg = 175.50 m<sup>2</sup>  
 Extension Bldg = 48.00 m<sup>2</sup>  
 TOTAL = 223.50 m<sup>2</sup>

DOMITORY

Water Supply & Drainage Work 2007/6/10

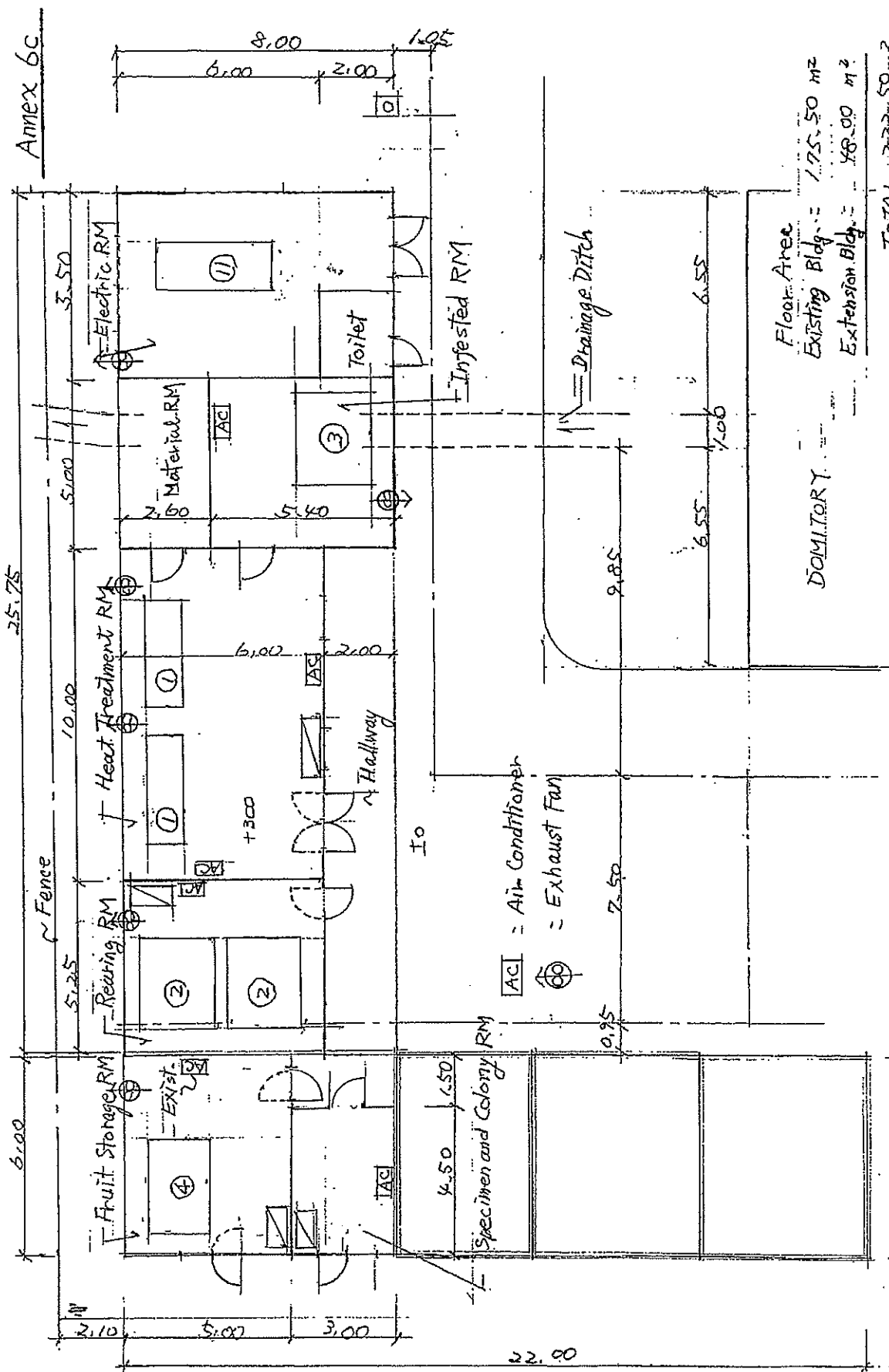
FOOI

Existing Bldg (Renovation)

Extension Bldg (Construction)

Remarks  
 VHT = Water Supply 15A  
 Drainage 25A

Legend:  
 (W) = Water Supply  
 (WH) = Hot Water Supply  
 (D) = Drainage



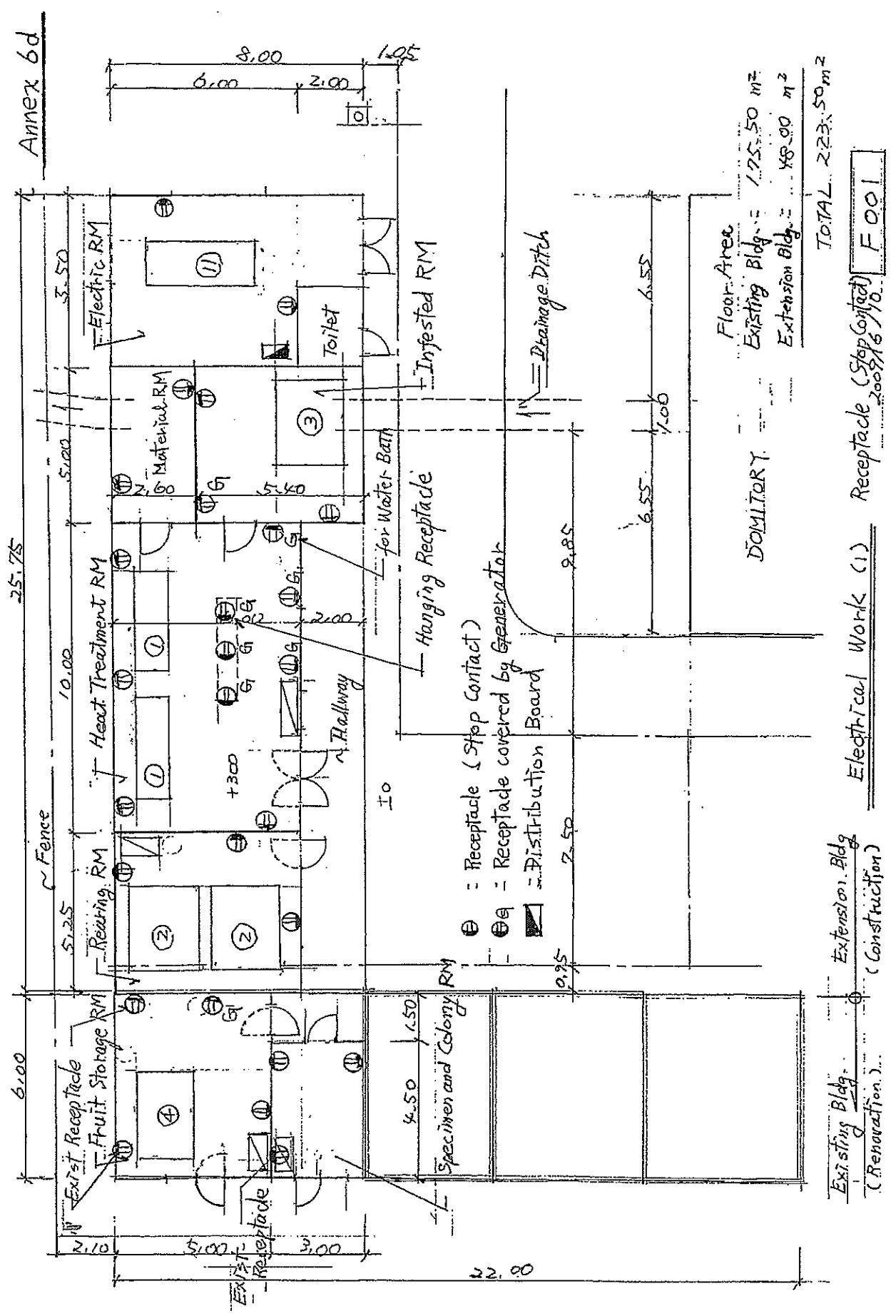
Floor Area  
 Existing Bldg. = 175.50 m<sup>2</sup>  
 Extension Bldg. = 48.00 m<sup>2</sup>  
 TOTAL = 223.50 m<sup>2</sup>

Existing Bldg. (Renovation)

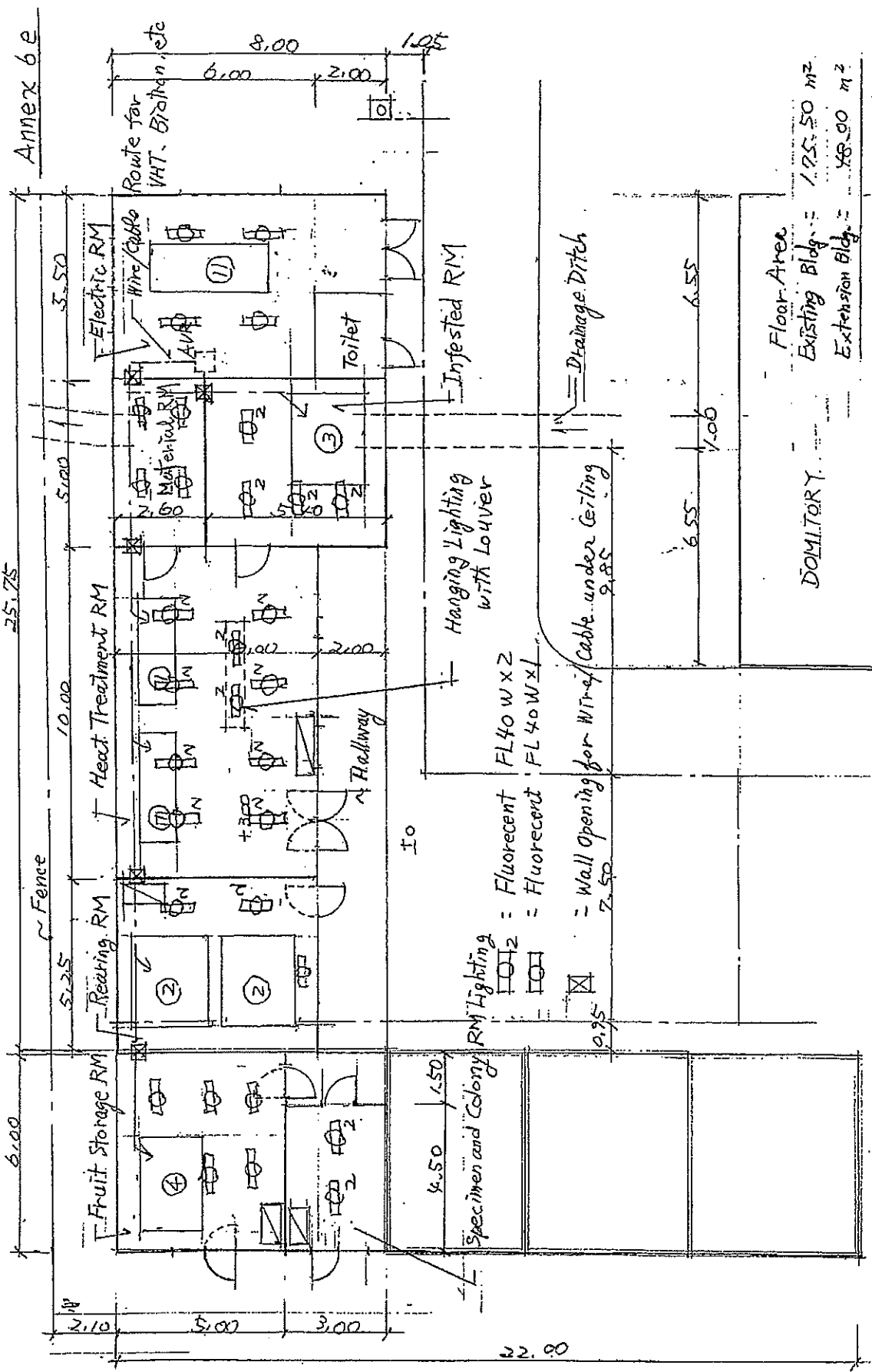
Extension Bldg. (Construction)

Air Conditioning - Ventilation Work 2009/6/10

F001







Existing Bldg. (Renovation)

Extension Bldg. (Construction)

DOMITORY

Lighting 2009/6/10

Floor Area

Existing Bldg. = 125.50 m<sup>2</sup>

Extension Bldg. = 48.00 m<sup>2</sup>

TOTAL: 223.50 m<sup>2</sup>

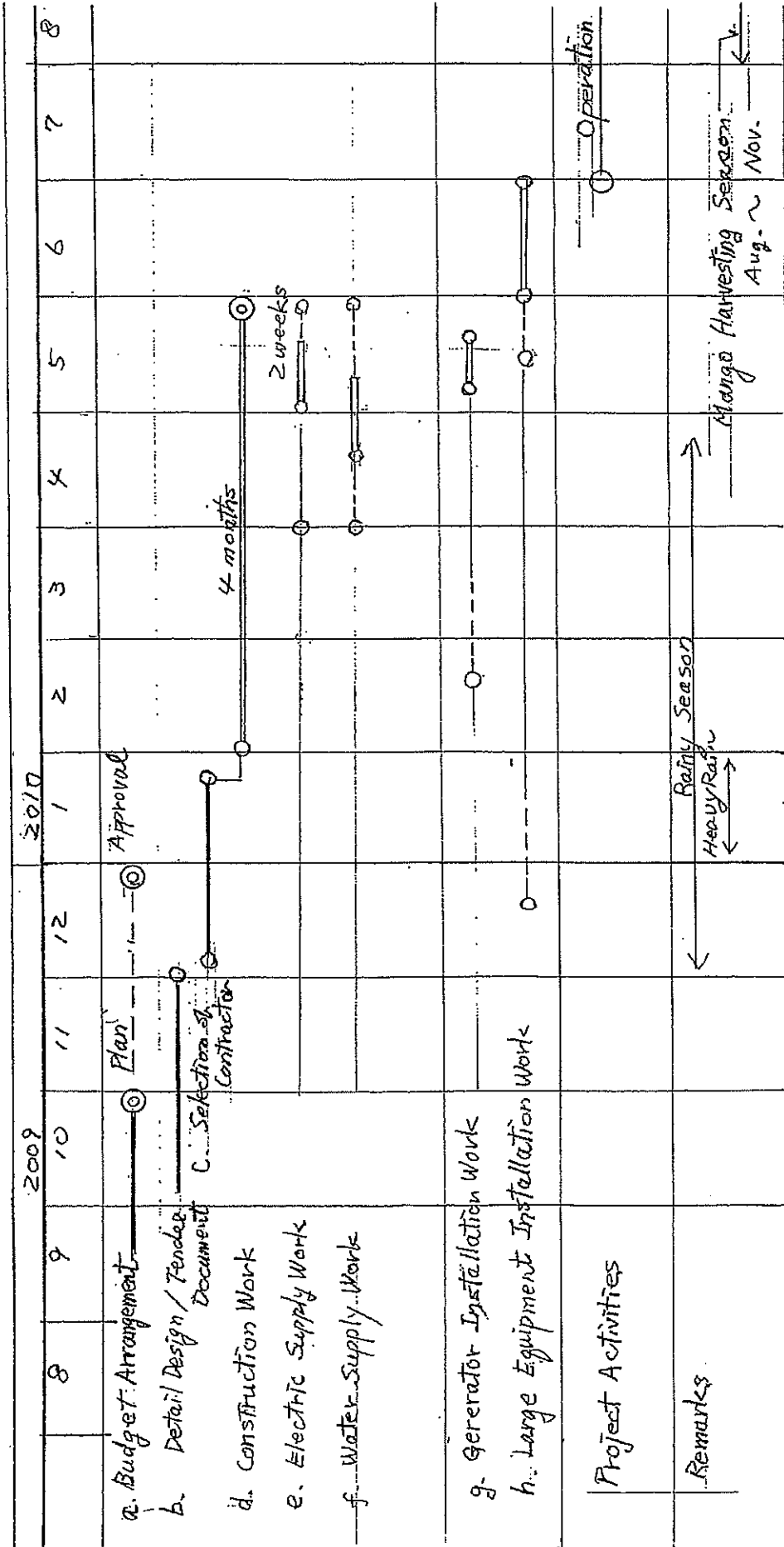
Demarcation list of works

Facilities & Equipment Items	Indonesian side	Japanese side
(1) Facilities		
A: Architectural Work		
Existing Bldg.: (Renovation work)	○	
Extension Bldg.: (Construction work)	○	
B: Electrical / Air-cinditioning & Plumbing Work		
Electrical power supply in Project facilities	○	
Air-conditioning / Ventilation	○	
Plumbing Work (Water supply & drainage)	○	
C: Water Supply Work		
Work from water source to Project facilities	○	
D: Electrical Power Supply Work (1)		
Work from power station to main panel board in Electric RM	○	
E: Electrical Power Supply Work (2)		
Electric substation (20kV -380V/220V)	○	
To set a new transformer (Capacity: approx. 125kVA)		
F: Generator Installation Work		
Procurement & installation		○
(2) Equipment		
1 Vapor Heat Treatment System :VHT		○
2 Biotron 1 (for insect rearing)		○
3 Biotron 2 (for infested fruit)		○
4 Temperature Control Chamber (for fruit storage)		○
5 Incubator		○
6 Freezer		○
7 Hot Water Bath		○
8 Stepdown transformer		○
9 Automatic Voltage Regulator 1		○
10 Automatic Voltage Regulator 1		○
Other laboratory equioment		○

Tentative Implementation Schedule

Annex 8

2009/6/10



### General Requirement for Facilities

#### Architectural Work

##### (1) General

a. Building should be strong enough to survive earthquake
b. Proper measure should be taken to prevent insects and small animals from entering laboratory facilities.
c. Floor of Heat Treatment Room and Electric Room should be strong enough to support the weight of heavy equipment such as VHT, step-down transformer, AVR, and generator.
d. Surface of floor should be plain for installation of large equipment such as VHT, Biotron, Temperature Control Chamber and generator and so on.

##### (2) Structure

Column & Beam	Reinforced concrete
Wall	Brick masonry
Floor	Reinforced concrete
Roof framing	Steel truss structure

##### (3) Exterior Finish Schedule

Roof	Ceramic roof tile
Wall	Paint on cement plastering

##### (4) Interior Finish Schedule

Name of RM	Finish	Remarks
<b>a. Heat Treatment RM</b>		
Floor	Floor paint (epoxy resin)	
Wall	Paint on cement plastering	
Ceiling	Gypsum board	CH = 3000 Glass wool/cloth, t=100 (insulation)
Door & Window	Aluminum door	Double swinging door with lock W1800 x H2450
	Wooden frame door with insect screen	Double swinging door W1800 x H2000 (+450: fix) To be set after installation of VHT
	Wooden door	Single swinging door W900 x H2000
Others	Sink	W1800, single tap for water Combination tap for hot water
<b>b. Infested RM</b>		
Floor	Floor paint (epoxy resin) or polyvinyl chloride floor sheet	
Wall	Paint on cement plastering	
Ceiling	Gypsum board	CH = 3000 Glass wool/cloth, t=100 (insulation)
Door & Window	Wooden door	Single swinging door with lock W900 x H2000
Others	Sink	W=1200, tap for water

c. Rearing RM		
Floor	Floor paint (epoxy resin) or polyvinyl chloride floor sheet	
Wall	Paint on cement plastering	
Ceiling	Gypsum board	CH = 3000 Glass wool/cloth, t=100 (insulation)
Door & Window	Aluminum door	Single swinging door with lock W900 x H2000
	Wooden frame door with insect screen	Single swinging door W900 x H2000
Others	Sink	W=1200, tap for water
d. Fruit Storage RM		
Floor	Existing ceramic floor tile	
Wall	Existing paint on cement plastering	
Ceiling	Existing ceiling	CH = 3830
Door & Window	Aluminum door	Single swinging door with lock W900 x H2000
	Wooden frame door with insect screen	Single swinging door W900 x H2000
Others	Existing sink	W=1200, tap for water
e. Specimen and Colony RM		
Floor	Existing ceramic floor tile	
Wall	Existing paint on cement plastering	
Ceiling	Gypsum board	New ceiling, CH = 3830
Door & Window	Aluminum door	Single swinging door with lock W900 x H2000
	Wooden frame door with insect screen	Single swinging door W900 x H2000
Others	Existing sink	W=1200, tap for water
f. Material Storage		
Floor	Floor paint (epoxy resin) or polyvinyl chloride floor sheet	
Wall	Paint on cement plastering	
Ceiling	Gypsum board	CH = 3000
Others		
g. Electric RM		
Floor	Cement mortal trowelled	
Wall	Paint on cement plastering	
Ceiling	-	
Door & Window	Aluminum door	Double swinging door with lock W1800 x H2000
Others		1. Foundation for generator 2. Foundation for step-down transformer & AVR 3. Opening enough to take air supply for ventilation 4. Space for fuel tank and rising frame to keep overflow of fuel

**REKAPITULASI  
REHABILITASI GEDUNG LABORATORIUM JATISARI  
DIREKTORAT JENDERAL HORTIKULTURA  
DATA DUKUNG KEGIATAN TA 2010  
Volume Pekerjaan = 223,50 M<sup>2</sup>**

NO.	JENIS PEKERJAAN	JUMLAH (Rp)
I	PEKERJAAN PENDAHULUAN	170.344.960,00
II	PEKERJAAN STRUKTUR	184.513.627,60
III	PEKERJAAN ARSITEKTUR	368.273.284,00
IV	PEKERJAAN PENGECATAN, LISTRIK, AC DAN LAIN-LAIN	450.742.490,50
	<b>JUMLAH I s/d V</b>	<b>1.173.874.362,10</b>
	PPN 10%	117.387.436,21
	Jumlah total	1.291.261.798,31
	Dibulatkan	1.291.261.000,00
terbilang :	Administrasi	108.735.000
	<b>Total : Rp 1.400.000.000</b>	

Jakarta, Juni 2009

Pengelola Teknis  
Departemen Pekerjaan Umum,

Pelaksana Utama Kegiatan,

Diding Supardi, BE, S. Sos  
NIP. 110 034 117

Ir. Guruh Gempita Dawoed, MM  
NIP. 080 085 246

Mengetahui/Menyetujui  
Sekretaris Direktorat Jenderal Hortikultura,  
Tahun Anggaran 2009

Ir. Sri Kuntarsih, MM  
NIP. 080 069 442

**RENCANA ANGGARAN BIAYA (RAB)**  
**REHABILITASI GEDUNG LABORATORIUM JATISARI PURWAKARTA**  
**DIREKTORAT JENDERAL HORTIKULTURA**  
**DATA DUKUNG KEGIATAN TA 2010**  
**VOLUME PEKERJAAN = 223.50 M2**

NO	JENIS PEKERJAAN	VOLUME	HARGA SATUAN (Rp)	JUMLAH HARGA (Rp)
1	2	3	4	5
<b>1</b>	<b>PEKERJAAN PENDAHULUAN</b>			
1.1	Manajemen proyek dan biaya Administrasi Lapangan			
1.1.1	Project Manager	1,00 bln	3.000.000,00	3.000.000,00
1.1.2	Site Manager	1,00 bln	2.500.000,00	2.500.000,00
1.1.3	Planning / design manager	1,00 bln	2.000.000,00	2.000.000,00
1.1.4	Pelaksana struktur, Arsitektur dan ME	4,00 bln	1.500.000,00	6.000.000,00
1.1.5	Surveyor	1,00 btn	1.500.000,00	1.500.000,00
1.1.6	Kepala Gudang	4,00 bln	1.750.000,00	7.000.000,00
1.1.7	Kasir / Keuangan / Administrasi	5,00 bln	1.000.000,00	5.000.000,00
1.1.8	Drafter (2 orang)	1,00 bln	1.250.000,00	1.250.000,00
1.1.9	Sopir (2 orang)	1,00 bln	1.000.000,00	1.000.000,00
1.1.10	Office boy	4,00 bln	850.000,00	3.400.000,00
	<b>Sub Total 1.1</b>			<b>32.650.000,00</b>
1.2	Mobilisasi dan Demobilisasi			
1.2.1	Dump truck	1,00 unit	15.000.000,00	15.000.000,00
1.2.2	Concrete pump	1,00 unit	11.500.000,00	11.500.000,00
1.2.3	Concrete vibrator	1,00 unit	1.850.000,00	1.850.000,00
1.2.4	Mesin los	1,00 unit	5.500.000,00	5.500.000,00
1.2.5	Bar cutter	1,00 unit	4.500.000,00	4.500.000,00
1.2.6	Bar bender	1,00 unit	4.500.000,00	4.500.000,00
1.2.7	Water pas	1,00 set	2.500.000,00	2.500.000,00
1.2.8	Pompa air proyek	1,00 unit	3.500.000,00	3.500.000,00
1.2.9	Stemper	1,00 unit	750.000,00	750.000,00
1.2.10	Kompressor	1,00 unit	2.000.000,00	2.000.000,00
1.2.11	Pick up	1,00 unit	1.750.000,00	1.750.000,00
	<b>Sub Total 1.2</b>			<b>53.350.000,00</b>
1.3	Peralatan dan Perlengkapan Keselamatan Kerja dan P3K			
1.3.1	Helm / topi pengaman	15,00 bh	25.000,00	375.000,00
1.3.2	Sepatu lapangan	15,00 bh	25.000,00	375.000,00
1.3.3	Jas hujan	15,00 bh	65.000,00	975.000,00
1.3.4	Petugas K3	4,00 bln	1.000.000,00	4.000.000,00
	<b>Sub Total 1.3</b>			<b>5.725.000,00</b>
1.4	Rapat Proyek			
1.4.1	Akomodasi dan Konsumsi (snack)	4,00 bln	500.000,00	2.000.000,00
	<b>Sub Total 1.4</b>			<b>2.000.000,00</b>
1.5	Dokumen Kontrak			
1.5.1	Buku Administrasi kontrak	1.200,00 lbr	250,00	300.000,00
1.5.2	Jilid dokumen	6,00 set	7.500,00	45.000,00
1.5.3	Cetak gambar kontrak	600,00 lbr	12.500,00	7.500.000,00
1.5.4	Jilid Gambar	6,00 set	10.500,00	63.000,00
	<b>Sub Total 1.5</b>			<b>7.908.000,00</b>

NO	JENIS PEKERJAAN	VOLUME	HARGA SATJAN (Rp)	JUMLAH HARGA (Rp)
1.6	Pembuatan Gambar Kerja (Shop Drawing)			
1.6.1	Gambar kerja	100,00 lbr	75.000,00	7.500.000,00
1.6.2	Blue print	100,00 lbr	25.000,00	2.500.000,00
	<b>Sub Total 1.6</b>			<b>10.000.000,00</b>
1.7	Laporan Bulanan dan Foto Kemajuan Pekerjaan			
1.7.1	Membuat laporan 2 mingguan	20,00 set	50.000,00	1.000.000,00
1.7.2	Foto kemajuan	20,00 set	50.000,00	1.000.000,00
	<b>Sub Total 1.7</b>			<b>2.000.000,00</b>
1.8	Direksi Keet			
1.8.1	Bangunan Direksi keet	24,00 m2	463.265,00	11.118.360,00
1.8.2	Meja panjang untuk rapat	1,00 set	250.000,00	250.000,00
1.8.3	Kursi kerja	4,00 bh	75.000,00	300.000,00
1.8.4	Lemari arsip	2,00 bh	500.000,00	1.000.000,00
1.8.5	Filling cabinet (bekas 50%)	1,00 set	500.000,00	500.000,00
	<b>Sub Total 1.8</b>			<b>13.168.360,00</b>
1.9	Gudang dan Los Kerja			
1.9.1	Bangunan gudang lengkap uk. 4 x 6 m	24,00 m2	250.000,00	6.000.000,00
1.9.2	Bongkar gudang bahan termasuk buang keluar dari lokasi proyek	24,00 m2	25.000,00	600.000,00
	<b>Sub Total 1.9</b>			<b>6.600.000,00</b>
1.10	Pagar Proyek Sementara			
1.10.1	Pasang Bouplank	116,00 m1	65.000,00	7.540.000,00
1.10.2	Pagar proyek sementara	58,00 m1	232.500,00	13.485.000,00
1.10.3	Biaya pembongkaran pagar	58,00 m1	4.200,00	243.600,00
	<b>Sub Total 1.10</b>			<b>21.268.600,00</b>
1.11	Izin Mendirikan Bangunan			
1.11.1	Pengurusan legalitas bangunan	1,00 ls	15.000.000,00	15.000.000,00
1.11.2	Papan nama proyek bahan multiplek 8 mm uk. 2,40 x 1,20	1,00 bh	675.000,00	675.000,00
	<b>Sub Total 1.11</b>			<b>15.675.000,00</b>
II	<b>PEKERJAAN STRUKTUR</b>			
2.1	Pekerjaan Tanah dan Pondasi			
2.1.1	Perataan tanah / stripping	223,50 m2	2.675,00	597.862,50
2.1.2	Galian tanah untuk pondasi	67,56 m3	31.203,00	2.108.074,68
2.1.3	Galian tanah untuk drainase dan septictank berikut rembesan	15,20 m3	57.292,00	870.838,40
2.1.4	Urugan kembali dan tanah urug dari luar berikut pemadatan tanah dengan stemper	132,75 m3	118.500,00	15.730.875,00
2.1.5	Pasir urug tebal 10 cm	8,92 m3	190.423,00	1.698.573,16
2.1.6	Pondasi batu kali adukan 1 : 3	35,69 m3	546.838,00	19.516.648,22
2.1.7	Pondasi setempat untuk rumah genset beton belakang	0,84 m3	546.838,00	459.343,92
2.1.8	Sloof untuk bangunan LAB	3,82 m3	1.886.650,00	7.092.403,00
2.1.9	Sloof untuk rumah genset	0,93 m3	2.472.129,00	2.299.079,97
2.1.10	Kolom dan ring balk untuk bangunan LAB	5,31 m3	1.856.650,00	9.858.811,50



NO	JENIS PEKERJAAN	VOLUME	HARGA SATUAN (Rp)	JUMLAH HARGA (Rp)
2.1.11	Kolom dan ringbalk untuk rumah gense	3,57 m3	2.472.125,00	8.825.486,25
2.1.12	Plat beton untuk rumah gense (atap beton bertulang) dan beton bertulang parit	15,95 m3	2.250.000,00	35.887.500,00
2.1.13	Bikisting untuk sloof kolom dan plat	99,50 m2	681.338,00	67.793.131,00
2.1.14	Water proofing membrane	78,50 m2	115.000,00	9.027.500,00
2.1.15	Screed 5 cm pelindung water proofing	78,50 m2	35.000,00	2.747.500,00
	<b>Sub Total 2,1</b>			<b>184.513.627,60</b>
III	<b>PEKERJAAN ARSITEKTUR</b>			
3.1	<b>Pekerjaan Pasangan</b>			
3.1.1	Pasang batu bata tebal 1/2 bata adukan 1 pc : 4 psr	533,04 m2	83.500,00	44.508.840,00
3.1.2	Pasang plester tebal 2 cm adukan 1 pc = 4 psr + acian	1.066,08 m2	40.900,00	43.602.672,00
3.1.3	Pasang kuda-kuda atap baja ringan UNION TRUSS Spesifikasi High Tension Steel G 550 termasuk rangka, reng dan talang jural dalam	378,50 m2	280.000,00	105.980.000,00
3.1.4	Pasang genteng glazur setara M Class	378,50 m2	84.750,00	32.077.875,00
3.1.5	Pasang genteng bubungan / nok glazur	36,50 m1	49.500,00	1.806.750,00
3.1.6	Pasang lisplank 3 / 30 cm bahan kayu kamper Samarinda	96,50 m1	87.870,00	8.479.455,00
3.1.7	Pasang lis profil dari kayu Kamper Samarinda uk. 5 x 3 cm bagian luar	96,50 m1	29.028,00	2.802.167,00
3.1.8	Pasang plafond gysumtile, maintee crosstee, walltrim	219,50 m2	120.950,00	26.548.525,00
3.1.9	Pasang plafond luar GRC berikut rangka hollow	106,00 m2	115.500,00	12.243.000,00
3.1.10	Pasang kusen alumunium type J1 lengkap dengan daun dan aksesorisnya	2,00 unit	3.850.000,00	7.700.000,00
3.1.11	Pasang BV 1 alumunium lengkap dengan aksesorisnya	4,00 unit	875.000,00	3.500.000,00
3.1.12	Pasang BV 2 alumunium lengkap dengan aksesorisnya	1,00 unit	750.000,00	750.000,00
3.1.13	Pasang BV 3 alumunium lengkap dengan aksesorisnya	6,00 unit	900.000,00	5.400.000,00
3.1.14	Pasang kusen pintu type P1 lengkap dengan daun dan aksesorisnya	1,00 unit	2.750.000,00	2.750.000,00
3.1.15	Pasang kusen pintu type P12 lengkap dengan daun dan aksesorisnya	1,00 unit	1.750.000,00	1.750.000,00
3.1.16	Pasang kusen pintu type P2 lengkap dengan daun dan aksesorisnya	1,00 unit	1.250.000,00	1.250.000,00
3.1.17	Pasang kusen pintu type P21 lengkap dengan daun dan aksesorisnya	1,00 unit	1.000.000,00	1.000.000,00
3.1.18	Pasang kusen pintu type P3 lengkap dengan daun dan aksesorisnya	1,00 unit	1.750.000,00	1.750.000,00
3.1.19	Pasang kusen pintu type P31 lengkap dengan daun dan aksesorisnya	1,00 unit	1.000.000,00	1.000.000,00
3.1.20	Pasang kusen pintu type P4 lengkap dengan			

NO	JENIS PEKERJAAN	VOLUME	HARGA SATUAN (Rp)	JUMLAH HARGA (Rp)
	daun dan aksesorisnya	1,00 unit	1.750.000,00	1.750.000,00
3.1.21	Pasang kusen pintu type P5 lengkap dengan daun dan aksesorisnya	1,00 unit	950.000,00	950.000,00
3.1.22	Pasang kusen pintu type P6 lengkap dengan daun dan aksesorisnya	1,00 unit	2.950.000,00	2.950.000,00
3.1.23	Pasang kusen pintu type PJ1 lengkap dengan daun dan aksesorisnya	2,00 unit	3.250.000,00	6.500.000,00
3.1.24	Pasang vinyl gulung kualitas baik	192,00 m2	105.000,00	20.160.000,00
3.1.25	Pasang vinyl kualitas granito	128,00 m2	151.000,00	19.328.000,00
3.1.26	Pasang plint 10 / 40	73,00 m1	50.000,00	3.650.000,00
3.1.27	Pasang keramik 20 x 20 kualitas baik	4,00 m2	71.500,00	286.000,00
3.1.28	Pasang keramik 20-x 25 kualitas baik	14,00 m2	75.000,00	1.050.000,00
3.1.29	Pasang wastafel	2,00 bh	2.250.000,00	4.500.000,00
3.1.30	Pasang closed jongkok	1,00 bh	2.250.000,00	2.250.000,00
	<b>Sub Total 3.1</b>			<b>368.273.284,00</b>
<b>IV</b>	<b>PEKERJAAN PENGECATAN, LISTRIK, AC DAN LAIN-LAIN</b>			
4.1	<b>Pekerjaan Mekanikal, Elektrikal, Cat dan Lainnya</b>			
4.1.1	Pekerjaan pengecatan dinding bangunan lab dan rumah genset serta plafond dengan cat setara vinilek	1.037,00 m2	25.444,00	26.385.428,00
4.1.2	Pekerjaan pengecatan lisplank dengan cat kualitas baik	28,95 m2	23.750,00	687.562,50
4.1.3	Pekerjaan pasang rumah lampu TL 2 x 36 W type RM 5	28,00 bh	425.000,00	11.900.000,00
4.1.4	Pekerjaan. Pasang rumah lampu TL 1 x 18 W	4,00 bh	175.000,00	700.000,00
4.1.5	Pekerjaan pasanga lampu SL 18 w	8,00 bh	75.000,00	600.000,00
4.1.6	Pekerjaan pasang instalasi titik lampu penerangan	40,00 bh	165.000,00	6.600.000,00
4.1.7	pekerjaan pasang instalasi titik stop kontak 200 V	15,00 bh	165.000,00	2.475.000,00
4.1.8	Pekerjaan pasang instalasi titik stop kontak AC	5,00 bh	225.000,00	1.125.000,00
4.1.9	Pekerjaan pasang instalasi stop kontak exhaust fan	6,00 bh	225.000,00	1.350.000,00
4.1.10	Pekerjaan saklar double setara braco	14,00 bh	35.000,00	490.000,00
4.1.11	Pekerjaan KWH meter 3 phase	1,00 bh	3.050.000,00	3.050.000,00
4.1.12	Pekerjaan panel pompa	1,00 bh	5.250.000,00	5.250.000,00
4.1.13	Pasang panel utama	1,00 bh	16.500.000,00	16.500.000,00
4.1.14	Pasang panel AC	1,00 bh	5.250.000,00	5.250.000,00
4.1.15	Pasang kabel NYY 4 x 240 mm2 dari panel utama ke trafo PLN	80,00 bh	534.500,00	42.760.000,00
4.1.16	Pasang pompa pendorong	1,00 bh	1.850.000,00	1.850.000,00
4.1.17	Pasang tom berikut tower penyangga dari besi siku 70.70,5 lengkap dengan aksesorisnya tinggi ± 10 M	1,00 unit	7.500.000,00	7.500.000,00
4.1.18	Pasang arde panel	1,00 ls	1.850.000,00	1.850.000,00
4.1.19	Pekerjaan pasang baru sambungan PLN	1,00 ls	200.000.000,00	200.000.000,00

NO	JENIS PEKERJAAN	VOLUME	HARGA SATUAN (Rp)	JUMLAH HARGA (Rp)
4.1.20	Pekerjaan AC split 2 pk	5,00 bh	9.000.000,00	45.000.000,00
4.1.21	Pekerjaan pas. Stop kontak tenaga untuk alat lab	8,00 bh	95.000,00	760.000,00
4.1.22	Pek. Stop kontak biasa	9,00 bh	50.500,00	454.500,00
4.1.23	Pekerjaan pipa PVC AW Ø 3/4" air bersih	125,00 m1	25.000,00	3.125.000,00
4.1.24	Pekerjaan pipa PVC AW Ø 3" air kotor	45,00 m1	85.000,00	3.825.000,00
4.1.25	Pekerjaan pipa PVC AW Ø 4" air kotor	14,00 m1	175.000,00	2.450.000,00
4.1.26	Pek. Pipa air panas	7,00 m1	45.000,00	315.000,00
4.1.27	Pek. Pasang water heater	1,00 bh	5.500.000,00	5.500.000,00
4.1.28	Pek. Pasang kran air panas	1,00 bh	550.000,00	550.000,00
4.1.29	Pekerjaan cermin untuk toilet	1,00 bh	750.000,00	750.000,00
4.1.30	Pekerjaan pasang kran air	5,00 bh	75.000,00	375.000,00
4.1.31	Pekerjaan stop kran	2,00 bh	195.000,00	390.000,00
4.1.32	Pek. Pasang wastafel lengkap berikut aksesorisnya	1,00 bh	2.500.000,00	2.500.000,00
4.1.33	Pek. Pasang pompa baru berikut pengeboran serta instalasinya	1,00 l:	25.000.000,00	25.000.000,00
4.1.34	Pek. Pasang batu alam dinding luar	115,00 m <sup>2</sup>	145.000,00	16.675.000,00
4.1.35	Pek. Pasang conblok halaman	50,00 m <sup>2</sup>	135.000,00	6.750.000,00
	<b>Sub Total 4.1</b>			<b>450.742.490,50</b>

3. 水質検査データ



**LABORATORIUM TERPADU INSTITUT PERTANIAN BOGOR**  
**INTEGRATED LABORATORY BOGOR AGRICULTURAL UNIVERSITY**

Kampus IPB Baranangsiang, Wing Kimia Lantai Dasar, Jl. Pajajaran Bogor 16144  
Phone/Fax. (0251) 8319894 - 8323571, E-mail: [lt@ipb@indo.net.id](mailto:lt@ipb@indo.net.id) ISO (17025) Certificate No.: LP-156-IDN



Certificate No. : LT-405-0509  
Lab. No. : AUM/09/0570  
Company : DIREKTORAT LINGKUNGAN  
                  HORTIKULTURA  
Address : Jakarta  
Sample Id : Clean water  
Test for : Water Quality  
Received Date : 27-05-2009  
Finished Date : 09-06-2009  
Issued Date : 09-06-2009

Head of Laboratory

Dr. Zainal Alim Machud, DEA

NIP. 131 578 815

Pengaduan tidak akan kami layani setelah 2 (dua) minggu sesudah sertifikat. Hasil pengujian ini tidak untuk digandakan dan hanya berlaku untuk contoh-contoh tersebut di atas.  
Any complain for more than 2 (two) weeks after the certificate issued would not be accepted. This certificate cannot be duplicated and is only valid for the above samples.



## LABORATORIUM TERPADU INSTITUT PERTANIAN BOGOR INTEGRATED LABORATORY BOGOR AGRICULTURAL UNIVERSITY

Kampus IPB Baranangsiang, Wing Kimia Lantai Dasar, Jl. Pajajaran Bogor 16144  
Phone/Fax. (0251) 8319894 - 8323571, E-mail: lt-ipb@indo.net.id ISO (17025). Certificate No. : LP-156-IDN

LT-IV.4.4.5	<b>LABORATORY TEST REPORT</b>	Page 1 of 1
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Certificate No. : LT-405-0509  
 Laboratory No. : AUN/09/0570  
 Sample Id : Water (Air Sumur)  
 Sample Received : 27-05-2009

Parameter	Result	Regulatory Limit	Unit	Analysis Method
pH	7.5	6.5 - 9.0	-	SMEWW 21 <sup>th</sup> (2005):4500-H-B
Temperature	26.5	Sekitar ±3	°C	SMEWW 21 <sup>th</sup> (2005):2550-Temperature.B
Odor*	Odorless	Tidak berbau	-	Organoleptic
Taste*	Tasteless	Tidak berasa	-	Organoleptic
Color*	0.28	50	Pl.Co	SMEWW 21 <sup>th</sup> (2005):2120-Color.C
Turbidity*	0.92	25	NTU	SMEWW 21 <sup>th</sup> (2005):2130-Turbidity. B
TDS	130	1500	mg/l	SMEWW 21 <sup>th</sup> (2005):2540-TDS.C
Chloride, Cl	1.90	600	mg/l	SMEWW 21 <sup>th</sup> (2005):4500-Cl.C.
Hardness, CaCO <sub>3</sub> *	139.61	500	mg/l	SMEWW 21 <sup>th</sup> (2005):2340-Hardness. C
Nitrite, NO <sub>2</sub>	<0.01	1.0	mg/l	SMEWW 21 <sup>th</sup> (2005):4500-NO <sub>2</sub> .B
Nitrate, NO <sub>3</sub> *	<0.01	10	mg/l	USEPA Method 352.1
Sulphate, SO <sub>4</sub> *	1.62	400	mg/l	SMEWW 21 <sup>th</sup> (2005):4500-SO <sub>4</sub> .2
Flouride, F	<0.1	1.5	mg/l	SMEWW 21 <sup>th</sup> (2005) : 4500-F. D.
Detergent*	0.21	0.5	mg/l	SMEWW 21 <sup>th</sup> (2005): 5540-Surfactants.C.
Cyanide, CN*	<0.01	0.1	mg/l	SMEWW 21 <sup>th</sup> (2005) : 5540-CN. E
Arsenic, As*	<0.002	0.05	mg/l	SMEWW 21 <sup>th</sup> (2005): 3114
Mercury, Hg	<0.0002	0.001	mg/l	SMEWW 21 <sup>th</sup> (2005): 3112
Iron, Fe	0.05	1.0	mg/l	SMEWW 21 <sup>th</sup> (2005): 3111 B
Cadmium, Cd	<0.001	0.005	mg/l	SMEWW 21 <sup>th</sup> (2005): 3111 B
Manganese, Mn	0.01	0.5	mg/l	SMEWW 21 <sup>th</sup> (2005): 3111 B
Selenium, Se*	<0.002	0.01	mg/l	SMEWW 21 <sup>th</sup> (2005): 3111D
Zinc, Zn	<0.01	15	mg/l	SMEWW 21 <sup>th</sup> (2005): 3111 B
Lead, Pb	<0.01	0.05	mg/l	SMEWW 21 <sup>th</sup> (2005): 3111 B
Chrom hexavalent, Cr <sup>6+</sup> *	<0.01	0.05	mg/l	SMEWW 21 <sup>th</sup> (2005): 3500-Cr. B
Coliform (air perpipaan)	<3	10	MPN/100 ml	TPC

**REMARKS:**

\*) diluar ruang lingkup akreditasi

\*\*) Permenkes No. 416/MENKES/PER/IX/1990 Lampiran II   Above and/or outside regulatory limit  
 Lab. Terpadu IPB is not responsible for the sampling process.

June 8, 2009  
 Head of Laboratory  
  
 Dr. Samudra Masud, DEA  
 NIP. 131 570 016

Pengaduan tidak akan kami layani setelah 2 (dua) minggu penerbitan sertifikat. Hasil pengujian ini tidak untuk digandakan dan hanya berlaku untuk contoh-contoh tersebut di atas.  
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出所：農業省減芸総局