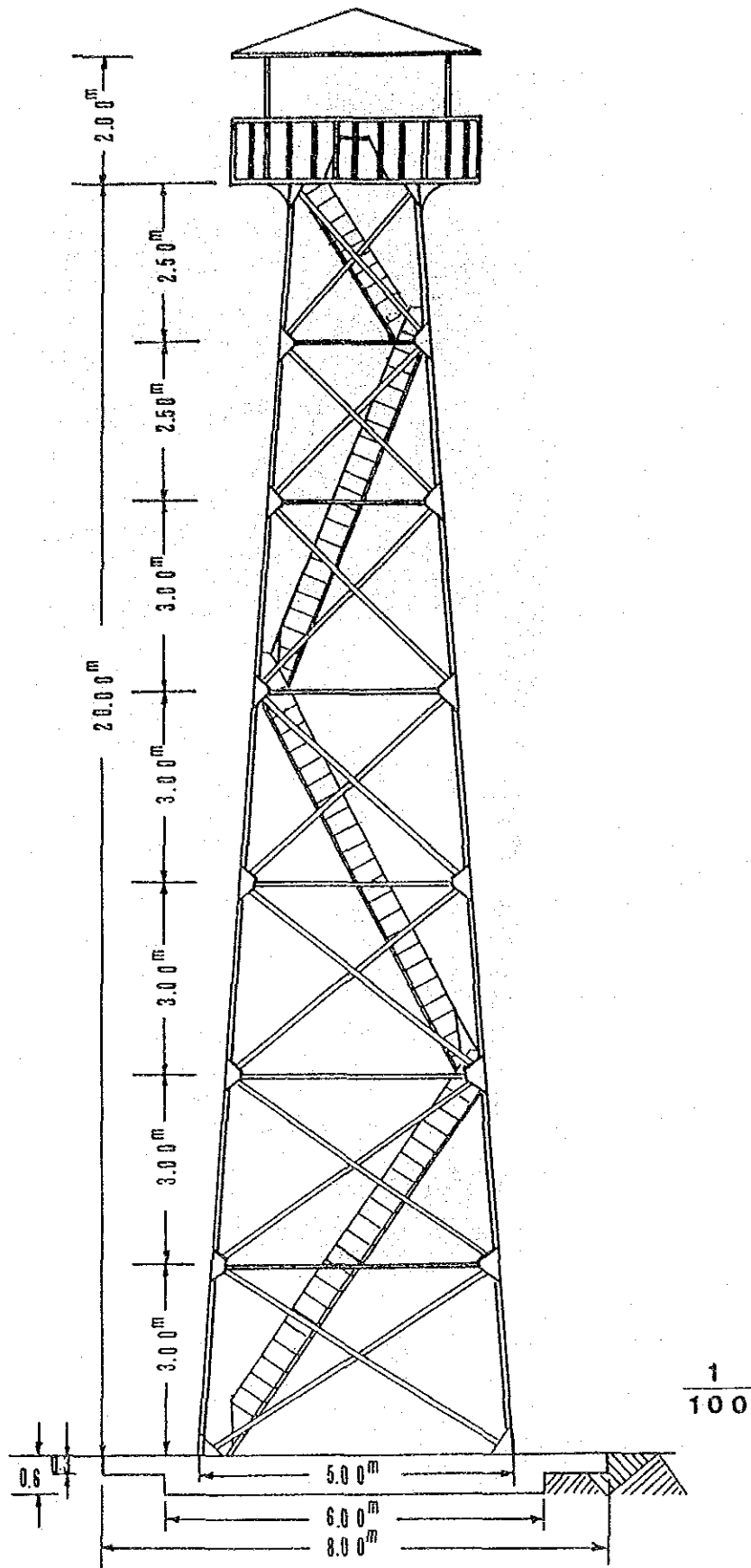
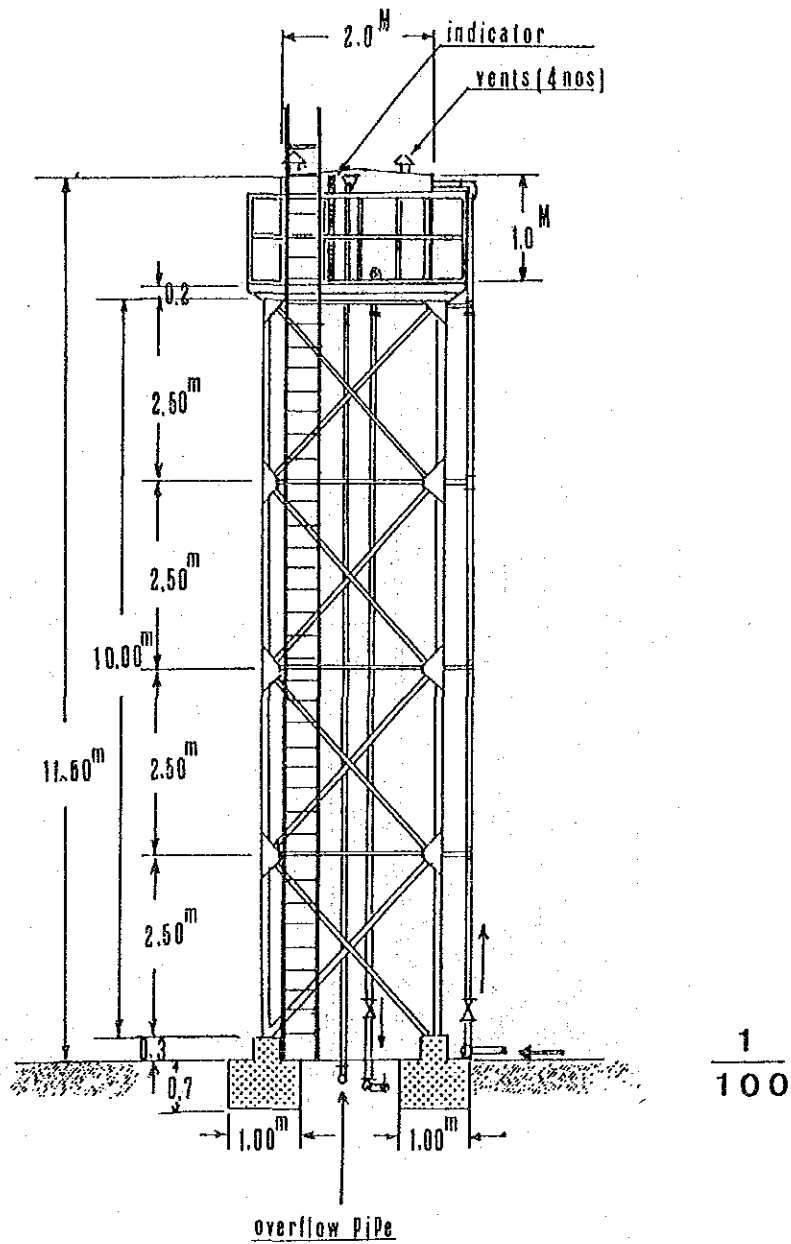


LOOKOUT TOWER



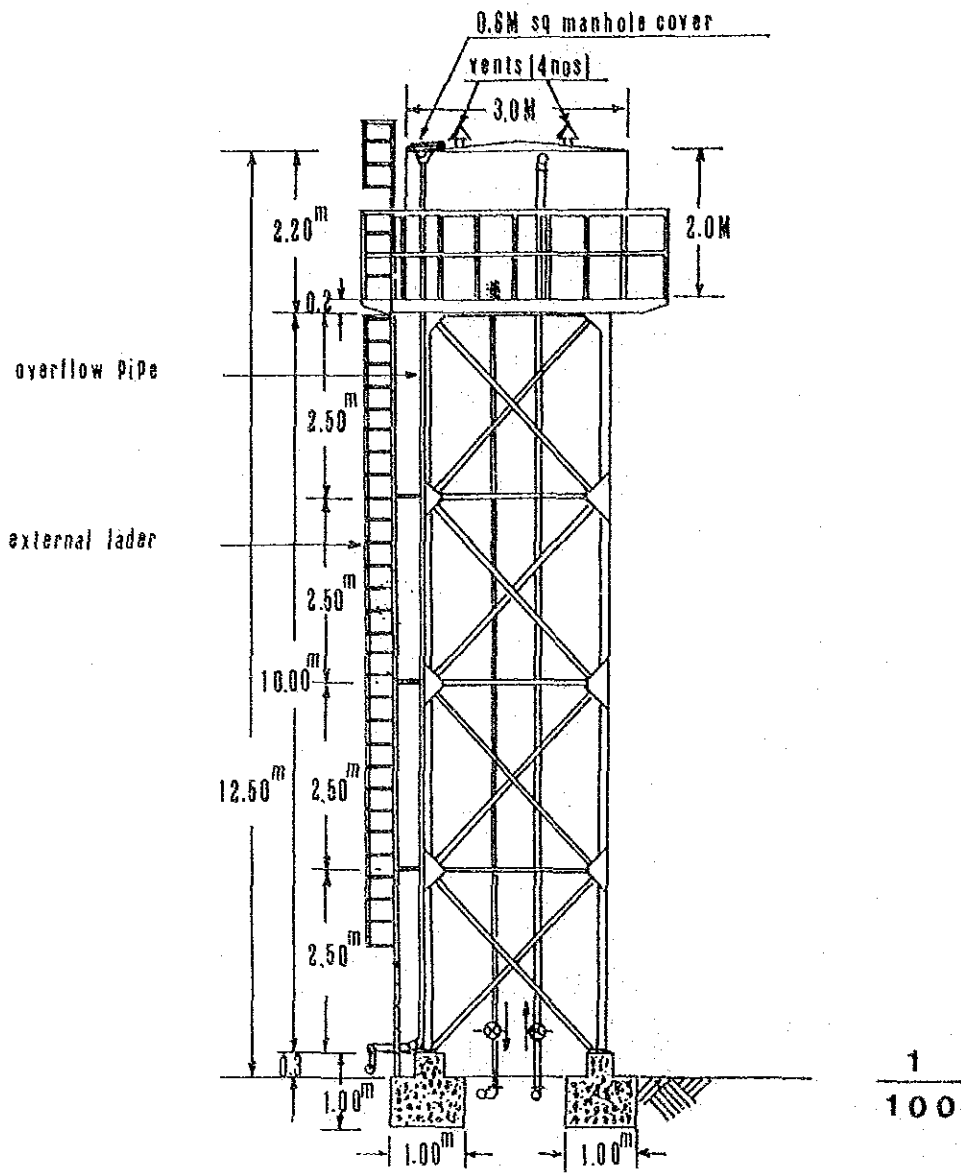
WATER TANK TOWER NO. 2

TANK CAPACITY 2 M³
TANK SIZE 2 M X 1 M X 1 M

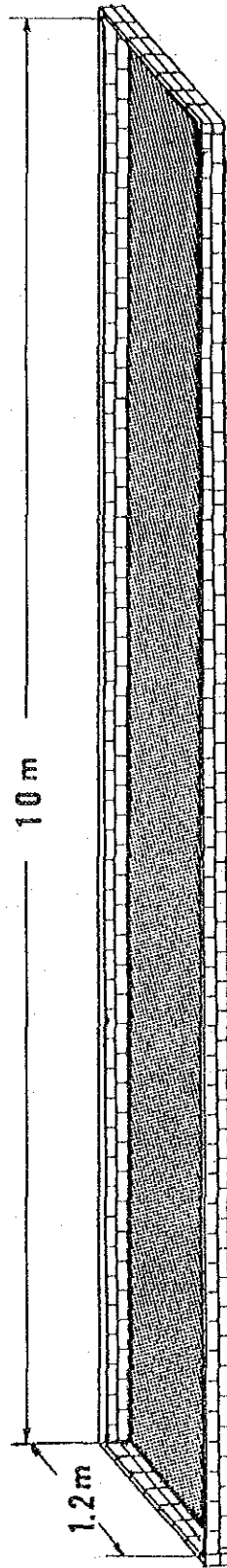
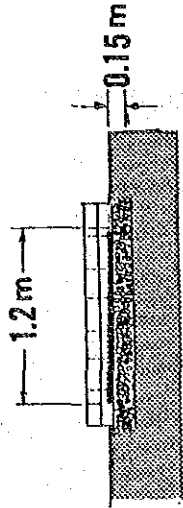


WATER TANK TOWER NO,1

TANK CAPACITY 15 M³
 TANK SIZE 3M X 2.5M X 2M



NURSERY BED



チャン苗畑 (Nursery at Chang)

面積は1.75エーカー (約0.7ha)である。

国道1号線、Bidorから東方に位置し、国道1号線から脇に入って、車で約10分の比較的近くに位置する。苗畑内には日陰樹が植えられ、散在し、適当に日陰を作っている。

ベッド数は43bedあって、1bedのsizeは14m×10mが標準で、地形上標準より小型のものもある。

育苗数は、ポットのsizeにより異なるが、大ポットで1bedで約1000本、小ポットで1bed約2000本である。従って、トータルの育苗能力は1回に、4万～8万程度である。

育苗の回転は、フタバガキ科で年1回、早生樹で、年2回である。

使用する土は、森林からのtop soilと川砂とを目的に応じて混合して使っている。

Chang苗畑には12名の従事者がおり、3名のforesterと9名のworkerの構成である。

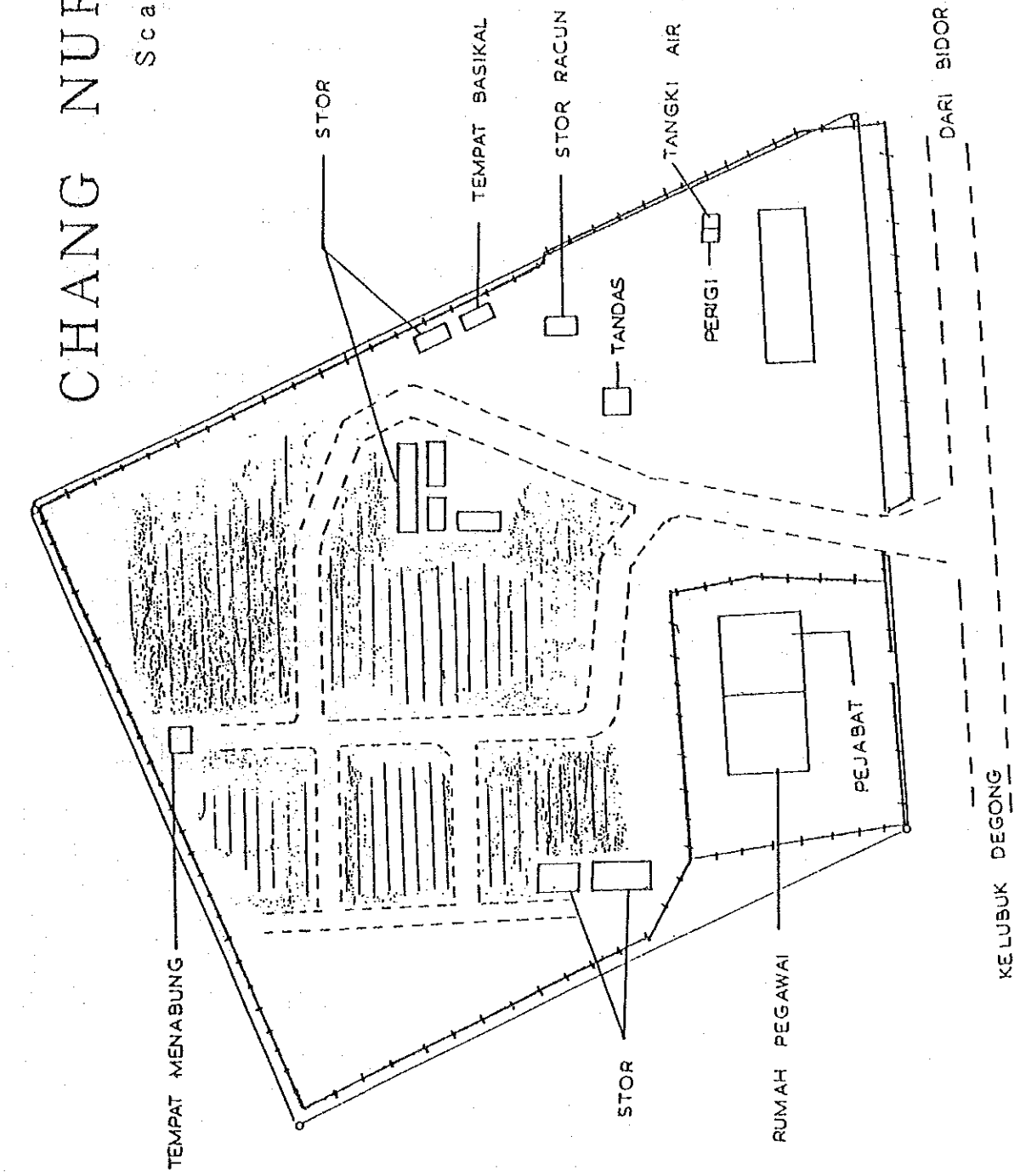
苗畑の施設は一応完備しているが、給水施設については、要改善部分もあるとされる。例例えば、水源のダムが破損を来しており、修繕を要するが、修理費は僅か (高々数万円) で可能である。また、散水は水槽から汲み取り、じょうろで散水しているが、給水塔のポンプを修理すれば水圧がかかりホースを使って散水可能となる。

特に注意しておくことは、苗木輸送時に無蓋のまま高速走行すると、空気の流れの渦も加わり、苗木の葉や芽の部分がむしられ、苗木は大きな損傷を受け、植付後も生育に大きな支障を来たすこととなる。

苗木の輸送は有蓋車又は幌カバーを完全に掛けて行うことが大切で、ここでの手抜きは絶対に行ってはならない。

CHANG NURSERY

Scale 1:600



パパン苗畑 (Nursery at Papan)

イボとバツガジャの間に位置し、イボから車で40分である。

面積は6 エーカー (約2.4ha)で、苗畑内には日陰樹が散在し、適当に日陰を作っており、在来樹種の育苗に適している。

育苗ベッドは99床あるが、地形上不揃いで大小あるが、size 1.4m×9 mのものが多い。

育苗数は公称10万本である。小型のD=7 cmのポットのみであれば15万本、中型のD=10cmのポットのみであれば8万本となり、公称10万本は、ほぼこの中間の数値であって、妥当なものと思われる。

育苗の回転は、チャン苗畑と同じで、フタバガキ科は1年と考えればよい。

使用する土も、チャン苗畑と同じで、森林からのtop soilと砂・赤土などと混ぜて使用している。

フタバガキ科の育苗には100% top soil が望ましいが、集める手間を考えると困難であろうから、肥料の併用も一つの解決方法としてある。

Papan苗畑には6名の従事者がおり、2名のforesterと4名のworkerである。苗畑の規模をfullに活用し育苗を行うためにはworkerの人数を増加させる必要がある。

育苗施設は一応完備しているが、プロジェクト用の育苗を委託するようになれば、資材運搬用のトラック1台が必要となり、またworker増加分の負担は必要となろう。

なお、苗木輸送は有蓋車が不可欠であることは、Chang 苗畑で述べた通りである。

林道について

(1) CHIKUS地区

今回の現地調査によると、晴天であるかぎり、当面の通行は可能である。

現地は、Sandy loam 質の土壌で覆われており、水はけは良好であるが、水の流れた跡が林道上のあちこちに残っており、冠水・滞水すると見られる箇所も散見された。

今後事業が開始されれば、車輛通行量が増大するとともに、雨中の通行の必要なケースもでてくることが予想される。また、橋梁部分で破壊が進行しつつある箇所もいくつか存在している。

よって結論としては、事業の円滑な遂行のためには、幹線道路は改良により、all weather road として整備保守していく必要がある。

具体的には、幹線道路8.0kmについて拡巾、側溝、横断溝、敷砂利、橋梁付替等による改良工事を行う。

(2) Bukit Kinta地区

1991年1～2月ミッションの報告によれば、「プロジェクトでは現状の地方道をそのまま使用することとし、道路の改良・付替え、橋梁の架設等を行わない。」としているが、現地は山岳地であるため、雨降の際の雨量は極めて大きなものとなること、伐出業者の作設した林道は low cost の短期間の利用しか考えていないものであること、一方、実証事業は follow-up も考えると長期の利用を条件としていくこと等により、一部幹線道路（プロジェクトのみの利用部分）については改良工事が必要である。

146林班の伐出道路の一部(1.6km)については、利用頻度が高いと予想されるが、現状は、橋梁欠壊、風倒木支障、路面崩落等があって使用できないので、改良と保守を行い、幹線道路として整備していく。

なお、アクセスロードが急勾配である点を考え、雨季を避け、乾季に施工することが是非とも必要である。

1. 林道規格

	有効巾員＋路肩巾員	側溝巾員
連絡道路	7 m	1 m
幹線道路	7	1
作業道	4	1
防火帯	6.5 + 7 + 6.5	

2. 作設する林道

	CHIKUS	BUKIT KINTA
幹線道路	8,000 m ※1 ※2	937 m ※3 1,593 ※1
防火帯	11,500	—
作業道	11,500	2,000
計	30,000	4,530

※1：既存の林道の改良による

※2：8,000のうちCHIKUS-Aにおいては見本林部分を除く1,300 m
について防火帯を設ける。防火帯の合計は12,800 mになる。

※3：現在通行可能かつ改良の要なし

3. 林道の年度別改良・新設 (km)

		年 度		9 1	9 2	9 3	9 4	9 5	合 計
CHIKUS ※1	幹線道路 A			8.0					8.0
	防火帯 A				2.5	4.7	4.3		11.5
	作業道 A				1.0	2.5	2.0	1.1	6.6
	作業道 B				1.0	1.0	1.0	0.9	3.9
	計			8.0	4.5	8.2	7.3	2.0	30.0
BUKIT KINTA ※2	幹線道路				2.5				2.5
	作業道					1.0	1.0		2.0
	計				2.5	1.0	1.0		4.5

※1：CHIKUSの幹線道路は既設の道路の改良による。また防火帯および作業道は大部分新設する。

※2：BUKIT KINTAについては、1.6kmは改良、0.9kmは公道をそのまま使用する。

林道年次別経費 (M\$)

(1) 幹線道路

		9 1	9 2	9 3	9 4	9 5	計
CHIKUS	km	8.0	-	-	-	-	8.0
	経費	147,242	-	-	-	-	147,242
BUKIT KINTA	km	-	2.5	-	-	-	2.5
	経費	-	127,012	-	-	-	127,012

(2) 防災帯・作業道 (CHIKUS)

		9 1	9 2	9 3	9 4	9 5	計
防 火 帯 作 設	km	-	2.5	4.7	4.3	-	11.5
	経費	-	1,750	3,290	3,010	-	8,050
作 業 道 作 設	km	-	2.0	3.5	3.0	2.0	10.5
	経費	-	3,400	5,950	5,100	3,400	17,850

林道保守等の作業員の賃金は(3)の林道保守で見ているので、ここには含めていない。

(3) 林道保守 2名を通年雇用し、林道保守のほか、防火帯・作業道作設などにも従事させる。

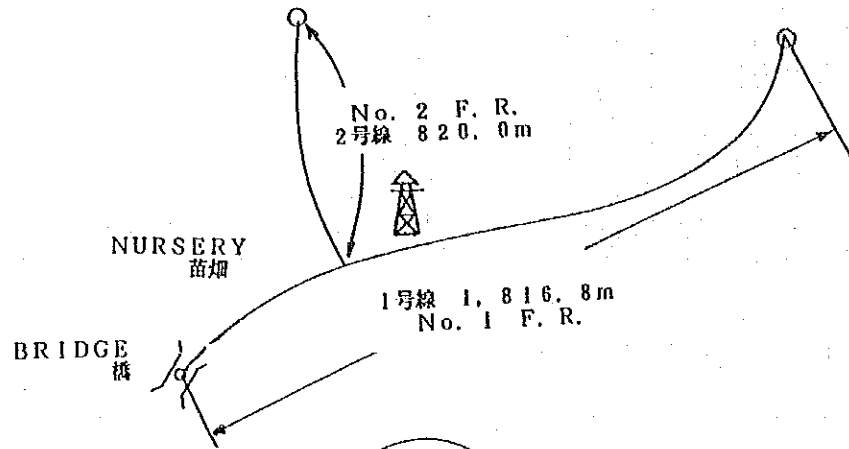
		9 1	9 2	9 3	9 4	9 5	計
労 賃		-	15,600	15,600	15,600	15,600	62,400
敷 砂 利		-	16,640	16,640	16,640	16,640	66,560

(4) 合 計

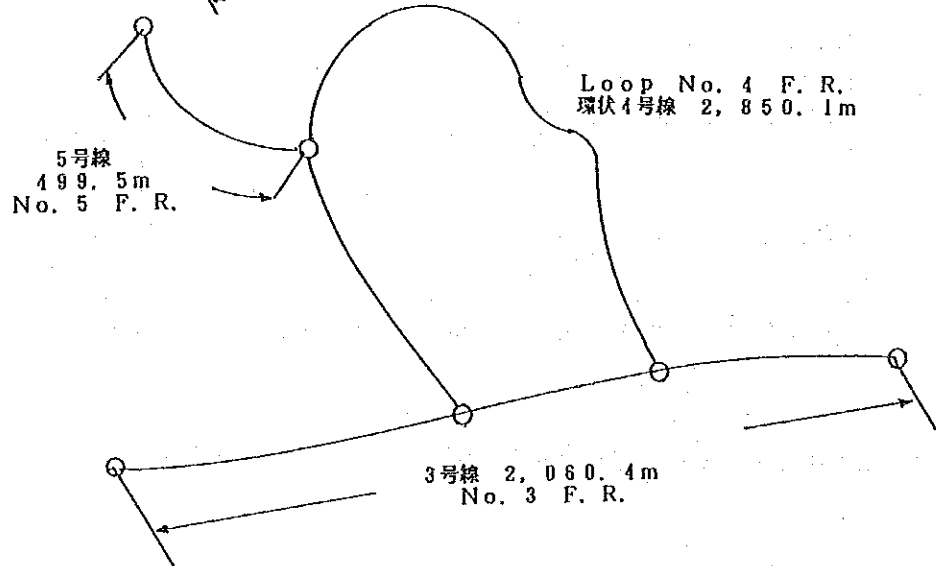
(1)~(3)計	147,242	161,342	36,125	35,760	32,580	413,049
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THE MAP OF FOREST ROADS
幹線林道配置図

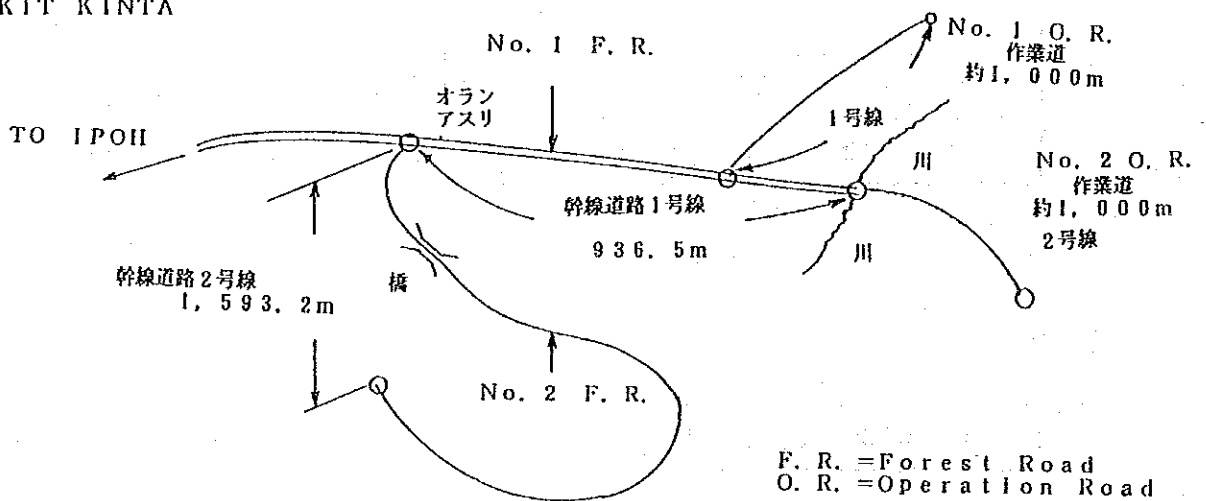
1 CHIKUS·A



2 CHIKUS·B

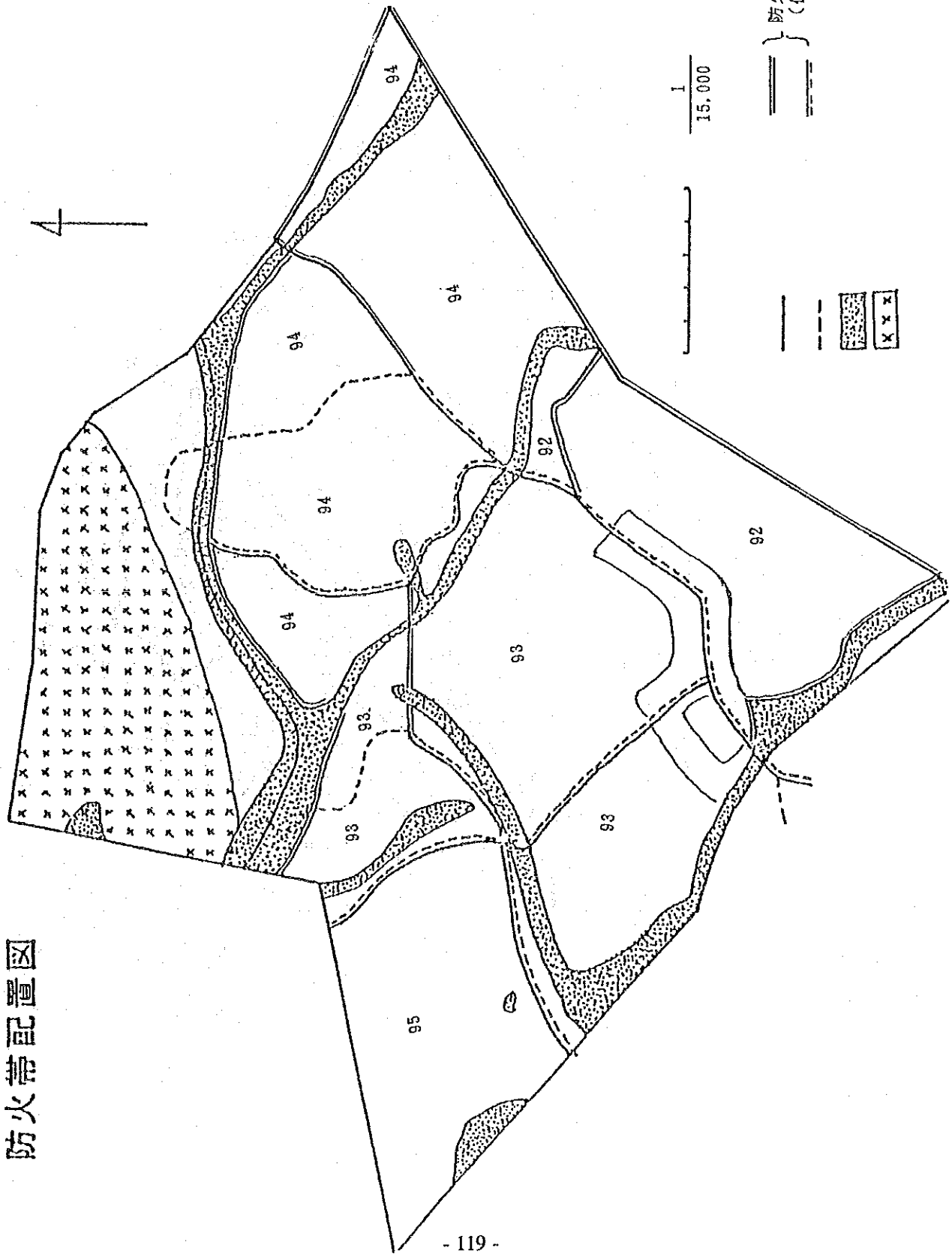


3 BUKIT KINTA

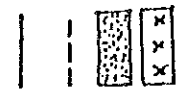


F. R. = Forest Road
O. R. = Operation Road

防火帯配置図

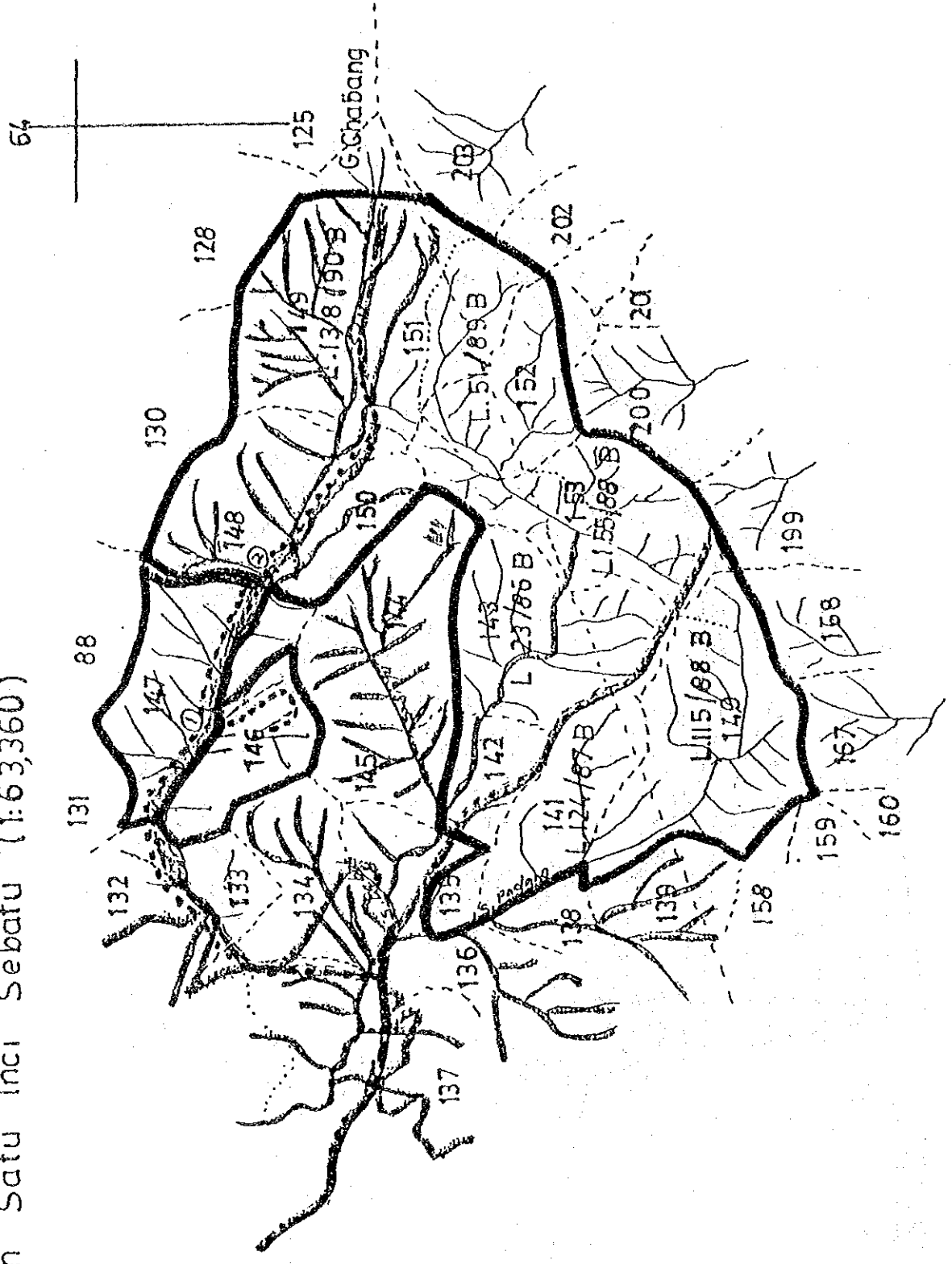


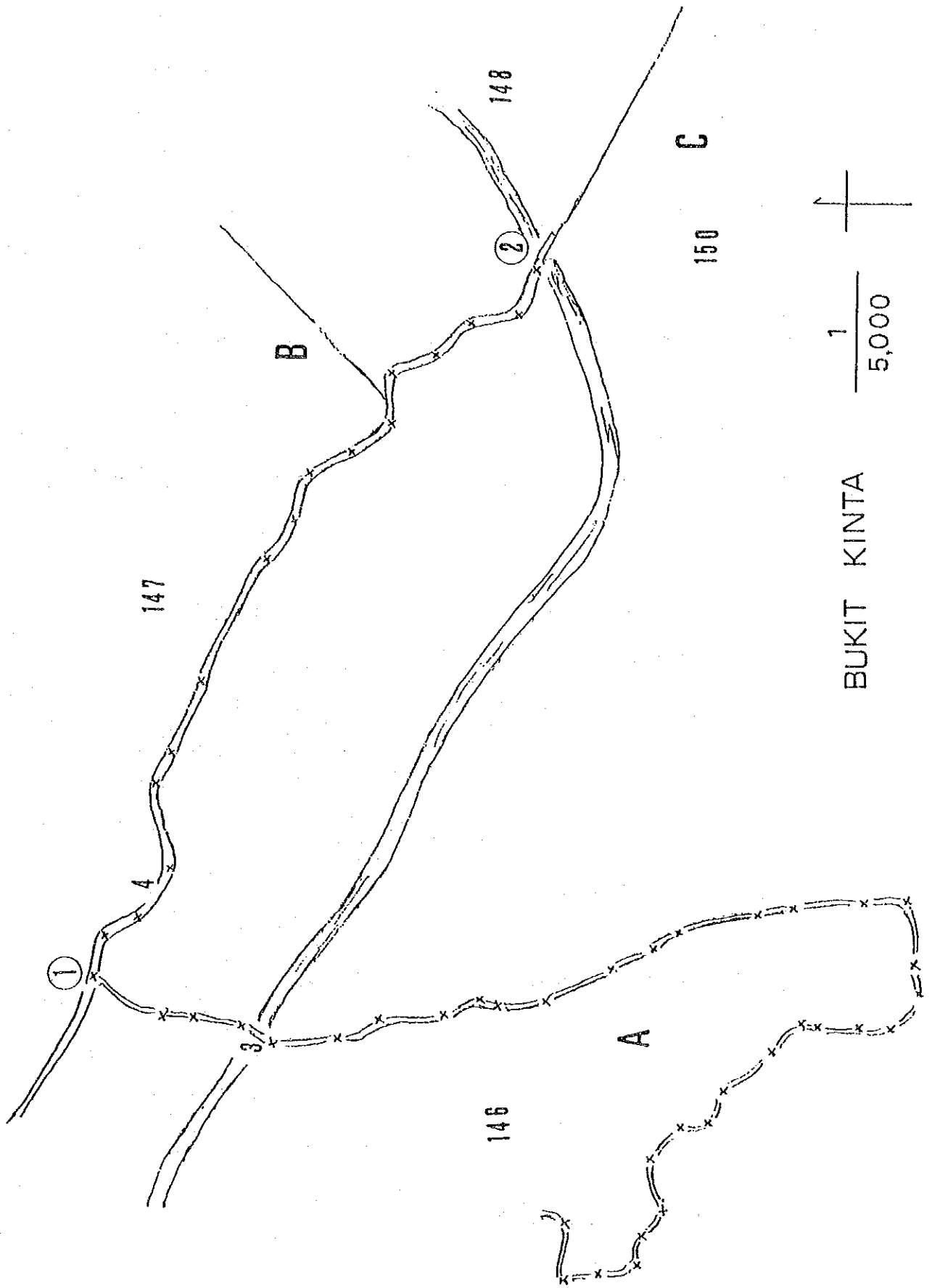
防火帯
(但見本林部分は除く)



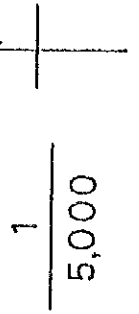
1
15,000

HUTAN SIMPAN BUKIT KINTA
 DAERAH KINTA MANJUNG
 Ukuran Satu Inchi Sebatu (1:63360)





BUKIT KINTA



林道作設単価計算

1. CHIKUSのヒューム橋

(1) 初期準備 (7日)

(2) 重機運転 (2日)

仮水路掘取 埋戻など $170 \times 2 = \underline{340M\$}$

(3) 各種土工 (4日)

掘取、敷砂利 ヒューム管敷設、埋戻など $\underline{2000M\$}$

(4) 資 材

ヒューム管 $50\text{cm} \times 5\text{m}$ 、6本 $\times 600M\$ = 3600$

砂利・砂・運賃込 $10\text{ト} \times 25 = 250$

粘 土 $20\text{ト} \times 20 = 400$

小 計 $\underline{4250}$

(5) 一般労務 $4\text{人} \times 25 \times 8\text{日} = \underline{800}$

以上の計 = $7,390M\$$

(6) 管理費、予見できない損失など $20\% = 1478M\$$

(5日)

(7) 終了時 (4日)

合 計 金 額 $\underline{8,868M\$}$

工 事 期 間 $\underline{24\text{日}}$

2. CHIKUS幹線道路

(0) 初期準備 (7日)

(1) 整地ブルドーザー運転 (8日)

工期 1km/日 運転手日給 150M\$

燃料、5M\$/ガロン×4ガロン= 20M\$

8km×170 = 1360M\$

(2) 側溝バックホー掘取 (8日うち4日は横断溝と平行実施)

工期 1km/日 8km×170 = 1360M\$

(3) 横断溝 1kmに4本作設 (1日4人で1本、32日)

8km×4×38.1M\$ = 12,192M\$

(4) 砂利・水 (44日、うち24日は敷砂利と平行実施)

砂利 トン当り30M\$ (運賃込)

$8000m \times 4m \times 0.2 \times 2 \times 0.2 \times 30M\$$

= 76,800M\$ (256台分)

砂 トン当り20M\$ (運賃込)

$8000m \times 4m \times 0.1 \times 1.5 \times 0.2 \times 20$

= 19,200M\$ (96台分)

計 352台分

(5) 敷ならし (ポップキャットも利用)

352台 → 4人で44日

4人×25M\$/人/日×44日 = 4400M\$

以上の計 = 115,312M\$

(6) 管理費 10%
 予見できない損失 5% (7日)
 利益 5%
 合計金額 $109,520 \times 1.2 = \underline{138,374M\$}$
 工事期間 84日

(7) 終了時 (5日)

3. BUKIT KINTA 橋梁建設

(1) Beginning (7 days)

(2) Operation road (2 day)

back hoe (リース) 8h $50 \times 8 = 400M\$$
 同 Driver 1日 $150 \times 1 = 150$
 fuel 1ガロン $5M\$ \times 4ガロン = 20$

 sub total 570M\$

(3) Excavation for foundation (3 days)

$3 \text{ holes} \times 1^m \times 1.22^m \times 6.7^m \times 1.5 = 36.783^{mf}$
 cost $36.783 \times 7.00MR/m^3 = 257.481 \approx 257M\$$
 back hoe $570 \times 3 \text{ day} = 1,710M\$$
 sub total 1,967M\$

(4) Piling cost (3 days)

$4 \times 22 \times 3^{\text{holes}} = 264 \text{ piece}$ (1 piece in every 30cm)
 material $264 \times 20M\$ = 5280M\$$
 piling $264 \times 25 = 6,600$
 sub total 11,880

(5) Concrete (21 days)

(1) lower $3 \times 1.22^W \times 1.0^H \times 6.7^L = 24.522 \text{ m}^3$

base Cost = $200 \text{ M\$} / \text{m}^3 \times 24.522 = 4,904.40 \text{ M\$}$

(2) upper $3 \times 0.61 \times 3.0 \times 5.5 = 30.195 \text{ m}^3$

pier Cost = $200 \times 30.195 = 6,039.00 \text{ M\$}$

sub total 10,943 M\\$

(6) Bridge decking (HHW: Heavy hard wood)

(3 days)

$150^{\text{mm}} \times 100^{\text{mm}} \times 5.5^{\text{m}} = 0.0825 \text{ m}^3$

15mでは $100 \text{ piece} \times 1.05^{\text{枚}} \times 0.0825 = 8.663 \text{ m}^3$

$1 \text{ m}^3 = 1.1 \text{ ton}$

$8.663 \times 1.1 \times 2000 \text{ M\$} / \text{ton} = \underline{19.059 \text{ M\$}}$

(7) Cost of bridging logs (3 days)

$\phi = 60 \text{ cm}$ Length: 7.0m 8 pieces

Volume of logs

$\pi \times 0.3^2 \times 7 \text{ m} \times 8 = 15.826 \times 1.2^{\text{loss}} = 18.991 \text{ m}^3$

$18.991 \times 1.1 \text{ ton} / \text{m}^3 \times 500 \text{ M\$} = \underline{10.445 \text{ M\$}}$

(8) Covering (3 days)

(1) Earth cover

平均 m 厚 $5.0 \times 0.5 \times 15^{\text{長}} = 37.5 \text{ m}^3$

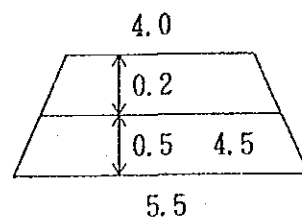
$37.5 \times 24 \text{ M\$} / \text{m}^3 = 900 \text{ M\$}$ (運賃込)

(2) Gravel cover

$4.2 \times 0.2 \times 15 = 12.6$

$12.6 \times 36 \text{ M\$} / \text{m}^3 = 454 \text{ M\$}$

sub total 1,354 M\\$



(9) Labor cost
 carpenter $1 \times 45M\$ \times 10 \text{ day} = 450$
 General laborer $4 \times 25 \times 46 = 4,600$ } 5,050M\$

(1)~(9) Total 61,268M\$

(10) Beginning Cost
 (11) Sign board Housing } 10%
 Insurance etc
 (12) Unexpected cost }
 (Rain, accident, ...) } 10% (15 days)
 (13) Finishing cost others

(1)~(9) Total $61,268 \times 1.2 = 73,522M\$$

60日

4. BUKIT KINTA 林道改良

(1) 初期準備

(2) 倒木除去 (1600m)

チェーンソーマン 50M\$
 (ソー持ち) } 1日当
 ガソリン 1ガロン 5 } $130M\$ \times 2 \text{ 日} = 260M\$$
 一般労働者 25 × 3人

(3) ブルドーザー整地 (崩壊除去など) 4日で1600m

ブル、運転手、燃料込 $570M\$ / \text{日} \times 4 \text{ 日} = \underline{2280M\$}$

(4) 側溝掘り 2日で1600m

ガックホラ $570 \times 2 = \underline{1140M\$}$

(5) 横断工 10ヶ所 $381M\$ \times 10 = \underline{3,810M\$}$

(6) 砂利敷 近い方を中心に 800mについて (残800はブル整地のまゝ使う)

$800m \times 4m \times 0.2 \times 2$

1280ト (ダンプ128台分) 比重

$1280ト \times 35M\$ / ト = 44,800M\$$

平均まきつけ 3人で16日

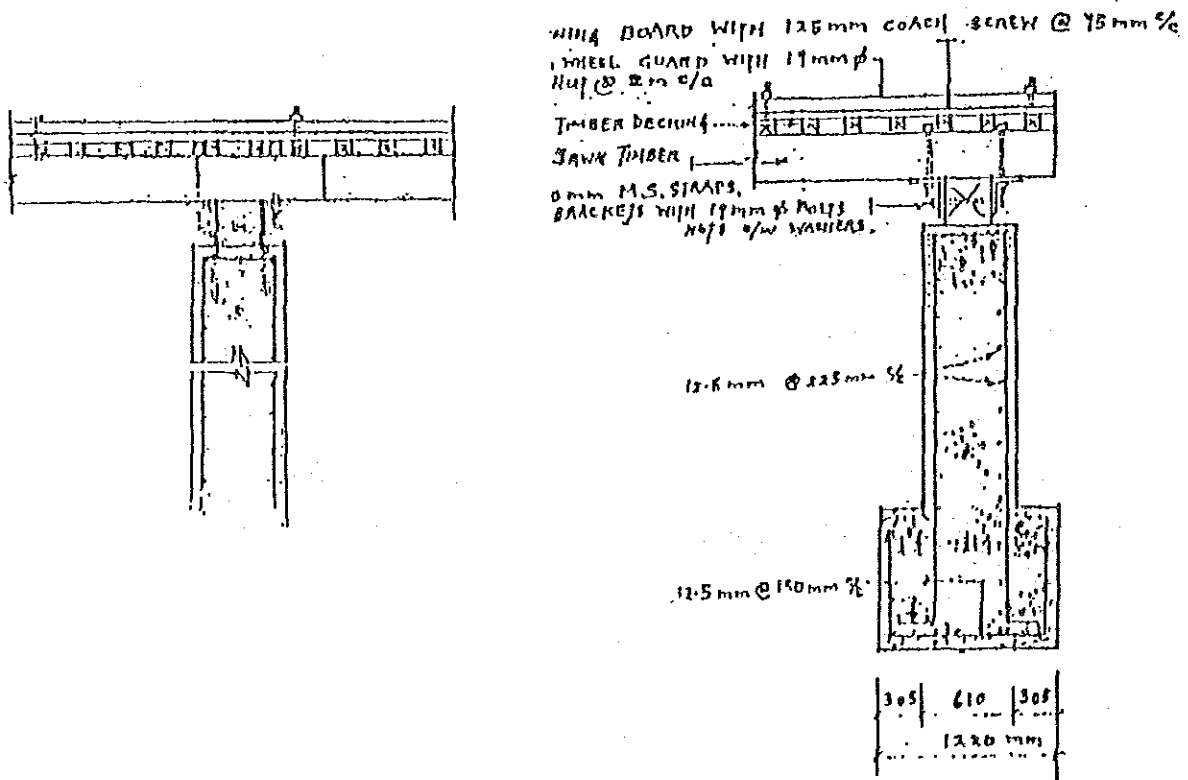
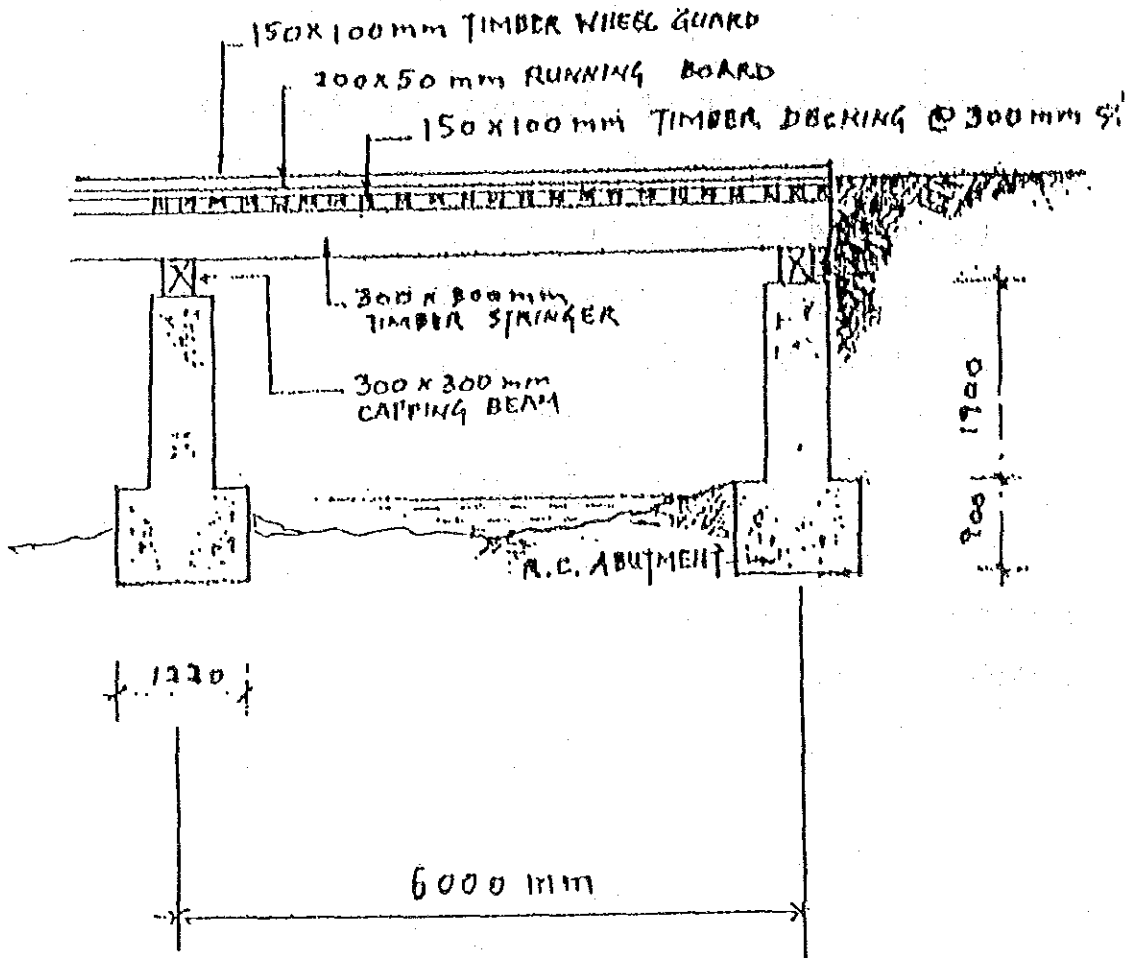
$3人 \times 25 \times 16日 = 1,200$

小 計 $\underline{46,000M\$}$

Total 53,490M\$

工事期間 52日

BUKIT KINTA BRIDGE EXAMPLE



防火帯作設費

ブル運転手	1日 150M\$、功程 20m巾250m→	4日 600M\$/km
ブル燃料	4ガロン×5MR/ガロン	→ 4日 80M\$/km
1人分ブッシュカッター燃料	1ガロン×5MR	→ 5
1人で13m巾250m		→ 4人分
		} 20M\$/km
計		700MR/km

労賃は計上せず（林道保守、一般作業の人が担当する）

作業道作設費

ブルドーザー	1日 1km
	150×1 = 150MR/km
ブル燃料	1日4ガロン×5 = 20
	170MR/km

（労賃は計上せず）

横断溝1本のcost

(1) 材 料

$$\text{土止め} \quad \pi \times 0.04^2 \times \frac{60 \text{本}}{8} \times 2 \times 5.5 \times 1.2 \times 300 \text{M\$} = 149 \text{M\$}$$

$$\text{フタ} \quad 0.04 \times 0.5 \times 5.5 \times 1.2 \times 1000 \text{M\$} = 132 \text{M\$}$$

工事代	溝掘	2人×1日	} 2人×2日×25 = 100M\$
	木材工作	2人×0.5日	
	据付	2人×0.25日	
	埋戻	2人×0.25日	

計 381M\$

1本4人で1日

林道保守労務費

2名を通年雇用し、林道保守に当らせる。

防火帯作成、作業道作成、敷砂利、一般作業に当らせる。防火帯作成のときは造林又は育苗からも若干人を廻す。

$$\begin{array}{c} \text{月給} \quad \text{月} \quad \text{名} \\ \text{MS}600 \times 13 \times 2 = \underline{15,600} \end{array}$$

敷 砂 利

BUKIT KINTA

各年 1600mの2割、10cm厚

$$\begin{array}{c} \text{m} \quad 20\% \quad \text{巾} \quad \text{厚} \quad \text{比重} \quad \text{ト} \\ 1600 \times 0.2 \times 4 \times 0.1 \times 2 = 256 \quad 256 \times 35\text{M}\$ = \underline{8960} \end{array}$$

労務CHIKUSの労務所者の出張によるため、こちらでは計上せず（管理費から出張旅費支給）

CHIKUS

各年 8000mの2割、10cm厚

$$8000 \times 0.2 \times 4 \times 0.1 \times 2 = 256 \text{ トン}$$

$$256 \times 30\text{M}\$ = \underline{7680}$$

Total 16,640M\\$/年

CONSTRUCTION SCHEDULE

0 10 20 30 40 50

←→ Beginning

←→ Bulldozer, Working

←→ Filling back

←→ Unexpected

←→ Ending

CHIKUS BRIDGE

(25 m, 24 days)

0 10 20 30 40 50 60 70 80 90

←→ Beginning

←→ Bulldozer

←→ Side ditch

←→ Culverts

←→ Gravel cover

←→ Unexpected

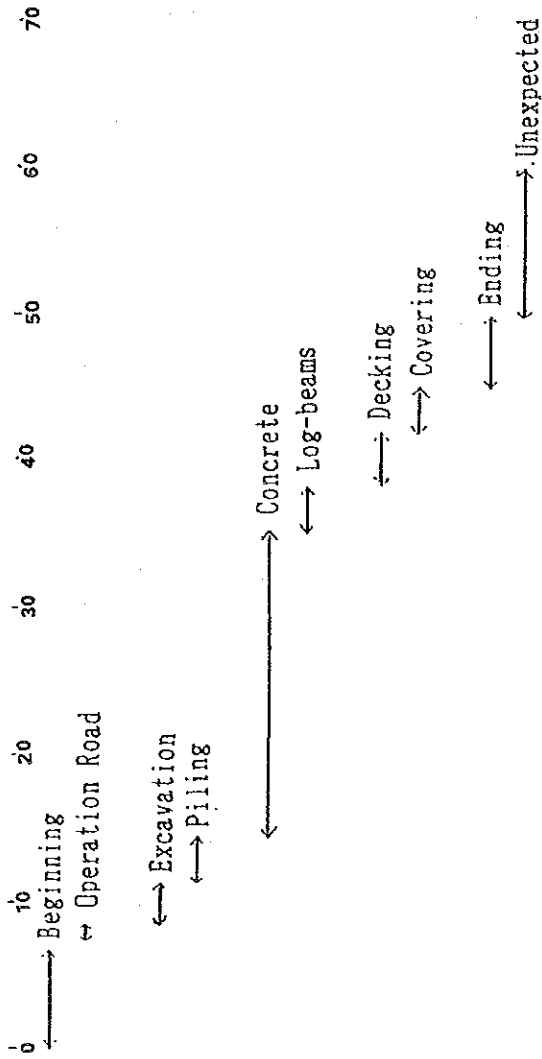
←→ Ending

MAIN FOREST ROAD

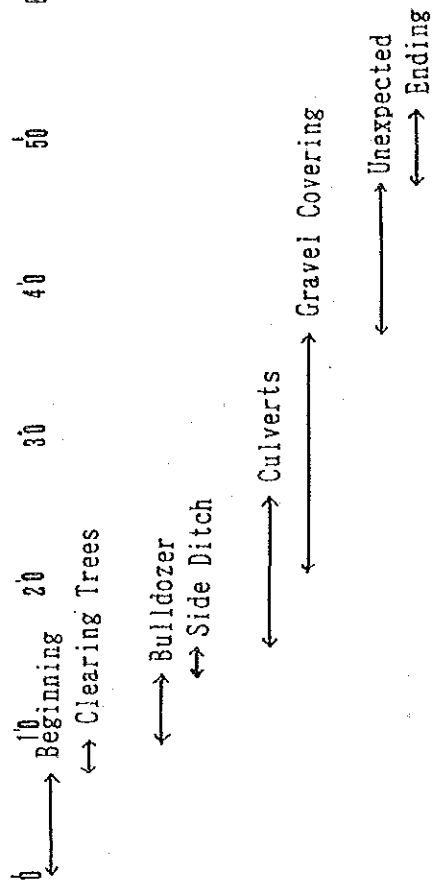
(8 Km, 84 days)

CONSTRUCTION SCHEDULE

BRIDGE AT BUKIT KINTA (Length 15m, 60 days)



FOREST ROAD IMPROVEMENT (1.6 Km, 52 days)



経費総括表

(単位 千円)

項目	91	92	93	94	95	96	計
機材	主として1, 2年次に購入						121,585
同上パーツ, アタッチメント	機材の20%を見ておく						24,317
育苗	—	4,020	6,150	7,665	4,920	450	23,205
造林	—	6,000	8,940	10,860	7,800	900	34,500
建築・工事等							
Bukit Kinta	—	2,108	—	—	—	—	2,108
Bidor, Chikus	主として1, 2年次に使用						42,411
同上苗畑整地	—	600	—	—	—	—	600
同上苗床・日覆	—	2,386	—	—	—	—	2,386
林道・橋梁	7,362	8,067	1,806	1,788	1,629	—	20,652
管理費	11,040	33,120	33,120	33,120	33,120	22,080	165,600
初期備品等	10,000	10,000	—	—	—	—	20,000
合計							457,364

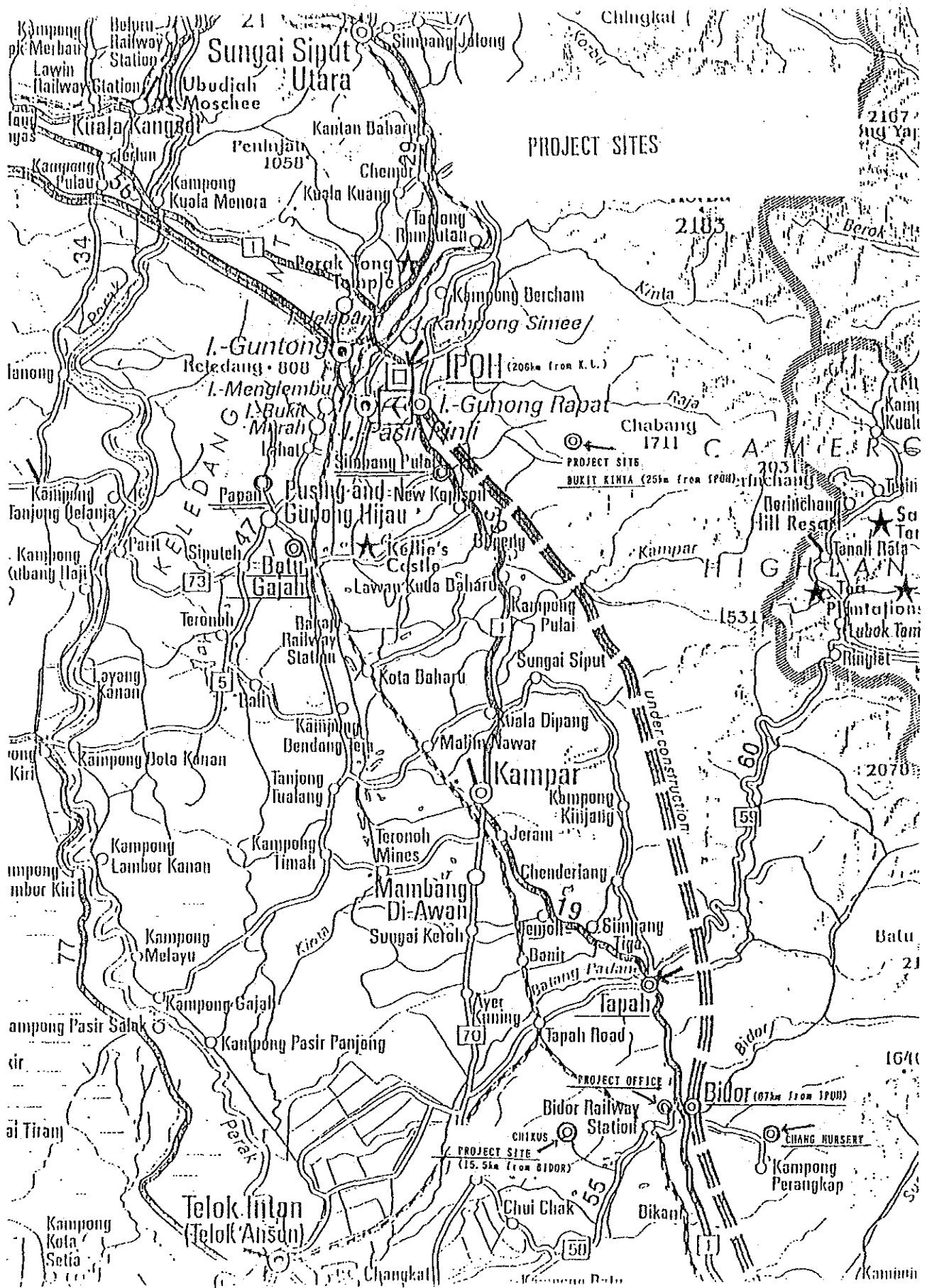
価格調査

品名	単位等	価格 M\$	備考
冷蔵庫	ナショナル NL-A18	861.00	single door
冷蔵庫	NR-B18	1,010.00	double door
電気掃除機	MC-4700	390.00	
電気釜	SR-28GR	131.00	rice cooker
洗濯機	NA・F20Y111	1,059.00	
電子レンジ	Dimension-4	1,999.00	microwave range
テレビ	TC-21TX	1,810.00	
ビデオ	NV-A1EN	1,000.00	
電気湯沸器	SK-H1	69.00	electric kettle
EIBA (ガラス)	H-68	1,122.00	
自転車		160 ~ 200	
タイプライター		1,000.00	
応接セット	8点セット	2,500 ~ 5,000	
食卓 (木製)	4人用	500 ~ 700	
食卓 (木製)	4人用	600 ~ 1,000	椅子付
カーペット		2 ~ 5	1ft ² 当たり1m ² =10.76ft ²
会議机	6人用	約 1,000	合板トップ
会議机	6人用	1,000 ~ 2,000	ムク材
書類ロッカー		250 ~ 300	3段ひきだし
ダブルベッド	1	150 ~ 200	木製
同上用マットレス	1	約 200	3 X 6
同上用シーツ	1	30 ~ 50	
バスタオル	1	15 ~ 20	

1 M\$ = 50円

品名	単位等	価格 M\$	備考
半袖シャツ	1	15~ 30	
長袖シャツ	1	約40	
魔法ビン	1	30	11入り
水筒	1	10	
やかん	1	30	1.5l
皿(大)	1	10~ 20	
皿(中)	1	3~ 5	
皿(小)	1	1~ 2	

The Summary of the Study
on
The Multi-storied Forest Management Project
in Malaysia



Summarrized Report of the Detailed Working Plan on the Multi-storied Forest Management Project(Annual Implemntation Plan, Machineries & Equipment and Estimated Expenditure for Nursery and Plantation Activities)

I. Working area.

One of the working area of the project is Chikus working area under the South Perak District Forest Office, and the other is Bukit Kinta working area under the Kinta Manjung Forest Office.

1. Location of Chikus working area is showned in Fig.1. The working area is devided into two areas, that is to say, A-block and B-block as show-
ned in Fig.1.

1) The detailed map of A-block is showned in Fig.2. The signs(A-1, A-2, A-3, A-4, A-5, A-6, A-7, A-8, A-9) are the sub-block of A-block. The annual working area of the project are showned as 1992-1996 in the map. And also the location of the nursery, model plantation and watching tower are showned in the map.

2) The detailed map of B-block is showned in Fig.3. The signs(B-1, B-2, B-3, B-4, B-5) are the sub-block of B-block. The annual working area of the project are showned as 1992-1995 in the map.

3) The operation types of the planting are showned in Fig.4. At A-block, the type of planting to establish the multi-storied plantation are 5 types, that is to say, a(1 row x 1 row), b(2 rows x 2 rows), c(4 rows x 4 rows), d(8 rows x 8 rows), and e(16 rows x 16 rows). The distance of the row is 3.7m. In the map, sign x indicates the planting position of high quality useful tree species such as Tectona grandis and Dipterocarpaceae species, and sign . is the planting position of fast growing species such as Acacia mangium. However, B-block is covered mainly with Acacia mangium planted in 1989, x in B-block means the felling location of planted Acacia and these positions are replanted with the high quality useful tree species.

2. Location of Buki Kinta working area is showned in Fig.5. The signs(146, 147, 148, 150) are the compartment number of the forest.

The model of operation plan at 146 compartment is showned in Fig.6.

The types of enrichment planting is showned in Fig.7. The type is devided into 5 types. that is to say, D-a, D-b, D-c, D-d and D-e. The types of D-a-d are the square planting with the distance of 3m on the small open area of 5m x 5m, 10m x 10m, 20m x 20m, 40m x 40m. The type of D-e is ordinal line planting.

II. Annual working plan of the project.

The annual working plan is devided into plan for plantation and nursery.

1. Annual warking plan for plantation is as follows:

Year	(ha)					Total
	1992	1993	1994	1995	1996	
A Chikus A-block	50	80	100	50	-	280
B Chikus B-block	50	50	50	50	-	200
C Chikus demonstration forest	-	10	10	-	-	20
D Bukit Kinta	-	60	140	200	100	500
		(6)	(14)	(20)	(10)	(50)
Total	100	200	300	300	100	1,000
		(6)	(14)	(20)	(10)	(50)

() is the area where is actually planted in natural forest.

2. Annual production plan for seedlings is as follows:

Year	(1,000 seedlings)					Total
	1992	1993	1994	1995	1996	
A Chikus A-block						
Fast gorwing species	28	45	56	28	-	157
High quality species	24	37	47	24	-	132
Total	52	82	103	52	-	289
B Chikus B-block						
Fast gorwing species	-	-	-	-	-	-
High quality species	24	24	24	24	-	96
Total	24	24	24	24	-	96
C Chikus demonstration forest						

Fast growing species	-	5	-	-	-	5
High quality species	-	6	11	-	-	17
Total	-	11	11	-	-	22
Chikus area total						
Fast growing species	28	50	56	28	-	162
High quality species	48	68	82	48	-	246
Total	76	117	138	76	-	408
D Bukit kinta						
Fast growing species	-	-	-	-	-	-
High quality species	-	4	9	12	6	31
Total	-	4	9	12	6	31
Total						
Fast growing species	28	50	56	28	-	162
High quality species	48	71	91	60	6	276
Total	76	121	147	88	6	438

III. Necessary machinery and equipment.

1. For project office.

- 1) Vehicle serve both for goods and persons (TOYOTA Landcruiser II) : 1.
- 2) Four wheeldrive pick-up (MITUBISHI Pajero) : 5.
- 3) Mini-bus (TOYOTA Hiace, 12 passengers) : 1.
- 4) Copying machine (TOSHIBA BD-5910 Turbo) : 2.
- 5) Others.

2. For Chikus working area (for plantation and nursery).

- 1) Multi-purpose loader (Bobcat 853 & attachment) : 1.
- 2) Excavator (10 ton class, KATO H-880SE11) : 1.
- 3) Cargo truck (maximum carrying capacity 4 ton, ISUZU) : 1.
- 4) Tractor with disk plough and harrow (for nursery bed cultivation, KUBOTA 355) : 1.
- 5) Soil sieving machine (3 siebs 50mm, 25mm, 5mm, container and pans) : 1.
- 6) Concrete mixer (0.25m³, KUBOTA) : 1.
- 7) Chainsaw (STHIL OGU Anti Vibration, 24 inch) : 10.

- 8) Bushcutter (STHIL FR106): 10.
- 9) Tank sprayer (ISUZU): 2.
- 10) Pumping up water pump (6HP KUBOTA): 2.
- 11) Diesel generator (KUBOTA CV1160-16Kva): 1.
- 12) Meteorological observation instrument (KOMATSU rainfall 7-day recording rainguage, HIFJATSU thermohydrograph, Weathertronic wind vane, CASHELLA campell stroke sunshine recorder and etc.): 1 set.

13) Portable telephone (ATUR 450 DENKO): 1.

14) Car washing machine: 2.

3. For Bukit kinta working area.

1) Bulldozer (13 ton class, KUBOTA D70LE): 1.

2) Back hoe (10 ton class, HITACHI 100M): 1.

3) Fork lift (MITSUBISHI, FG30/FD30, 2,3ton): 1.

4) Cargo truck (maximum carrying capacity 4 ton, ISUZU): 1.

5) Vehicle serve both for goods and persons (TOYOTA Landcruiser II): 2.

6) Bushcutter (STHIL FR106): 10.

7) Pumping up water pump (6HP KUBOTA): 1.

8) Gasoline generator (3KVA, 220V, KUBOTA): 1.

9) Surveying instrument (Pentax digital electronic theodolite THE10D, Electronic distance measure MD 10 20 EDM, Dumpy level Pentax AL6B, Prismatic compass, KOZUMI computerised plainmeter, Aluminium levelling staff, Metal ranging pole, Pantograph TAKIDA 8000mm and etc.): 1 set.

10) Meteorological observation instrument (same as Chikus): 1 set.

11) Portable telephone (ATUR 450 DENKO): 1.

4. For forest fire protection.

1) Cargo truck (ISUZU): 1.

2) Tank for water: 4.

3) Carrying fire pump (FUJI Robin): 2.

4) Jet water shooter: 40.

5) Portable telephone (ATUR 450 DENKO): 1.

5. For seedling transportation.

1) Container (folding): 100.

- 2) Conveyor (roller, SANKI S-CON): 10.
- 3) Trolley (one wheel or two wheels): 50.
6. Tools for adjustment of machineries and carpenter: 1 set.
7. Tools for nursery.
 - 1) Hoe 100, scoop 50, shears 20 and others.
 - 2) Poly bag for growing seedlings: 5,000kg.
 - 3) Shading net for growing seedling: 50 roles.
8. For seed storage and germination.
 - 1) Refrigerator (TOSHIBA): 4.
 - 2) Poly bottle for seed storage: 100.
 - 3) Sheet for seed drying: 50.
9. Measuring tools for investigation.
 - 1) Measuring tape: 50.
 - 2) Balances: 1 set.
 - 3) Tools for measuring tree diameter and height: 10 set.
 - 4) Binocular (20 times, Infra red): 10.
10. Tool for research.
 - 1) Light intensity meter (MINORUTA, portable): 4.
 - 2) Transceiver (SONY, ICB 61D): 4.
11. Others:

Necessary amount of estimated expenditure for machinery and equipment is around 2,400,000M\$ (¥120,000,000).

VI. Necessary annual amount of estimated expenditure for nursery and plantation activity.

1. Necessary annual amount of estimated expenditure for nursery.

(1,000M\$)

Year	1992	1993	1994	1995	1996	Total
Chikus						
Fast growing species	8.4	15.0	16.8	8.4	-	48.6
High quality species	72.0	102.0	123.0	72.0	-	369.0
Total	80.4	117.0	139.8	80.4	-	417.6

Bukit Kinta						
High quality species	-	6.0	13.5	18.0	9.0	46.5
Total						
Fast growing species	8.4	15.0	16.8	8.4	-	48.6
High quality species	72.0	108.0	136.5	90.0	9.0	415.5
Total	80.4	123.0	153.3	98.4	9.0	464.1

2. Necessary annual amount of estimated expenditure for plantation.

(1,000M\$)

Year	1992	1993	1994	1995	1996	Total
Chikus working area	120.0	168.0	192.0	120.0	-	600.0
Bukit kinta working area	-	10.8	25.2	36.0	18.0	90.0
Total	120.0	178.8	217.2	156.0	18.0	690.0

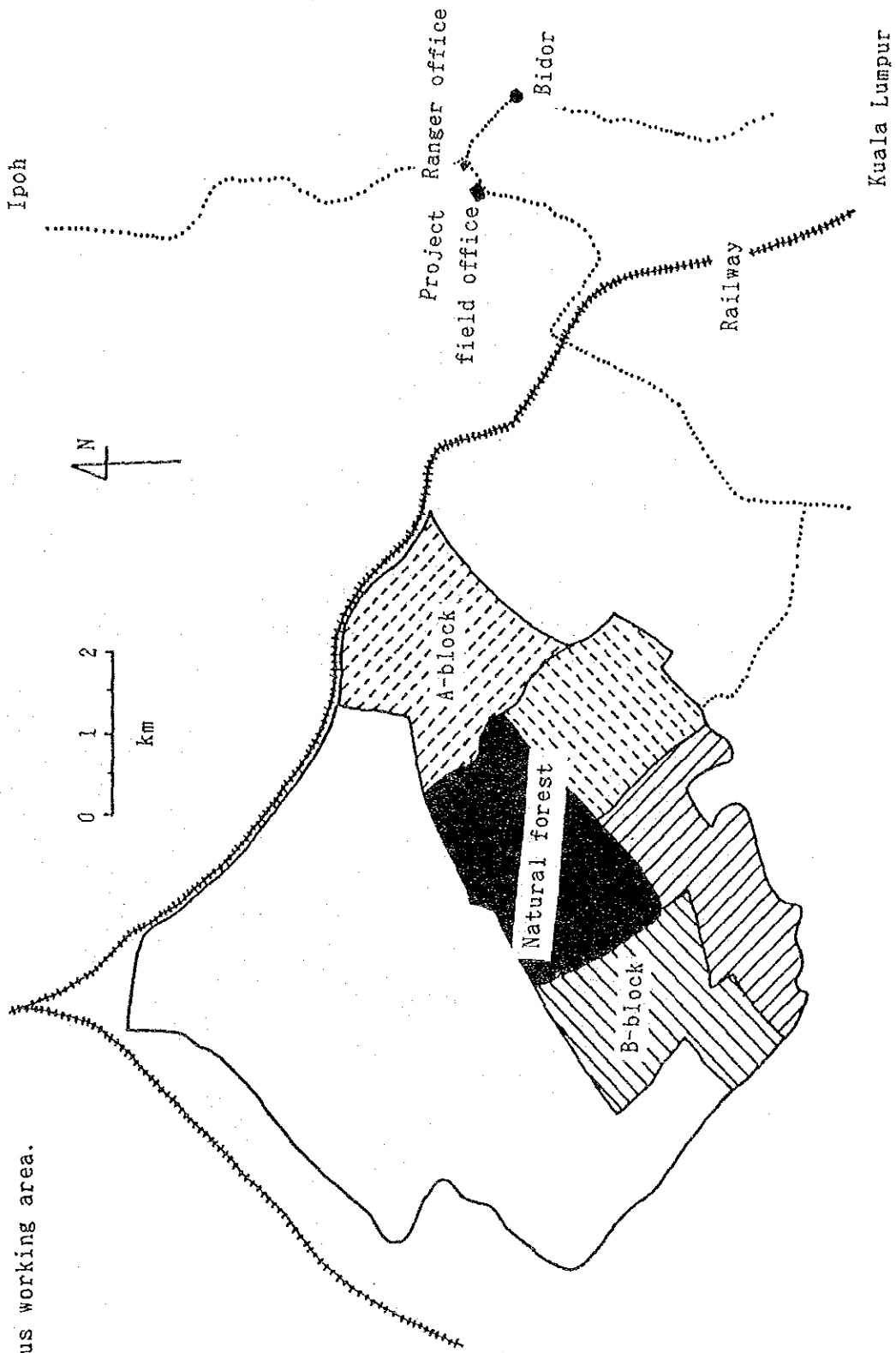


Fig.1. Chikus working area.

Fig. 2. Sub-block and annual working area at A-block.

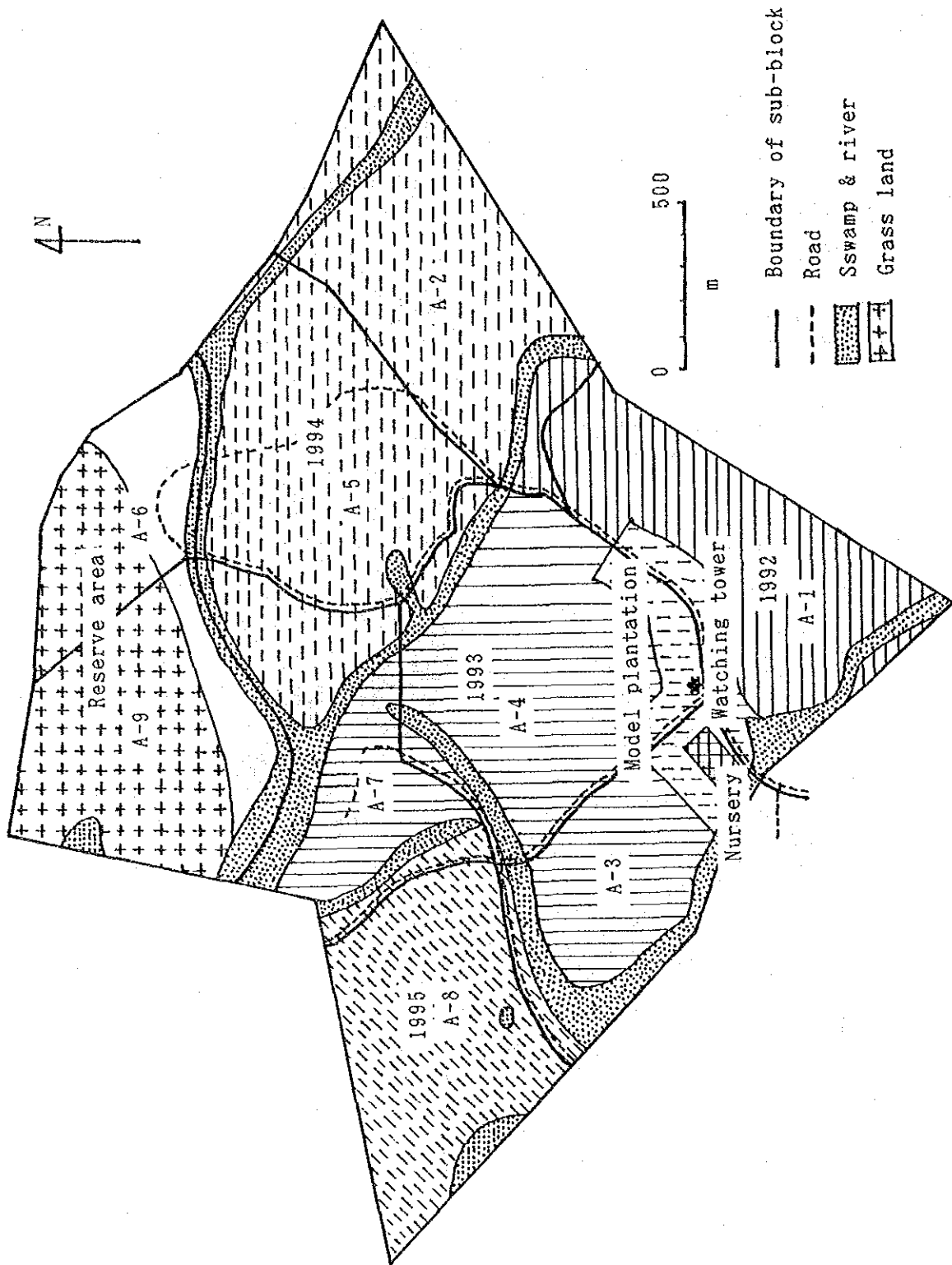


Fig. 3. Sub-block and annual working area at B-block.

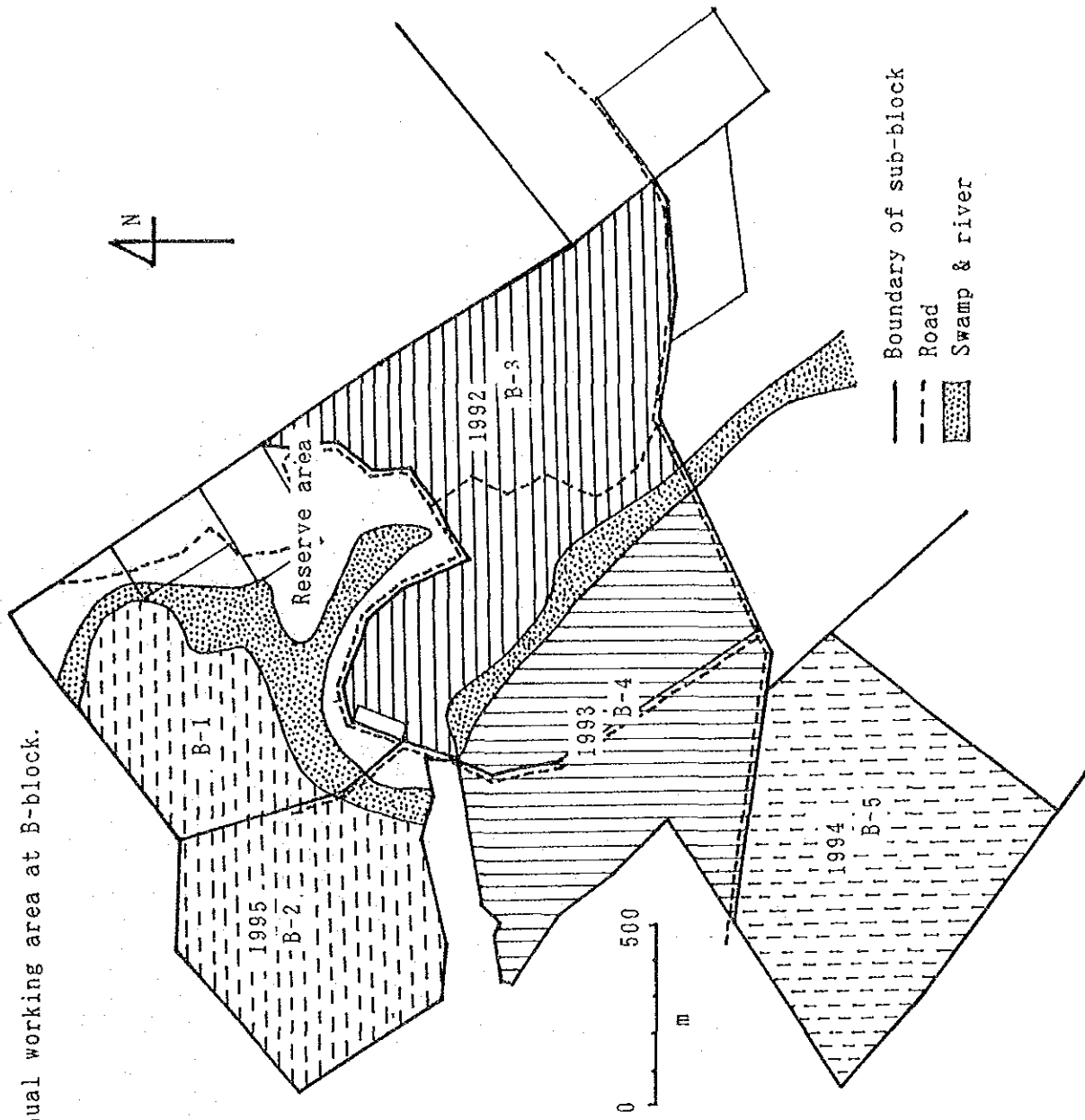


Fig. 4. Operation type of planting at Chikus working area.

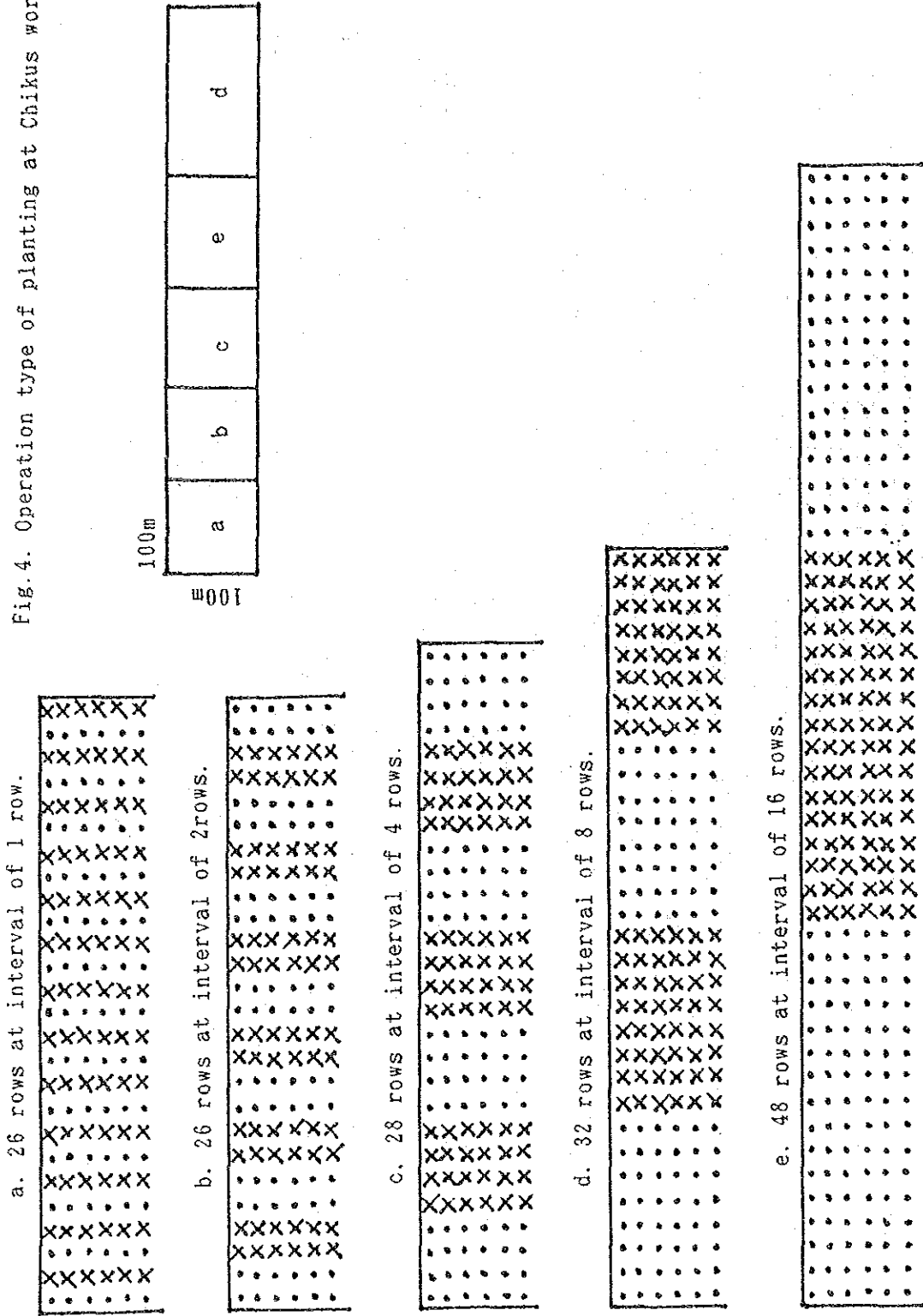


Fig.5. Bukit kinta working area.

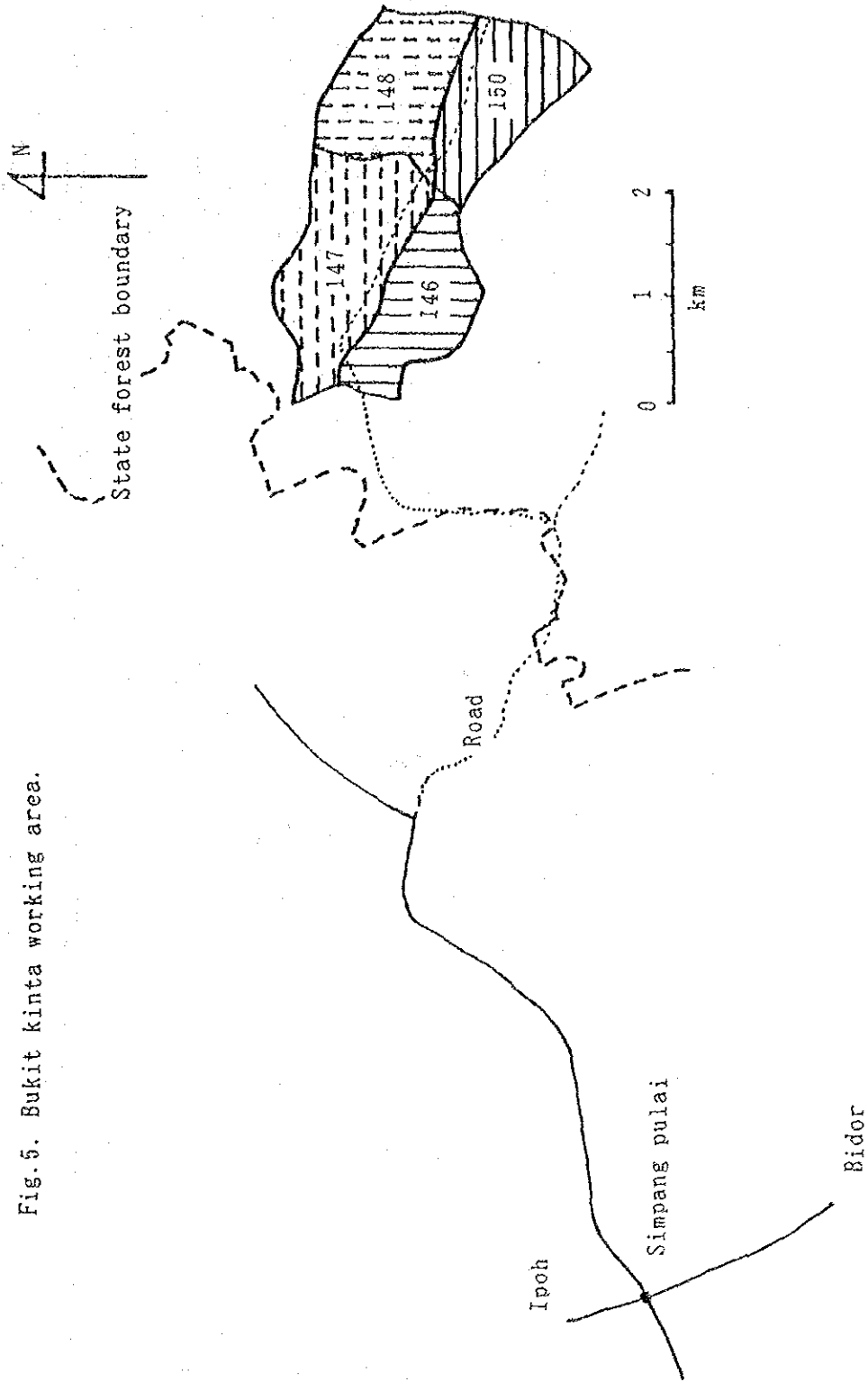


Fig. 6. Model of arrangement of planting plot at 146 compartment.

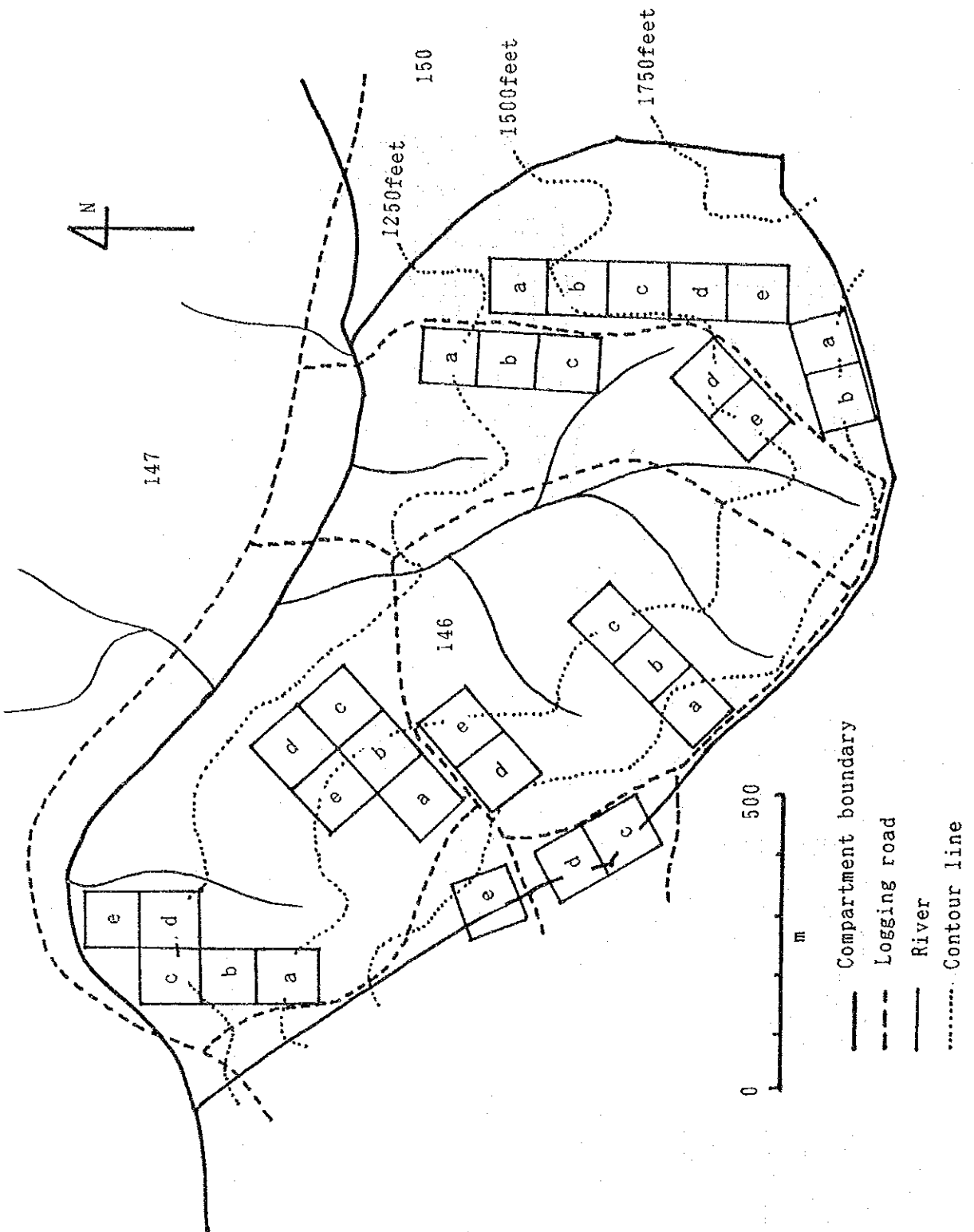
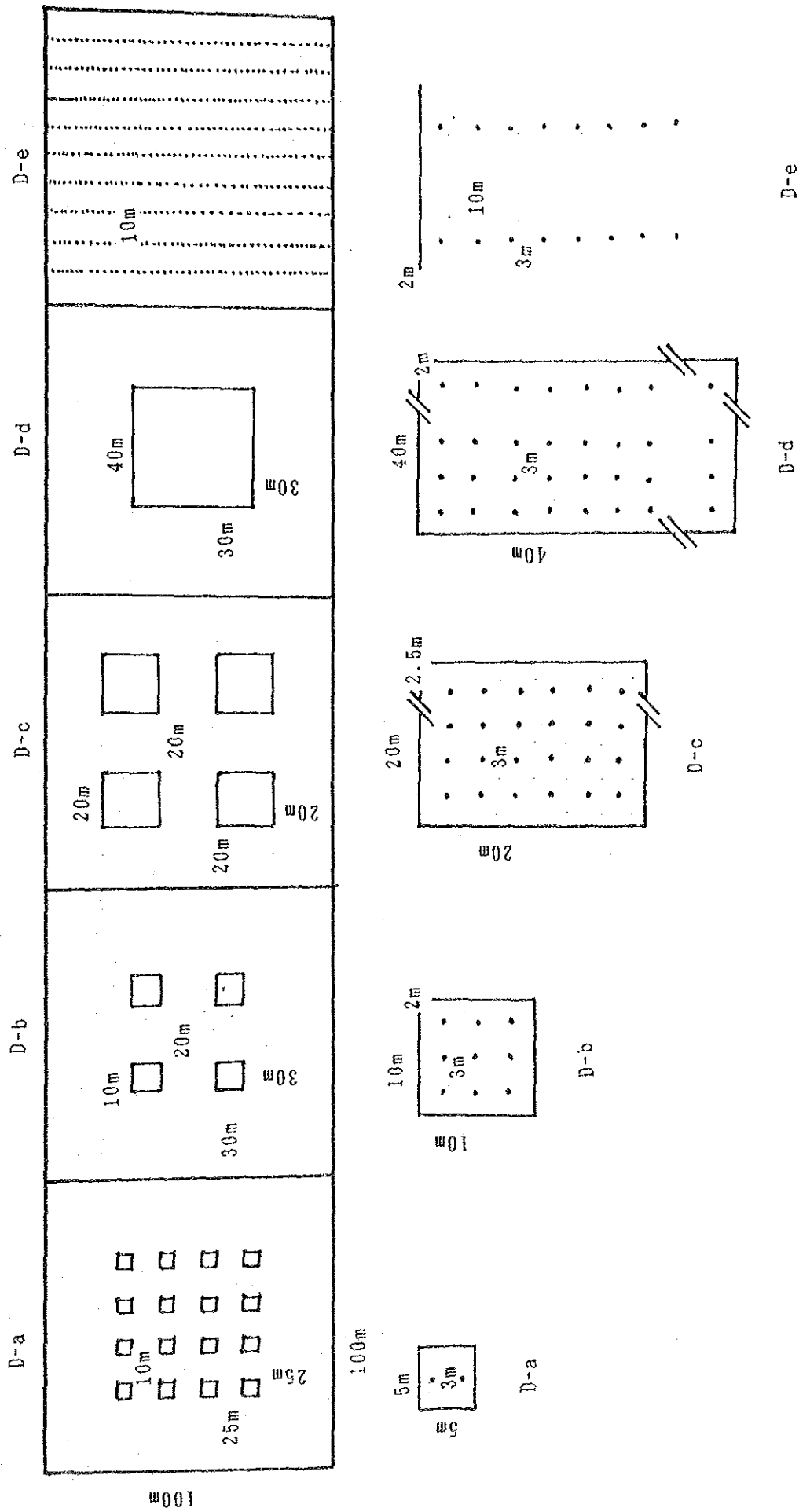
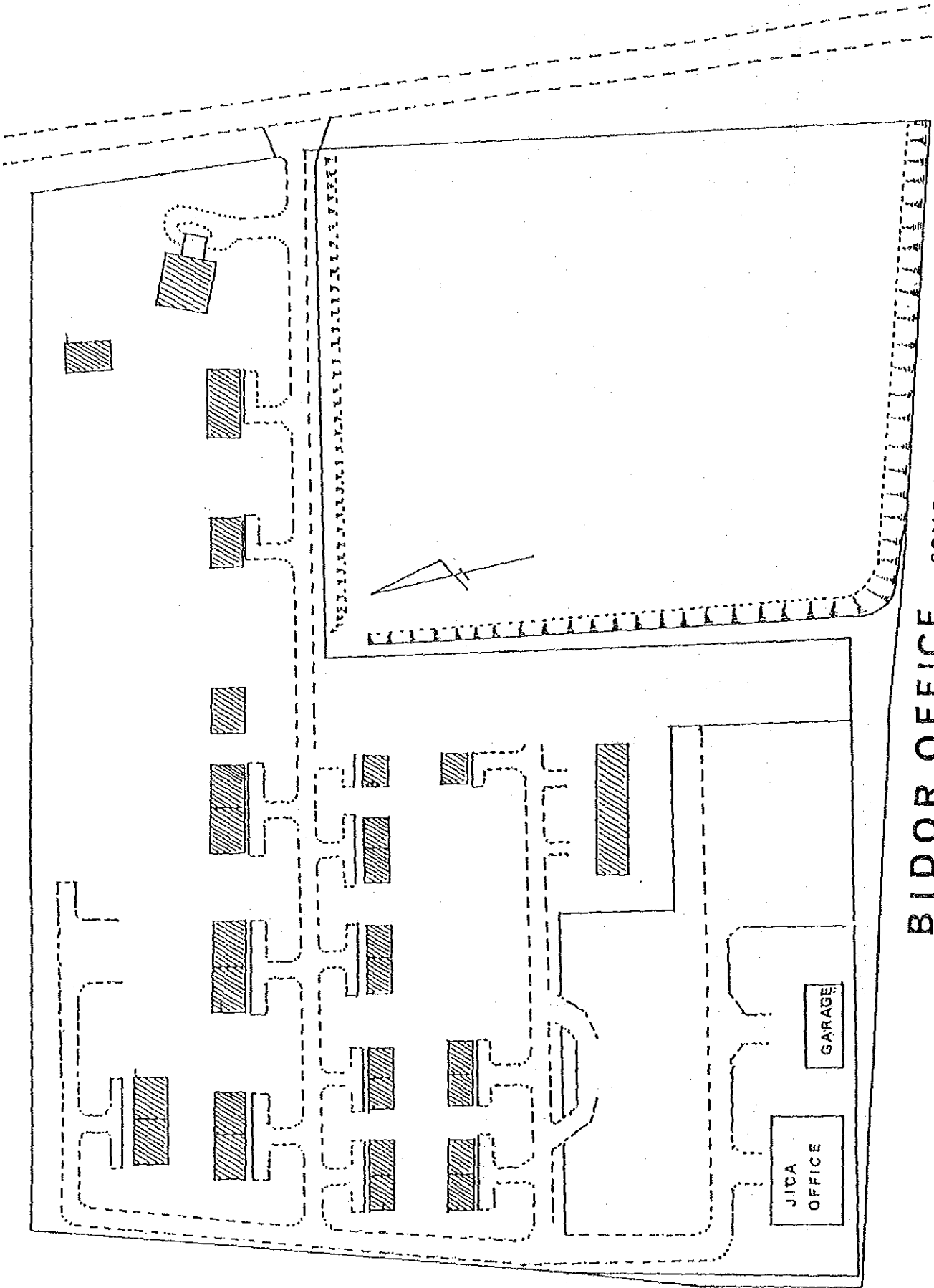


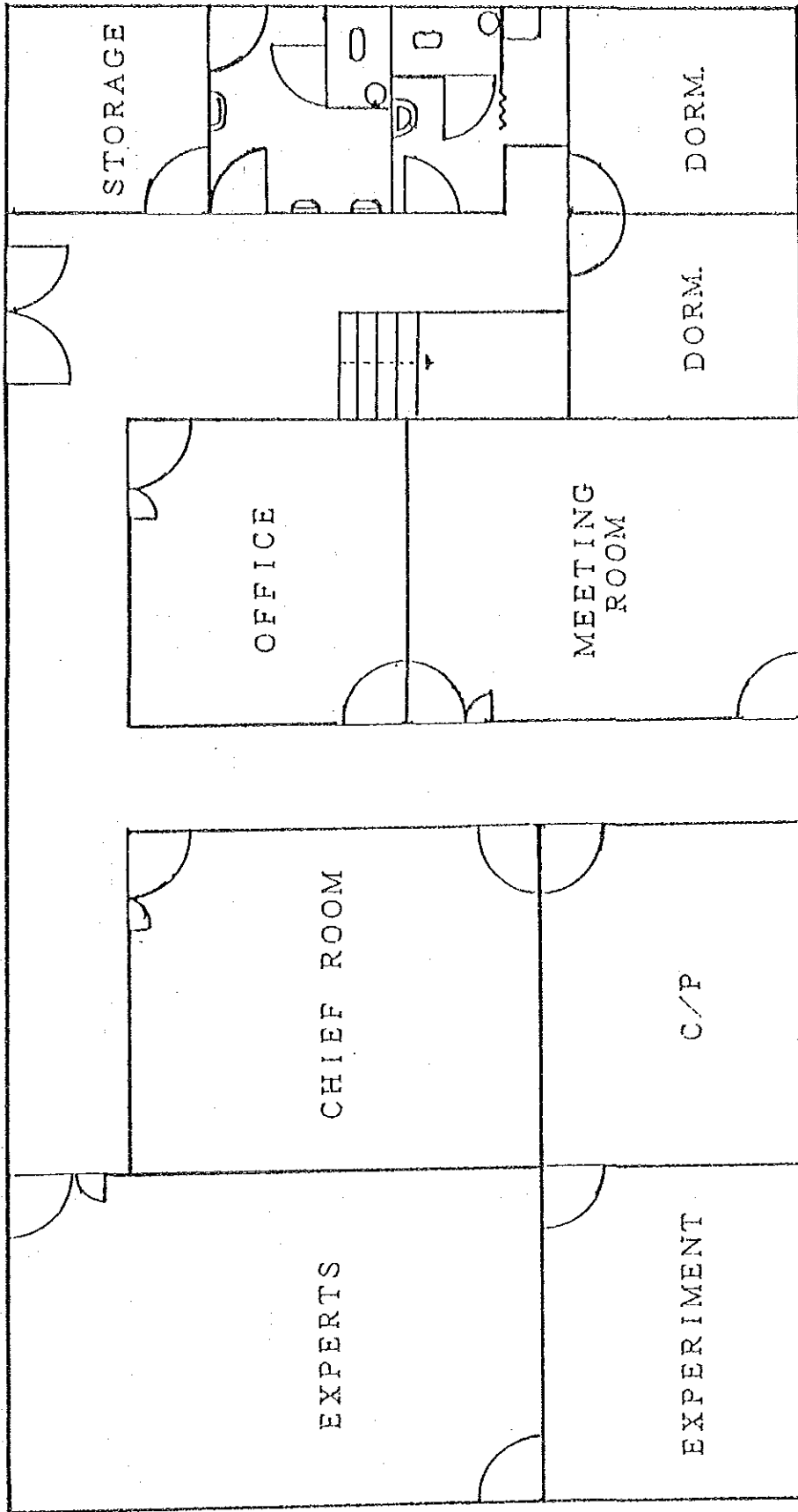
Fig.7. Operation type of planting at Bukit kinta working area.





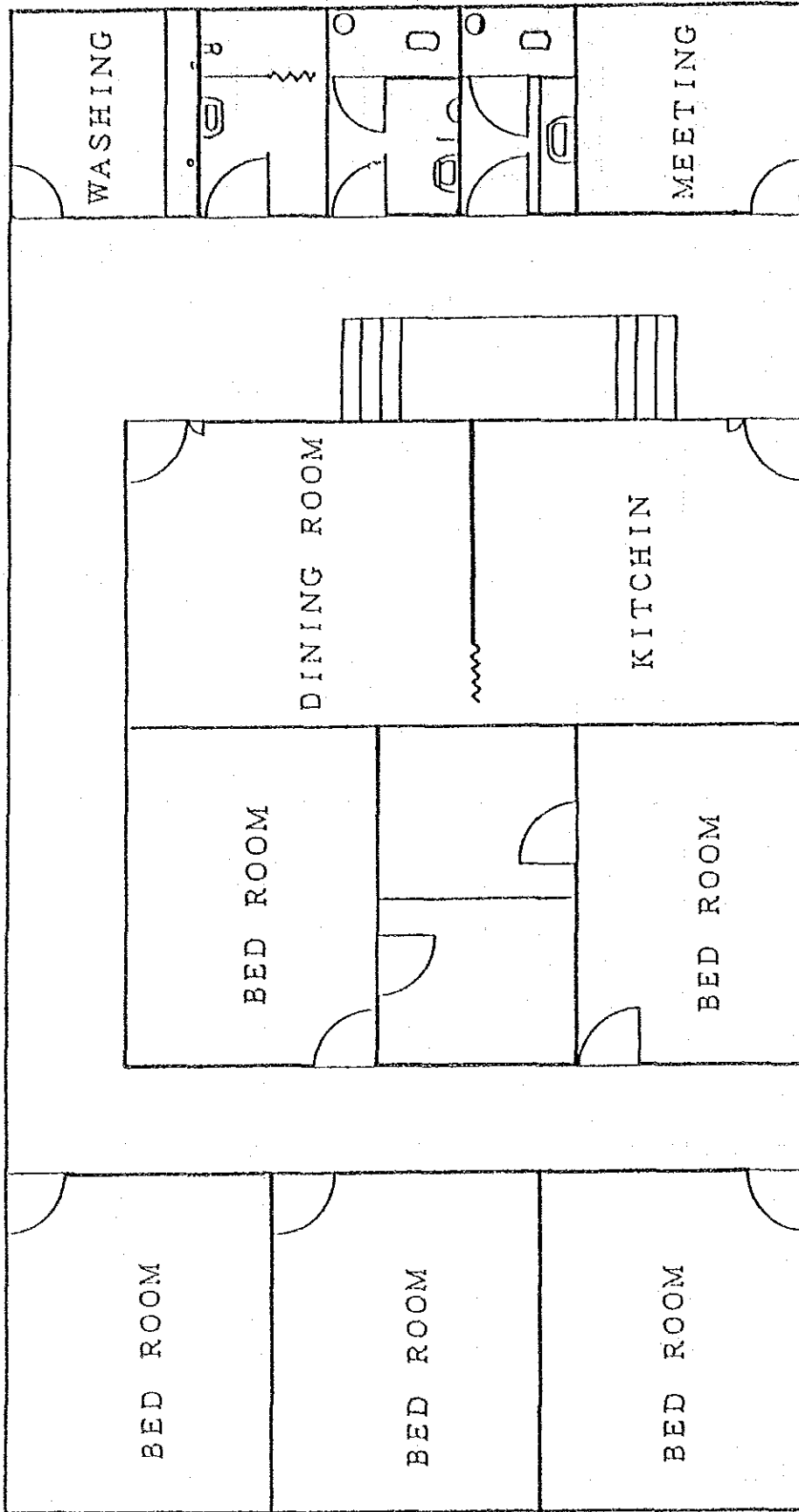
BIDOR OFFICE SCALE 1:1000

BIDOR OFFICE $\frac{1}{100}$



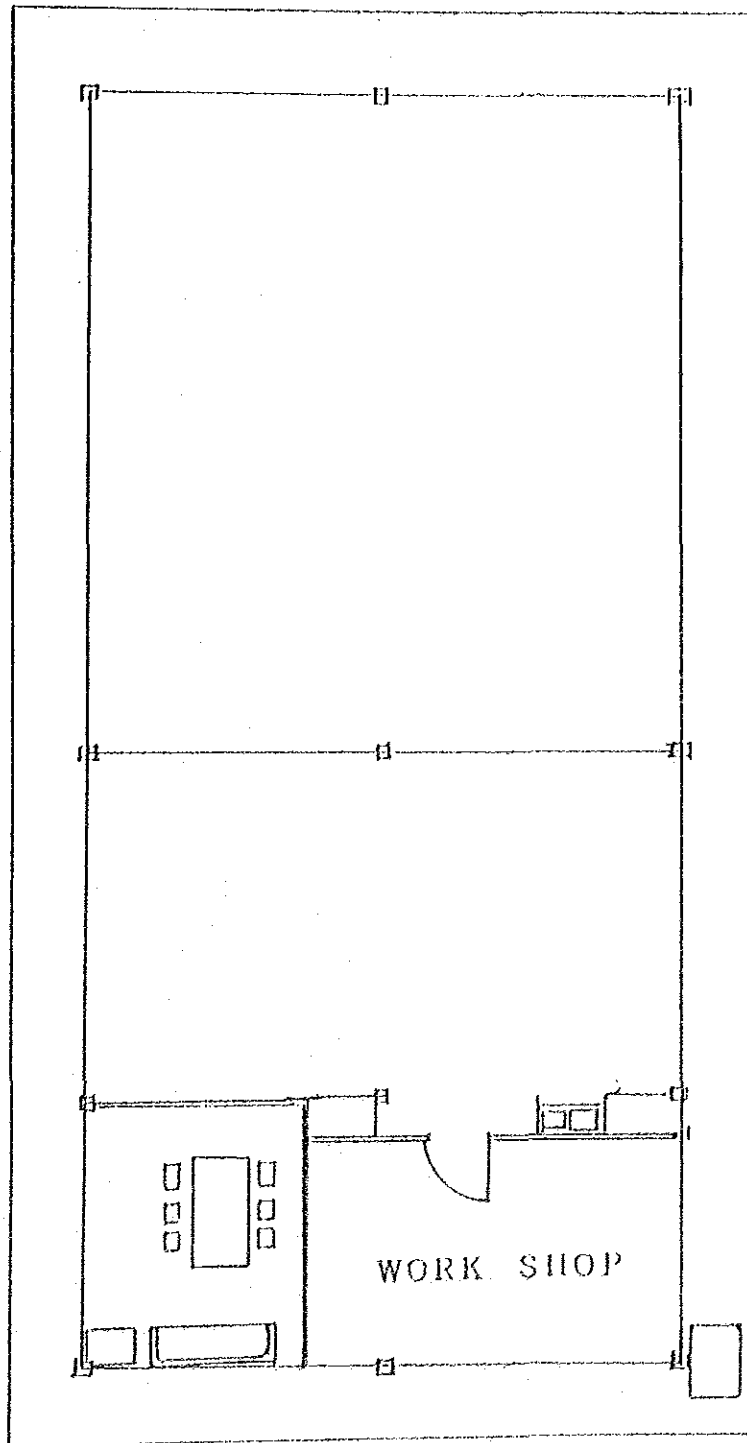
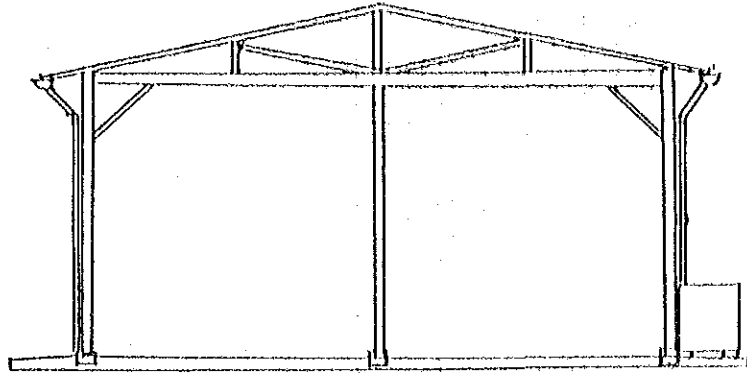
1 F

BIDOR OFFICE $\frac{1}{100}$



2F

BIDOR GARAGE $\frac{1}{100}$

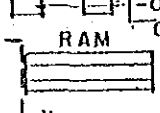
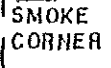
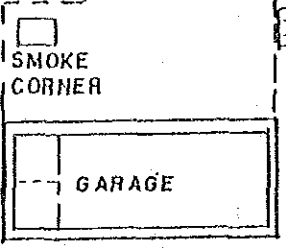
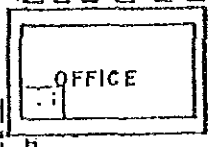
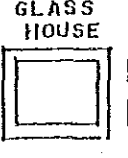
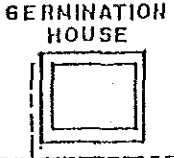
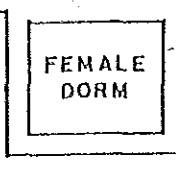
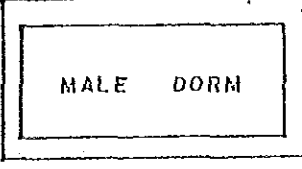
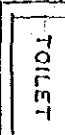
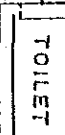
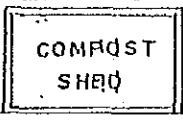
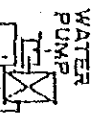
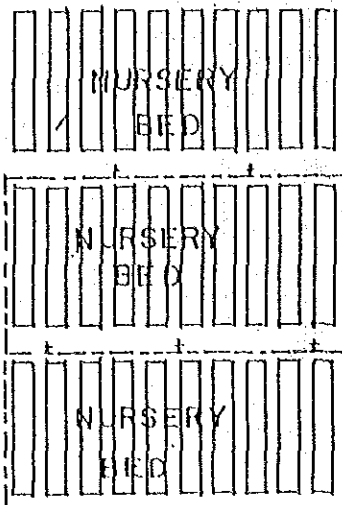


CHIKUS NURSERY

ENTRANCE

EARTH DRAIN

14528 LITER ELEVATED
PRESS STEEL WATER TANK
10.0M HIGH

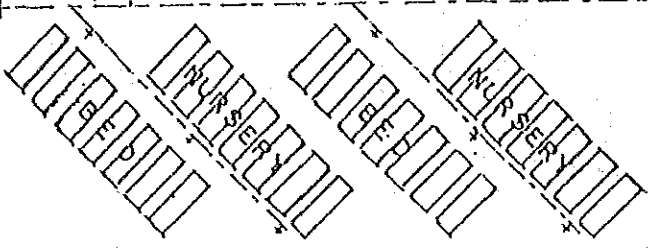
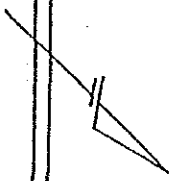
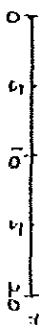


OIL / FUEL STORAGE
OVERHEAD TANK &
STORAGE HOUSE

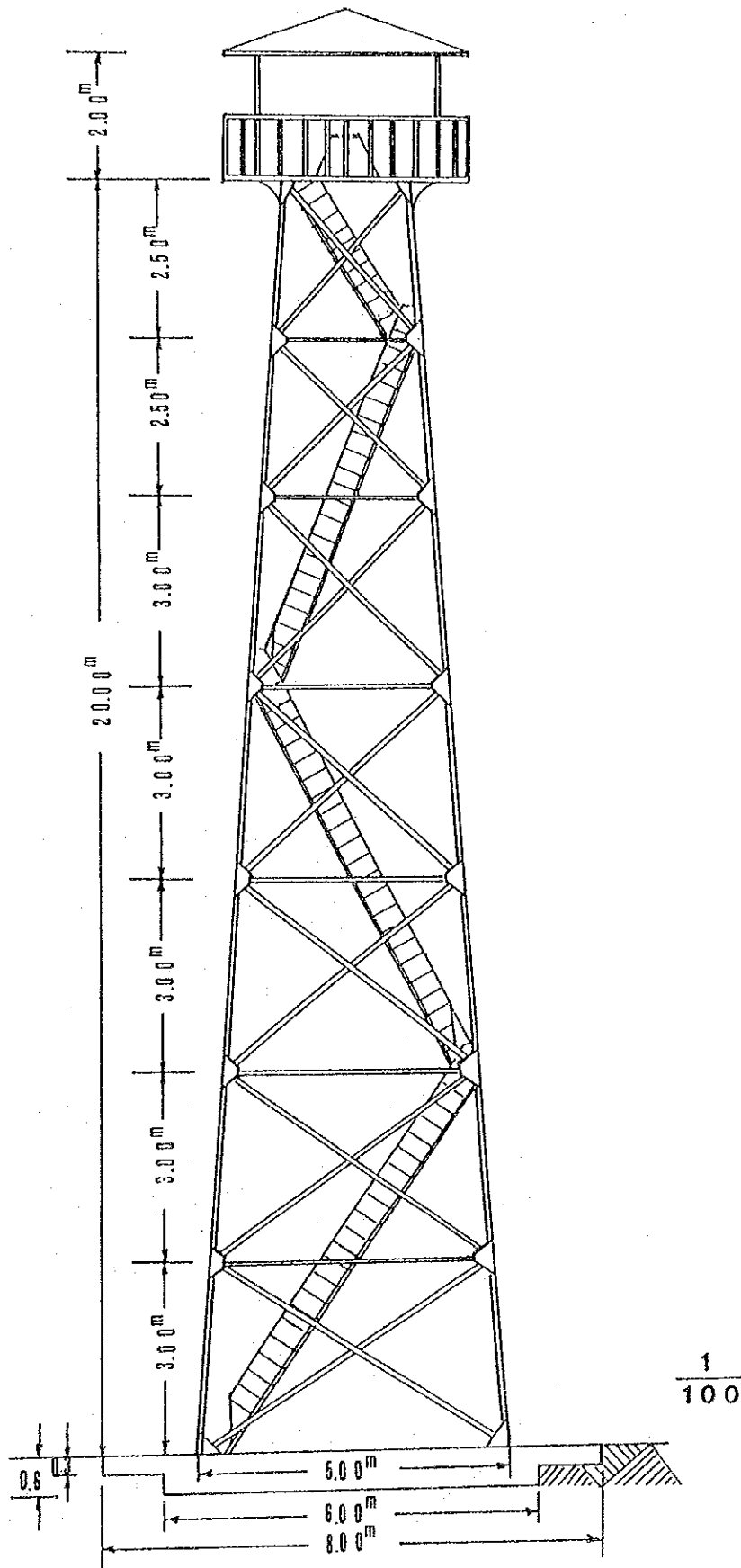
9100 LITER
WATER TANK

SEPTIC TANK AND
FILTER BED FOR
10 PERSONS

SCALE 1 : 500

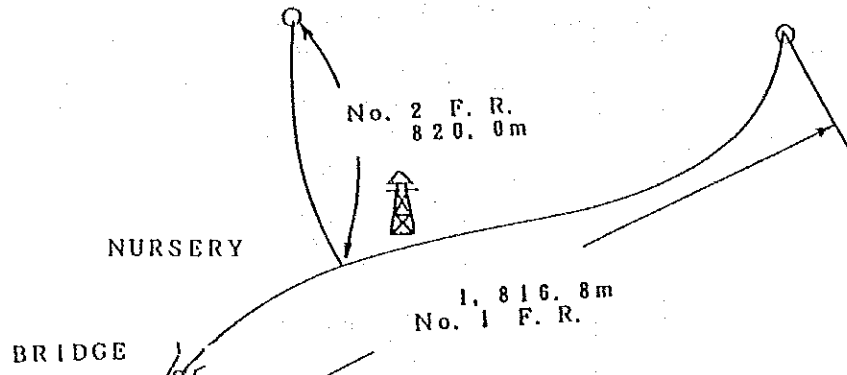


LOOKOUT TOWER

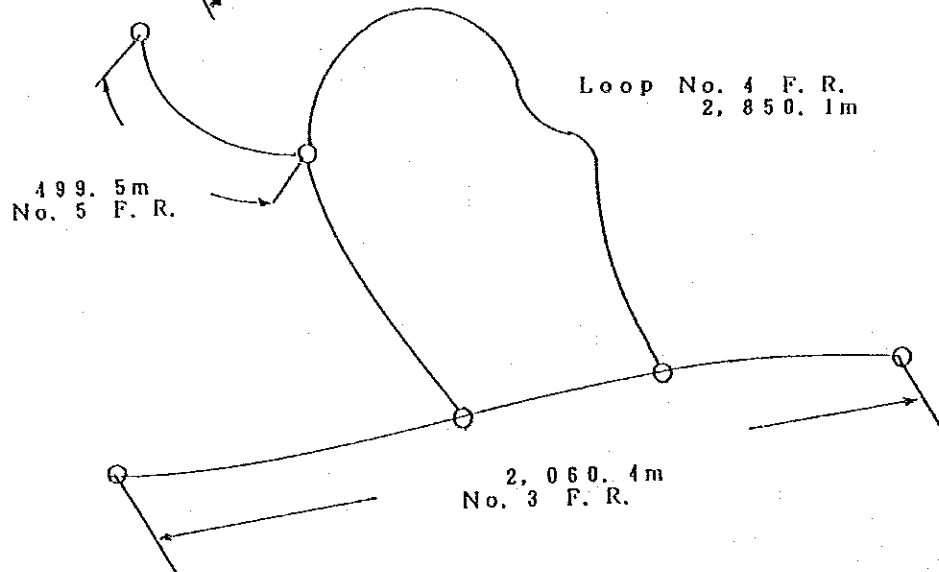


THE MAP OF FOREST ROADS

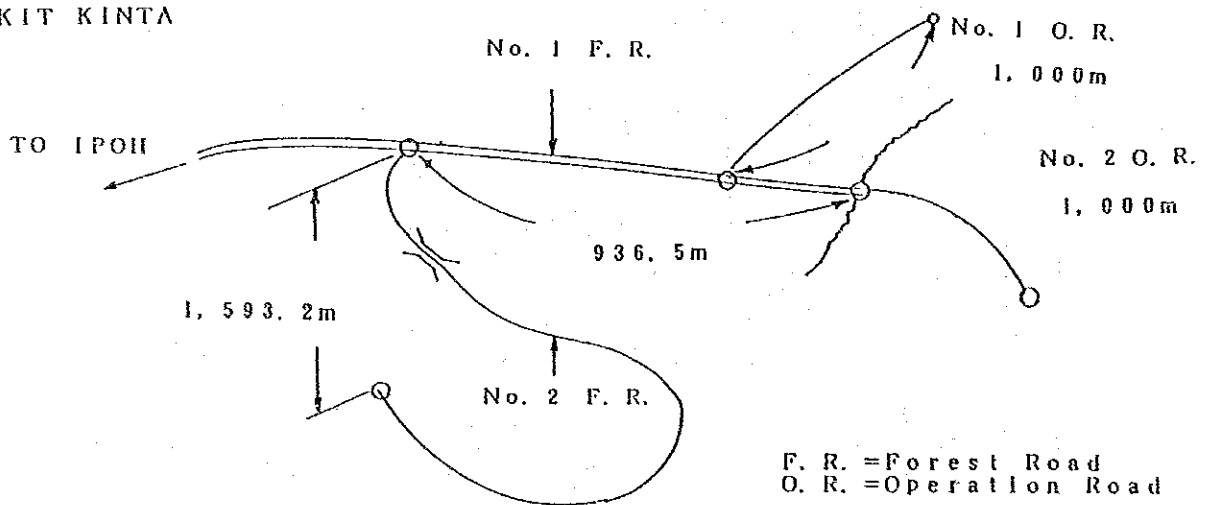
1 CHIKUS·A



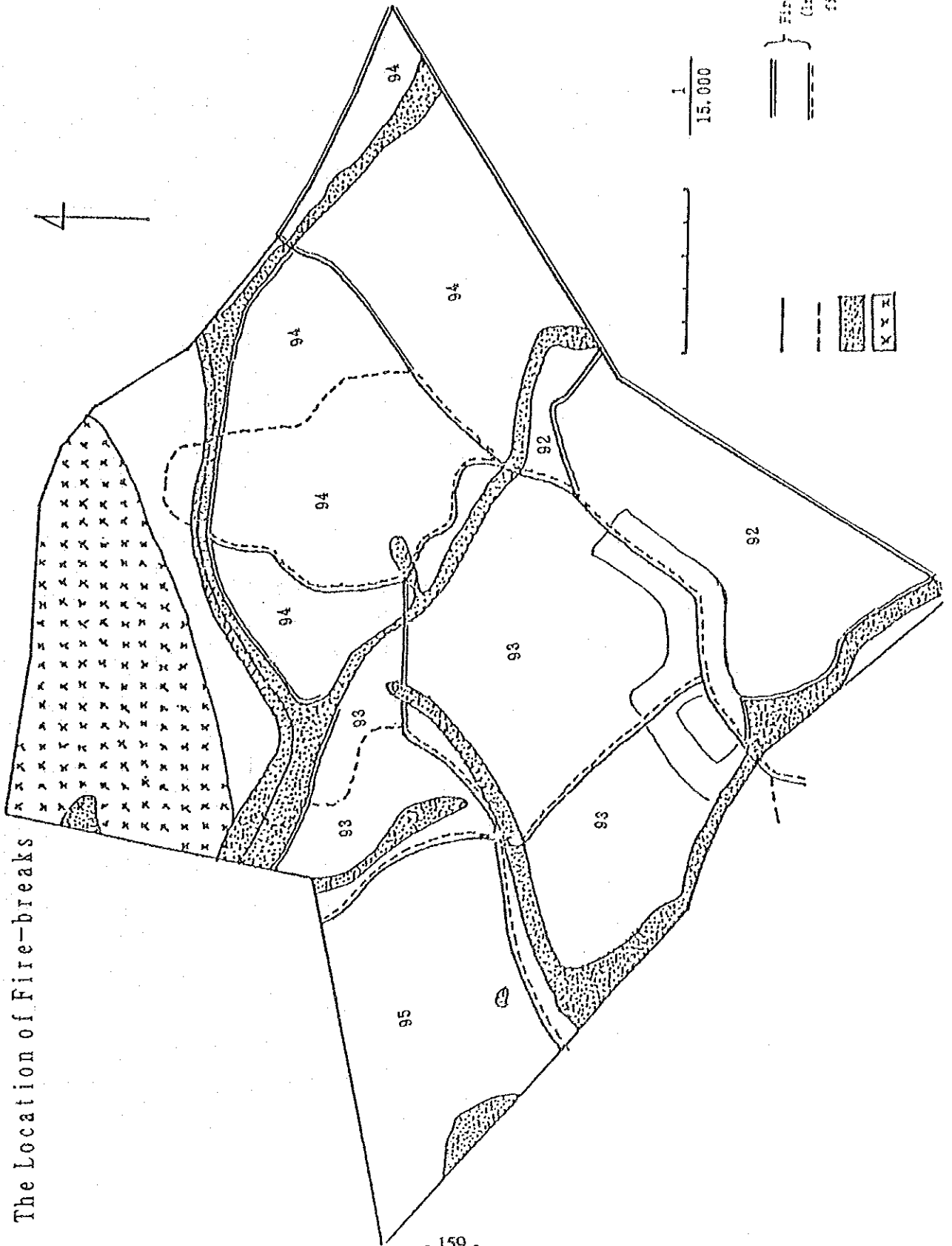
2 CHIKUS·B



3 BUKIT KINTA



The Location of Fire-breaks



1
15,000

- — — — —
 - — — — —
 - — — — —
 - — — — —
 - — — — —
 - — — — —
- Fire-break
(inside arboretum no
fire-break will be made)

Construction Data

Item	m ²	Unit cost (M\$/m ²)	Cost (M\$)	Period	Remarks
1. Bidor					
Office	14m×22m×2m 616m ²	836.6	515,346	4M	
Garage	8m×17m 136m ²	477.7	64,967	3M	
2. Chikus					
Office	13.2m×6.5m 85.8m ²	519.1	44,539	2M	2F: Dormitory
Garage	7m×18m 126m ²	477.7	60,190	1M	
Smoking Room	2m×3m 6m ²	433.1	2,599	2W	
Operation Room	8m×16m 128m ²	433.1	55,437	1M	
Ware-house	5m×6m 30m ²	433.1	12,993	1M	
Germination Room	5m×6m 30m ²	433.1	12,993	1M	
Glass Room	5m×6m 30m ²	908.0	27,240	1M	
Compost Shed	7m×12m 84m ²	433.1	36,380	1M	
Genetator Room	2.5m×4m 10m ²	433.1	4,331	1M	
Oil Storage	3m×4m 12m ²	497.6	5,971	1M	
Car Washing	1		6,000	1M	
Total			848,986		

1. Forest Road Standards

	main part + shoulder	side ditch
Access Road	7m	1m
Main Forest Road	7m	1m
Operation Forest Road	4m	1m
Fire Break	6.5m + 7m + 6.5m	

2. Proposed Forest Road

	CHIKUS	BUKIT KINTA
Main Forest Road	8,000m *1	937m *3
	*2	1,593m *1
Fire Break	11,500m	
Operation Forest Road	11,500m	2,000m
Total	31,000m	4,530m

*1 : By the improvement of old roads

*2 : Out of 8,000m, 1,300m becomes a fire-break which is situated outside of the arboretum. Total fire-breaks will be 12,800m.

*3 : Vehicles can now pass the road without any improvement.

3. Annual km of Improvement and New construction

		Fiscal Year	1991	1992	1993	1994	1995	Total
CHIKUS *1	Main Forest Road	A	8.0					8.0
		B						
	Fire Break	A		2.5	4.7	4.3		11.5
	Operation Forest Road	A		1.0	2.5	2.0	1.1	6.6
		B		1.0	1.0	1.0	0.9	3.9
Total			8.0	4.5	8.2	7.3	2.0	30.0
BUKIT	Main Forest Road			2.5				2.5
KINTA	Operation Forest Road				1.0	1.0		2.0
*2	Total			2.5	1.0	1.0		4.5

*1 : Main forest roads in Chikus are being improved from old roads.

The most of fire-breaks and operation forest roads are newly constructed.

*2 : In Bukit Kinta, 1.6km is the improved one and 0.9km is the village road which needs no improvement.

The Table of Total Project Costs

(thousand Yen)

Item	1991	1992	1993	1994	1995	1996	Total
Machinery	mainly procured in 1991, 1992						121,585
Parts attachment	20% of machinery costs						24,317
Nursery	—	4,020	6,150	7,665	4,920	450	23,205
Silviculture	—	6,000	8,960	10,860	7,800	900	34,500
Construction							
Bukit Kinta	—	2,108	—	—	—	—	2,108
Bidor, Chikus	mainly procured in 1991, 1992						42,411
Site preparation	—	600	—	—	—	—	600
Nursery bed, shading	—	2,386	—	—	—	—	2,386
Forest road, bridge	7,362	8,067	1,806	1,788	1,629	—	20,652
Management costs	11,040	33,120	33,120	33,120	33,120	22,080	165,600
Beginning procurement	10,000	10,000	—	—	—	—	20,000
Grand Total							457,364

GOVERNMENT OF MALAYSIA

**STANDARD FORM OF CONTRACT TO BE USED FOR CONTRACT
BASED ON DRAWINGS AND SPECIFICATIONS**

PWD. FORM 203 (Rev. 10/83)

CONDITIONS OF CONTRACT TO BE USED FOR CONTRACT
BASED ON DRAWINGS AND SPECIFICATIONS

PWD. FORM 203 (Rev. 10/83)

This Form has been approved by Attorney General's Chambers (Reference: PN. (ADV.) 5392)

CONDITIONS OF CONTRACT—Table of Contents

CLAUSE	PAGE
ARTICLES OF AGREEMENT	1—3
1. DEFINITIONS AND INTERPRETATION	4
(a) Definitions	4
(b) "Approved" and "directed"	4
(c) Singular and plural terms	4
(d) Marginal headings or notes	4
2. DUTIES OF S.O. AND S.O.'S REPRESENTATIVE	5
(a) Duties of S.O.	5
(b) Duties of S.O.'s Representative	5
(c) Delegation of S.O.'s power	5
3. S.O.'S RIGHT TO TAKE ACTION	5
(a) Officer empowered to act on behalf of Government and to approve variations	5
(b) No claim for compliance	5
4. SCOPE OF CONTRACT	5
5. S.O.'S INSTRUCTIONS	5
(a) Definition	5
(b) Compliance with S.O.'s instructions	6
(c) S.O.'s instructions to be in writing	6
(d) Claim for compliance with S.O.'s instructions	6
6. NOTICES	6
7. CONTRACT DOCUMENTS	6
(a) Schedule of Rates	6
(b) Custody of Contract Documents	6
(c) Copies of Contract Documents	6
(d) Copies of working drawings	6
(e) Documents on Site	6
(f) Return of documents	6
(g) Restriction in use	6
8. SUFFICIENCY OF CONTRACT DOCUMENTS	7
(a) Contract Documents mutually explanatory	7
(b) Discrepancy	7
9. MATERIALS AND WORKMANSHIP	7
(a) Quality of materials, goods and workmanship	7
(b) Samples, testing of materials and works covered up	7
10. UNFIXED MATERIALS AND GOODS	7
11. STATUTORY OBLIGATIONS	7
(a) Compliance with written law, regulations and bye-laws	7
(b) Charges to be borne by the Government	7
(c) Indemnity to the Government	7
(d) Change in written law etc.	7
12. FOSSILS ETC.	7
13. PATENT RIGHTS AND ROYALTIES	8
14. SETTING OUT	8
15. INSPECTION OF SITE	8

CONDITIONS OF CONTRACT—Table of Contents—(continued)

CLAUSE	PAGE
16. EMPLOYMENT OF WORKMEN	8
(a) Malaysian citizens	8
(b) Ratio of workmen	8
(c) Particulars of labour	8
(d) Source of labour	8
(e) On-Site Training Programme	8
(f) Compliance by sub-contractors	8
17. COMPLIANCE WITH EMPLOYMENT ORDINANCE 1955 ETC.	9
18. DAYS AND HOURS OF WORKING	9
19. FOREMAN AND ASSISTANTS	9
20. WAGES BOOKS AND TIME SHEETS	9
21. DEFAULT IN PAYMENT OF WAGES	9
22. DISCHARGE OF WORKMEN	9
23. ACCESS FOR S.O. TO THE WORKS ETC.	10
24. VARIATIONS	10
(a) Power to order and subsequent confirmation	10
(b) Definition of variation	10
25. VALUATION OF VARIATIONS	10
(a) Measurement	10
(b) Valuation of variations	10
(c) Adjustment to Contract Sum	10
26. SUMMARY OF TENDER	11
(a) Prices in the Summary of Tender	11
(b) Quantities	11
27. SUB-LETTING AND ASSIGNMENT	11
(a) Consent of the S.O.	11
(b) Determination of sub-contract	11
(c) Employment of sub-contractors	11
(d) Assignment of benefit	11
28. NOMINATED SUB-CONTRACTORS AND/OR NOMINATED SUPPLIERS	11
(a) Definition	11
(b) Nomination	11
(c) Objection to nomination	12
(d) Powers following objection	12
(e) Payment to Nominated Sub-contractor or Nominated Supplier	12
(f) Payment direct	12
(g) No privity of Contract between the Government and the Nominated Sub-contractor and/or Nominated Supplier	12
29. RESPONSIBILITIES OF CONTRACTOR FOR NOMINATED SUB-CONTRACTOR AND/OR NOMINATED SUPPLIERS	12
(a) Responsibilities for Nominated Sub-contractors and/or Nominated Suppliers	12
(b) Termination of Sub-contract	13
30. PRIME COST AND PROVISIONAL SUMS	13
(a) Definition and payment of P.C. Sums	13
(b) Definition and payment of Provisional Sums	13
(c) Conversion of Provisional Sum to P.C. Sum	13
(d) P.C. Sums for which the Contractor is permitted to tender	13
31. ARTISTS AND TRADESMEN	13

CONDITIONS OF CONTRACT—Table of Contents—(continued)

CLAUSE	PAGE
32. INDEMNITIES TO GOVERNMENT IN RESPECT OF PERSONAL INJURIES AND DAMAGE TO PROPERTY	13
(a) Injury to persons	13
(b) Damage to property	13
(c) Negligence of Government or S.O.	14
33. INSURANCE AGAINST PERSONAL INJURIES AND DAMAGE TO PROPERTY	14
(a) Taking of insurance	14
(b) Production of policies	14
(c) Default in renewing insurance	14
34. WORKMEN'S COMPENSATION	14
(a) Indemnity to Government	14
(b) (i) Taking of insurance	14
(ii) Endorsements	14
(c) Production of policies	15
(d) Default in insuring	15
(e) Non-waiver of Government's right to indemnity	15
35. EMPLOYEE'S SOCIAL SECURITY ACT, 1969	15
(a) Registration with SGCSSO	15
(b) Contribution to SGCSSO	15
(c) Default in complying with the Act	15
(d) Non-waiver of Government's right to indemnity	15
36. INSURANCE OF WORKS	16
(a) Risks to be insured	16
(b) Production of policies	16
(c) Default in renewing insurance	16
(d) Application of insurance monies	16
37. PERFORMANCE BOND	16
(a) Condition precedent	16
(b) Validity of Performance Bond	16
(c) Application	16
(d) Release of Performance Bond	16
38. POSSESSION OF SITE	16
(a) Conditions precedent to commencement of works	16
(b) Date for possession	16
(c) Possession by stages	17
(d) Delay in giving possession of Site	17
(e) Delay beyond three (3) months	17
(f) Investigation by other persons in case of accident, failure or event	17
39. COMPLETION OF WORKS	17
(a) Date for Completion	17
(b) Certificate of Practical Completion	17
40. DAMAGES FOR NON-COMPLETION	17
41. SECTIONAL COMPLETION	17
42. PARTIAL OCCUPATION BY GOVERNMENT	18
(a) Certificate of Partial Occupation	18
(b) Defects Liability	18
(c) Certificate of Making Good Defects	18
(d) Insurance of the Works	18
(e) Reduction of Liquidated and Ascertained Damages	18
(f) Performance Bond not affected	18

CONDITIONS OF CONTRACT—Table of Contents—(continued)

CLAUSE	PAGE
43. DELAY AND EXTENSION OF TIME	18
44. LOSS AND EXPENSE CAUSED BY DELAYS	19
45. DEFECTS AFTER COMPLETION	19
(a) Defects Liability Period	19
(b) Schedule of Defects	19
(c) Default of the Contractor	19
(d) Additional powers of the S.O.	19
(e) Certificate of Completion of Making Good Defects	20
46. UNFULFILLED OBLIGATIONS	20
47. PAYMENT TO CONTRACTOR AND INTERIM CERTIFICATES	20
(a) Valuation of work done	20
(b) Issue of Interim Certificate	20
(c) Sums to be certified in Interim Certificate	20
(d) Payment of Interim Certificate	20
48. FINAL CERTIFICATE	20
(a) Submission of claim documents	20
(b) Final Certificate	20
(c) Sums to be certified in the Final Certificate	20
(d) Declaration before final payment	21
49. EFFECT OF S.O.'S CERTIFICATES	21
50. DEDUCTION FROM MONEY DUE TO CONTRACTOR	21
51. DETERMINATION OF CONTRACTOR'S EMPLOYMENT	21
(a) Default of Contractor	21
(b) Bankruptcy or insolvency	21
(c) Effects of determination of Contractor's employment	22
52. EFFECT OF WAR OR EARTHQUAKE	22
53. FLUCTUATION OF PRICE	23
54. ARBITRATION	23
(a) Reference to S.O. for a decision	23
(b) S.O.'s decision to be binding until completion of Works	23
(c) Reference to arbitration	23
(d) Reference to arbitration shall not be commenced until after completion of Works	23
(e) Power of the Arbitrator	23
(f) Discretion of Arbitrator in respect of costs and award	23
(g) Award of Arbitrator is final	23
(h) Appointer of Arbitrator	23
(i) Arbitration Act 1952	23
55. STAMP DUTY	23
56. BAHASA MALAYSIA TEXT SHALL PREVAIL	23
APPENDIX TO THE CONDITIONS OF CONTRACT	24—25

THIS FORM IS TO BE USED FOR CONTRACT BASED ON DRAWINGS AND SPECIFICATIONS

CONTRACT No. PPN.PK. 17/89 OF 19.....

EXPENDITURE to be met from: Head..... P. 5102-2
Sub-head.....
Year of..... 1989

ARTICLES OF AGREEMENT

A CONTRACT made the.....day of....., 19.....
BETWEEN the Government of(1) NEGERI PERAK.....hereinafter called
"the Government" of the one part and.....
.....of (or whose registered office is
situated at).....
hereinafter called "the Contractor", of the other part.

WHEREAS the Government is desirous of(2) MEMBINA DAN MENYIAPKAN DJA (2) UNIT
RUMAH KELAS 'H' DAN KERJA-KERJA BERKAITAN DI KOMPLEKS PEJABAT DAN
PERUMAHAN JABATAN HUTAN, JALAN LINTANG,
.....
at SUNGAI SIPUT (U).
(hereinafter called "the Works") and has caused Drawings and Specification
describing the work to be done to be prepared.

AND WHEREAS the said Drawings numbered...SILA LIHAT PADA LAMPIRAN SL-I
.....
.....
(hereinafter referred to as the Contract Drawings), and the Specification, Summary
of Tender, Schedule of Rates, Form of Tender and Letter of Acceptance of Tender
have been signed by or on behalf of the parties hereto:

NOW IT IS HEREBY AGREED AS FOLLOWS:
1. In this Contract words and expressions shall have the same meanings as are
respectively assigned to them in the Conditions of Contract hereinafter referred to.

(1) Government incurring the liability.
(2) State the nature and scope of the intended Works.

2. The following documents shall be deemed to form and be read and construed as part of this Contract, viz:

- (a) Articles of Agreement, \ \ .
- (b) Form of Tender,
- (c) Letter of Acceptance of Tender,
- (d) Conditions of Contract and the Appendix annexed thereto,
- (e) Special Provisions to Conditions of Contract for:⁽³⁾
 - (i) Variation in price of materials for Building Works
 - (ii) Surat Penerimaan Tawaran Jabatan Perhutanan Negeri Perak Khas Untuk Bumiputra.
 - (iii) Suratikatan Serahak
 - (IV) Bank Guarantee Form for Performance Bond (Works)
- (f) Contract Drawings,
- (g) Specification,
- (h) Summary of Tender,
- (i) Schedule of Rates,
- (j) Treasury's Instructions as are set out in the Appendix to the Conditions of Contract.

3. In consideration of the payments to be made by the Government to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Government to construct and complete the Works and make good any defects whatsoever to the Works in conformity in all respects with the provisions of this Contract.

4. The Government hereby covenants to pay the Contractor in consideration of the construction and completion of the Works and making good of any defects whatsoever to the Works the sum of Malaysian Ringgit:

.....(M\$.....)
or such other sum as shall become payable under and at the times and in the manner specified in the Conditions of Contract.

(3) Insert the titles of the relevant Special Provisions included in this Contract.

IN WITNESS whereof the parties hereto have hereunto set their respective hands the day and year first above written.

Signed by the said⁽⁴⁾

.....

.....
Contractor's Signature

(Name in full.....)

In the capacity of.....

.....
in the presence of

Name.....

Address.....

Description.....

Signed by the⁽⁵⁾

.....
for and on behalf of the Government

.....
Officer's Signature

(Name in full.....)

in the presence of

Name.....

Address.....

Designation.....

(4) Contractor's seal or chop.

(5) Official designation of officer authorised to sign contract (in block capitals).

CONDITIONS OF CONTRACT

I. Definitions and Interpretation

Definitions

(a) In this Contract (as hereinafter defined) the following words and expressions shall have the meanings hereby assigned to them except where the context otherwise requires:

(i) "Contract" or "Contract Documents" means the documents forming the tender and acceptance thereof including:

- Articles of Agreement,
- Form of Tender,
- Letter of Acceptance of Tender,
- Conditions of Contract and the Appendix annexed thereto,
- Special Provision to the Conditions of Contract for: (6)
- Variation in price of materials for Building Works.....
- Suratikatan Serahak.....
- Bank Guarantee Form for Performance Bond (Works).....
- Contract Drawings,
- Specification,
- Summary of Tender,
- Schedule of Rates,
- Treasury's Instructions as are set out in the Appendix to the Conditions of Contract;

and all these documents shall be complementary to one another.

(ii) "Contractor" means the person or persons, partnership, firm or company whose tender for the Works has been accepted and who has or have signed this Contract and includes the Contractor's personal representatives, successors and such other persons or body of persons to whom the Contractor has assigned or sub-let pursuant to Clause 27 of these Conditions.

(iii) "Contract Sum" means the sum named in Article 4 of the Articles of Agreement.

(iv) The initial "S.O." means the "Superintending Officer" who shall be (7).....
Pengarah Perhutanan Negeri Perak.....

and his successors in office. Provided that during the continuance of this Contract any successor in office of such S.O. shall not disregard or overrule any decision, approval or direction given to the Contractor in writing by his predecessor unless he is satisfied that such action will not cause any pecuniary loss to the Contractor or unless such action be ordered as a variation pursuant to Clause 24 of these Conditions.

(v) "S.O.'s Representative" means any person or persons deputed or authorised from time to time by the S.O. to perform any or all of the duties of the S.O. as may be from time to time notified in writing to the Contractor by the S.O. pursuant to Clause 2 (c) of these Conditions.

(vi) "Site" means the land and other places on, under or through which the Works are to be executed and any other lands or places provided or approved by the Government for working space or any other purpose as may be specifically designated in the Contract Documents as forming part of the Site.

(vii) "Works" means the works specified in the Contract Documents and include all or any portion of the work, materials and goods wherever the same are manufactured or prepared which are to be used in the execution of this Contract and whether the same may be on the Site or not.

"Approved" and "directed".

(b) The terms "approved" and "directed" wherever used in this Contract means approved or directed in writing (including subsequent confirmation of previous verbal approval or directions by the S.O.) and "approval" or "direction" means approval or direction in writing (including as aforesaid).

Singular and plural terms.

(c) Words importing the singular only also include the plural and vice versa where the context requires.

Marginal headings or notes.

(d) The marginal headings or notes in these Conditions of Contract shall not be deemed to be part thereof or be taken into consideration in the interpretation or construction of this Contract.

(6) Insert the titles of the relevant Special Provisions included in this Contract.

(7) State the official designation of the officer responsible for the overall supervision and direction of the Works.

2. Duties of S.O. and S.O.'s Representative

- (a) The S.O. shall be responsible for the overall supervision and direction of the Works. All questions regarding any work under this Contract shall be taken up by the Contractor with the S.O. Duties of S.O.
- (b) The S.O.'s Representative shall be responsible to the S.O. and his duties are to watch and supervise the Works and to test and examine any materials or goods to be used or workmanship employed in connection with the Works. Duties of S.O.'s Representative.
- (c) Notwithstanding sub-clause (a) above, the S.O. may from time to time in writing delegate to the S.O.'s Representative any of the powers and authorities vested in the S.O. and shall furnish to the Contractor a copy of all such written delegation of powers and authorities. Any instruction or approval given by the S.O.'s Representative to the Contractor within the terms of such delegation shall bind the Contractor and the Government as though it had been given by the S.O. Provided always that: Delegation of S.O.'s power.
- (i) Failure of the S.O.'s Representative to disapprove any work or materials shall not prejudice the power of the S.O., thereafter to disapprove such work or materials and to order the pulling down, removal or breaking up thereof.
- (ii) If the Contractor shall be dissatisfied by reason of any decision of the S.O.'s Representative he shall be entitled to refer the matter to the S.O., who shall thereupon confirm, reverse or vary such decision.

3. S.O.'s Right to take Action

- (a) Notwithstanding any provision in this Contract, it is hereby agreed that:
- (i) the right to take action and/or initiate proceedings on behalf of the Government in respect of any matter which arises out of the provisions of Clauses 40, 43, 51, 52 or 54, where appropriate, is expressly reserved to the relevant officer or officers named in the Appendix hereto; Officer empowered to act on behalf of Government and to approve variations.
- (ii) the power of the S.O. to issue instructions requiring a variation under Clause 24 shall be subject to the financial limits set out in the Appendix hereto in accordance with the relevant Treasury's Instructions issued by the Federal Treasury of the Government of Malaysia. If the S.O. is required to issue an instruction requiring a variation under Clause 24 which is beyond the limits vested in him by virtue of the said Treasury's Instructions, he shall obtain the prior approval of the relevant authorities of the Government in accordance with the said Treasury's Instructions.
- (b) The Contractor shall not be entitled to claim for any delay and extension of time or any extra cost or expense or whatsoever arising for compliance with the provisions of this Condition. No claim for compliance.

4. Scope of Contract

The Contractor shall upon and subject to these Conditions construct and complete the Works shown upon the Contract Drawings and described by or referred to in the Specification and in the Articles of Agreement and these Conditions in compliance therewith, using materials, goods and workmanship of the quality and standards therein specified. The Contractor shall also make good any defect, imperfection, shrinkage or any other fault whatsoever which may appear during the Defects Liability Period in accordance with Clause 45 hereof. Scope of Contract.

5. S.O.'s Instructions

- (a) The S.O. may in his absolute discretion and from time to time issue further drawings, details, and/or written instructions (all of which are hereafter collectively referred to as "S.O.'s instructions") in regard to: Definition.
- (i) the variation as referred to in Clause 24 hereof;
- (ii) any discrepancy in or between the Contract Documents as referred to in Clause 8 (b) hereof;
- (iii) the removal from the Site of any materials or goods brought thereon by the Contractor and the substitution of any other materials or goods therefor;
- (iv) the removal and/or re-execution of any works executed by the Contractor;
- (v) the dismissal from the Works of any person mentioned in Clause 22 hereof employed thereupon;
- (vi) the opening up for inspection of any work covered up;
- (vii) the amending and making good of any defects whatsoever under Clause 45;
- (viii) any matter which is necessary and incidental to the carrying out and completion of the Works under this Contract;
- (ix) any matter in respect of which the S.O. is expressly empowered by this Contract to issue instructions.

Compliance with S.O.'s instructions.

(b) The Contractor shall (subject to sub-clause (c) hereof) forthwith comply with all instruction issued to him by the S.O. If within seven (7) days after receipt of a written notice from the S.O. requiring compliance with an instruction the Contractor does not comply therewith, then the S.O. without prejudice to any other rights or remedies available to the Government under this Contract may employ and pay other persons to execute any work whatsoever which may be necessary to give effect to such instruction and all costs incurred in connection with such employment shall be recoverable from the Contractor by the Government or the S.O. on its behalf as a debt or may be deducted by the Government from any monies due or to become due to the Contractor under this Contract.

S.O.'s instructions to be in writing.

(c) All instructions issued by the S.O. shall be issued in writing. Any instruction issued orally shall be of no immediate effect, but shall be confirmed in writing by the Contractor to the S.O. within seven (7) days after receipt of the oral instruction aforesaid, and if not dissented from in writing by the S.O. to the Contractor within seven (7) days from receipt of the Contractor's confirmation shall take effect as from the expiration of the latter said seven (7) days. Provided always that if the S.O. within seven (7) days of giving such an oral instruction shall himself confirm the same in writing, then the Contractor shall not be obliged to confirm as aforesaid, and the said instruction shall take effect as from the date of the S.O.'s confirmation.

Claim for compliance with S.O.'s instructions.

(d) If in compliance with the S.O.'s instruction as aforesaid involves expense or loss beyond that reasonably contemplated by the Contractor for which the Contractor would not be reimbursed by a payment made under any other provision in this Contract, then unless the same were issued owing to some breach of this Contract by the Contractor, the Contractor shall within one (1) month of receipt of such instruction, give notice in writing of his intention to claim for such expense or loss to the S.O. together with an estimate of the amount of such expense and/or loss, subject always to Clause 48 (a) hereof.

6. Notices

Notices.

The Contractor shall notify the S.O. an address where written notices and instructions of the S.O. under this Contract may be served upon him and shall inform the S.O. of any change in his address. In the event of the Contractor failing to notify the S.O. of such an address or any change in his address, such written notices and instructions shall be deemed to have been served upon the Contractor if they are sent to him by registered post to the address stated in this Contract or if they are left at his office on the Site and an acknowledgement receipt thereof is obtained from the Contractor's Site agent.

7. Contract Documents

Schedule of Rates.

(a) The Contractor shall before the signing of this Contract agree with the S.O. as to the reasonableness of the rates and/or prices set down in the Schedule of Rates.

Custody of Contract Documents.

(b) The Contract Documents aforesaid shall remain in the custody of the S.O. and shall be produced as and when required by the Contractor.

Copies of Contract Documents.

(c) Immediately after the execution of this Contract the S.O. shall furnish without charge to the Contractor (unless he shall have been previously furnished) with:

(i) one certified true copy of the Contract Documents;

(ii) two copies of the Contract Drawings; and

(iii) two copies of the Specification and (if requested by the Contractor) one copy of the Schedule of Rates.

Copies of working Drawings.

(d) The S.O. shall, as and when necessary and without charge to the Contractor, furnish him with two copies of such further working drawings or details as are reasonably necessary either to explain and amplify the Contract Drawings or the Specification or to enable the Contractor to construct and complete the Works in accordance with this Contract. Provided that nothing contained in the said working drawings or details shall impose any obligation beyond those imposed by the Contract Documents.

Documents on Site

(e) The Contractor shall keep one copy of the Contract Drawings and the Specification and other like documents referred to in sub-clause (d) hereof on the Site and the S.O. shall at all reasonable time have access to the same.

Return of documents.

(f) Upon final payment on the Final Certificate under Clause 48 hereof the Contractor shall if so requested by the S.O., forthwith return to the S.O. all drawings, details, specifications and other documents of like nature.

Restriction in use.

(g) None of the documents hereinbefore mentioned shall be used by the Contractor for any purpose other than this Contract.

8. Sufficiency of Contract Documents

- (a) The Contract Documents are to be taken as mutually explanatory of one another. The Contractor shall provide everything necessary for the proper execution of the Works until its completion according to the true intent and meaning of the Contract Documents taken together whether the same may or may not be particularly shown or described provided the same is reasonably inferred therefrom. Contract Documents mutually explanatory
- (b) If the Contractor shall find any discrepancy in or divergence between any two or more of the Contract Documents including a discrepancy or divergence between parts of any one of them, he shall immediately give to the S.O. a written notice specifying the discrepancy or divergence and the S.O. shall issue instructions in regard thereto. Provided always that such discrepancy or divergence shall not vitiate this Contract. Discrepancy

9. Materials and Workmanship

- (a) All materials, goods and workmanship shall be of the respective kinds and standards described in the Specification. The Contractor shall upon the request of the S.O. furnish him with vouchers and/or manufacturer's test certificates to prove that the materials and goods comply therewith. Quality of materials, goods and workmanship.
- (b) The Contractor shall entirely at his own cost provide samples of materials and goods for testing. The Contractor shall when instructed by the S.O. under Clause 5 (a) (vi) hereof open up for inspection any work covered up, or arrange for or carry out any test of any materials or goods or of any executed work which the S.O. may in writing require and the cost of such opening up or testing (together with the cost of making good in consequence thereof) shall be added to the Contract Sum unless provided for in the Contract Document by way of Provisional Sums or otherwise or unless the inspection or test shows that the work, materials or goods are not in accordance with this Contract. Samples, Testing of Materials and Works covered up.

10. Unfixed Materials and Goods

Unfixed materials and goods delivered to, placed on or adjacent to the Works and intended for incorporation therein, shall not be removed except for use upon the Works, unless the S.O. has consented in writing to such removal. Where the S.O. has included the value of such materials or goods in any certificate in accordance with Clause 47, under which the Contractor has received payment, such materials and goods shall become the property of the Government, but the Contractor shall remain responsible for loss or damage to the same. Unfixed materials and goods.

11. Statutory Obligations

- (a) The Contractor shall give all notices and pay all fees and charges required to be given or paid under any written law, regulations and bye-laws in relation to the execution of the Works or of any temporary works. Compliance with written law, regulations and bye-laws
- (b) Any costs incurred by the Contractor in relation to fees and charges for removal of sewerage and supply of water and electricity, for the installation of permanent connections to public sewers and permanent water and electricity supply shall be borne by the Government. The Government shall reimburse the Contractor for such costs by adding it to the Contract Sum provided that such costs have not already been included in the Contract Sum by way of Provisional Sum or otherwise. Charges to be borne by the Government.
- (c) In addition, the Contractor shall also comply in all other respect with the provision of any such written law, regulations and bye-laws which may be applicable to the Works or to any temporary works and shall keep the Government indemnified against all penalties and liabilities of every kind for breach of any such provisions. Indemnity to the Government.
- (d) If after the Date of Tender (as specified in the Appendix hereto) there is any change or amendment in any such written law, regulations and bye-laws which necessitates any variation to the Works or any temporary works, the Contractor shall before making such variation give to the S.O. written notice specifying and giving the reason for such variation and applying for an S.O.'s instruction in reference thereto. Change in written law etc.

12. Fossils etc.

All fossils, coins, articles of value or antiquities and structures and other remains or things of geological or archaeological interest discovered on the Site of the Works shall be deemed to be the absolute property of the Government and the Contractor shall take reasonable precautions to prevent his workmen or any other persons from removing or damaging any such articles or thing and shall, immediately upon discovery thereof and before removal, acquaint the S.O. or S.O.'s Representative of such discovery and carry out, at the expense of the Government, the S.O.'s orders as to the disposal of the same. Fossils etc.

13. Patent Rights and Royalties

Patent rights and royalties.

The Contractor shall save harmless and indemnify the Government from and against all claims and proceedings for or on account of infringement of any patent rights, design, trade-mark or name or other protected rights in respect of any plant, machine work or material used for or in connection with the Works or any of them and from and against all claims, demands, proceedings, damages, costs, charges and expenses whatsoever in respect thereof or in relation thereto. Except where otherwise specified, the Contractor shall pay all tonnage and other royalties, rent, fees and other payments or compensation (if any) for getting stone, sand, gravel, clay or other materials required for the Works or any of them.

14. Setting Out

Setting out.

The S.O. shall determine any levels, boundary stones and any other points of reference which may be required for the execution of the Works, and shall furnish to the Contractor such information as shall enable the Contractor to set out the Works at ground level. The Contractor shall be responsible for and shall entirely at his own cost amend any errors arising from his own inaccurate setting out.

15. Inspection of Site

Inspection of Site.

The Contractor shall be deemed to have inspected and examined the Site and its surroundings and to have satisfied himself before submitting his tender as to the nature of the ground and sub-soil, the form and nature of the Site, the extent and nature of the work, materials and goods necessary for the completion of the Works, the means of communication with and access to the Site, the accommodation he may require and in general to have obtained for himself all necessary information as to risks contingencies and all circumstances influencing and affecting his tender. Any information or document given or forwarded by the Government to the Contractor shall not relieve the Contractor of his obligations under the provisions of this Clause. The Government gives no warranty for the information or document either as to the accuracy or sufficiency or as to how the same should be interpreted or otherwise howsoever and the Contractor shall make use of and interpret the same entirely on his own risk.

16. Employment of Workmen

Malaysian citizens.

(a) The Contractor shall employ in the execution of this Contract only Malaysian citizens as workmen. If in any particular trade or skill required to complete the Works, the Contractor can show to the satisfaction of the S.O. that Malaysian citizens are not available, then the Contractor may employ non-Malaysian citizens subject to the approval of the Ministry of Labour and Manpower.

Ratio of workmen.

(b) The ratio of Malaysian citizens who shall be employed by the Contractor in the execution of this Contract shall reflect the racial ratio of the citizens of this country as prescribed by the Government from time to time. This ratio can be varied only with the written consent of the S.O.

Particulars of labour.

(c) The Contractor shall on the commencement of the Works furnish to the Department of Labour of the State in which this Contract is performed all particulars connected with this Contract and such returns as may be called for from time to time in respect of labour employed by him on the execution of this Contract, in accordance with the requirements of the Employment Ordinance 1955, Employment (Restriction) Act 1968, and Internal Security (Registration of Labour) Regulation 1960 or any subsequent modification or re-enactment thereof. The Contractor shall maintain on the Site at all times during the progress of the Works an up to date register containing particulars of all workers employed by him.

Source of labour.

(d) All workmen employed in connection with the Works shall be employed from within the District where the Works are situated and where such workmen are not available in the said District, then from within the State where the Works are situated. The Contractor shall immediately after receipt of acceptance of tender arrange with the Local Labour office, District Officer/Pegawai Jajahan or Penghulu/Penggawa to effect such employment. This provision may be varied only with the written consent of the S.O.

On-Site Training Programme.

(e) The Contractor shall, whenever required by the Government, employ on the Works trainees who will be made available by the Manpower Department, Ministry of Labour and Manpower, for purpose of providing them with on the Site training for such period as may be required by the Government. The conditions for the employment of such trainees are as set out in the Special Provisions to the Conditions of Contract for On-Site Training Programme.

Compliance by Sub-contractors.

(f) The Contractor shall cause his sub-contractors (including "labour-only" sub-contractors) and Nominated Sub-contractors to comply with the provisions of this Condition.

17. Compliance with Employment Ordinance 1955 etc.

In the employment of workmen for the execution of this Contract, the Contractor shall comply and shall cause his sub-contractors (including "labour only" sub-contractors) and Nominated Sub-contractors to comply with all the requirements of the Employment Ordinance 1955, Employment (Restriction) Act 1968, Employee's Provident Fund Ordinance 1951, the Industrial Relation Act 1967 and any other law relating to the employment of workmen, or any subsequent modification or re-enactment thereof. Provided that the Contractor shall not be entitled to any claim for additional costs and payments whatsoever in respect of his compliance with this Condition.

Compliance with Employment Ordinance 1955 etc.

18. Days and Hours of Working

No work shall be done on:

- (i) the weekly day of rest;
- (ii) any public holiday which is recognised in the district where this Contract is being carried out; or
- (iii) between the hours of six in the evening and six in the following morning;

Days and hours of working.

without the written permission of the S.O. provided that when such written application of the Contractor is approved by the S.O. the Contractor shall comply fully with all the requirements of the Employment Ordinance 1955 in regard thereto or any subsequent modification or re-enactment thereof and shall bear any costs for compliance therewith.

19. Foreman and Assistants

Unless otherwise provided elsewhere in this Contract, the Contractor shall keep constantly on the Site of the Works a competent general foreman and such assistants in each trade as may be necessary who must be capable of receiving instructions in Bahasa Malaysia or English, and in default, they shall be supplied by the Government and all wages and other expenses in connection with the employment of such foreman shall be borne solely by the Contractor. Such foreman shall be deemed to be the Site agent of the Contractor for the purpose of this Contract and any directions, explanations or instructions given to such foreman by the S.O. shall be deemed to have been given to the Contractor under this Contract.

Foreman and assistants.

20. Wages Books and Time Sheets

The Contractor shall keep and shall cause his sub-contractors (including "labour only" sub-contractors) and Nominated Sub-contractors to keep proper wages books and time sheets showing wages paid to and the time worked by all workmen employed by him and his sub-contractors as aforesaid in and for the performance of this Contract and shall produce such wages books and time sheets on demand for inspection by any persons duly authorised by the S.O. and shall furnish to the S.O. or S.O.'s Representative such information relating to the wages and conditions of employment of such workmen as the S.O. may from time to time require.

Wages books and time sheets.

21. Default in Payment of Wages

In the event of default being made in the payment of any money in respect of wages, a claim of which has been filed in an office of the Department of Labour, and/or payment in respect of Employee's Provident Fund Contributions of any workmen employed by the Contractor or his sub-contractors (including "labour only" sub-contractors) and Nominated Sub-contractors in and for the performance of this Contract, then the S.O. having satisfied himself with the proof thereof furnished to him may, upon the failure of the Contractor to pay the said money, make payment of such claim to the Director-General of Labour and/or Employee's Provident Fund Board, as the case may be, out of any monies at any time due to the Contractor under this Contract and such payment shall be deemed to be a payment made to the Contractor by the Government under and by virtue of this Contract.

Default in payment of wages.

22. Discharge of Workmen

The Contractor shall only employ such technical staff, foremen, artificers and labourers on the Works as are thoroughly efficient and of good character. If, in the sole opinion of the S.O. any person employed by the Contractor misconducts himself or has caused delays or is incompetent, the Contractor when so directed by the S.O. in writing, shall at once remove such person from the Works and he shall not again be employed on the Works without the written permission of the S.O. Any person so removed from the Works shall be replaced without delay by a competent substitute approved by the S.O. Provided that the Contractor shall not be entitled to any claim for any expense whatsoever incurred by him in respect of any direction given by the S.O. under this Condition.

Discharge of workmen.

23. Access for S.O. to the Works etc.

Access for
S.O. to
the Works
etc.

The S.O. and S.O.'s Representative shall at all reasonable times have access to the Works and Site and to the workshops or other places of the Contractor where work is being prepared for this Contract and where work is being so prepared in workshops or other places of a sub-contractor or a Nominated Sub-contractor, the Contractor shall, by a term in the sub-contract, so far as possible secure a similar right of access to those workshops or places for the S.O. and S.O.'s Representative and shall do all things reasonably necessary to make such right effective.

24. Variations

Power to
order and
subsequent
confirmation.

(a) The S.O. may at his absolute discretion issue instructions requiring a variation and he may confirm in writing pursuant to Clause 5 (c) hereof any oral instruction requiring a variation to the Works. No variation required by the S.O. or subsequently confirmed by him shall vitiate this Contract.

Definition
of variation.

(b) The term "variation" means the alteration or modification of the design, quality or quantity of the Works as shown upon the Contract Drawings and Specification, and includes the addition, omission or substitution of any work, the alteration of the kind or standard of any of the materials or goods to be used in the Works and the removal from the Site of any work, materials or goods executed or brought thereon by the Contractor for the purposes of the Works other than work, materials or goods which are not in accordance with this Contract.

25. Valuation of Variations

Measurement

(a) All variations authorised as herein provided, or subsequently confirmed by the S.O. in writing, shall be measured and valued by the S.O. who shall give to the Contractor or his site agent an opportunity of being present at the time of such measurement and of taking such notes and measurement as the Contractor may require. Should the Contractor or his site agent not attend or neglect to attend, then the measurement made by the S.O. or approved by him shall be taken as correct measurement of the work. The Contractor shall be supplied with a copy of the measured bill.

Valuation of
variations

(b) The valuation of variations, unless previously or otherwise agreed shall be made in accordance with the following rules:

(i) The rates in the Schedule of Rates, after adjustment if necessary as provided in Clause 7 (a) hereof, shall determine the valuation of work (other than work involving a whole addition of any item of work priced in the Summary of Tender, which shall be valued in accordance with rule (iii) hereof) of similar character and executed under similar conditions as work priced therein;

(ii) The said rates, where work is not of a similar character or executed under similar conditions as aforesaid, shall be the basis of rates for the same, so far as may be reasonable, failing which a fair valuation thereof shall be made by the S.O.;

(iii) Where work involves a whole addition of any similar item of work and executed under similar conditions as work priced in the Summary of Tender, the price of such item of work in the Summary of Tender shall be the basis of the valuation of the said item of work;

(iv) Where work cannot properly be measured or valued the Contractor shall be allowed day-work price, plus fifteen percent, which shall include for the cost of all ordinary plant, tools, scaffolding, supervision and profit. Provided always that as a condition precedent to any right to any payment the Contractor shall produce vouchers, receipts and wage books specifying the time for labour and plant employed and materials used to the S.O. not exceeding seven (7) days after the work shall have been done. Unless otherwise provided in the Schedule of Rates, the daywork prices for the purpose of this Contract shall be taken to mean the actual net cost to the Contractor of his materials, plant and labour for the work concerned.

(v) The rates in the Schedule of Rates shall determine the valuation of work omitted; provided that if omission involves a whole omission of any item of work in the Summary of Tender, the price of such item of work in the Summary of Tender shall be the basis of valuation of the item omitted.

Adjustment of
Contract Sum

(c) The amount to be allowed in respect of variations, as ascertained under sub-clause (b) above, shall be added to or deducted from the Contract Sum, as the case may be.

26. Summary of Tender

- (a) (i) The Summary of Tender shall form part of this Contract and shall be the basis of the Contract Sum. Prices in the Summary of Tender
- (ii) Prices in the Summary of Tender submitted by the Contractor shall be subject to the prior consent of the S.O. as to their reasonableness. Such prior consent and any subsequent adjustment to the prices in the Summary of Tender shall be made before the signing of this Contract.
- (iii) Any adjustment of the prices in the Summary of Tender by the preceding paragraph (ii) above, and any arithmetical error in the Summary of Tender shall before the signing of this Contract be so adjusted and rectified that the total amount in the Summary of Tender shall correspond to the lump sum amount tendered by the Contractor in the Form of Tender. Provided always the lump sum amount shown in the Form of Tender shall remain unaltered.
- (b) Subject to Clauses 8 (a) and 15 hereof, the quality and quantity of the Works included in the Contract Sum shall be deemed to be that which is shown upon the Contract Drawings or described in the Specification and/or the Summary of Tender. Where quantities of work are given in the Contract Drawings and/or the Specification and/or the Summary of Tender for the purpose of tendering, unless otherwise stated, these shall be deemed to form part of this Contract and the method of measurement of and payment for the same shall be made in accordance with the rules as set down in the Contract Drawings and/or the Specification and/or Summary of Tender. Quantities

27. Sub-Letting and Assignment

- (a) Except where otherwise provided by this Contract the Contractor shall not sub-let the whole or any part of the Works without the prior written consent of the S.O. which shall not be unreasonably withheld to the prejudice of the Contractor, and such consent, if given, shall not relieve the Contractor from any liability or obligation under this Contract and he shall be responsible for the due observance by such sub-contractors of all the terms, stipulations and conditions under this Contract. The Contractor shall also be responsible for the acts, defaults or neglects of any sub-contractor, (including in this instance, "labour only" sub-contractors), his agents, servants or workmen as fully as if they were the acts, defaults or neglects of the Contractor, his agents, servants or workmen. Provided always that the provision of labour on a piecework basis shall not be deemed to be a sub-letting under this Condition. Consent of the S.O.
- (b) It shall be a condition in any sub-letting which may occur that the employment of the sub-contractor under the sub-contract shall determine immediately upon the determination of the Contractor's employment under this Contract and no claim whatsoever shall be made by the Contractor and/or sub-contractor against the Government for any work done and/or materials or goods supplied. Determination of sub-contract.
- (c) All sub-contractors employed in connection with the Works shall be employed from within the District where the Works are situated and where such sub-contractors are not available in the said District, then from within the State where the Works are situated. This provision may be varied only with the written consent of the S.O. Employment of sub-contractors
- (d) The Contractor shall not assign this Contract or any part thereof, or any benefit or interest therein or thereunder, otherwise than by way of assignment in favour of the Contractor's bankers or any financial institution or Corporation of any monies due or to become due under this Contract, without the prior written consent of the Government. Assignment of benefits.

28. Nominated Sub-Contractors and/or Nominated Suppliers

- (a) All specialists, merchants, tradesmen and others executing any work or services, or supplying any materials or goods for which Prime Cost Sums (or P.C. Sums) are included in the Contract Documents or for which the S.O. has given written instructions in regard to the expenditure of Provisional Sums, who may be nominated by the S.O. are hereby declared to be sub-contractors or suppliers employed by the Contractor and are herein referred to as "Nominated Sub-contractors" or "Nominated Suppliers", as the case may be. Definition
- (b) The S.O. or the Contractor if so instructed in writing by the S.O., shall obtain tenders for Nominated Sub-contractor's work or services, or for the supply of materials or goods in respect of which Prime Cost Sums or Provisional Sums are included in the Contract Documents as aforesaid and the Contractor shall on the written instruction of the S.O. enter into such sub-contracts with the Nominated Sub-contractor or Nominated Supplier as the case may be and such sub-contracts shall be in the form as referred to in sub-clause (c) (ii) of this Condition. Nomination.

Bantahan terhadap penamaan.

(c) P.P. tidak boleh menamakan sebagai subkontraktor atau pembekal berhubungan dengan Kerja:

- (i) seseorang yang terhadapnya Kontraktor membuat secara bertulis apa yang difikirkan oleh P.P. sebagai bantahan yang berpatutan dalam tempoh empat belas (14) hari selepas arahan P.P., di bawah subfasal (b) Syarat-syarat ini;
- (ii) seseorang yang enggan mengikat suatu subkontrak atas terma dan syarat sebagaimana diperuntukkan dalam borang subkontrak Kerajaan yang standard bagi Subkontraktor Dinamakan (Borang JKR 203M) atau bagi Pembekal Dinamakan (Borang JKR 203P), mengikut mana yang berkenaan.

Kuasa-kuasa bertukar di bantahan.

(d) Jika, menurut subfasal (c) di atas, Kontraktor tidak dikehendaki membuat suatu subkontrak dengan Subkontraktor Dinamakan atau Pembekal Dinamakan, mengikut mana yang berkenaan, maka P.P. hendaklah melakukan satu atau lebih dari yang berikut:

- (i) menamakan seorang subkontraktor atau pembekal alternatif, mengikut mana yang berkenaan, yang mana dalam hal sedemikian itu subfasal (c) Syarat-syarat ini hendaklah dipakai;
- (ii) dengan perintah di bawah Fasal 24 mengubah Kerja atau kerja atau perkhidmatan, bahan atau barang-barang, yang menjadi perkara Wang Kos Prima atau Wang Peruntukan Sementara sebagaimana tersebut di atas, termasuk jika perlu peninggalan apa-apa kerja atau perkhidmatan, bahan atau barang-barang itu supaya ia boleh disediakan oleh pekerja, kontraktor atau pembekal, mengikut mana yang berkenaan, yang diambil bekerja oleh Kerajaan samada serentak dengan Kerja itu atau pada suatu tarikh yang lain;
- (iii) mengikut Fasal 30 (d) mengaturkan bagi Kontraktor untuk melaksanakan kerja atau perkhidmatan itu atau untuk membekalkan bahan atau barang-barang itu.

Bayaran kepada Subkontraktor Dinamakan atau Pembekal Dinamakan.

(e) Perakuan-perakuan Interim daripada P.P. untuk faedah Kontraktor di bawah Fasal 47 Syarat-syarat ini hendaklah menyatakan secara berasingan dalam tiap-tiap satu perakuan amaun yang kena dibayar kepada tiap-tiap Subkontraktor Dinamakan atau Pembekal Dinamakan sebagai nilai kerja atau perkhidmatan yang mereka laksanakan, bahan atau barang-barang yang mereka serah-hantar pada tarikh yang berkenaan di bawah Fasal tersebut, yang mana amaun itu hendaklah dibayar oleh Kontraktor kepada Subkontraktor Dinamakan atau Pembekal Dinamakan itu dalam tempoh empat belas (14) hari selepas Kontraktor menerima daripada Kerajaan amaun-amaun yang kena dibayar sedemikian itu di bawah perakuan P.P. Dengan syarat bahawa Kontraktor berhak untuk membuat potongan ke atas apa-apa jumlah wang yang kena dibayar kepadanya oleh Subkontraktor Dinamakan atau Pembekal Dinamakan.

Nayaran terus.

(f) Dengan syarat sentiasanya bahawa sebelum mengeluarkan sesuatu perakuan di bawah Fasal 47 Syarat-syarat ini, P.P. adalah berhak meminta daripada Kontraktor bukti yang munasabah bahawa semua amaun yang termasuk dalam perakuan yang lalu mengenai jumlah nilai kerja atau perkhidmatan, bahan atau barang-barang yang dilaksanakan atau diserahkan oleh mana-mana Subkontraktor Dinamakan atau Pembekal Dinamakan telah dibayar atau dijelaskan oleh Kontraktor, sekiranya syarat itu dimungkirkan maka Kerajaan adalah berhak membayar terus amaun yang kena dibayar, tetapi yang belum dibayar lagi, kepada Subkontraktor Dinamakan atau Pembekal Dinamakan itu berdasarkan perakuan P.P. Dengan syarat selanjutnya bahawa dalam hal kemungkinan tersebut, Kerajaan adalah berhak membuat semua bayaran terus kepada Subkontraktor Dinamakan atau Pembekal Dinamakan semua amaun yang kemudiannya genap masanya dibayar kepada Subkontraktor Dinamakan atau Pembekal Dinamakan tersebut di mana amaun itu telah diperakui oleh P.P. menurut subfasal (e) Syarat-syarat ini. Amaun yang dibayar terus sedemikian itu kepada Subkontraktor Dinamakan dan/atau Pembekal Dinamakan oleh Kerajaan menurut subfasal ini hendaklah dipotong dari apa-apa jumlah wang yang kena dibayar atau mungkin genap masanya dibayar oleh Kerajaan kepada Kontraktor.

Tiada apa-apa hubungan kontrak antara Kerajaan dan Subkontraktor Dinamakan dan/atau Pembekal Dinamakan.

(g) Tiada apa-apa jua yang terzhahir atau kuasa-kuasa tersebut di atas atau apa-apa jua perkara lain yang terkandung dalam Kontrak ini boleh mewujudkan hubungan kontrak antara Kerajaan dengan mana-mana Subkontraktor Dinamakan atau Pembekal Dinamakan atau menyebabkan Kerajaan bertanggungjawab ke atas mana-mana daripada mereka itu.

29. TANGGUNGJAWAB KONTRAKTOR ATAS SUBKONTRAKTOR DINAMAKAN DAN/ATAU PEMBEKAL DINAMAKAN

Tanggungjawab atau Subkontraktor Dinamakan dan/atau Pembekal Dinamakan.

(a) Dalam dan bagi maksud Kontrak ini, Kontraktor hendaklah bertanggungjawab penuh untuk memastikan bahawa Subkontraktor Dinamakan dan/atau Pembekal Dinamakan akan mematuhi terma-terma dan syarat-syarat Kontrak ini dan hendaklah bertanggungjawab penuh atas perbuatan, kemungkinan atau pelanggaran mana-mana terma-terma dan/atau syarat-syarat Kontrak ini oleh Subkontraktor Dinamakan dan/atau Pembekal Dinamakan di pihak mereka sama caranya seperti yang dilakukannya sendiri atau apa-apa yang dilakukan oleh subkontraktor atau pembekal lain yang diguna khidmat olehnya sendiri, dan Kerajaan tidak, dalam apa-apa hal keadaan sekalipun, bertanggungjawab kepada Kontraktor atas kemungkinan mana-mana Subkontraktor Dinamakan atau Pembekal Dinamakan.

(b) In the event of repudiation or abandonment of his sub-contract by any Nominated Sub-contractor or Nominated Supplier, or the determination by the Contractor of the employment of the Nominated Sub-contractor or Nominated Supplier for any reason whatsoever under the sub-contract, the Contractor shall do one of the following:

Termination of sub-contract

- (i) with the consent of the S.O. (such consent not to be unreasonably withheld) employ another competent sub-contractor or supplier to complete the sub-contract; or
- (ii) himself undertake to complete the sub-contract.

Provided that in any of such events the Contractor is entitled to be paid the same sum for the work or services to be executed, or materials or goods to be supplied, as would have been payable had the original Nominated Sub-contractor or Nominated Supplier completed the sub-contract without any default on his part.

30. Prime Cost and Provisional Sums

(a) The term "Prime Cost" or abbreviation "P.C." Sum as provided in the Contract Documents shall mean a sum for works or services to be executed by a Nominated Sub-contractor or for materials or goods to be obtained from a Nominated Supplier. The sums due to the Contractor in respect of such Nominated Sub-contractors or Nominated Suppliers aforesaid shall be determined by deducting the relevant P.C. Sums and the relevant profit and/or attendance charges from the Contract Sum and then substituting therefor the amounts due to the relevant Nominated Sub-contractor or Nominated Supplier as specified in the relevant sub-contract and the sums due to the Contractor by way of profit and/or attendance charges at the rates or prices that may have been priced by the Contractor in the Contract Documents. Such sums shall be paid and expended in accordance with Clause 23 (e) and (f) hereof.

Definition and Payment of P.C. Sums.

(b) The term "Provisional Sum" provided in the Contract Documents shall mean a sum for work or for the supply of goods or materials which cannot be entirely foreseen, defined or detailed at the time the tender documents are issued and such sum may be paid and expended at such times and in such amounts in favour of such persons as the S.O. may direct. Such sum if not used either wholly or in part shall as to the amount not used be deducted from the Contract Sum. The value of works which are executed by the Contractor in respect of Provisional Sums shall be ascertained in accordance with Clause 25 hereof. At the settlement of the accounts the said value of such works executed by the Contractor shall be set off against all such Provisional Sums and the balance shall be added to or deducted from the Contract Sum as the case may be.

Definition and Payment of Provisional Sums.

(c) Any work to be executed, or materials or goods to be supplied for which Provisional Sums are provided in the Contract Documents may, if the S.O. so decides, be treated as P.C. Sum items and shall be dealt in accordance with sub-clause (a) hereof.

Conversion of Provisional Sum to P.C. Sum.

(d) Where the Contractor in the ordinary course of his business directly carried out works for which P.C. Sums are provided in the Contract Documents and where such works are set out in the Appendix hereto and the S.O. is prepared to accept tenders from the Contractor for such works the Contractor shall be permitted to tender for the same or any of them without prejudice to Government's right to reject the lowest or any tender. If the tender of the Contractor for any work included in the P.C. Sum is accepted, such tender shall be held to include the profit and attendance charges, and the Contractor shall not be entitled to the profit and attendance charges, as contained in the Contract Documents, notwithstanding any provision to the contrary under sub-clause (a) hereof.

P.C. Sums for which the Contractor is permitted to tender.

31. Artists and Tradesmen

The Contractor shall permit the execution of work not forming part of this Contract by artists or tradesmen or others who may be engaged by the Government.

Artists and Tradesmen.

32. Indemnities to Government in Respect of Personal Injuries and Damage to Property

(a) The Contractor shall be liable for and shall indemnify the Government against any damage, expense, liability, loss, claim or proceedings whatsoever whether arising at common law or by statute in respect of personal injury to or death of any person whomsoever arising out of or in the course of or by reason of the execution of the Works:

Injury to persons.

(b) The Contractor shall be liable for and shall indemnify the Government against any damage, expense, liability, loss, claim or proceedings due to injury or damage of any kind to any property real or personal (including the Works and any other property of the Government) insofar as such injury or damage arises out of or in the course of or by reason of the execution of the Works, and provided always that the same is due to any negligence, omission, breach of Contract or default of any person for whom the Contractor is responsible including the Contractor's servants or agents or of any sub-contractor, whether nominated or otherwise, and his servants or agents.

Damage to property.

Negligence
of Govern-
ment or
S.O.

- (c) The indemnities given by the Contractor under sub-clauses (a) and (b) hereof shall not be defeated or reduced by reason of any negligence or omission of the Government or the S.O. or the S.O.'s representatives in failing to supervise or control the Contractor's site operations or methods of working or temporary works, or to detect or prevent or remedy defective work, or to ensure proper performance of any other obligations of the Contractor under this Contract.

33. Insurance against Personal Injuries and Damage to Property

Taking of
insurance.

- (a) Without prejudice to his liability to indemnify the Government under Clause 32 hereof, the Contractor shall as a condition precedent to the commencement of any work under this Contract effect and maintain and shall cause any sub-contractor, whether nominated or otherwise, to effect and maintain such insurances whether with or without an excess clause as specified in the Appendix hereto as are necessary to cover the liability of the Contractor or of any such sub-contractor as the case may be, in respect of personal injuries or death arising out of or in the course of or by reason of the execution of the Works and in respect of injury or damage to property, real or personal, arising out of or in the execution of the Works and caused by any negligence, omission, breach of contract or default of the Contractor or any sub-contractor, whether nominated or otherwise, or of any servants or agents of the Contractor or any such sub-contractor, whether nominated or otherwise. Where an excess clause is specified in the Appendix the Contractor shall bear the amount of such excess.

Production
of policies.

- (b) Such insurance as referred to under sub-clause (a) hereof shall be effected and maintained in the joint names of the Government and Contractor and where applicable any sub-contractor, whether nominated or otherwise for the whole construction period and in such manner that the Government and the Contractor are also covered during the Defects Liability Period for any claim occasioned by the Contractor or any sub-contractor in the course of any operations carried out by him or any sub-contractor for the purpose of complying with his obligations under Clause 45 hereof. It shall be the duty of the Contractor to produce or cause any sub-contractor, whether nominated or otherwise, to produce the relevant policy or policies of the insurance together with receipts in respect of premiums paid to the S.O., whether demanded or not.

Default in
renewing
insurance.

- (c) Should the Contractor or any sub-contractor, whether nominated or otherwise, makes default in renewing such insurance as are necessary under this Condition, the Government or the S.O. on its behalf may renew such insurance as aforesaid and may deduct a sum equivalent to the amount paid in respect of premiums paid from any monies due or to become due to the Contractor.

34. Workmen's Compensation

Indemnity to
Government.

- (a) The Contractor shall be liable for and shall indemnify and keep indemnified the Government and its officers or servants from all liabilities arising out of claims by any and every workman employed in and for the performance of this Contract for payment of compensation under or by virtue of the Workmen's Compensation Ordinance 1952 and the Employee's Social Security Act, 1969 or any other law amending or replacing such law and from all costs and expenses incidental and consequential thereto.

Taking of
insurance.

- (b) (i) Without prejudice to his liability to indemnify the Government under sub-clause (a) above, the Contractor shall at his own cost and expense and as a condition precedent to the commencement of any work under this Contract take out in the joint names of the Government and the Contractor (and of the Contractor's own sub-contractors, if any) a policy or policies of insurance from an approved insurance company as are necessary to cover the liability of the Contractor in respect of workmen employed by him and by his own sub-contractors, and shall cause any Nominated Sub-contractor to take out, as a condition precedent to the commencement of any work under the sub-contract, a policy or policies of insurance in the joint names of the Government, the Contractor and the Nominated Sub-contractor as are necessary to cover the liability of the Contractor in respect of workmen employed by the Nominated Sub-contractor.

Endorsements.

- (ii) The said policy or policies so taken out shall be endorsed as follows:

Endorsement "A"—"It is hereby understood and agreed that in the event of any workman employed by the within Insured or by the Insured's Contractors as referred to in Endorsement "B" hereon or any dependant of such workman, bringing or making a claim under the Workmen's Compensation Ordinance in force in Malaysia against any officer of the Government of Malaysia or any State thereof for personal injury or death or disease sustained whilst at work on any Contract covered by the terms and conditions of the within policy which the Insured may be carrying out for the said officer or Government, the Company will indemnify the said officer

or Government against such claim and any costs, charges and expenses in respect thereof. Provided always that the Company shall be entitled to have the sole conduct and control of all proceeding connected with claims covered by this endorsement. Nothing in this endorsement shall be construed as affecting the Insured's right to recover damages in any other way under the said Ordinance".

Endorsement "B"—"It is hereby understood and agreed that the indemnity herein granted is to cover the legal liability of the Insured to workmen in the employment of Contractors performing work for the Insured while engaged in the business and occupation in respect of which the within policy is granted but only so far as regards claims under the Workmen's Compensation Ordinance in force in Malaysia".

- (c) The said policy or policies so taken out shall be deposited with the S.O. and the Contractor shall maintain it or them in full force and effect by payment of all premiums from time to time on the first day on which the same ought to be paid for the whole construction period and in such manner that the Contractor and the Government are also covered during the Defects Liability Period for any claim occasioned by the Contractor in the course of any operations carried out by him for the purpose of complying with his obligations under Clause 45 hereof, and it shall be the duty of the Contractor to produce to the S.O. the receipts in respect of premium paid, whether demanded or not. Production of policies
- (d) If any default is made by the Contractor in complying with the terms of this Condition the Government or the S.O. on its behalf may without prejudice to any other remedy available to the Government for breach of any term of this Contract: Default in insuring.
- (i) withhold an amount from any money which would otherwise be due to the Contractor under this Contract and which in the opinion of the S.O. will satisfy any claim for compensation by workmen that would have been borne by an insurance company had the Contractor not made default in maintaining a policy of insurance, and/or
 - (ii) pay such premiums as have become due and remain unpaid and deduct the amount of such premium from any monies due or to become due to the Contractor under this Contract.
- (e) Nothing in this Condition shall be construed to take away or to waive or in any manner to modify the right of the Government to be indemnified by the Contractor under Sub-clause (a) of this Condition. Non-waiver of Government's right to indemnity

35. Employee's Social Security Act, 1969

- (a) The Contractor will not be required to take out any Workmen's Compensation Insurance Policy under Clause 34 (b) hereof if the workers employed in the Works are liable for coverage under the Employee's Social Security Act, 1969. In such a case the Contractor shall register his employees and contribute under the Social Security (SOCSO) Scheme in the places where the Scheme is implemented and comply with the provisions of the said Act. The Contractor shall submit the Code Number and Social Security Numbers of all the workers on site to the S.O. for checking. Registration with SOCSO
- (b) The Contractor shall make payment of all contributions from time to time on the first day on which the same ought to be paid and until the completion of his Contract and it shall be the duty of the Contractor to produce to the S.O. contribution cards or stamp vouchers as evidence of payment of such contribution, whether demanded or not. Contribution to SOCSO.
- (c) If any default is made by the Contractor in complying with the terms of this Clause, the Government or the S.O. on its behalf may without prejudice to any other remedy available to Government for breach of any terms of this Contract: Default in complying with the Act.
- (i) withhold an amount from any money which would otherwise be due to the Contractor under this Contract and which in the opinion of the S.O. will satisfy any claims for compensation by workmen that would have been borne by SOCSO Scheme had the Contractor not made default in maintaining the contribution, and/or
 - (ii) pay such contributions as have become due and remain unpaid and deduct the amount of such contributions from any monies due or to become due to the Contractor.
- (d) Nothing in this Condition shall be construed to take away or to waive or in any manner to modify the right of the Government to be indemnified by the Contractor under Clause 34 (a) in respect of all compensation, costs and other expenses whatsoever which by reason of the Contractor's default or otherwise become payable by the Government under the said Legislation or other law. Non-waiver of Government's rights to indemnity.

36. Insurance of Works

Risks to be insured.

(a) The Contractor shall in the joint names of the Government and Contractor insure against loss and damage by fire, lightning, explosion, storm, tempest, flood, ground subsidence, bursting or overflowing of water tanks, apparatus or pipes, aircraft and other aerial devices or articles dropped therefrom, riot and civil commotion, all work executed and all unfixed materials and goods, delivered to, placed on or adjacent to the Works and intended therefor (but excluding temporary buildings, plant, tools and equipment owned or hired by the Contractor or any sub-contractor, nominated or otherwise) to the full value thereof (plus any amount which may be specifically stated in the Appendix to these Conditions or elsewhere in the Contract Documents) and shall keep such work, materials and goods so insured until the completion of the whole of the Works, notwithstanding any arrangement for Sectional Completion or Partial Occupation by the Government under this Contract. Such insurance policy or policies shall provide expressly for payment in the first place to the Government of any insurance monies due under the policy or policies.

Production of policies.

(b) The said insurance with or without an excess clause as specified in the Appendix hereto shall be effected with an insurance company approved by the S.O. and it shall be the duty of the Contractor to produce to the S.O. the said policy or policies and the receipts in respect of the premium paid. Where an excess clause is specified in the Appendix the Contractor shall bear the amount of such excess.

Default in renewing insurance.

(c) In case of failure by the Contractor to renew such insurance as are necessary under this Condition, the Government or the S.O. on its behalf may renew such insurance and pay the premium in respect thereof and deduct the amount so expended from any monies due or to become due to the Contractor.

Application of insurance monies.

(d) Upon the occurrence of any loss or damage to the Works or unfixed materials or goods prior to the completion of the Works from any cause whatsoever, the Contractor shall notwithstanding that settlement of any insurance claim has not been completed, with due diligence restore, replace or repair the same, remove and dispose of any debris and proceed with the carrying out and completion of the Works. All monies if and when received from the insurance under this Clause shall be paid in the first place to the Government and then (less only such amounts as are specifically required in the Appendix to these Conditions or elsewhere in the Contract Documents) be released to the Contractor by instalments on the certificate for payment issued by the S.O., calculated as from the date of receipt of the monies in proportion to the extent of the work of restoration, replacement or repair and the removal and disposal of debris previously carried out by the Contractor. The Contractor shall not be entitled to any payment in respect of the work or restoration, replacement or repair and the removal and disposal of debris other than the monies received under the said insurance.

37. Performance Bond

Condition precedent.

(a) The Contractor shall, as a condition precedent to the commencement of any work under this Contract, deposit with the Government a Performance Bond in cash or in the form of Treasury's Deposit, Banker's Draft or an approved Banker's or Insurance Guarantee equal to five percent of the Contract Sum for the due observance and performance of this Contract.

Validity of Performance Bond.

(b) The Performance Bond shall be held or shall remain valid and effective for such period as is provided in the approved Banker's or Insurance Guarantee.

Application.

(c) If the Contractor fails to execute the Contract or commits any breach of his obligations under the Contract, the Government or the S.O. on its behalf may utilize and make payments out of or deductions from the said Performance Bond or any part thereof in accordance with the terms of this Contract.

Release of Performance Bond.

(d) The Performance Bond (or any balance thereof remaining for the credit of the Contractor) may be released or refunded to the Contractor on the completion of making goods of all defects, shrinkages or other faults which may appear during the Defects Liability Period and upon the giving of the Certificate of Completion of Making Good Defects for the whole of the Works under Clause 45 hereof.

38. Possession of Site

Conditions precedent to commencement of works.

(a) No work on this Contract shall be commenced unless and until the Performance Bond stipulated under Clause 37 and such insurance policies as specified under Clauses 33, 34 and 36 hereof, shall have been deposited with the Government or the S.O. Provided that for the purposes of this Condition only (but for no other), if the Contractor shall produce to the Government or the S.O. the Performance Bond and the Cover Notes of the said insurance policies and the receipts of premiums paid, it shall be a sufficient discharge of his obligations under this Condition.

Date for Possession.

(b) Unless the Contract Documents shall otherwise provide, possession of the Site as complete as may reasonably be possible but not so as to constitute a tenancy, shall be given on or before the "Date for Possession" stated in the Letter of Acceptance of Tender to the

Contractor who shall thereupon and forthwith commence the Works (but subject to sub-clause (a) hereof) and regularly and diligently proceed with and complete the Works on or before the Date for Completion as stated in the Appendix. The "Date for Completion" of the Works as referred to under Clause 39 hereof shall be calculated from the said "Date for Possession".

- (c) Provided always that possession of Site may be given in sections or in parts and any other restrictions upon possession of the Site shall be stated in the Appendix to these Conditions or in the Contract Documents. Possession by stages.
- (d) In the event of any delay in giving possession of the Site from the "Date for Possession" as stated in the Letter of Acceptance of Tender or delay in giving any section or part of the Site as provided in sub-clause (c), the S.O. may issue instructions in regard to the revision of the "Date for Possession" and the "Date for Completion" shall be appropriately revised under Clause 43 (g) hereof, but the Contractor shall not be entitled to claim for any loss or damage caused by such delay in giving possession of the Site, nor be entitled to determine his own employment under this Contract. Delay in giving possession of Site.
- (e) Provided that in the event that the giving of the possession of the Site is delayed beyond three (3) months of the "Date for Possession" stated in the Letter of Acceptance of Tender, the S.O. shall give written notice to the Contractor of the causes of such delay. Upon the receipt of the said written notice, the Contractor may by written notice served on the S.O. within fourteen (14) days of receipt of the said notice issued by the S.O.:
- (i) agree to proceed with the Works when the Site is subsequently made available, in which case sub-clause (d) above shall apply in particular, the Contractor shall not be entitled to claim for any loss or damage caused by such delay in giving possession of the Site, or
 - (ii) determine his own employment under this Contract, without prejudice to any other rights or remedies he may possess.
- (f) Where the Government, its employee or any person or body appointed or authorised by it carries out any investigation in relation to any accident, failure or other event which has occurred to, in or in connection with the Works or any part thereof for the purpose of determining the cause or reason for the said accident, failure or event, the Contractor shall render all such necessary assistance and facilities as may be required by the Government, its employee or such person or body, including the giving of access to all specifications, designs, records and other available information relating to the Works. Investigation by other persons in case of accident, failure or event.

39. Completion of Works

- (a) Subject to any requirements as to the completion of any section or part of the Works under Clauses 38 (c) and 41, completion of the whole of the Works, the Contractor shall complete the whole of the Works on or before the "Date for Completion" stated in the Appendix or such extended time as may be allowed under Clause 43 hereof. Date for Completion.
- (b) When the whole of the Works have reached practical completion according to the provisions of this Contract and to the satisfaction of the S.O., the date of such completion shall be certified by him and such date shall be the date of the commencement of the Defects Liability Period as provided in Clause 45 hereof. The certificate issued under this sub-clause shall be referred to as the "Certificate of Practical Completion". Certificate of Practical Completion.

40. Damages for Non-Completion

If the Contractor fails to complete the Works by the "Date for Completion" stated in the Appendix or within any extended time under Clause 43 hereof and the S.O. certifies in writing that in his opinion the same ought reasonably so to have been completed the Contractor shall pay or allow the Government a sum calculated at the rate stated in the Appendix as Liquidated and Ascertained Damages for the period during which the said Works shall so remain and have remained incomplete and the S.O. may deduct such damages from any monies due to the Contractor. The certificate issued under this Condition shall be referred to as the "Certificate of Non-completion". Damage for non-completion.

41. Sectional Completion

Where different completion dates for different sections or parts of the Works are stated and identified in the Appendix or elsewhere in the Contract Documents and different and separate Liquidated and Ascertained Damages are provided for each section or part of the Works, the provisions of this Contract in regard to the Certificate of Practical Completion, Delay and Extension of Time, Liquidated and Ascertained Damages for delay, and the Defects Liability Periods (but not insurance of the Works under Clause 36, Performance Bond under Clause 37 and final payment on the Final Certificate under Clause 48 hereof) shall, in the absence of any express provision to the contrary elsewhere in the Contract Documents apply *mutatis mutandis* as if each such section or part was the subject of a separate and distinct contract between the Government and the Contractor. Sectional Completion.

42. Partial Occupation by Government

If at any time or times before the whole of the Works have reached practical completion, the Government with the consent of the Contractor shall take possession of and occupy any part or parts of the same (any such part being hereinafter in this Condition referred to as "the relevant part"), then notwithstanding anything expressed or implied elsewhere in this Contract:

Certificate of Partial Occupation.

(a) within seven (7) days from the date on which the Government shall have taken possession of the relevant part the S.O. shall issue a Certificate of Partial Occupation stating the estimated value of the said relevant part, and for all the purposes of this Condition (but for no other) the value so stated shall be deemed to be the total value of the said relevant part.

Defects Liability.

(b) for the purposes of Clauses 39 and 45 hereof, the relevant part shall be deemed to have reached practical completion and the Defects Liability Period in respect of the relevant part shall be deemed to have commenced on the date on which the Government shall have taken possession and occupied thereof.

Certificate of making good defects.

(c) at the end of the Defects Liability Period of the relevant part and if in the opinion of the S.O. any defect, imperfection, shrinkage or any other fault whatsoever in the relevant part which he may have required to be made good under Clause 45 (a) and (b) hereof, shall have been made good by the Contractor, the S.O. shall issue a certificate to that effect.

Insurance of the Works.

(d) notwithstanding the partial occupation by the Government of the relevant part the Contractor shall insure and keep insured the Works in the manner as stipulated under Clause 36 and the Contractor shall give notice to the insurer of such partial occupation.

Reduction of Liquidated and Ascertained Damages.

(e) the Liquidated and Ascertained Damages specified under Clause 40 for any period of delay after such certification of the practical completion of the relevant part under sub-clause (a) hereof, shall be reduced in the proportion which the total value of the relevant part bear to the Contract Sum.

Performance Bond not affected.

(f) it is expressly agreed that nothing contained in the preceding paragraphs shall entitle the Contractor to the release of the Performance Bond or any part thereof deposited by him under Clause 37 hereof, the intention being that the said Performance Bond or any part thereof shall be released or refunded only upon the completion of making good all defects, imperfections, shrinkages or other faults which may appear during the Defects Liability Period and upon the giving of the Certificate of Completion of Making Good Defects for the whole of the Works under Clause 45 hereof.

43. Delay and Extension of Time

Delay and Extension of Time.

Upon it becoming reasonably apparent that the progress of the Works is delayed, the Contractor shall forthwith give written notice of the causes of delay to the S.O. and if in the opinion of the S.O. the completion of the Works is likely to be delayed or has been delayed beyond the Date for Completion stated in the Appendix or beyond any extended Date for Completion previously fixed under this Condition:

(a) by force majeure, or

(b) by reasons of any exceptionally inclement weather, or

(c) by reason of directions given by the S.O., consequential upon disputes with neighbouring owners provided the same is not due to any act, negligence or default of the Contractor or any sub-contractor, nominated or otherwise, or

(d) by reason of loss or damage occasioned by any one or more of the contingencies referred to in Clause 36 hereof (provided and to the extent that the same is not due to any act, negligence, default or breach of Contract by the Contractor or any sub-contractor, nominated or otherwise, whether in failing to take reasonable steps to protect the Works or otherwise), or

(e) by reason of S.O.'s instructions issued under clause 5 hereof, provided that such instructions are not issued due to any default or breach of Contract by the Contractor or any sub-contractor nominated or otherwise, or

(f) by reason of the Contractor not having received in due time necessary instructions, drawings, levels or instructions in regard to the nomination of sub-contractors and/or suppliers provided in this Contract, from the S.O. due to any negligence or default of the S.O. and for which he shall have specifically applied in writing on a date which having regard to the Date for Completion stated in the Appendix to these Conditions or to any extension of time then fixed under this Conditions, was neither unreasonably distant from nor unreasonably close to the date on which it was necessary for him to receive the same, or

(g) by reason of delay in giving possession of the Site as provided under Clause 38 (d) hereof, or

- (h) by reason of any action due to local combination of workmen, strike, or lockout affecting any of the trades employed upon the Works, provided the same are not due to any unreasonable act, neglect or default of the Contractor or of any sub-contractor, nominated or otherwise, or
- (i) by delay on the part of artists, tradesmen or others engaged by the Government in executing work not forming part of this Contract, or
- (j) by the Contractor's inability for reason beyond his control and which he could not reasonably have foreseen at the date of closing of tender of this Contract to secure such goods and/or materials as are essential to the proper carrying out of the Works, or
- (k) by delay on the part of Nominated Sub-contractors and/or Nominated Suppliers of their works, and such delay shall be caused by the same reasons affecting their work as stated above in sub-clauses (a) to (j) inclusive (provided that the same are not due to any act, negligence, default or breach of Contract by the Nominated Sub-contractor and/or Nominated Supplier and/or the Contractor, or any of the servants or agents of such Nominated Sub-contractor or Nominated Supplier or the Contractor);

Then the S.O. shall so soon as he is able to estimate the length of the delay beyond the date or time aforesaid make in writing a fair reasonable extension of time for completion of the Works, provided always that the Contractor shall use constantly his best endeavours to prevent delay and shall do all that may reasonably be required to the satisfaction of the S.O. to proceed with the Works. The certificate issued by the S.O. under this Condition shall be referred to as the "Certificate of Delay and Extension of Time".

44. Loss and Expense Caused by Delays

If the regular progress of the Works or any part thereof has been materially affected by reason as stated under Clause 43 (c), (f) or (i) hereof (and no other), and the Contractor has incurred direct loss and/or expense for which he would not be reimbursed by a payment made under any other provision in this Contract, then the Contractor shall within one (1) month of the occurrence of such event of circumstance give notice in writing to the S.O. of his intention to claim for such direct loss or expense together with an estimate of the amount of such loss and/or expense, subject always to Clause 48 hereof.

Loss and expense caused by delays.

45. Defects after Completion

- (a) At any time during the Defects Liability Period as stated in the Appendix hereto (or if none stated the period is six (6) months after date of practical completion of the Works), any defect, imperfection, shrinkage or any other fault whatsoever which may appear and which are due to materials or goods or workmanship not in accordance with this Contract, shall be notified by the S.O. in a written instruction to the Contractor who shall, within a reasonable time to be specified therein by the S.O., make good such defects, imperfections, shrinkages or any other fault whatsoever at the Contractor's own costs.
- (b) Notwithstanding sub-clause (a) above, any defect, imperfection, shrinkage or any other fault whatsoever which may appear during the Defects Liability Period to be made good by the Contractor, shall be specified by the S.O. in the Schedule of Defects which he shall deliver to the Contractor not later than fourteen (14) days after the expiration of the Defects Liability Period. The defects, imperfections, shrinkages or any other fault whatsoever specified in the Schedule of Defects shall be made good by the Contractor at his own costs and to be completed within a reasonable time but in any case not later than three (3) months after the receipt of the said Schedule. Provided that the S.O. shall not be allowed to issue any further instruction requiring making good of any defect, imperfection, shrinkage or any other fault whatsoever after the issue of the said Schedule of Defects or after fourteen (14) days from the expiration of the said Defects Liability Period, whichever is the later.
- (c) If the Contractor shall fail to comply with either sub-clause (a) or (b) or both within the time so specified, the materials or works so affected may be made good in such manner as the S.O. may think fit, in which case the costs thereby incurred shall be deducted from the sum remaining to be paid to the Contractor or failing such remainder it shall be recoverable from the Performance Bond or as a liquidated demand in money.
- (d) If any defect, imperfection, shrinkage or any other fault whatsoever be such that, in the opinion of the S.O., it shall be impracticable or inconvenient to the Government to have the Contractor to remedy the same, the S.O. shall ascertain the diminution in the value of the Works due to the existence of such defects, imperfections, shrinkages or any other fault whatsoever and deduct the amount of such diminution from the sum remaining to be paid to the Contractor or failing such remainder it shall be recoverable from the Performance Bond or as a liquidated demand in money.

Defects Liability Period.

Schedule of Defects.

Default of the Contractor.

Additional powers of the S.O.

Certificate of Completion of Making Good Defects.

- (e) When in the opinion of the S.O. the Contractor has made good the defects, imperfections, shrinkages or any other fault whatsoever which he is required to make good under sub-clauses (a) or (b), or both, the S.O. shall issue a certificate to that effect, and the date named in such certificate shall be the date on which the Contractor has completed making good such defects, imperfections, shrinkages or any other fault whatsoever. The said Certificate shall be referred to as the "Certificate of Completion of Making Good Defects".

46. Unfulfilled Obligations

Unfulfilled obligations.

Notwithstanding the issue of the Certificate of Completion of Making Good Defects under Clause 45 (e) hereof the Contractor and the Government shall remain liable for the fulfilment of any obligation incurred under the provisions of the Contract, prior to the issue of the said certificate, which remains unfulfilled at the time such certificate is issued, and for the purpose of determining the nature and extent of any such obligation, the Contract shall be deemed to remain in force between the parties hereto.

47. Payment to Contractor and Interim Certificates

Valuation of work done.

- (a) When the Contractor has executed work, including delivery to or adjacent to the Works of any unfixed materials or goods intended for use thereon in accordance with the terms of this Contract and the total value thereof has reached the sum referred to in the Appendix to these Conditions, the S.O. shall at that time make the first valuation of the works properly executed and of the materials and goods delivered to or adjacent to the Works. Thereafter, once (or more often at the discretion of the S.O.) during the course of each succeeding month the S.O. shall make a fair valuation of the works properly executed and of the materials and goods delivered to or adjacent to the Works, provided that the total value thereof in each such subsequent valuation shall not be less than the sum referred to in the Appendix to these Conditions.

Issue of Interim Certificate.

- (b) Within fourteen (14) days from the date of any such valuation being made and subject to the proviso mentioned in sub-clause (a) above, the S.O. shall issue an Interim Certificate stating the amount due to the Contractor from the Government. Provided that the signing of this Contract shall not be a condition precedent for the issue of the first Interim Certificate (and no other) so long as the Contractor has returned the Letter of Acceptance of Tender duly signed and has deposited with the S.O. or the Government the relevant insurance policies under Clauses 33, 34 and 36 and the Performance Bond under Clause 37 hereof.

Sums to be certified in Interim Certificate.

- (c) The amount stated as due in an Interim Certificate shall, subject to any agreement between the parties as to payment by stages, be the estimated total value of the work properly executed and seventy-five (75) per cent of the value of the unfixed materials and goods delivered to or adjacent to the Works intended for use thereon up to and including the date the valuation was made, less any instalments previously paid under this Condition. Provided that such certificate shall only include the value of the said unfixed materials and goods as and from such time as they are reasonably and properly and not prematurely delivered to or adjacent to the Works and then only if adequately protected against weather, damage or deterioration.

Payment of Interim Certificate.

- (d) Within a number of days as stated in the Appendix to these Conditions (or if none so stated then within thirty (30) days) of the issue of any such Interim Certificate as aforesaid the Government will make a payment to the Contractor on the amount certified as due to the Contractor in the said Certificate.

48. Final Certificate

Submission of claim documents.

- (a) So soon as is practicable but not later than three (3) months after practical completion of the Works, the Contractor shall submit full particulars of all claims made by him under Clause 5 (d) and/or 44 together with any documents, supporting vouchers and any explanations and calculations including documents relating to the accounts of Nominated Sub-contractors or Nominated Suppliers, which may be necessary to enable the Final Account to be prepared by the S.O. provided always the Contractor had given the notice of claim in writing within the stipulated time or times in the said provisions.

Final Certificate.

- (b) Within three (3) months after the expiry of the Defects Liability Period for the whole of the Works or three (3) months after the issue of the Certificate of Completion of Making Good Defects under Clause 45 hereof, whichever is the later, the S.O. shall issue the Final Certificate.

Sums to be certified in the Final Certificate.

- (c) The Final Certificate shall be supported by documents showing the S.O.'s final valuation of Works in accordance with the terms of this Contract and after setting out or allowing for all payments or other expenditure of the Government or any permitted deductions made by the Government or the S.O. on its behalf, shall state any final balance due from

the Government to the Contractor or from the Contractor to the Government, as the case may be, which shall thereupon become the debt payable. Such certificate shall also take account of any outstanding permitted deductions not yet made by the Government under the terms of this Contract whether by way of liquidated damages or otherwise.

(d) Provided always that no payment due to the Contractor under the Final Certificate shall be made unless and until the Contractor shall have satisfied the S.O. by means of either:

Declaration before final payment.

(i) a Statutory Declaration made by or on behalf of the Contractor, or

(ii) a certificate signed by or on behalf of the Director General of Labour, to the effect that the workmen who have been employed by the Contractor on the Works, including workmen employed by sub-contractors, whether nominated or otherwise (including "labour only" sub-contractors) have received all wages due to them in connection with such employment, and that all dues or contributions under the Employment Ordinance, the Employee's Social Security Act, the Employee's Provident Fund Ordinance and any other laws relevant to the employment of workmen, have been paid.

49. Effect of S.O.'s Certificates

No certificate of the S.O. under any provision of this Contract shall be considered as conclusive evidence as to the sufficiency of any work, materials or goods to which it relates, nor shall it relieve the Contractor from his liability to amend and make good all defects, imperfections, shrinkages, or any other faults whatsoever as provided by this Contract. In any case, no certificate of the S.O. shall be final and binding in any dispute between the Government and the Contractor if the dispute is brought whether before an arbitrator or in the Courts.

Effect of S.O.'s certificates.

50. Deduction from Money Due to Contractor

The Government or the S.O. on its behalf shall be entitled to deduct any money owing from the Contractor to the Government under this Contract from any sum which may become due or is payable to the Contractor under this Contract or any other contracts to which the Government and the Contractor are parties thereto. The S.O. in issuing any certificate under Clause 47, shall have regard to any such sum so chargeable against the Contractor, provided always that this provision shall not affect any other remedy to which the Government may be entitled for the recovery of such sums.

Deduction from money due to contractor.

51. Determination of Contractor's Employment

(a) Without prejudice to any other rights or remedies which the Government may possess, if the Contractor shall make default in any one or more of the following respects, that is to say:

Default of Contractor.

(i) if he without reasonable cause suspends the carrying out of the whole or any part of the Works before completion, or

(ii) if he fails to proceed regularly and diligently with the Works, or

(iii) if he fails to execute the Works in accordance with this Contract or persistently neglect to carry out his obligations under this Contract, or

(iv) if he refuses or persistently neglects to comply with a written notice from the S.O. to remove and replace any defective work or improper materials or goods, or

(v) if he fails to comply with the provisions of Clause 27 (a) and (b) hereof;

then the S.O. may give to him a notice by registered post or by recorded delivery specifying the default, and if the Contractor shall either continue such default for fourteen (14) days after receipt of such notice or shall at any time thereafter repeat such default (whether previously repeated or not), then the Government may thereupon by a notice sent by registered post or by recorded delivery determine the employment of the Contractor under this Contract.

(b) If the Contractor:

Bankruptcy or insolvency.

(i) commits an act of bankruptcy, or

(ii) becomes insolvent or compounds with or makes arrangement with his creditors, or

(iii) being a company, is having a winding up order made against him, or

(iv) is having a provisional liquidator, receiver or manager of his business or undertaking duly appointed, or possession taken by or on behalf of creditors or debenture holders secured by a floating charge of any property comprised in or subject of the said floating charge;

then and in any such event, without prejudice to any other rights it may possess, the Government may by a notice sent by registered post determine the employment of the Contractor under this Contract.

Effects of
determina-
tion of
Contractor's
employment.

- (c) In the event of the Contractor's employment under this Contract being determined under sub-clause (a) or (b) hereof irrespective of the validity of such determination:
- (i) the Government shall be entitled to repossess the Site and the Contractor shall immediately cease all operations on the Works, remove his personnel and workmen therefrom and yield up possession of the Site leaving all temporary buildings, plant, tools, equipment, goods and unfixed materials belonging to him upon the Site, save only such as he may at any time be specifically directed in writing by the S.O. to remove therefrom.
 - (ii) the Government may carry out and complete the Works departmentally or employ and pay a contractor or other persons to carry out and complete the Works and he or they may enter upon the Works and use all temporary buildings, plant, tools, equipment, goods and materials intended for, delivered to and placed on or adjacent to the Works, and may purchase all materials and goods necessary for the carrying out and completion of the Works.
 - (iii) the Contractor shall if so required by the S.O. assign to the Government without payment the benefit of any agreement for the supply of materials or goods and/or for the execution of any work for the purposes of this Contract. In any case the Government shall have power, but shall not be obliged, to pay any supplier or sub-contractor, whether nominated or privately engaged by the Contractor, for any materials or goods delivered or any work executed for the purposes of this Contract (whether before or after the date of determination) for which the Contractor has failed to make payment. The Government's rights under this paragraph are in addition to its rights to pay Nominated Sub-contractors and/or Nominated Suppliers under Clause 28 hereof. The Contractor shall allow or pay to the Government all such payments made under this paragraph.
 - (iv) the Contractor shall as and when required remove from the site any temporary buildings, plant, tools, equipment, materials and goods belonging to or hired by him within such reasonable time as the S.O. may specify in a written notice to him and in default the Government may (but without being responsible for any loss or damage) remove and sell any such property belonging to the Contractor, holding the proceeds less all cost incurred to the credit of the Contractor.
 - (v) the Contractor shall allow or pay to the Government in the manner herein after appearing the amount of any loss and/or damage caused to the Government by the determination of his employment under this Contract. If or as soon as the arrangements for the completion of the Works made by the Government enable the S.O. to make a reasonably accurate assessment of the ultimate cost to the Government of completing the Works following the determination of the Contractor's employment and the engagement of other contractors or persons, the S.O. may issue a certificate stating the amount of such loss and/or damage caused to the Government by such determination of the Contractor's employment. Such certificate shall state separately the sums previously paid to the Contractor by the Government, the sums paid or due or to become due to other contractors or persons engaged by the Government to complete the Works, any sums paid to sub-contractors or suppliers under paragraph (iii) hereof and any costs or expenditure incurred or to be incurred by the Government in completing the Works, (all such costs herein referred as "Completion Cost"). The certificate shall also state the Final Contract Sum which, allowing for any variations or other matters which would have resulted in an adjustment of the original Contract Sum and for any other sums, which the Government might be entitled under the terms of the Contract to deduct therefrom, would have been payable under the Contract had the Contractor's employment not been determined and if the Final Contract Sum is less than the Completion Cost, the difference shall be a debt payable by the Contractor to the Government. This certificate shall be binding and conclusive on the Contractor as to the amount of such loss and/or damage specified therein.
 - (vi) In the event of the completion of the Works being undertaken departmentally, allowance shall be made, when ascertaining the amount to be certified as costs or expense incurred by the Government, for cost of supervision, interest and depreciation on plant and all other usual overhead charges and profit as would be incurred if the Works were completed by a Contractor or other persons.

52. Effect of War or Earthquake

If during the performance of this Contract a state of war in which the Government is involved or any earthquake, arises or exists which has rendered the fulfilment of the Contract impossible then any question respecting the continuance, suspension or termination of this Contract shall be settled by mutual agreement between the Government and the Contractor or failing such agreement shall be settled by Arbitration as provided in Clause 54 hereof.

Effect of
War or
earthquake

53. Fluctuation of Price

The amount payable by the Government to the Contractor upon the issue by the S.O. of an Interim Certificate under Clause 47 hereof shall be increased or decreased in accordance with the Special Provisions to the Conditions of Contract for Fluctuation of Price as contained in this Contract. The net total of any such increases or decreases shall be given effect to in determining the Contract Sum.

Fluctuation of price.

54. Arbitration

(a) If any dispute or difference shall arise between the Government and the Contractor, either during the progress or after completion of the Works, or after the determination of the Contractor's employment, or breach of this Contract, as to:

Reference to S.O. for a decision.

(i) the construction of this Contract, or

(ii) any matter or thing of whatsoever nature arising under this Contract, or

(iii) the withholding by the S.O. of any certificate to which the Contractor may claim to be entitled,

then such dispute or difference shall be referred to the S.O. for a decision.

(b) The S.O.'s decision which is to be in writing shall subject to sub-clause (e) hereof be binding on the parties until the completion of the Works and shall forthwith be given effect to by the Contractor who shall proceed with the Works with all due diligence whether or not notice of dissatisfaction is given by him.

S.O.'s decision to be binding until completion of Works.

(c) If the S.O. fails to give a decision for a period of forty-five (45) days after being requested to do so by the Contractor or if the Contractor be dissatisfied with any decision of the S.O., then in any such case the Contractor may within forty-five (45) days after the expiration of forty-five (45) days after he had made his request to the S.O., or forty-five (45) days after receiving the decision of the S.O., as the case may be, require that such dispute or difference be referred to arbitration and final decision of a person to be agreed between the parties to act as the Arbitrator. The arbitration shall be held at the Regional Centre for arbitration at Kuala Lumpur, using the facilities and assistance available at the Centre.

Reference to arbitration.

(d) Such reference, except on any difference or dispute under Clause 53 hereof shall not be commenced until after the completion or alleged completion of the Works or determination or alleged determination of the Contractor's employment under this Contract, or abandonment of the Works, unless with the written consent of the Government and the Contractor.

Reference to arbitration shall not be commenced until after completion of Works.

(e) The Arbitrator shall have power to review and revise any certificate, opinion, decision, requisition or notice and to determine all matters in dispute which shall be submitted to him, and of which notice shall have been given in accordance with sub-clause (c) aforesaid, in the same manner as if no such certificate, opinion, decision, requisition or notice had been given.

Power of the Arbitrator.

(f) Upon every or any such reference the costs of such incidental to the reference and award shall be in the discretion of the Arbitrator who may determine the amount thereof, or direct the amount to be taxed as between solicitor and client or as between party and party, and shall direct by whom and to whom and in what manner the same be borne and paid.

Discretion of Arbitrator in respect of costs and award.

(g) The award of the Arbitrator shall be final and binding on the parties.

Award of Arbitrator is final.

(h) In the event of the death of the Arbitrator or his unwillingness or inability to act, then the Government and the Contractor upon agreement shall appoint another person to act as the Arbitrator, and in the event the Government and the Contractor failing to agree on the appointment of an Arbitrator, an Arbitrator shall be appointed by the person named in the Appendix to these Conditions.

Appointor of Arbitrator.

(i) In this Condition, "reference" shall be deemed to be reference to arbitration within the meaning of the Arbitration Act 1952 (Revised—1972).

Arbitration Act 1952.

55. Stamp Duty

The proper Stamp Duty, if any, on this Contract will be borne by the Government.

Stamp duty.

56. Bahasa Malaysia Text shall Prevail

This Contract shall be prepared in Bahasa Malaysia and the English Language, both texts being equally authentic. In the event of any inconsistency in any of the texts, the text in Bahasa Malaysia shall prevail.

Bahasa Malaysia text shall prevail.

APPENDIX TO THE CONDITIONS OF CONTRACT

Clause

- 3 (a) (i) Officer(s) empowered to take action on behalf of the Government in respect of:
- Clauses 40, 43 and 51 Pengarah Perhutanan Negeri Perak
 Clauses 52 and 54 Pengarah Perhutanan Negeri Perak
- 3 (a) (ii) Officer empowered to approve variations according to the limits as set out in Treasury's Instructions No. 202 as amended.

Financial limits	Officer
Hereby attached	

- 11 (d) Date of Tender 16hb. Januari, 1989
- 30 (d) Work covered by P.C. Sums for which the Contractor will be permitted to tender
- 33 Minimum insurance cover for any one accident or series of accidents arising out of one event ... MS.....
 Policy No.....
 Period of insurance.....
- 33 (a) Amount of excess clause MS.....
- 34 Minimum insurance amount based on estimated total earnings of Contractor's workmen MS.....
 Policy No.....
 Period of insurance.....
- 35 SOCSO Scheme registration number
- 36 Amount to be added to full value of Contract Sum as the insured sum MS.....
 Policy No.....
 Period of insurance.....
- 36 (b) Amount of excess clause MS.....

APPENDIX TO THE CONDITIONS OF CONTRACT—(cont'd)

Clause		
37	Performance Bond:	
	Amount of Guarantee	MS.....
	Guarantor Bank/Insurance Company
	Guarantee No.
38 (b)	"Date for Possession" of the Site	Sepuluh (10) hari selepas memiliki tapakbina.....
39	"Date for Completion" for whole of the Works
40	Liquidated and Ascertained Damages at the rate of	MS. 50/-.....per day.....
41	Sectional Completion:	

Identification of Sections or parts	Date for Possession (Clause 38 (c))	Date for Completion	Liquidated and Ascertained Damages
	Not Applicable		

45	Defects Liability Period (if none stated, then the period is six (6) months)	Six (6) months.....
47 (a)	Value of work to be executed including materials and goods to be delivered before First Interim Certificate will be issued	MS. 10% of builders works.....
47 (a)	Value of work to be executed including materials and goods to be delivered before each subsequent Interim Certificate will be issued	MS.....
47 (d)	Period for honouring payment certificate (if none stated, then within thirty (30) days of the issue of the Certificate)
54 (h)	Appointer of arbitrator (in the event of disagreement between the parties on the appointment of any arbitrator)	<i>Director of Regional Centre for Arbitration, Kuala Lumpur.</i>

HEAD AND SUB-HEAD FOR REGISTRATION OF CONTRACTORS FOR WORKS

<u>HEAD III</u>	<u>HEAD IV</u>	<u>HEAD V</u>
<u>CIVIL ENGINEERING WORKS</u>	<u>OTHER SPECIALIST CIVIL ENGINEERING WORKS</u>	<u>QUARRYING METAL AND EARTH SUPPLY, CRADLE AND TRANSPORT.</u>
<u>Sub-Head 1</u> General Civil Engineering Works.	<u>Sub-Head 9</u> Pre-stressed or Post-Tensioned Concrete Construction.	<u>Sub-Head 2</u> Quarry Drilling and Blasting.
<u>Sub-Head 2</u> Bridges, Jetties & Marine Structures.	<u>Sub-Head 10</u> Miscellaneous:	<u>Sub-Head 3</u> Earth Supply.
<u>Sub-Head 3</u> a) Water Retaining Structures. b) Dams.	a) Pressure Grouting. b) Gunting. c) Non-Destructive Test of Concrete Members. d) Underpinning. e) Power Station Chimney.	<u>Sub-Head 4</u> Crusher and Transport.
<u>Sub-Head 4</u> Retaining Structures.	<u>Sub-Head 11</u> Earthworks.	
<u>Sub-Head 5</u> Sewerage Systems.	<u>Sub-Head 12</u> Piling Works: a) In-Situ Concrete. b) Precast, Reinforced Concrete. c) Pre-stressed or Post-Tensioned Concrete. d) Steel. e) Timber. f) Patented Systems.	
<u>Sub-Head 6</u> a) Tunnelling. b) Deepdrift Wall & Ground Anchors.	<u>Sub-Head 13</u> Oil/Rubber Mill Mechanical Equipment.	
<u>Sub-Head 7</u> Irrigation, Drainage and Flood Control Works:	<u>Sub-Head 14</u> Pollution Control Systems.	
a) Hydraulic Structures. b) Earthworks. c) Power Conduits. d) Power House.	<u>Sub-Head 15</u> Repairs and Rehabilitation of Railway Coaches & Wagons. b) Welding of Rails.	
<u>Sub-Head 8</u> Railway Track Works.	<u>Sub-Head 16</u> a) Compressed Air Systems. b) Hot Water Installations. c) LPG Installations. d) Sterilizer and Autoclave Installations. e) Medical Gas Installations. f) Incinerators. g) Building Automation Systems. h) Mobile Shelves. i) Laboratory Equipment. j) Swimming Pool Installations. k) Lifting Gear For Hydraulic Gates. l) Installation and Repair of Mechanical Plants, Equipment & Vehicles.	
<u>Sub-Head 9</u> Laying Duct and Construction of Joint Boxes and/or Manholes for Telephone Cable etc-etc.	<u>Sub-Head 17</u> Miscellaneous:	
	a) Repairs and Rehabilitation of Railway Coaches & Wagons. b) Welding of Rails.	
	<u>Sub-Head 18</u> a) Compressed Air Systems. b) Hot Water Installations. c) LPG Installations. d) Sterilizer and Autoclave Installations. e) Medical Gas Installations. f) Incinerators. g) Building Automation Systems. h) Mobile Shelves. i) Laboratory Equipment. j) Swimming Pool Installations. k) Lifting Gear For Hydraulic Gates. l) Installation and Repair of Mechanical Plants, Equipment & Vehicles.	
	<u>Sub-Head 19</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 20</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 21</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 22</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 23</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 24</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 25</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 26</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 27</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 28</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 29</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 30</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 31</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 32</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 33</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 34</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 35</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 36</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 37</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 38</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 39</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 40</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 41</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 42</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 43</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 44</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 45</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 46</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 47</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 48</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 49</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 50</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 51</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 52</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 53</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 54</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 55</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 56</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 57</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 58</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 59</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 60</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 61</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 62</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 63</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 64</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 65</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 66</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 67</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 68</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 69</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 70</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 71</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 72</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 73</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 74</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 75</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 76</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 77</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 78</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 79</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 80</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 81</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 82</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 83</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 84</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 85</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 86</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 87</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 88</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 89</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 90</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 91</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 92</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 93</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 94</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 95</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 96</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 97</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 98</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 99</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	
	<u>Sub-Head 100</u> a) Crushing and Screening Plants. b) Asphalt Mixing Plants.	

HEAD VI

FOREST AND LAND DEVELOPMENT

Sub-Head 1

Establishment and Maintenance of Nursery Works.

Sub-Head 2

Jungle Clearing and Land Preparation.

Sub-Head 3

a) Planting and Maintenance.

b) Replanting and Maintenance.

Sub-Head 4

Harvesting and Transportation.

Sub-Head 5

Forest Regeneration Works.

Sub-Head 6

a) Landscaping.
b) Hydro Seeding.

Sub-Head 7

Forest Roads.

Sub-Head 8

General Agricultural Works.

Sub-Head 9

Temperature.

Sub-Head 10

High Voltage Equipment Installation:

a) Up to and Including 11KV.
b) Exceeding 11KV.

HEAD VIII

TELECOMMUNICATION WORKS

Sub-Head 1

a) Laying, Jointing and Testing of Distribution Cable Network.

b) Laying, Jointing and Testing of Main Cable Network.

c) Laying, Jointing and Testing of Junction Cable Network.

Sub-Head 2

a) Installation of Main Distribution Frame Cable Risers Under-Floor Duct Distribution Boxes and Telephone Cable In The Building.

b) Installation of One Pair Telephone Cable Within Sub-Scribers Premises.

Sub-Head 3

Railway Signalling and Communication Systems:-

a) Installation of Signalling Systems Consisting of Relay Interlocking and Relay Automatic Blocks.

b) Installation of Communication Systems For Central Control and Wayside Stations.

c) Installation of Electrical Barriers Complete With Highway/Rail Signals and Alarms.

NOTE:

All Class Contractors For Works Are Classified under Eight Heads Covering The Various Types of Works For Which Tenders Are Usually Called. Any Contractor May, if Judged Capable, be Registered Under More Than One Head and Sub-Head. Contractors For Supplies are Registered Separately.

JICA