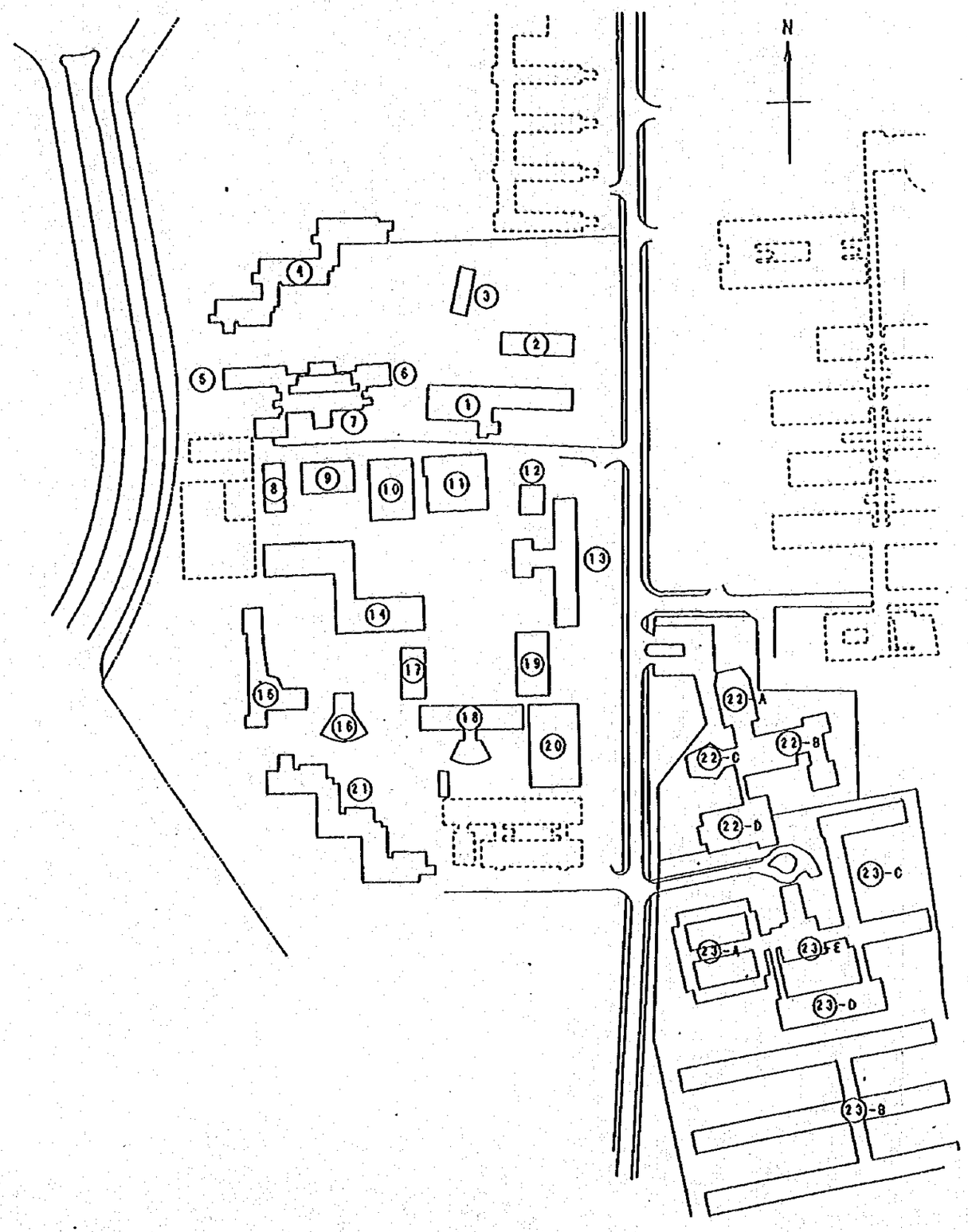
5. Site Plan of the KMTC's Existing Facilities

List of Site Plan

1) KMTC Nairobi
2) MTC Karen
3) MTC Mathare
4) MTC Mombasa
5) MTC Nyeri
6) MTC Nakuru
7) MTC Kakamega
8) MTC Homa Bay

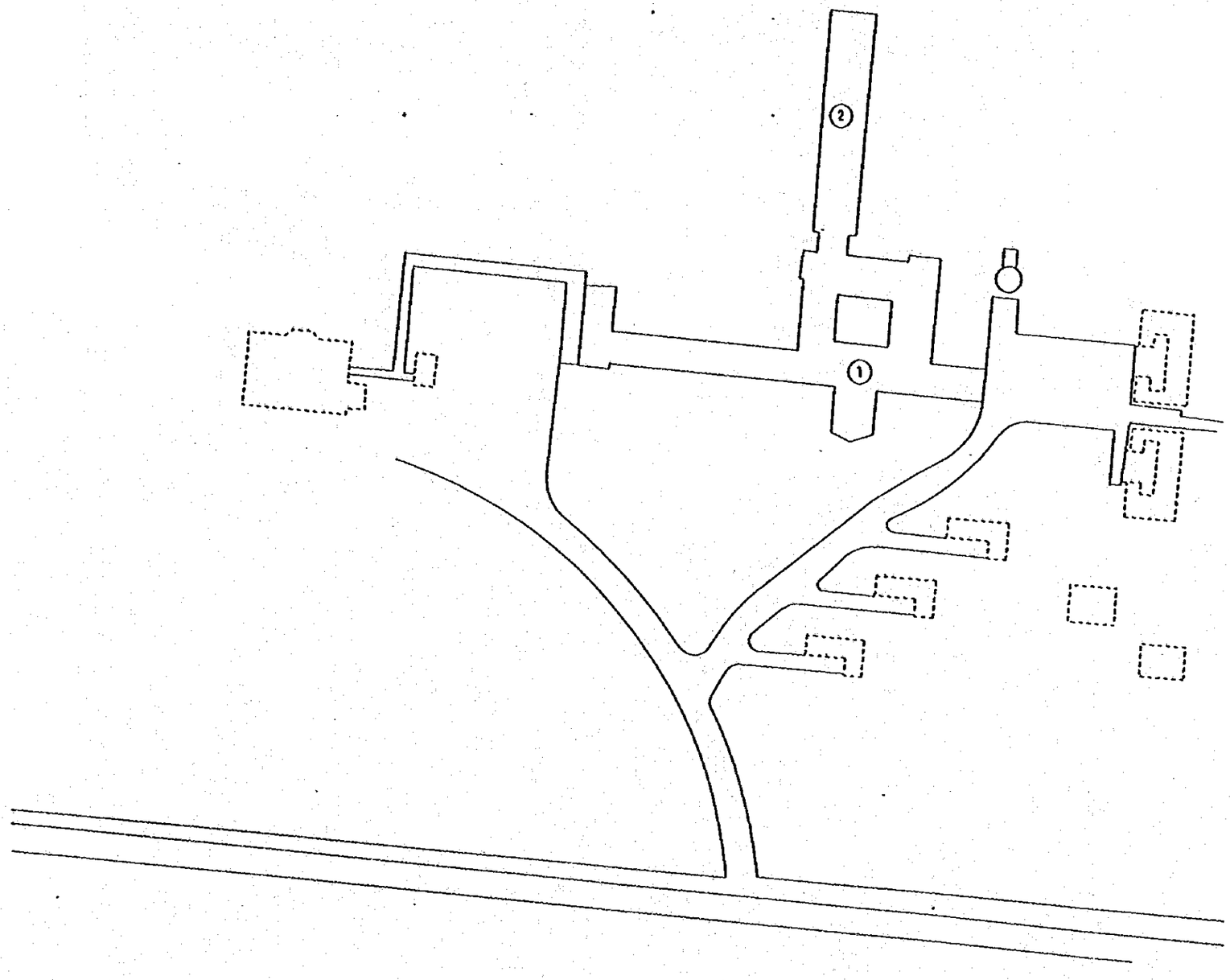
* Site Plan of MTC Kabarnet is shown in 6-5 Basic Design Drawing.



1) KMTC Nairobi
- ① Administration Block
- ② Medical Clinic
- ③ Clinical Medicine Block
- ④ Men's Dormitory (Soweto)
- ⑤ Orthopaedic Technology Block
- ⑥ Canteen
- ⑦ Dental Technology Block
- ⑧ Store
- ⑨ Workshop Block
- ⑩ Physiotherapy Block
- ⑪ Occupational Therapy Block
- ⑫ Food Inspection Block
- ⑬ Health Record & Information Block
- ⑭ Classroom & Laboratory Block
- ⑮ Men's Dormitory (Hilton)
- ⑯ Clinical Medicine & Lecture Theatre Block
- ⑰ Pharmacy Laboratory Block
- ⑱ Pharmacy Block
- ⑲ Lecture's Office Block
- ⑳ Library
- ㉑ Men's Dormitory (Kanu)
- ㉒ Nursing Block
  - -A Assembly Hall Block
  - -B Classroom & Office Block
  - -C Lecture Theatre Block
  - -D Classroom & Seminar Block
- ㉓ Women's Dormitory
  - -A Merry Griffin's Block
  - -B B-W, B-E Block
  - -C Shah Block
  - -D Recreation Block
  - -E Medical Education Block

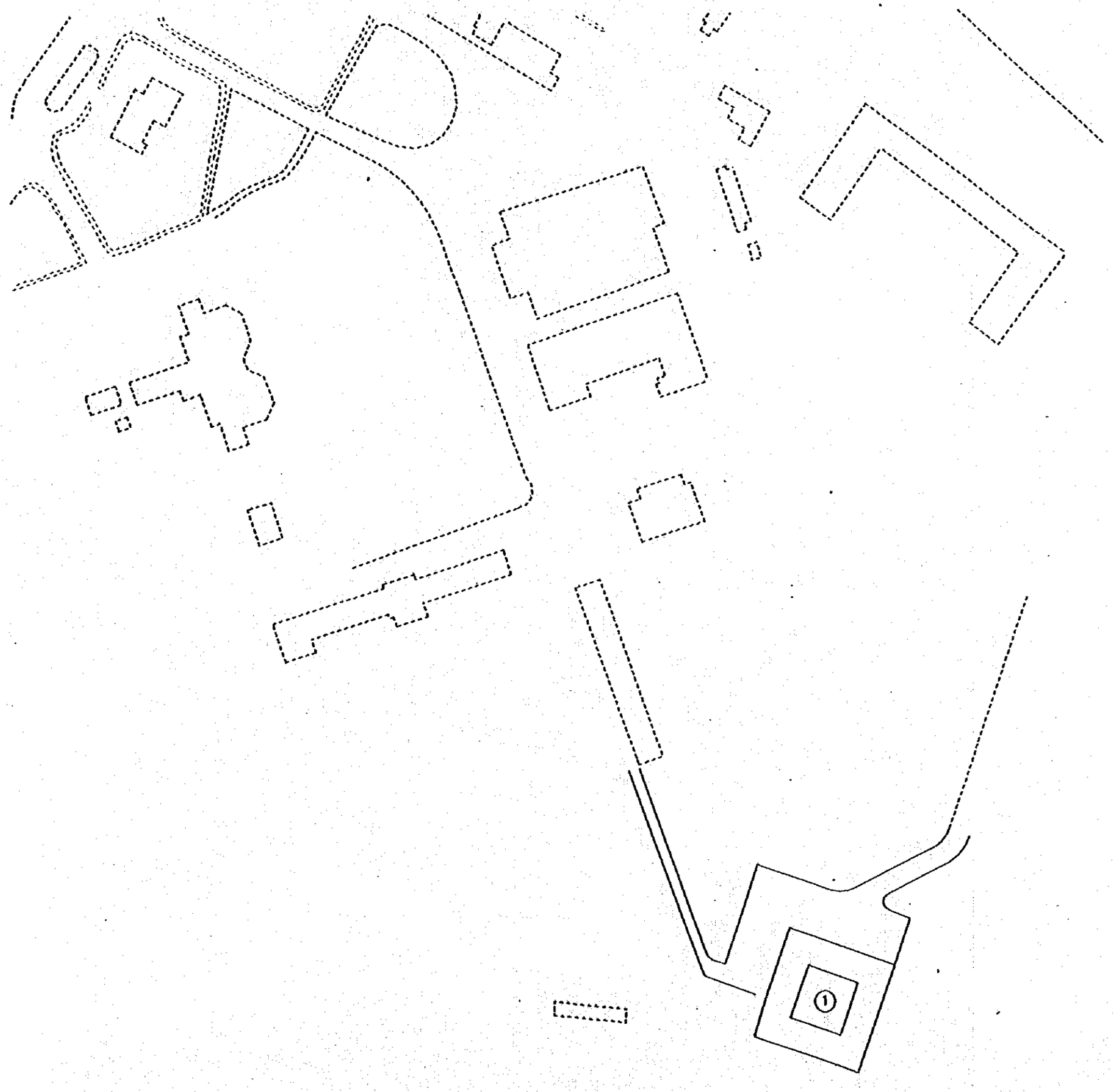
KMTC Nairobi		
ExistingSite Plan	SCALE	1:2000
0M 10M 30M 50M 100M		

2) MTC Karen
① Office & Classroom Block
② Dormitory



MTC Karen	
Existing Site Plan	SCALE 1:1000
0M 5M 15M 25M 50M	

3) MTC Mathare
① Dormitory & Classroom Block



MTC Mathare	
Existing Site Plan	SCALE 1:1000
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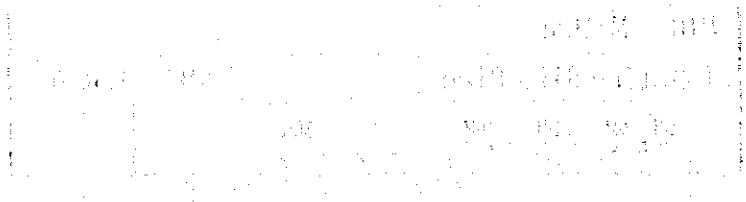
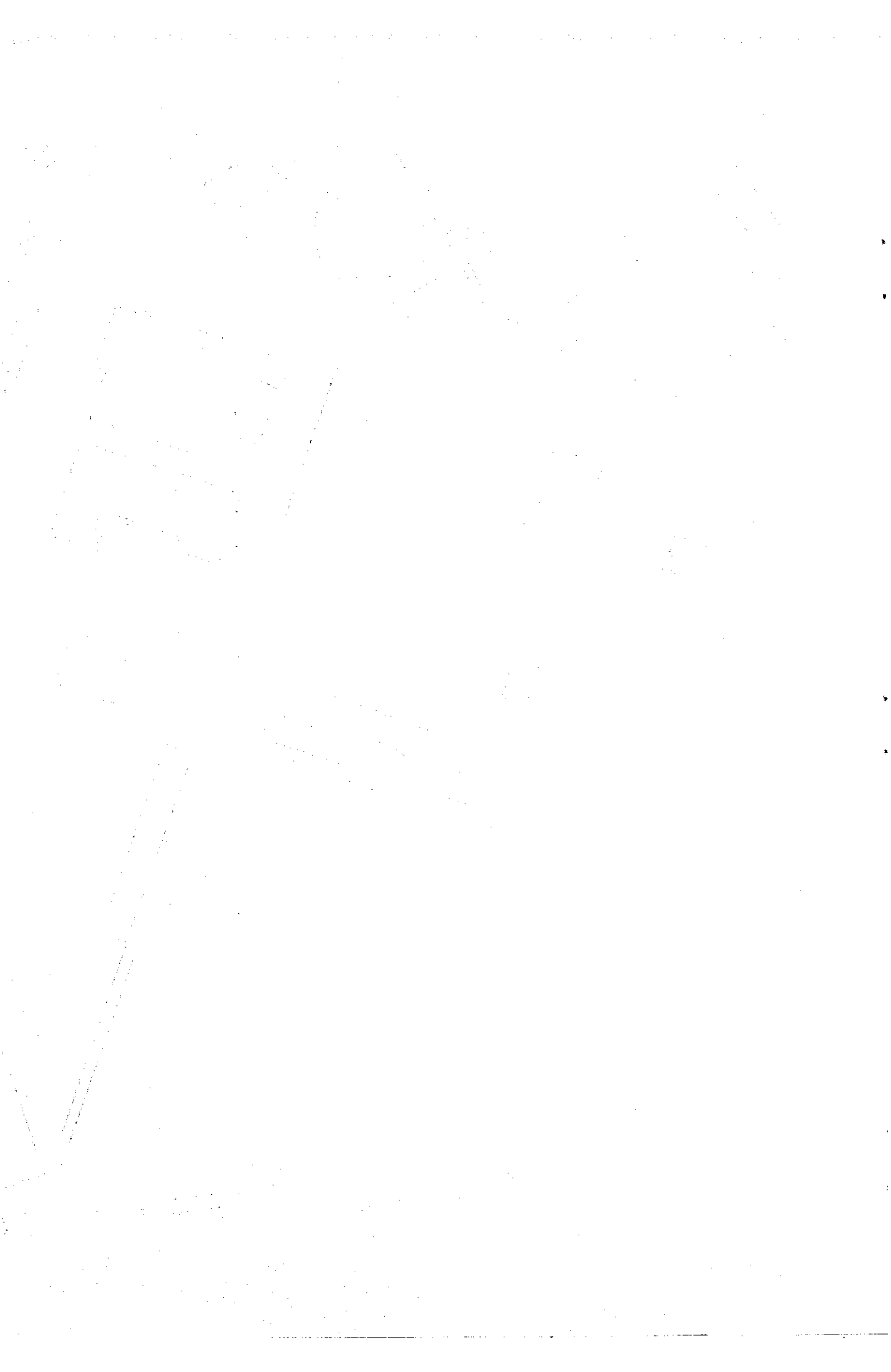
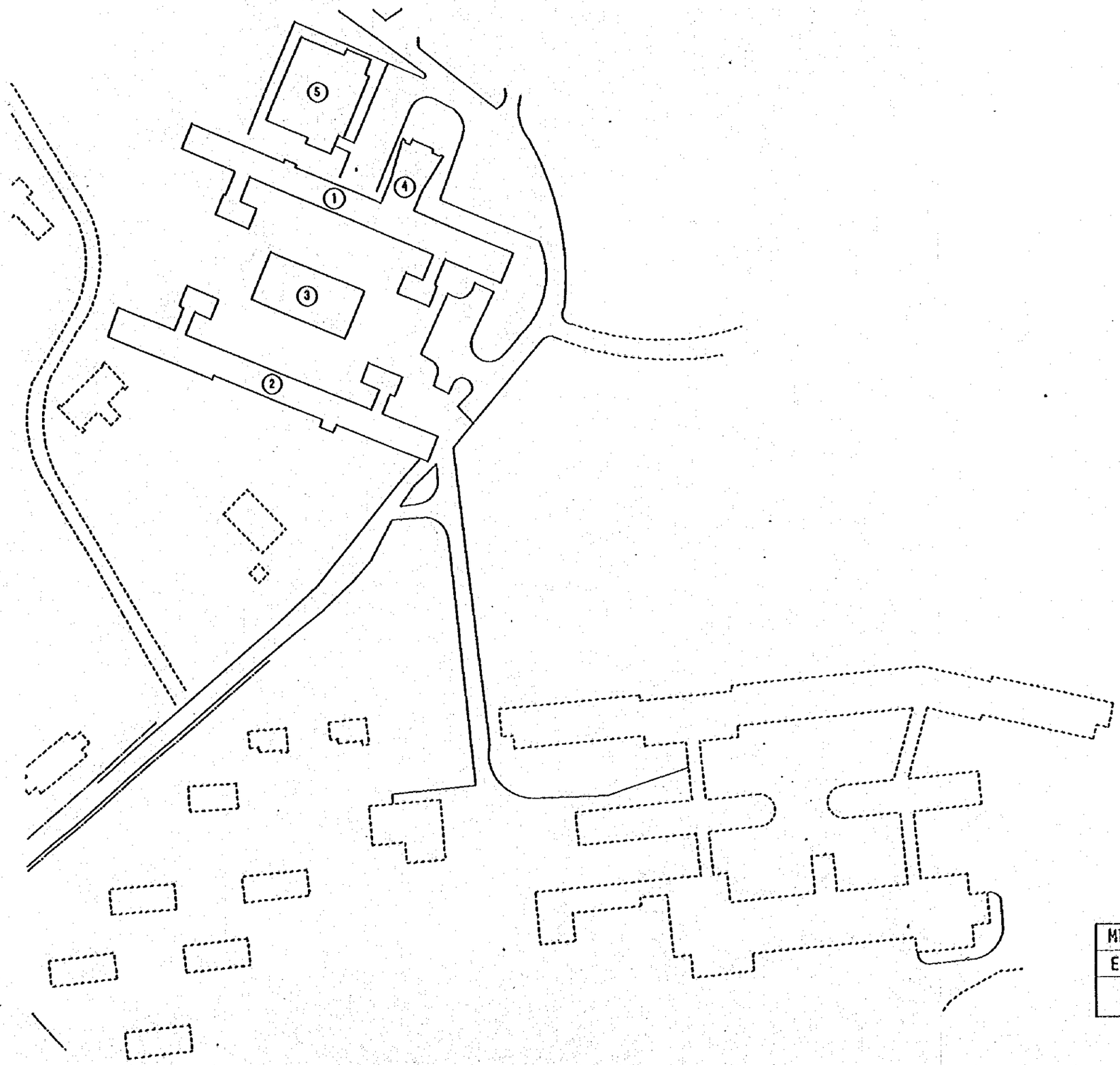


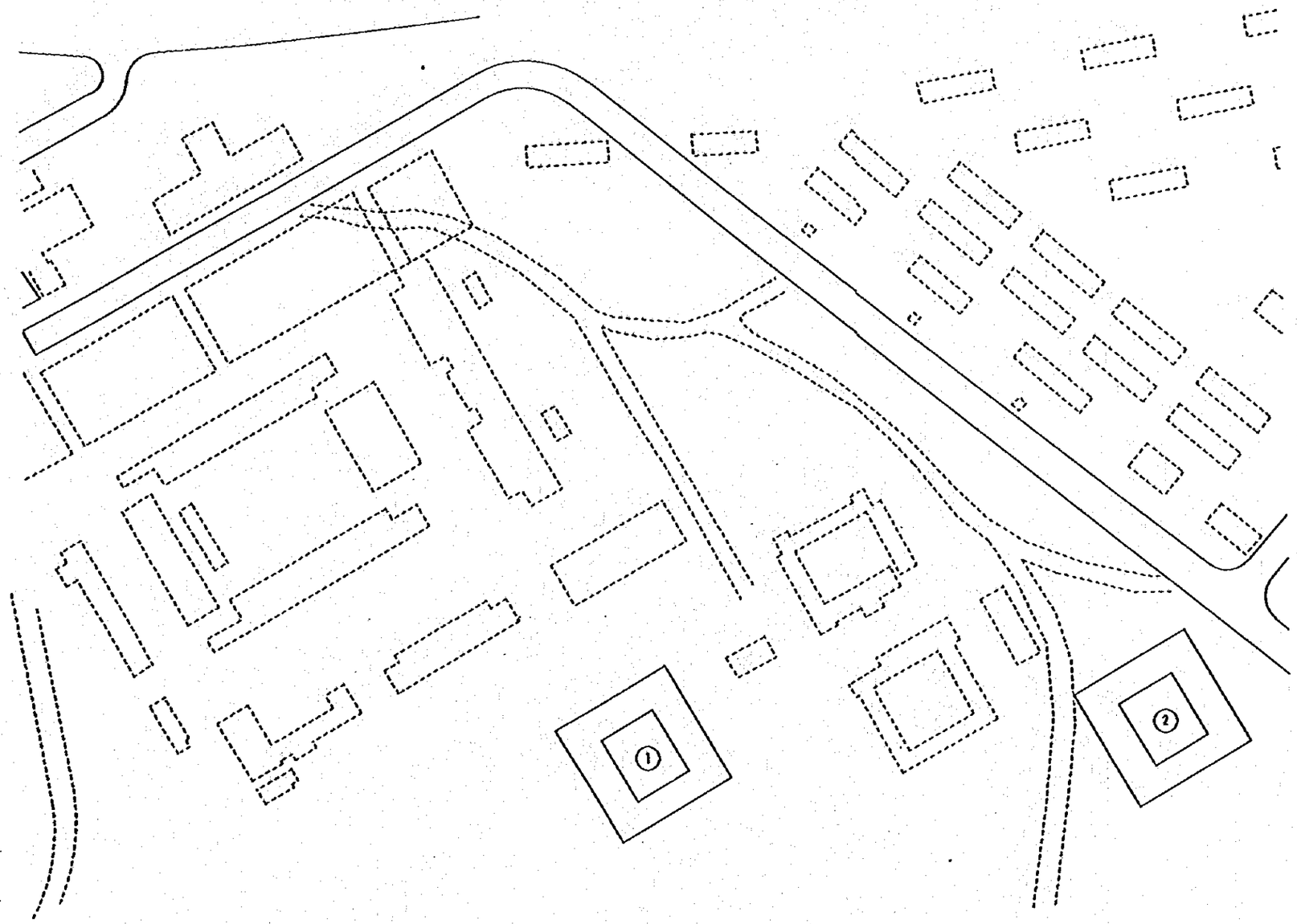


4) MTC Mombasa
① Women's Dormitory & Office Block
② Men's Dormitory & Office Block
③ Assembly Hall Block
④ Lecture Theatre Block
⑤ Dinning Hall Block



MTC Mombasa	
Existing Site Plan	SCALE 1:1000
0M 5M 15M 25M 50M	

5) MTC Nyeri
① Women's Dormitory & Classroom Block
② Men's Dormitory & Classroom Block



MTC Nyeri	
Existing Site Plan	SCALE 1:1000
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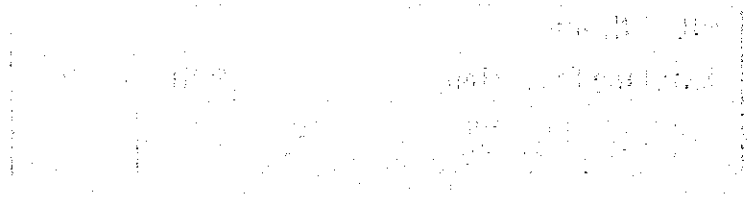
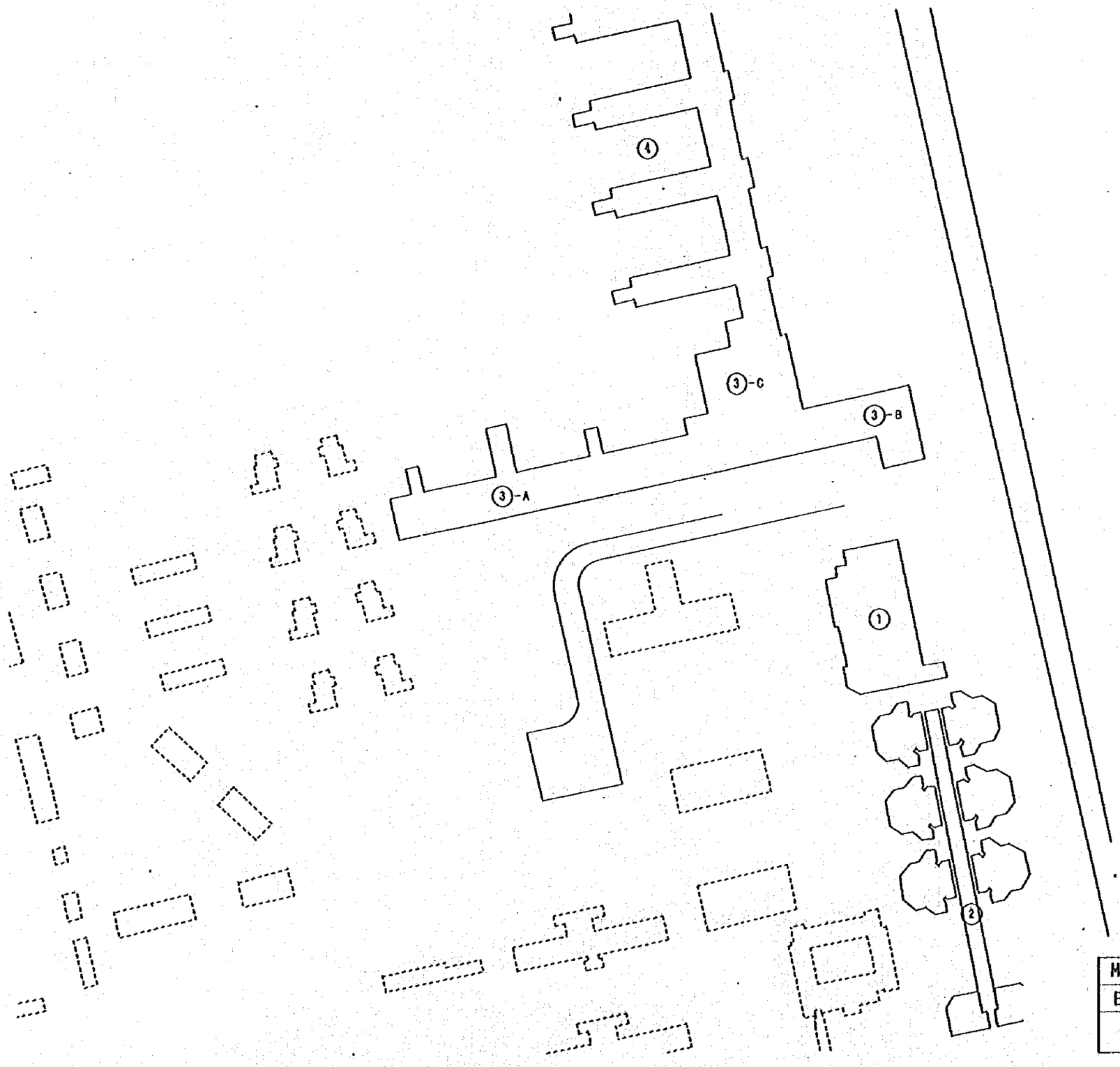
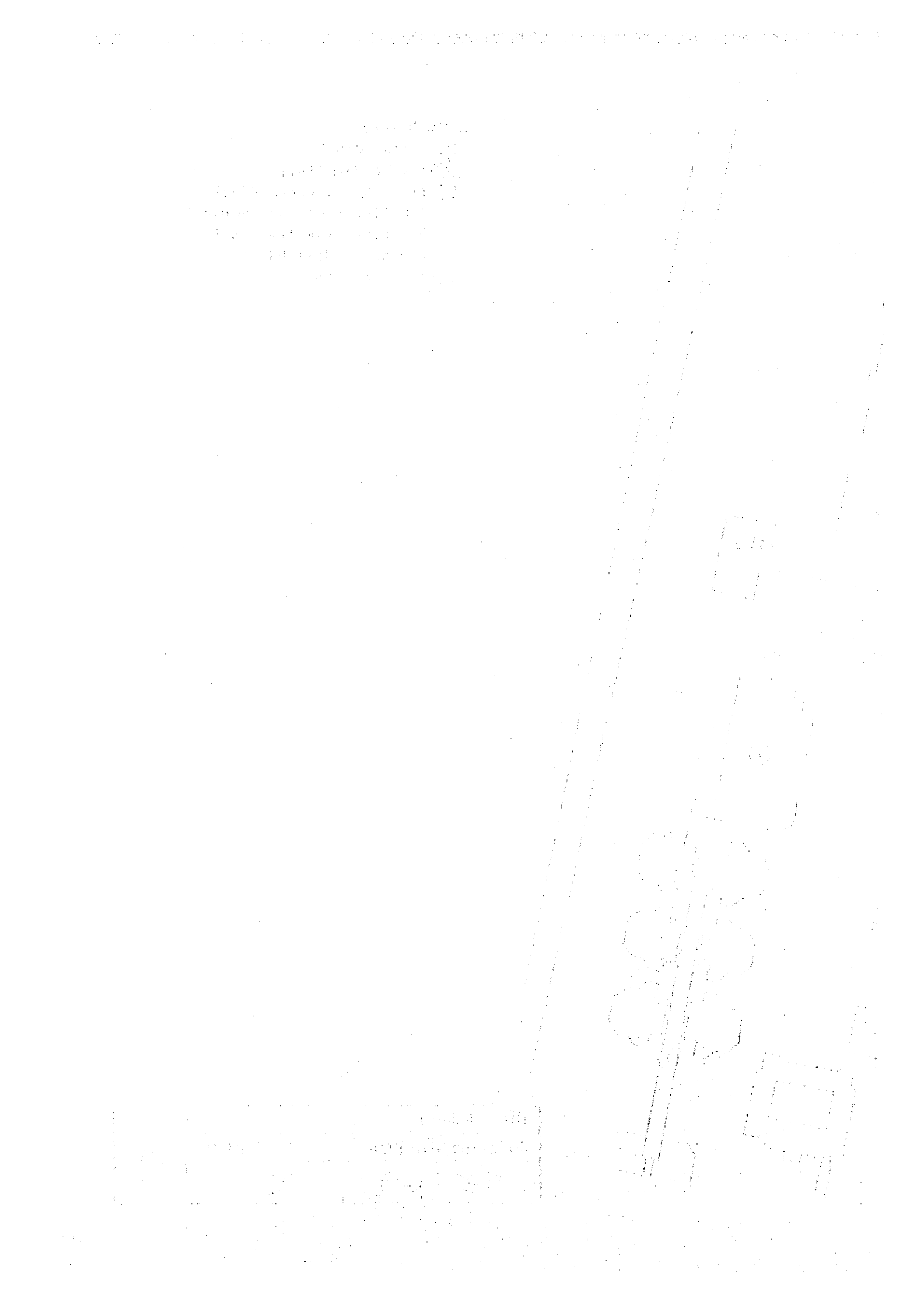


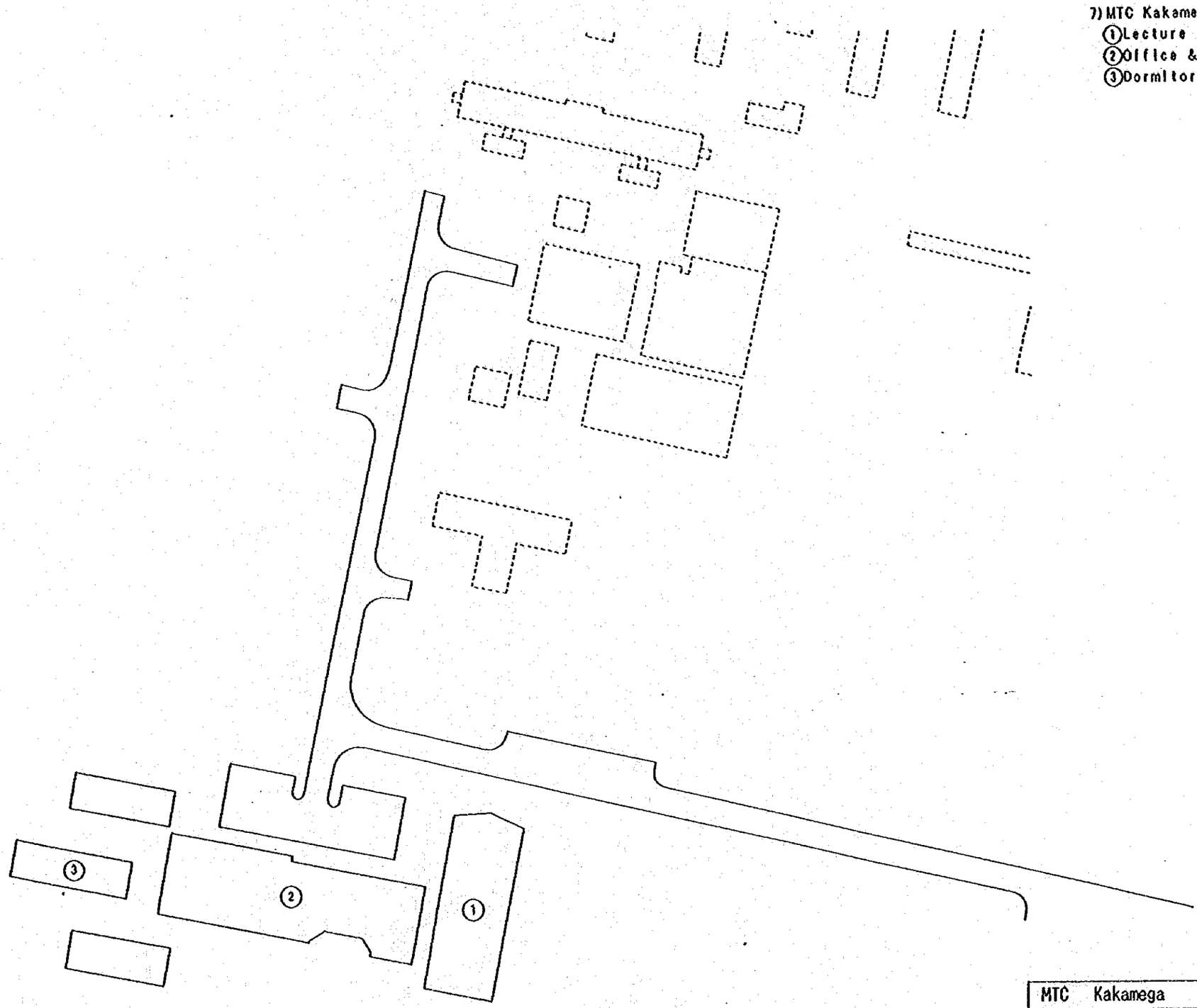
6) MTC Nakuru
① Nursing Block
② Wemen's Dormitory
③ Office & Classroom Block
-A Office & Classroom Block
-B Lecture Theatre Block
-C Dinning Hall Block
④ Men's Dormitory



MTC Nakuru	
Existing Site Plan	SCALE 1:1000
0M 5M 15M 25M 50M	

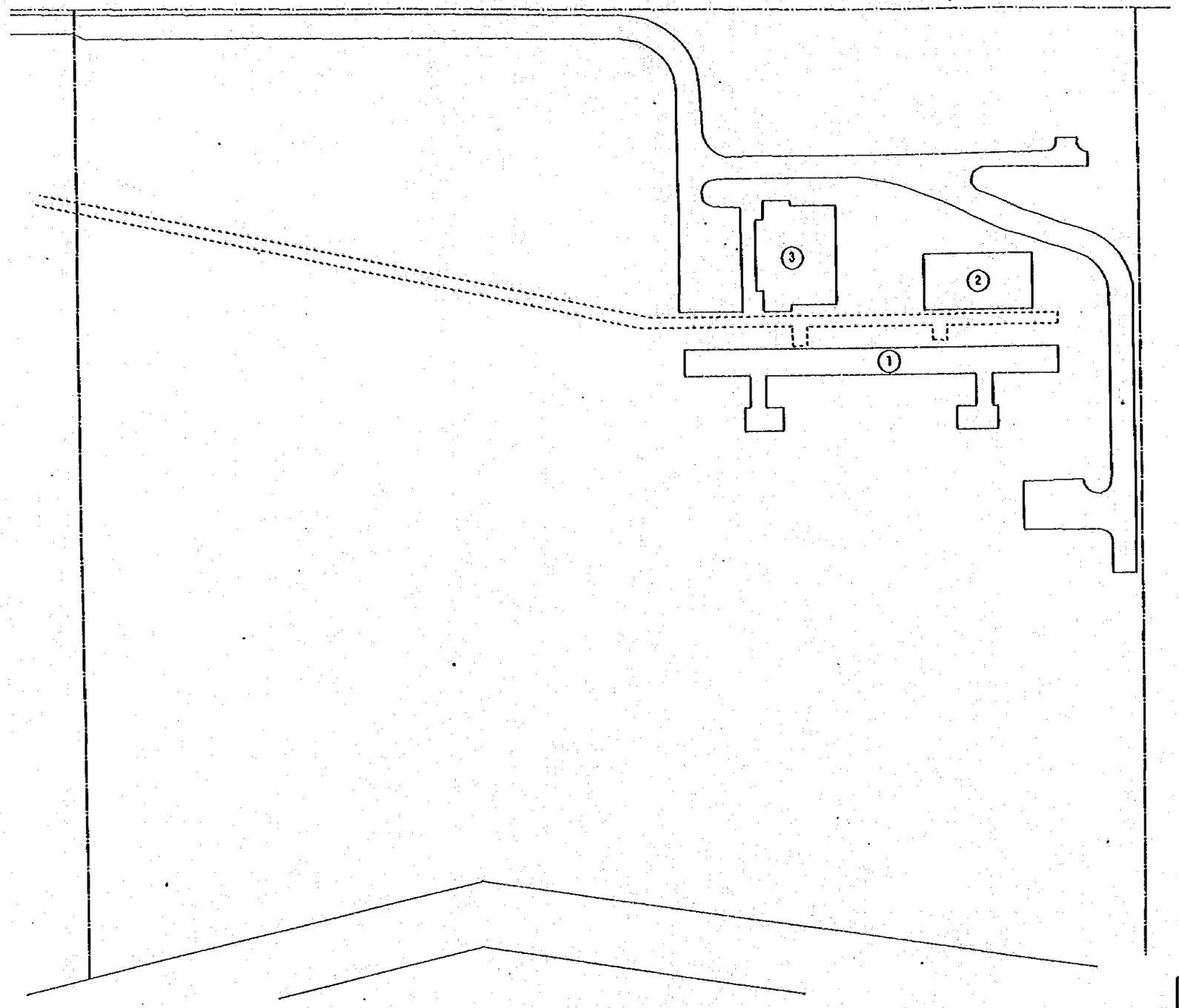


7) MTC Kakamega
① Lecture Theatre Block
② Office & Classroom Block
③ Dormitory



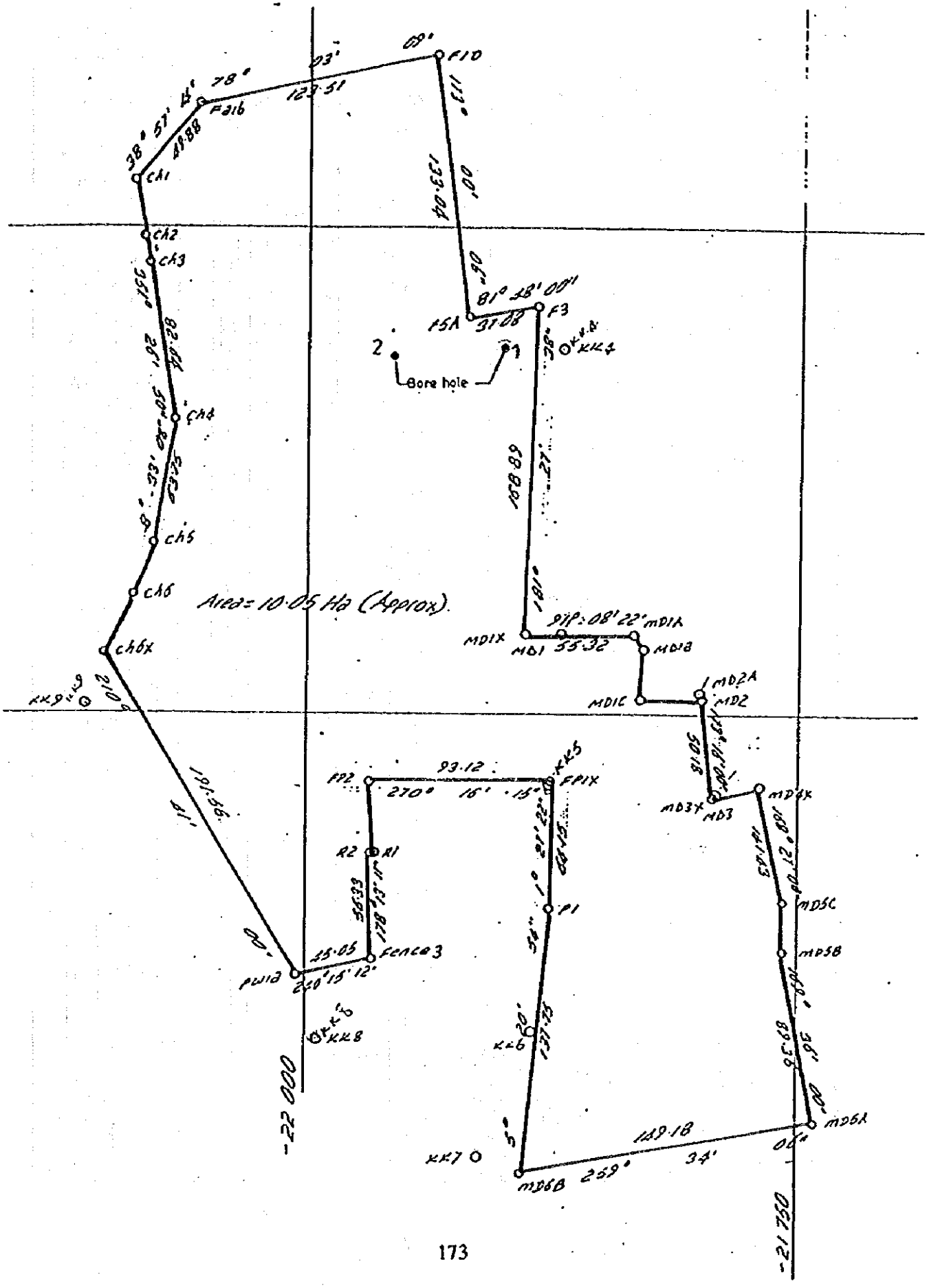
MTC Kakamega	
Existing Site Plan	SCALE 1:1000
0M 5M 15M 25M 50M	

8) MTC Homa Bay
① Dormitory & Classroom Block
② Assembly Hall Block
③ Dinning Hall Block



MTC HomaBay	
Existing Site Plan	SCALE 1:1000
0M 5M 15M 25M 50M	

6. Soil Exploration Data



Borehole No. 1
Sheet 1 of 2

Equipment & Methods: Rotary auger 150mm dia. 0.00-0.35m Rotary coring 115mm 0.35-10.00m

Location: KENYA MEDICAL TRAINING COLLEGE, NRB

Carried out for: NIHON SEKKEI INC

Ground Level:

Coordinates:

Date: 19.10.94

Description	Reduced Level	Legend	Depth & Thickness	Samples/Tests: Depth	Sample Type	Sample No	Test	Field Records: FI	TCR	SCR	RQD	GRADE
Firm dark grey slightly silty CLAY. Zone 0.35 - 0.65m with some gravel of angular lava fragments.			(2.10)	GL - 0.35		B1						
				0.35 - 1.00				NA	100		NA	
				1.00 - 1.45	S	1	SPT	NA	-		NA	
				1.00 - 1.45	D	02		NA			NA	
			2.10	1.45 - 2.70					80			
Moderately weathered with medium spaced fractures grey trachytic AGGLOMERATE of angular trachyte fragments few cm upto 6cm in fine grained altered matrix. Fractures subhorizontal rough limonite coated. 0° 0°			(1.60)					2			22	III
				2.70 - 3.70				3	100		43	
			3.70									
Highly weathered non intact grey with green tinge trachytic AGGLOMERATE with much altered matrix. (recovered as gravel in thin brown clay matrix)			(2.00)	3.70 - 5.20				NI	56		0	IV
			5.70					NI				
Moderately weathered with medium spaced fractures grey with green tinge trachytic AGGLOMERATE. Fractures 30°, 30° rough limonite coated. 30° 30°			(1.30)	5.20 - 6.80				2	100		58	III
			7.00									
Slightly weathered with medium and widely spaced fractures grey with green tinge trachytic AGGLOMERATE. Fractures steep light limonite coated. 60° 60°			(3.00)	6.80 - 8.40				1	100		75	II
				8.40 - 10.00				3	100		37	
			10.00									

S.P.T: Where full 0.3m penetration has not been achieved the number of blows for the quoted penetration is given (Not N value)

DEPTHS: All depths and reduced levels in metres. Thickness given in brackets in depth column

W.R.L: Water level observations during boring are given on the last sheet of log.

Sample / Test Key
D Disturbed sample
B Bulk sample
W Water sample
P Piston (P) Tube (U) or core sample length to scale
S Standard Penetration test
V Vane Test
C Core recovery
R Rock Quality Designation (RQD) %

Remarks

Logged by: J.O.

Scale: 1:50

Fig: 1

Borehole No 2
Sheet 1 of 2

Equipment & Methods: Rotary auger 150mm dia. 0.00–1.00m. Rotary coring 131mm dia. 1.00–10.00m

Location: KENYA MEDICAL TRAINING COLLEGE, NAIROBI

Carried out for: NIHON SEKKEI INC

Ground Level | Co-ordinates | Date: 16_18/10/94

Description	Reduced Level	Legend	Depth & Thickness	Samples/Tests: Depth	Sample Type	Sample No	Test	Field Records: FI	TCR	RQD	GRADE
Dark grey slightly silty CLAY			(1.00)	G.L – 1.00		B1					
			1.00	1.00 – 1.05		D2	S (60)	V100/0 BLOWS/0 REFUSAL REFUSAL			
				1.05 – 1.06							
0° Moderately weathered with medium spaced fractures anchine broken grey with brown patches trachytic AGGLOMERATE of angular trachyte fragments upto 15cm in fine grained altered matrix. Zone 2.40–2.65m highly weathered, broken grey with orange tinges. Fractures subhorizontal tight limonite lined.			(3.20)	1.05 – 2.65				2	100	29	III
				2.65 – 3.95				2	100	46	
			4.20								
20° 70° Slightly weathered with medium spaced fractures grey fine grained TRACHYTE. Fractures subhorizontal and steep rough tight limonite lined.			(2.80)	3.95 – 5.55				5	100	30	II
				5.55 – 7.05				2	40	14	
			7.00								
30° Faintly weathered with widely spaced fractures grey fine grained TRACHYTE. Fractures 30° tight limonite coated.			(3.00)	7.05 – 8.55				0	100	95	I
				8.55 – 10.00				1	100	96	
			10.00								

S.P.T: Where full 0.3m penetration has not been achieved the number of blows for the quoted penetration is given (Not N value)

DEPTHS: All depths and reduced levels in metres. Thickness given in brackets in depth column

W.R.L: Water level observations during boring are given on the test sheet of log.

Sample / Test Key
D Disturbed sample
B Bulk sample
W Water sample
Piston(P) Tube(U) or core sample length to scale
S Standard Penetration Test
V Vane Test
C Core recovery
Rock Quality Designation (RQD - %)

Remarks

Logged by: J. O.
Scale: 1:50
Fig: 2

GROUND WATER

Natural ground water was not encountered during the initial rotary augering, which is a dry drilling method.

Core drilling involved the injection of water as a flushing medium which prevents observation of the depth that ground water is struck. However, observations of the drilling water levels within the holes were made each evening and again the next morning to monitor the trend toward equilibrium with the natural ground water level. These observations are recorded on the second page of each borehole log.

In both boreholes the water level fell during the overnight standing period but these depths should not be considered the equilibrium levels since the observations were made over a relatively short period of time.

GEOLOGY

The area is underlain by a dark grey silty CLAY 1.00m and 2.10m thick in B/H2 and B/H1 respectively.

The overburden overlies a grey trachytic AGGLOMERATE 3.20m thick in B/H2, and penetrated upto 10.00m depth in B/H1. In B/H2 the agglomerate is underlain by a grey TRACHYTE proved to 10.00m, maximum depth penetrated.

Details of the subsurface geology encountered in B/Hs 1 & 2 are given in the borehole logs, Figs 1 and 2.

7. Basic Design for Excluded Rehabilitation Plan

7-1 Design Policy

(1) Design Policy for Rehabilitation Plan

The same as 3-1 Design Policy, Chapter 3 Basic Design for Urgent Rehabilitation Plan.

(2) Design Policy for Remodeling, Re-construction and New Construction

In addition to 3-1 Design Policy, Chapter 3 Basic Design for Urgent Rehabilitation Plan;

a. Regarding MTC Kabarnet, new construction work, which has been planned by the Government of Kenya, has been suspended halfway. For MTC Kabarnet, the present design conditions will not be applied, and a new construction plan will be formulated, based on new design conditions.

7-2 Study and Examination of Design Criteria

1 Rehabilitation Plan

In addition to 3-2 Study and Examination of Design Criteria, Chapter 3 Basic Design for Urgent Rehabilitation Plan, the ground floors of the below-mentioned buildings have classrooms, dining halls, and administrative offices, while the first to the third floors are used as dormitories. Scope of rehabilitation to these buildings are shown in the following table. "Common Scope of Rehabilitation Works", mentioned earlier, are applied to built-in furniture, structures, exterior structures, electrical systems, water sources, water tanks, plumbing installations, etc.

Blocks which need Rehabilitation		Scope of Rehabilitation Works
Nyeri	① Women's dormitory & classroom ② Men's dormitory & classroom	• Rehabilitation on roofs • Rehabilitation of water leakages in the toilets, showers, wash rooms, etc. on the first floor and dormitory floors (second to fourth floors), and attendant improvement of interior finish • Rehabilitation of the exterior finish facing the inner court • Minimum necessary interior finish (including doors and windows, including kitchen fixtures and hot-water supply facilities) Each dormitory room are not included
Mombasa Homa Bay	① Women's dormitory & classrooml ② Men's dormitory & classroom ① Dormitory & classroom	• Rehabilitations on the roof only above the core of the plumbing installations (toilets, showers, wash room, etc.) • Rehabilitation of water leakage to the core of the plumbing installations (including rehabilitation of interior finish, plumbing installations and electrical system, replacement of sanitary fixtures) • Exterior finish is included, as perforated clay blocks have fallen off and considered dangerous • Minimum necessary rehabilitation of interior finish will be carried out on the ground floor (including doors and windows), in case that the use of wash stands will be prohibited, in each dormitory room. Each dormitory rooms of the dormitory are not included

II Re-construction Plan and New Construction Plan

(1) Area Basis

In addition to 3-2 Study and Examination of Design Driteria, Chapter 3 Basic Design for the Urgent Rehabilitation Plan;

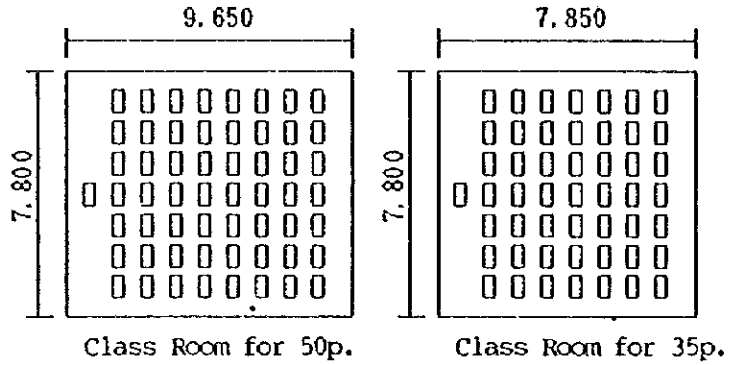
1) Classroom

Three courses and 6 classrooms have been selected at MTC kabarnet. These rooms are small so we think it will be difficult to relocate the students. Therefore, the utilization rate is 100%.

Number of Class and Class Rooms

Size of CR	Existing No. of Class × CR	No of planned CR
CR for 50p.	2 × 1.0 = 2	2
CR for 35p.	4 × 1.0 = 4	4

CR: Class Room



2) Library and Reading Room

In according with CHE standards, the following values have been standardized.

Number of books (collections):	30 books /person
Number of students targeted in reading rooms:	30% of all students
Reading room:	1.9m^2/person
Reference, magazine rack and bookshelf	10.8 m^2/1,000 books

According to the above standards, KMTC Nairobi College has 48,000 books with 480 students targeted for the reading room (total student population is 1,600). In connection with this, according to the Japanese Library Improvement Guide of the Ministry of Education, the minimum number of books for colleges is listed at 30,000 for up to 1,000 persons and an additional 5,000 books for every 1,000 person increase. Therefore for this plan, 35,000 books

is the minimum number.

Also, according to standards listed above, MTC Kabarnet has 7,200 books with 72 persons targeted for the reading room (total student population is 240). According to the Japanese Library Improvement Guide of the Ministry of Education, the minimum number of books should be 30,000. However, this college is considered a branch school of KMTC,. Therefore area for the library is of the same scale as branch schools carried investigated and is approximately $70m^2$ to $150m^2$, which will accommodate 2,500 to 5,000 books.

As above, CHE standards have been adopted for KMTC Nairobi and MTC Kabarnet .

(2) Area table

Teaching Clinic (KMTC Nairobi)

Patients: Students, Staff and their family

Number of Patients: 50 persons/day

Department: Medicine, Surgery, Orthopedics, Pediatrics, Ophthalmology, ENT, Dentistry

Room	Quantity	Remarks	Planned Fl. Area
Dept. of Medicine	1	1 Booth (incl. Treatment Rm.)	18
Dept. of Pediatrics	1	1 Booth (incl. Treatment Rm.)	18
Dept. of Surgery/Orthopedics	1	1 Booth (incl. Treatment Rm.)	27
Plaster Rm.	1	1 Booth (incl. Treatment Rm.)	27
Dept. of Ophthalmology	1		45
Dept. of ENT	1		36
Dept. of Dentistry	1		36
X-Ray Rm.	1	according to the lay-out of equipment(incl. Operation Rm.)	36
Radiologist's Rm.	1	according to the lay-out of equipment(incl. Film store)	36
Dark Rm.	1	according to the lay-out of equipment	18
Urinaly Sampling Rm.	1	according to the lay-out of equipment	36
Blood Sampling Rm. and Laboratory	1	according to the lay-out of equipment	54
Office	1	7 ㎡/P.× 5 P.× 1 Room	36
Officer's Office	1	18㎡/P.× 1 P.× 1 Room (incl. Reception Rm.)	18
Medical Record Rm.	1		18
Pharmacy	1		27
Wating space, Corridor, WC, Storage etc.			370
Total			856 ㎡

Library/Infonnation Center (KMTC Nairobi)

Capacity: 1,600 students

30 books /students x 1,600 = 48,000 books

Reading space: 1,600 students x 0.3 = 480 persons

Room	Quantity	Remarks	Planned Fl. Area
Entrance Hall/AIDS Exhibition Corner	1		160
Reception Counter	1		20
Reading Room	1	1.9㎡/P.×480	850
Open Stack/Magazine Corner	1	48,000 books×10.8/1,000 books	450
Audio visual Room for 60P.	1		105
Projection Room	1		20
Entrance Hall	1		50
Office	1	7 ㎡/P.×5 P.×1 Room	130
Librarian's/Secretary's Room	1	18㎡/P.×1 P.×1 Room (incl. Reception Space)	30
CPU Room	1	7 ㎡/P.×8 P.×1 Room	65
Copy Centre	1	7 ㎡/P.×10 P.×1 Room	85
Learning Material Production Room	1	7 ㎡/P.×8 P.×1 Room	65
Director's/Secretary's Room	1	60㎡/P.×1 P.×1 Room (incl. Reception Space)	65
Deputy Director's/ Secretary's Room	1	40㎡/P.×1 P.×1 Room (incl. Reception Space)	40
Assistant Director's Room	2	18㎡/P.×1 P.×2 Rooms (incl. Reception Space)	30
Office (1)	1	18㎡/P.×1 P.×1 Room	25
Office (2)~(3)	2	7 ㎡/P.×6 P.×2 Rooms	85
Conference Room for 15P.	3	2 ㎡/P.×15 P.×3 Rooms	100
Corridor, WC, Storage, Stair Case			730
Total			2,925㎡

Tuition Block (MTC Kabarnet)

Room	Quantity	Remarks	Planned Fl. Area
Classroom for 50P.	2	1 Booth	170
Classroom for 35P.	4	18㎡/P.x1P.x1 Rm.	260
Demonstration Room	1	according to the lay-out of equipment(incl.Preparation Rm.)	140
Laboratory	2	according to the lay-out of equipment(incl.Preparation Rm.)	210
Library	1	19㎡/P.x480P., 48000x10.8㎡/1,000	190
Foyer	1		100
Lecture Theatre	1	1 ㎡/P.x380P.x1 Rm.	380
Projection Room	1		15
Ante Room	2		75
Principal's Room	1	18㎡/P.x1P.x1 Rm.(incl.Reception Rm.,Secretary's Rm.)	30
Officer's Room	1	18㎡/P.x1P.x1 Rm.(incl.Reception Rm.,Secretary's Rm.)	30
Office	1	7 ㎡/P.x7P.x1 Room	45
Lecturers' Room	1	13㎡/P.x7P.x2 Rooms 13㎡/P.x5P.x2 Rooms	185
Conference Room for 22 P.	1	2 ㎡/P.x22P.x1 Room	45
Conference Room for 6 P.	3	2 ㎡/P.x6P.x3 Rooms	30
Corridor, WC, Storage, Stair Case			1,390
Total			3,295㎡

7-3 Basic Design

1. Architectural Plan

1 Rehabilitation Plan

(1) Common Rehabilitation Plan for the Target Colleges

The same as 3-3 Basic Design, Chapter 3 Basic Design for Urgent Rehabilitation Plan.

(2) Rehabilitation Plan for Each Target College

Rehabilitation is planned as follows for each of the target buildings. Where rehabilitation is planned under common specifications, a mention is made to that effect, and specification of individual finish is omitted.

1) MTC Mombasa

Rehabilitation is planned as follows.

1 Women's Dormitory, and Classroom Block (four-story RC structure, 3,300 m^2: 25 years after completion)

2 Men's Dormitory and Classroom Block (four-story RC structure, 3,300 m^2: 12 years after completion)

For both buildings, improvement of interior finish of the first floor is carried out where it is possible to ban the use of the toilet rooms in the upper three stories, because there are water leakages from these rooms.

Classification	Present conditions	Specifications	Scale %
Roof	- Damage and leaking are found in the deck roof due to superannuation of asphalt waterproofing.	- Common specifications	20
	- Damage and leaking are found in the drain gutter due to superannuation of asphalt waterproofing.	- Common specifications (deck roofs)	20
	- Leaking is found around the embedded drain and embedded drain pipe.	- Common specifications (deck roofs)	20
Parapet, top beam	- Damage and leaking are found in the parapet and top beam due to superannuation of asphalt waterproofing.	- Common specifications (deck roofs)	20
Exterior wall	- Damage and falling are found on the exterior wall (porous water clay blocks) of the corridor.	- The porous water clay blocks are removed completely, and stronger porous concrete blocks are laid.	60
Exterior doors and windows	- Some windows have been broken, and some are difficult to open and close.	- Common specifications (toilets & the groundfloor)	5
	- Some windows are rusty and very dirty.	- Common specifications (toilets & the ground floor)	95
	- Some windowpanes have been broken.	- Common specifications (toilets & the ground floor)	10
	- The windows of the ground floor are not installed with lattices for burglar-proof.	- Common specifications (toilets & the ground floor)	25
	- Some doors have been broken, and some are difficult to open and close.	- Common specifications (toilets & the ground floor)	100
Chambers with water piping	- The floors, baseboards, walls and ceilings are dirty because of water leakages from upper floors, and paint has been exfoliated.	- Common specifications	100
	- Some doors have been broken, and some are difficult to open and close.	- Common specifications	100
	- Some of the sanitary fixtures have been broken.	- Common specifications	100
Other chambers	- The floor is dirty because of water liakages, and flooring material is exfoliated.	- Common specifications (the ground floor)	85
	- Ceilings of the top floor have been damaged and dirty due to leaking in the roof, and paint has been exfoliated.	- Common specifications (the ground floor)	85
	- Ceilings have been damaged and dirty due to water leakages from upper floors.	- Common specifications (the ground floor)	85
	- Some doors have been broken, and some are difficult to open and close.	- Common specifications (the ground floor)	50

3 Assembly Hall (one-story RC structure, 350 m^2: 25 years after completion)

Classification	Present conditions	Specifications	Scale %
Roof	- Damage and leaking are found in the deck roof due to superannuation of asphalt waterproofing.	- Common specifications	100
	- Damage and leaking are found in the drain gutter due to superannuation of asphalt waterproofing.	- Common specifications	100
	- Leaking is found around the embedded drain and embedded drain pipe.	- Common specifications	100
	- Leaking is found around the roof exhaust duct.	- The roof exhaust duct is removed	100
Parapet, top beam	- Damage and leaking are found in the parapet and top beam due to superannuation of asphalt waterproofing.	- Common specifications	100
Exterior doors and windows	- Some windows have been broken, and some are difficult to open and close.	- Common specifications	100
	- Some windows are very dirty and rusty.	- Common specifications	100
Assembly hall	- The floor is dirty because of water leakages, and flooring material has been exfoliated from place to place.	- Common specifications	70
	- The wall is dirty because of leaking in the roof.	- Cleaning only, because concrete wall is a bush-hammer finish.	70
	- The ceiling is dirty because of leaking in the roof.	- Cleaning only, because concrete wall is a bush-hammer finish.	70
	- Some doors have been broken, and some are difficult to open and close.	- Common specifications	100
	- Difficult opening and closing of movable aluminum partition walls	- Replacement of movable partition walls	100

4 Lecture Theater Block (one-story RC structure, 100 m^2: 25 years after completion)

Classification	Present conditions	Specifications	Scale %
Roof	- Damage and leaking are found in the deck roof due to superannuation of asphalt waterproofing.	-Common specifications	100
	- Damage and leaking are found in the drain gutter due to superannuation of asphalt waterproofing.	-Common specifications	100
	- Leaking is found around the embedded drain and embedded drain pipe.	-Common specifications	100
Parapet, top beam	- Damage and leaking are found in the parapet and top beam due to superannuation of asphalt waterproofing.	- Common specifications	100
Exterior wall	- The surface of the wall is dirty because of water leakages, and paint has been exfoliated.	- Common specifications	100
Exterior doors and windows	- Some windows have been broken, and some are difficult to open and close.	- Common specifications	100
	- Some doors have been broken, and some are difficult to open and close.	- Common specifications	100
Lecture Theatre	- The floor is dirty because of water leakages, and flooring material has been exfoliated from place to place.	- Common specifications	80
	- The wall is dirty because of leaking in the roof and water leakages from the upper floor.	- Common specifications	80
	- The ceiling is dirty from place to place due to leaking in the roof.	- Common specifications (painting of 100% of the ceiling)	80
	- Some doors have been broken, and some are difficult to open and close.	- Common specifications	100
	- Some pieces of the built-in furniture have been broken by termites.	- Replacement of built-in furniture	100

2) MTC Nyeri

Rehabilitation is planned as follows.

1 Women's Dormitory and Classromm (four-story RC structure, 2,650 m^2: 21 years after completion)

2 Men's Dormitory and Classroom (four-story RC structure, 2,650 m^2: 17 years after completion)

Classification	Present conditions	Specifications	Scale %
Roof	- Damage and leaking are found in the deck roof due to superannuation of asphalt waterproofing.	- Common specifications	100
	- Damage and leaking are found in the drain gutter due to superannuation of asphalt waterproofing.	- Common specifications	100
	- Leaking is found around the embedded drain and embedded drain pipe.	- Common specifications	100
Parapet, top beam	- Damage and leaking are found in the parapet and top beam due to superannuation of asphalt waterproofing.	- Common specifications	100
Exterior wall	- The wall facing the inner court is dirty because of leaking (in the roof and leakages from water piping), and paint has been exfoliated.	- Common specifications (the exterior wall facing the inner court and the exterior wall of the groundfloor)	50
Exterior doors and windows	- Some windows have been broken, and some are difficult to open and close.	- Common specifications	15
	- Some windows are very dirty and rusty.	- Common specifications	85
	- Some windowpanes have been broken.	- Common specifications	10
	- The windows of the ground floor are not installed with lattices for burglar-proof.	- Common specifications	25
	- Some doors have been broken, and some are difficult to open and close.	- Common specifications	100
Chambers with water piping	- Floors, baseboards, walls and ceilings are dirty because of leaking in the roof and water leakages from upper floors, and paint has been exfoliated.	- Common specifications (all floors)	100
	- Some doors have been broken, and some are difficult to open and close.	- Common specifications (all floors)	100
	- Some of the sanitary fixtures have been broken.	- Common specifications (all floors)	100
Other rooms	- Floors are dirty because of water leakages, and flooring material has been exfoliated from place to place.	- Common specifications (ground floor)	100
	- Walls are dirty because of leaking in the roof and water leakages from upper floors, and paint has been exfoliated.	- Common specifications (ground floor)	85
	- Ceilings have been damaged and dirty because of leaking in the roof and water leakages from upper floors.	- Common specifications (ground floor)	85
	- Some doors have been broken, and some are difficult to open and close.	- Common specifications (ground floor)	50

Note: Percentages for other rooms are those for the ground floor.

3) MTC Nakuru

Rehabilitation is planned as follows.

1 Nursing Block (three-story RC structure, 1,700m^2)

Classification	Present conditions	Specifications	Scale %
Roof	- Damage and leaking are found in the deck roof due to superannuation of asphalt waterproofing.	- Common specifications	100
	- Damage and leaking are found in the drain gutter due to superannuation of asphalt waterproofing.	- Common specifications	100
	- Leaking is found around the embedded drain and embedded drain pipe.	- Common specifications	100
Parapet, top beam	- Damage and leaking are found in the parapet and top beam due to superannuation of asphalt waterproofing.	- Common specifications	100
Exterior wall	- The surface of ordered hollow brick masonry is partially fallen off.	- If repairing the exterior wall, it would be necessary to remove all the follow bricks, keeping the columns and beams as they are. For the present, rehabilitation is not planned for the exterior wall, because damage is slight.	0
Chambers with water piping	- Floors, baseboards, walls and ceilings are dirty because of leaking in the roof and water leakages from upper floors, and paint has been exfoliated.	- Common specifications	100
	- Some doors have been broken, and some are difficult to open and close.	- Common specifications	100
	- Some of the sanitary fixtures have been broken.	- Common specifications	100

3 Office and Classroom Block (two-story RC structure, 2,800 m²: 23 years after completion)

Classification	Present conditions	Specifications	Scale %
Roof	- Steel truss galvanized corrugated steel sheet roofing has been carried out for rehabilitation on the open asphalt waterproof layer of the deck roof of original design, and there is leaking in the roof.	- The existing sloping roof and the waterproof layer of the original design are removed, and asphalt waterpoor roofing is carried out. In view of the shape of the roof, waterproofing effect cannot be expected from a sloping roof, so the roof remains a deck roof as in the original design.	100
	- Damage and leaking are found in the drain gutter due to superannuation of asphalt waterproofing.	- Common specifications	100
	- Leaking is found around the embedded drain and embedded drain pipe.	- Common specifications	100
Parapet, top beam	- Damage and leaking are found in the parapet and top beam due to superannuation of asphalt waterproofing.	- Common specifications	100
Exterior wall	- The surface of the wall and expansion joints excet for Nairobe stone are dirty because of water leakages, and paint has been exfoliated.	- Common specifications	70
Exterior doors and windows	- Some windows have been broken, and some are difficult to open and close.	- Common specifications	5
	- Some windows are very dirty and rusty.	- Common specifications	95
	- Some windowpanes have been broken.	- Common specifications	10
	- The windows of the ground floor are not equipped with lattices for burglar-proof.	- Common specifications	50
	- Some doors have been broken, and some are difficult to open and close.	- Common specifications	100
Chambers with water piping	- Floors, baseboards, walls and ceilings are dirty because of leaking in the roof and water leakages from the upper floor, and paint has been exfoliated.	- Common specifications	100
	- Some doors have been broken, and some are difficult to open and close.	- Common specifications	100
	- Some of the sanitary fixtures have been broken.	- Common specifications	100
Other rooms	- Floors are dirty because of water leakages, and flooring material has been exfoliated from place to place.	- Common specifications	70
	- Paint on walls has been exfoliated because of leaking in the roof and water leakages from the upper floor.	- Common specifications	70
	- Ceilings have been damaged and dirty because of leaking in the roof and water leakages from the upper floor.	- Common specifications (floor slab)	70
	- Some doors have been broken, and some are difficult to open and close.	- Common specifications	50

- B Lecture Theater Block (one-story RC structure, 200m^2: 23 years after completion)

Classification	Present conditions	Specifications	Scale %
Roof	- Steel truss galvanized corrugated steel sheet roofing has been carried out for rehabilitation on the open asphalt waterproof layer of the deck roof of original design, and there is leaking in the roof.	- The existing sloping roof and the waterproof layer of the original design are removed, and asphalt waterpoor roofing is carried out. In view of the shape of the roof, waterproofing effect cannot be expected from a sloping roof, so the roof remains a deck roof as in the original design.	100
	- Damage and leaking are found in the drain gutter due to superannuation of asphalt waterproofing.	- Common specifications	100
	- Leaking is found around the embeddod drain and embedded drain pipe.	- Common specifications	100
Parapet, top beam	- Damage and leaking are found in the parapet and top beam due to superannuation of asphalt waterproofing.	- Common specifications	100
Exterior wall	- The surface of the wall and expansion joints excet for Nairobe stone are dirty because of water leakages, and paint has been exfoliated.	- Common specifications	100
Exterior doors and windows	- Some windows have been broken, and some are difficult to open and close.	- Common specifications	5
	- Some windows are very dirty and rusty.	- Common specifications	95
	- Some windowpanes have been broken.	- Common specifications	10
	- The windows of the ground floor are not equipped with lattices for burglar-proof.	- Common specifications	100
	- Some doors have been broken, and some are difficult to open and close.	- Common specifications	100
Lecture Theatre	- The floor is dirty because of water leakages, and flooring material has been exfoliated from place to place.	- Common specifications	70
	- The wall is dirty because of leaking in the roof and water leakages from the upper floor.	- Common specifications	70
	- The ceiling is dirty from place to place due to leaking in the roof.	- Common specifications (painting of 100% of the ceiling)	70
	- Some doors have been broken, and some are difficult to open and close.	- Common specifications	100
	- Some pieces of the built-in furniture have been broken by termites.	- Replacement of built-in furniture	100

- C Dining Hall Block (two-story RC structure, 1,500m²: 23 years after completion)

Classification	Present conditions	Specifications	Scale %
Roof	- Steel truss galvanized corrugated steel sheet roofing has been carried out for rehabilitation on the open asphalt waterproof layer of the deck roof of original design, and there is leaking in the roof.	- The existing sloping roof and the waterproof layer of the original design are removed, and asphalt waterpoor roofing is carried out. In view of the shape of the roof, waterproofing effect cannot be expected from a sloping roof, so the roof remains a deck roof as in the original design.	100
	- Damage and leaking are found in the drain gutter due to superannuation of asphalt waterproofing.	- Common specifications	100
	- Leaking is found around the embedded drain and embedded drain pipe.	- Common specifications	100
Parapet, top beam	- Damage and leaking are found in the parapet and top beam due to superannuation of asphalt waterproofing.	- Common specifications	100
Kitchen	- Floors, baseboards, wall and ceilings are damaged or dirty because of leaking in the roof, insufficient interior ventilation and defective drainage. And paing is exfoliated.	- Common specifications	100
	- Some doors are broken, and some are difficult to open and close.	- Common specifications	100
	- Dumwaiter is out of order.	- A new dumwaiter is installed.	100
Dining hall	- Floors are dirty because of water leakages, and flooring material has been exfoliated from place to place.	- Common specifications	70
	- Paint on walls has been exfoliated because of leaking in the roof and water leakages from the upper floor	- Common specifications	70
	- Ceilings have been damaged and dirty because of leaking in the roof.	- Common specifications (floor slab)	70
	- Some doors have been broken, and some are difficult to open and close.	- Common specifications	50

4) MTCKakamega

Rehabilitation is planned as follows.

1 Lecture Theater Block (one-story RC structure, 700m^2: 20 years after completion)

Classification	Present conditions	Specifications	Scale %
Roof	- Steel truss galvanized corrugated steel sheet roofing has been carried out for rehabilitation on the open asphalt waterproof layer of the deck roof of original design, and there is leaking in the roof.	- The existing sloping roof and the waterproof layer of the original design are removed, and asphalt waterpoor roofing is carried out. In view of the shape of the roof, waterproofing effect cannot be expected from a sloping roof, so the roof remains a deck roof as in the original design.	100
	- Damage and leaking are found in the existing drain gutter (galvanized steel) because of incomplete works.	- The existing gutter is removed, and asphalt waterproofing is administered on a new PC gutter, with mesh mortar finish.	100
	- Leaking is found around the embedded drain and embedded drain pipe.	- Common specifications	100
Exterior wall	- The surface of the wall is dirty because of water leakages, and paint is exfoliated. There is subsidence caused by unequal settlement of one of the exterior columns.	- Common specifications Rehabilitation after repairs on the structure and bed.	100
Exterior doors and windows	- Some windows have been broken, and some are difficult to open and close.	- Common specifications	5
	- Some windows are very dirty and rusty.	- Common specifications	95
	- Some windowpanes have been broken.	- Common specifications	10
	- The windows of the ground floor are not equipped with lattices for burglar-proof.	- Common specifications	100
	- Some doors have been broken, and some are difficult to open and close.	- Common specifications	100
Lecture theatre	- The floor is dirty because of water leakages, and flooring material has been exfoliated from place to place.	- Common specifications	75
	- The wall is dirty because of leaking in the roof and water leakages from the upper floor.	- Common specifications	75
	- The ceiling is dirty from place to place due to leaking in the roof.	- Common specifications (painting of 100% of the ceiling)	75
	- Some doors have been broken, and some are difficult to open and close.	- Common specifications	100
	- Some pieces of the built-in furniture have been broken by termites.	- Replacement of built-in furniture	100

2 Office and Classroom Block (one-story RC structure, 900m²: 20 years after completion)

Classification	Present conditions	Specifications	Scale %
Roof	- Steel truss galvanized corrugated steel sheet roofing has been carried out for rehabilitation on the open asphalt waterproof layer of the deck roof of original design, and there is leaking in the roof.	- The existing sloping roof and the waterproof layer of the original design are removed, and asphalt waterpoor roofing is carried out. In view of the shape of the roof, waterproofing effect cannot be expected from a sloping roof, so the roof remains a deck roof as in the original design.	100
	- Damage and leaking are found in the drain gutter due to superannuation of asphalt waterproofing.	- Common specifications	100
	- Leaking is found around the embedded drain and embedded drain pipe.	- Common specifications	100
Chambers with water piping	- Floors, baseboards, walls and ceilings are dirty because of leaking in the roof and water leakages from upper floors, and paint has been exfoliated.	- Common specifications (all floors)	100
	- Some doors have been broken, and some are difficult to open and close.	- Common specifications (all floors)	100
	- Some of the sanitary fixtures have been broken.	- Common specifications (all floors)	100
Other rooms	- Floors are dirty because of water leakages, and flooring material has been exfoliated from place to place. - Walls are dirty because of leaking in the roof and water leakages from upper floors, and paint has been exfoliated. - Ceilings have been damaged and dirty because of leaking in the roof and water leakages from upper floors. - Some doors have been broken, and some are difficult to open and close.	- As this building is occupied mainly by an administrative office, which does not have training functions, improvement of interior finish is not planned, in view of priority in cooperation.	0

5) MTC Homa Bay

Rehabilitation is planned as follows.

1 Dormitory and Classroom Block (four-story RC structure, 3,300 m^2: 16 years after completion)

Improvement of interior finish of the first floor is planned where the use of washing stands (from which water leaks) in the dormitory rooms in the upper three stories can be stopped.

Classification	Present conditions	Specifications	Scale %
Roof	- Damage and leaking are found in the deck roof due to superannuation of asphalt waterproofing.	- Common specifications (deck roofs)	20
	- Damage and leaking are found in the drain gutter due to superannuation of asphalt waterproofing.	- Common specifications (deck roofs)	20
	- Leaking is found around the embedded drain and embedded drain pipe.	- Common specifications (deck roofs)	20
Parapet, top beam	- Damage and leaking are found in the parapet and top beam due to superannuation of asphalt waterproofing.	- Common specifications (deck roofs)	20
Exterior wall	- The surface of the wall is dirty because of water leakages, and paint has been exfoliated.	- Exterior wall material (porous clay blocks, as in MTC Mombasa) may fall down. Appropriate safety measures are taken.	60
Exterior doors and windows	- Some windows have been broken, and some are difficult to open and close.	- Common specifications (toilets & the groundfloor)	5
	- Some windows are rusty and very dirty.	- Common specifications (toilets & the ground floor)	95
	- Some windowpanes have been broken.	- Common specifications (toilets & the ground floor)	10
	- The windows of the ground floor are not installed with lattices for burglar-proof.	- Common specifications (toilets & the ground floor)	25
	- Some doors have been broken, and some are difficult to open and close.	- Common specifications (toilets & the ground floor)	100
Chambers with water piping	- The floors, baseboards, walls and ceilings are dirty because of water leakages from upper floors, and paint has been exfoliated.	- Common specifications	100
	- Some doors have been broken, and some are difficult to open and close.	- Common specifications	100
	- Some of the sanitary fixtures have been broken.	- Common specifications	100
Lecture theatere	- The floor is dirty because of water liakages, and flooring material is exfoliated.	- Common specifications (the ground floor)	85
	- Ceilings of the top floor have been damaged and dirty due to leaking in the roof, and paint has been exfoliated.	- Common specifications (the ground floor)	85
	- Ceilings have been damaged and dirty due to water leakages from upper floors.	- Common specifications (the ground floor)	85
	- Some doors have been broken, and some are difficult to open and close.	- Common specifications (the ground floor)	50

Note: Percentages for other rooms are those for the ground floor.

2 Assembly Hall Block (one-story RC structure, 350m²: 16 years after completion)

Classification	Present conditions	Specifications	Scale %
Roof	- Damage and leaking are found in the deck roof due to superannuation of asphalt waterproofing.	- Common specifications	100
	- Damage and leaking are found in the drain gutter due to superannuation of asphalt waterproofing.	- Common specifications	100
	- Leaking is found around the embedded drain and embedded drain pipe.	- Common specifications	100
	- Leaking is found around the roof exhaust duct.	- The roof exhaust duct is removed	100
Parapet, top beam	- Damage and leaking are found in the parapet and top beam due to superannuation of asphalt waterproofing.	- Common specifications	100
Exterior doors and windows	- Some windows have been broken, and some are difficult to open and close.	- Common specifications (toilets & the groundfloor)	5
	- Some windows are rusty and very dirty.	- Common specifications (toilets & the ground floor)	95
	- Some windowpanes have been broken.	- Common specifications (toilets & the ground floor)	10
	- The windows of the ground floor are not installed with lattices for burglar-proof.	- Common specifications (toilets & the ground floor)	100
	- Some doors have been broken, and some are difficult to open and close.	- Common specifications (toilets & the ground floor)	100
Assembly hall	- The floor is dirty because of water leakages, and flooring material has been exfoliated from place to place.	- Common specifications	70
	- The wall is dirty because of leaking in the roof.	- Cleaning only, because concrete wall is a bush-hammer finish.	70
	- The ceiling is dirty because of leaking in the roof.	- Cleaning only, because concrete wall is a bush-hammer finish.	70
	- Some doors have been broken, and some are difficult to open and close.	- Common specifications	100
	- Difficult opening and closing of movable aluminum partition walls	- Replacement of movable partition walls	100

II Re-construction and New Construction Plan

KMTC Nairobi

(1) Site Utilization Plan

The same as II. Re-construction Plan, Chapter 3 Basic Design for the Urgent Rehabilitation Plan

(2) Layout plan

a. Teaching Clinic

The new teaching clinic will be located on the north of the site. Because it will be carrying out medical treatment activities by covering KMTC students, staff and their families, it will be the easiest to locate on the premises, and the approach to it from the outside will also be easy. Also, because this facility will also comprise an intramural training place for the various faculties, it must ensure coordination with classrooms, laboratories and lecturers' office building. In the future, it is to be enlarged into the space made available behind the facility.

b. Library and information center

The new library and information center will comprise a facility indispensable for students who have difficulty acquiring textbooks and teaching aids. It will be located in the public facility zone in the center of the site to facilitate approaches from the other facilities. On the third floor of this facility will be rooms for the KMTC Director and others. This is to ensure coordination with the adjacent office and classroom building.

(3) Floor Plan

The same as II. Re-construction Plan, Chapter 3 Basic Design for the Urgent Rehabilitation Plan.

(4) Elevation and cross-section plan

The same as II. Re-construction Plan, Chapter 3 Basic Design for the Urgent Rehabilitation Plan.

(5) Construction material plan

The same as II Re-construction Plan, Chapter 3 Basic Design for the Urgent Rehabilitation Plan.

MTC Kabarnet

(1) Site and layout plan

This facility has comprised an important school which has provided education to paramedicals particularly nurses and engineers for environmental Health Sciences in the northern Rift Valley as the area's key school. Since it is a new school opened in June of 1990, it does not have its own school buildings, but is implementing educational activities by leasing facilities of the Baringo District Development Institute (BDDI). Since April of 1992, a new facility has been constructed on a site adjacent to the District Hospital through design and supervision by the Kenya government. However, nonpayment of cost of construction works occurred due to pressured national finances so that the construction works have been suspended.

The Kenya government's own plan consists of (1) a students' dormitory to accommodate 240 persons, (2) a canteen building, (3) a tuition building, (4) a library (5) other buildings and (6) as a future facility, a accomodation for visitors.

As of September 1994, the construction works on the concrete works of students' dormitory's and roof works had been completed and the construction works were suspended in the middle of the interior and exterior finish. The construction works on the canteen building have been suspended after completion of the concrete work and those on the tuition building in the middle of the excavation works.

The request from KMTC is for construction of the tuition building, and the Kenyan side has definitely promised to complete the other facilities at same time.

Given the foregoing situation, the following are to be the basic policies regarding the layout plan.

a. The site will be the same as the plan formulated by the Kenya government.
b. The site is located on a very firm rock bed and it is expected to be very difficult to carry out the digging works so that the facilities should be laid out perpendicular to the incline.
c. The line of flow is to be reduced by utilizing the incline.

(2) Floor plan

Basically to be planned based on the same concept as the KMTC Nairobi.

(3) Elevation and cross-section plan

Basically to be planned based on the same concept as the KMTC Nairobi.

(4) Construction material plan

Basically to be planned based on the same concept as the KMTC Nairobi.

2. Structural Plans

I. Rehabilitation Plan

(1) Common Rehabilitation Plan to All Facilities

The same as I. Rehabilitation Plan, Chapter 3 Basic Design for Urgent Rehabilitation Plan.

(2) Rehabilitation Plan for the Target Facilities

Those sections which require structural reinforcement are mentioned below.

a. MTC Mombasa No. 1 and No. 2

Columns and beams have been little damaged in both buildings. There are cracks concentrated in expansion joints around the staircase. Covering concrete has fallen off some of the cantilever beams supporting the staircase, and reinforcing bars have appeared, which is very dangerous. Urgent repairing is necessary. In those sections where concrete has fallen off, curing is carried out for damaged concrete and reinforcing bars, and the beams are reinforced, as in KMTC Nairobi. Grass is sometimes found in cracks in expansion joints. Grass, which injures concrete, is chipped completely, and sufficient sealing must be administered on ex. joints.

b. MTC Nyeri No. 1 and No. 2

Large cracks are found in roof slabs of both buildings, and leaking in the roof has resulted. Open waterproofing seems to have been exposed to temperature fluctuations and dryness. Change of roof water-proofing is required. Rehabilitation is carried out for slabs, after administering perfect waterproofing for the roof. Large cracks in roof slabs are filled with resin mortar, etc., after chipping damaged concrete from the roof, so that no leaking in the roof will take place when it rains.

c. MTC Nakuru No. 3A

As same as in MTC Mombasa, there are a number of cracks in expansion joints around the staircase, causing water leakages. There are a number of large cracks in roof slabs of the corridor. It is expected that concrete in these cracks has been damaged greatly, and it is necessary to stop leaking by filling them with mortar, after chipping concrete from cracks.

d. MTC Kakamega No. 1

The largest problem is a number of cracks concentrated on beams and slabs which take hold of exterior columns, with considerably damaged concrete. This seems to have been caused by unequal subsidence of the footing as a result of rain water from the roof having loosened footing soil around the column base. The footing must be repaired, simultaneously

with repairs on cracks in slabs and beams. As it seems difficult to excavate the lower end of the footing (it is considered individual footing), concrete is placed outside the existing footing to provide larger footing to reduce soil load and control subsidence. Specific measures are necessary for rain water disposal.

· Concrete has been damaged considerably in expansion joints by leaking of rain water, which requires repairs.

e. MTC Homa Bay No. 1

The largest problem is land subsidence caused by defective back filling. Unequal settlement of soil has cracked the exterior concrete corridor, stairway, concrete planters, and retaining wall. The collapsing retaining wall is dangerous. It is necessary to remove the retaining wall, conduct back filling again, and conduct design afresh.

f. MTC Homa Bay No. 2

Leaking from cracked roof slabs is considerable, and puddles are produced in the lecture room. Some cracks may be large, and there is the possibility of slabs falling off if they are left as they are. This is very dangerous.

It is necessary to repair cracked slabs, after studying another method of roof waterproofing. The subsidence of the exterior berm has produced a very dangerous situation, and it is necessary to conduct embankment again to improve the exterior trench.

II. Re-construction and New Construction Plan

(1) Structural Design Criteria

The same as II. Re-construction Plan, Chapter 3 Basic Design for Urgent Rehabilitation Plan.

(2) Loads and External Force

The same as II. Re-construction Plan, Chapter 3 Basic Design for Urgent Rehabilitation Plan.

(3) Structural Materials

The same as II. Re-construction Plan, Chapter 3 Basic Design for Urgent Rehabilitation Plan.

(4) Structural Design

KMTC Nairobi

1) Outline of soil

According to soil survey in the planned construction site, bed rock which can provide bearing subsoil is expected to exist 1.0 m to 2.1 m beneath the ground surface.

2) Foundation design

As bed rock is expected at a shallow level as mentioned above, direct foundation is possible in view of the scale of the building. Difficult excavation is expected on the other hand, and it is necessary to study distributed depths of the bed rock and to formulate a foundation plan which reduces excavation work as much as possible.

3) Structural design

a. Library

As a reinforced concrete structure, the rahmen design is quite basic. In the plan, it appears that the load on the first and second floor reading rooms is relatively heavy. As with new buildings, an earth-floored slab is being used to provide the necessary strength and rigidity. A large deflection in the slab helps to prevent any problems from occurring. The roof is a complex shape so a simple frame design is recommended.

b. Teaching Clinic

This construction features a stairwell in the center area and overhead lighting. We feel that it is important to provide structural support for the stairwell due to the length of the posts surrounding the court. Essentially, RC rahmen construction is being carried out with concrete walls surrounding the X-ray facilities. It is a relatively fairing building, so we would like the structure to have a symmetrical shape.

MTC Kabarnet

1) Outline of soil

Very hard bed rock is exposed over the whole of the planned construction site. It cannot be assumed that bed rock exists only on the ground surface, in view of the surrounding conditions, and the bed rock is expected to reach the depths of the ground, in view of the conditions of the building under construction. Therefore, soil survey has not been conducted specially.

2) Foundation design

Direct foundation is possible, because bed rock is exposed on the ground surface. The rock, however, produces great difficulty in excavation, and it is necessary to formulate a foundation plan and a building arrangement plan which require as little excavation as possible.

3) Structural design

In accordance with Kenya's anti-earthquake building codes, the Kabarunet region lies in VII-IX of the seismic map, an area where earthquake load must be accounted for. This building is of a flexible frame type design, so it is important that it meet the load standards. An inclined lot is built into the structural design of this building. It is very difficult to dig into the rock base beneath the building. However, the base is a solid enough foundation to support the construction, so building directly on top of the base would be very efficient, in our opinion. Basically, footing would be established at ground level. As for separation of foundation footings and beams, concrete will be reach from the bottom of the beams to the footings.

Land refilling will be extensive in this plan, however, the design will have no effect on the slab should settling occur.

The roof of the lecture hall is a long-span structure, so bending and cracking should be considered in the design.

Moreover, regarding the continuity of the roof slab (a single-body property of a long connecting corridor is that a level of maintenance can be integrated into the design), basically we think that expansion joints can be used without cutting, and if necessary, the design could be carried out without this posing a problem if the details of installation and water leakage are taken into consideration.

3. Facilities Plan

The facilities plan is classified into I. Rehabilitation Plan, II. Re-construction and New Construction Plan, which are described below.

I: Rehabilitation Plan

(1) Common Rehabilitation Plan to All Facilities

The same as I. Rehabilitation Plan, Chapter 3 Basic Design for Urgent Rehabilitation Plan.

(2) Rehabilitation Plan for the Target Colleges

The following table shows the present conditions and rehabilitation plan for each of the target buildings.

1) MTC Mombasa

Classification	Present conditions	Planned rehabilitation
Electric power	- Panels have been superannuated. - Lighting appliances, switches and outlets have been superannuated.	- The panels are replaced. - Incandescent lamps are replaced by fluorescent lamps. - Outlets and switches are replaced. - Pipes and wires are replaced. - Electric power supply for new power (pump)
Water supply	- City water [insufficient water pressure], elevated tank [superannuated] - Direct supply only in the first floor	- Installation of receiving tank + pump + elevated water tank - Replacement of water pipes
Drainage	- Discharge to public sewer	- Replacement of drain pipes at the time of replacement of sanitary fixtures
Sanitary fixtures	- Broken or superannuated sanitary fixtures - Western-style toilet stools (tank type), urinals (tank type)	- Replacement of sanitary fixtures. Western-style toilet stools are replaced by Asian-style toilet stools
Ventilation	- Ceiling fans in the multipurpose lecture room and the theater. - Superannuated ventilation equipment	- Replacement of ventilation equipment (multipurpose lecture room and theater).

2) MTC Nyeri

Classification	Present conditions	Planned rehabilitation
Electric power	- Panels have been superannuated. - Many of the lighting appliances, switches and outlets are not working (because of water leakages, theft, and damage)	- The panels are replaced. - The incandescent lamps are replaced by fluorescent lamps. - Outlets and switches are replaced. - Pipes and wires are replaced. - Electric power supply for new power (pump)
Water supply	- City water (from the hospital) [insufficient water pressure], elevated water tank [superannuated]	- Installation of receiving tank + pump + elevated water tank - Replacement of water pipes
Drainage	- Discharge to public sewer - Leaking in the drain pipe	- Replacement of drain pipes at the time of replacement of sanitary fixtures
Sanitary fixtures	- Superannuated sanitary fixtures - Western-style toilet stools (tank type), urinals (tank type)	- Replacement of sanitary fixtures. Western-style toilet stools are replaced by Asian-style toilet stools (flush valve type), and urinals are replaced by continuous urinals (flush valve type).
Hot water supply	- Hot water is supplied from an electric boiler (dormitory and kitchen). - Superannuated equipment and piping	- Replacement of the hot water supply system for kitchen appliances - Replacement of hot water pipes
Kitchen appliances	- Superannuated gas range - Superannuated refrigerator - Other appliances have been also superannuated.	- Replacement of major appliances
Ventilation	- Natural ventilation - Insufficient ventilation in the kitchen	Replacement of mechanical ventilation in the kitchen

3) MTC Nakuru

Classification	Present conditions	Planned rehabilitation
Electric power	- Superannuation of panels is considerable, which is very dangerous. - Many of the lighting appliances, switches and outlets are not working [because of water leakages, theft, damage].	- The panels are replaced. - The incandescent lamps are replaced by fluorescent lamps. - Replacement of outlets and switches - Replacement of piping and wiring - Electric power supply for new power (pump)
Water supply	- City water, elevated water tank [superannuated]	- receiving tank + pump + elevated water tank
Drainage	- Discharge to public sewer - Leaking in the drain pipe - Leaking in the exterior drain pipe	- Replacement of drain pipes at the time of replacement of sanitary fixtures
Sanitary fixtures	- Broken or superannuated sanitary fixtures - Western-style toilet stools (tank type), urinals (tank type)	- Replacement of sanitary fixtures. The Western-style toilet stools are replaced by Asian-style toilet stools
Hot water supply	- Hot water is supplied from an electric boiler (dormitory and kitchen). - Superannuated equipment and piping	- Replacement of the hot water supply system - Replacement of hot water pipes
Gas	Not available	- Installation of Gas tank and piping
Kitchen appliances	- Steam is used for heating appliances, which have been superannuated. Wood and charcoal are also used. - The large refrigerator has been superannuated. - Other pieces of equipment have been also superannuated.	- For heating, steam is replaced by gas. - A new large refrigerator is installed. - Replacement of major appliances
Ventilation	- Mechanical ventilation in the kitchen and the theater - Superannuated equipment	- Central ventilation is changed to individual ventilation (kitchen and theater).

4) MTC Kakamega

Classification	Present conditions	Planned rehabilitation
Electric power	- Panels have been superannuated, which is dangerous. - Lighting appliances, switches and outlets are not working [because of water leakages, theft, damage].	- The panels of the target buildings are replaced. - The incandescent lamps are replaced by fluorescent lamps. - Outlets and switches are replaced. - Piping and wiring are replaced. - Electric power supply to new power (pump)
Water supply	- City water, elevated water tank [superannuated]	- Construction of well + receiving tank + pump + elevated water tank - Replacement of water pipes
Drainage	- Discharge to public sewer - Leaking in the drain pipe - Leaking in the exterior drain pipe	- Replacement of drain pipes at the time of replacement of sanitary fixtures
Sanitary fixtures	- Broken or superannuated sanitary fixtures - Western-style toilet stools (tank type), urinals (tank type)	- Replacement of sanitary fixtures. The Western-style toilet stools are replaced by Asian-style toilet stools
Hot water supply	- Hot water is supplied from an electric boiler (dormitory, kitchen). - Superannuated equipment and piping	- Replacement of the hot water supply system for kitchen appliances - Replacement of hot water pipes

5) MTC Homa Bay

Classification	Present conditions	Planned rehabilitation
Electric power	- Voltage fluctuations are considerable and there are planned power cuts. - Panels have been superannuated. - Many of the lighting appliances have been superannuated and broken.	- The panels are replaced. - Electric power supply for new power - Lighting appliances, outlets and switches are replaced. - Piping and wiring are replaced. - Panels and lighting appliances are of open, theft prevention type.
Water supply	- City water [insufficient quantity], receiving tank + pump + elevated water tank [superannuated] - Direct supply of city water in the kitchen	- Installation of receiving tank + pump + elevated water tank - Laying of water pipes
Drainage	- Discharge to public sewer - Leaking in the drain pipe - Storage in exterior drain piping [due to land subsidence]	- Replacement of drain pipes at the time of replacement of sanitary fixtures - Replacement of exterior drain piping
Sanitary fixtures	- Broken or superannuated sanitary fixtures - Western-style toilet stools (tank type), urinals (tank type)	- Replacement of sanitary fixtures. The Western-style toilet stools are replaced by Asian-style toilet stools
Ventilation	- Ceiling fans in the multipurpose lecture room - Superannuated equipment	- Replacement of ceiling fans.

II. Re-construction and New Construction Plan

KMTC Nairobi

(1) Electric Facility Plan

The same as II. Reconstruction Plan, Chapter 3 Basic Design for Urgent Rehabilitation Plan.

(2) Plumbing and Ventilation Plan

The same as II. Reconstruction Plan, Chapter 3 Basic Design for Urgent Rehabilitation Plan.

MTC Kabarnet (New Construction)

(1) Electric Facility Plan

1) Electricity supply facilities

- The premises should be supplied a low-voltage power line from the Kenya Electric Power Company (KP&L).
- The electricity required by this facility is estimated to be around 300kVA. The necessary distribution panel, etc., should be installed and electricity should be supplied to each load.
- The supply system should be the 3-phase 4-wire 415/240V which is the standard voltage in Kenya.
- The power source works to the Project distribution panel are to be carried out by the Kenyan side.

2) Electric lights and AC outlets

- The design luminous intensity should be based on JIS and determined by taking account of Kenya's present state.
- The light sources to be used should be planned mainly using the efficient directly installed fluorescent light equipment.
- The switches should be planned in detail to reduce the operation cost.
- The average design luminous intensity of the main rooms shall be as follows.

Average Design Luminous Intensity of Main Rooms

Type of Room	Design Lighting Levels (lux)
Class room	more than 300
Labolatory	more than 300
Office/Conference Room	more than 300
Lecture Theatre	more than 300
Preparation Room	150

- The outlets should be based on the generally used square three-pin format. Their location and specifications should be determined by examining in detail such things as the used equipment's kind of power source, capacity and connection method.

3) Lightning arresting and grounding equipment

- To protect the facilities from lightning strikes, lightning rods and ridge conductors should be installed.

4) Telephone equipment

- An appropriate capacity of switch board should be installed. The works for laying the primary side cables of the Project terminal board are to be carried out by the Kenyan side.
- Terminal boards having the appropriate number of circuits should be installed inside the facilities. Telephones should be installed in rooms which require them so as to enable communication between rooms and with outside.

5) Automatic fire alarms

- Equipment which can automatically sense the occurrence of fire and issue an alarm should be installed so as to quickly detect fire and prevent the expansion of damage.
- Places where inflammable gasses will be used should be installed gas leakage alarms.
- As for the installation standards, as a rule Kenya's fire-fighting standards should be observed. If necessary, the Japanese Fire Services Act should be applied.

7) Ventilation facilities

- Places such as the lecture hall where many people gather and exercise rooms in which harmful gasses are generated should mechanically be ventilated using ventilation fans.
- The general rooms other than the above are to be naturally ventilated.

7-4 Equipment Plan

(1) Equipment Plan

1) KMTC Nairobi

Library/Information Centre

With re-construction and new construction of buildings, these divisions which are commonly used by the Faculties will be housed in a centre. Those divisions include the library, audio visual room, computer centre, copying centre, and the AIDS (HIV) Information Centre. The Faculty of Medical Education will take charge of operation of the centre.

- Library
  The plan mainly concerns necessary furnishings other than books.
- Audio Visual Room
  The audio visual room has been and will be used very frequently by the Faculties. Video systems, overhead projectors, slide projectors and tape recorders will be planned.
- Computer Centre
  IBM personal computers are used in the Faculty of Medical Education. Personal computers of the same specifications will be planned.
- Copying Centre
  Equipment whose maintenance is possible by local people and with locally available spare parts will be planned.

Teaching Clinic

Practical training of the Faculty of Clinical Medicine is given in outside teaching hospitals. It is urgently necessary for KMTC to give basic training in the teaching clinic in campos. Equipment will be planned at the time of the re-construction of the teaching clinic, including basic equipment whose demand is very large, anesthetic equipment, ophthalmologic equipment, and otolaryngological equipment. The teaching clinic will be equipped with an X-ray room, a dispensary, and training equipment for dentistry (Faculty of Oral Health).

2) MTC Kabarnet

Faculty of Medical Laboratory Technology

In the new construction plan, basic training equipment will be provided in accordance with the training curriculum, for the Faculty of Medical Laboratory Technology, which has little equipment.

(2) List of Major Equipment

1) Nairobi

Library Information/Centre

(Library)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Type writer	

(Computer Centre)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Personal computer Monitor Printer	Non-interruptive power supply unit Automatic voltage regulator Software

(Audio Visual Room)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
16mm film projector Overrhead projector Slide projector Small instrument set for preparation of OHP/slide Equipment strage unit	Portable OHP Portable 16mm projector Portable slide projector Portable video system Desk for storage of tools and fixture

(Copying Centre)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Large copy machine Small copy machine	Fixture (set) for copy machine Paper punch

Teaching Clinic

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Rack for patient record Shelving for table X-Ray system for medical examination Cassette set	Darkroom equipment set X-Ray photography unit Dental treatment unit

2)M T C Kabarnet

Faculty of Medical Laboratory Technology

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Colorimeter Cellulose acetate film electrophresis system pH meter for test laboratory Set of small instrument for clinical chemical test Equipment cabinet Incubator Carbon dioxide gas incubator Colony counter Table-top centrifuge Hemocyte counter	Biological microscope Spectrophotometer Hematocrit (centrifuge) Dry-heat sterilizer Bed for blood collection Refrigerator for blood storage Anatomical instrument set Homogenizer Syphilis diagnoostic instrument set

7-5 Maintenance Expenses

(1) Maintenance Plan

Refer to the text.

(2) Maintenance System

Refer to the text.

(3) Maintenance Expenses

Plans for those facilities other than target facilities mainly concern functional rehabilitation of existing facilities. These plans' implementation will not require a large budgetary increase. New construction is planned for MTC Kabarnet, now being operated by taking a lease of part of a public school operated by the district office. An operating budget equivalent to the rent can be ensured. Therefore, only maintenance expenses for facilities are calculated, with power and water rates being considered unchanged. As referred to in the text, 45 Kshs./m^2 is adopted for expenses for maintenance of facilities.

Unit: Kshs./year

College name	Total floor areas	Unit cost for Maintenance Kshs./m^2	Maintenance expense
Nairobi	3,780 m^2		170,100/year
Monbasa	7,500 m^2		337,500
Nyeri	5,300 m^2		238,500
Nakuru	6,200 m^2	x 45 Kshs/m^2	279,000
Kakamega	1,600 m^2		72,000
Homa Bay	3,650 m^2		164,250
Kabarnet	3,300 m^2		148,500

2) Equipment Maintenance Expenses

KMTC Nairobi : Kshs. 1,395,000./year

- Expenses for reagents and expendable articles

Recording paper	4 rolls x 40 weeks x Kshs. 3,000 =	Kshs. 480,000
X-ray films	100 sheets x 40 weeks x Kshs. 170 =	Kshs. 680,000

- Maintenance and reapairing expenses Kshs. 235,000

MTC Kabarnet : Kshs. 561,120/year

- Expenses for reagents and expendable articles

Reagents for clinical examination		
	10 specimens x 40 weeks x Kshs. 440 =	Kshs. 176,000
Reagents for blood testing	10 specimens x 40 weeks x Kshs. 440 =	Kshs. 176,000
Recording paper	2 rolls x 12 months x Kshs. 880 =	Kshs. 21,120
Maintenance and reapairing expenses		Kshs. 188,000

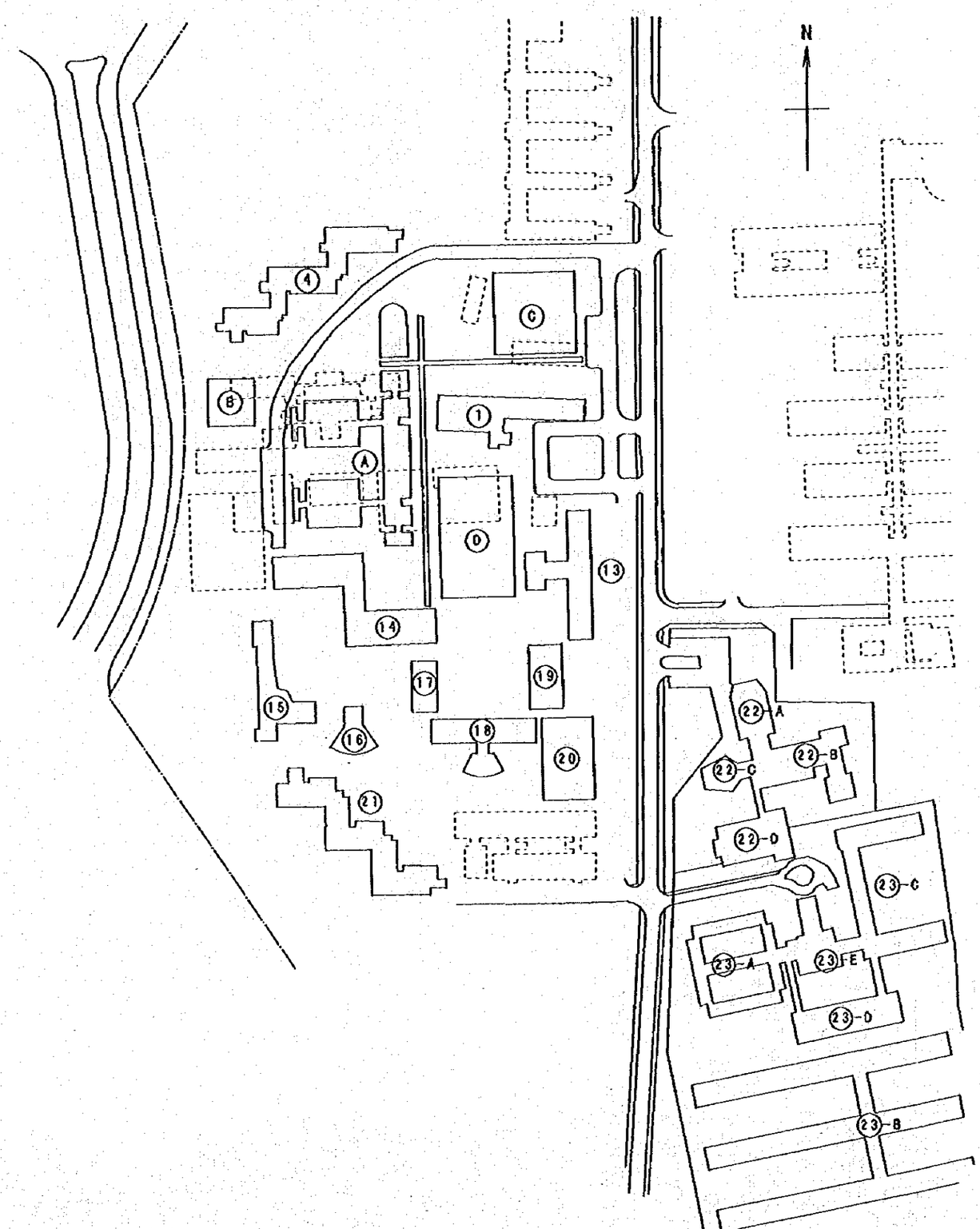
7-6 Basic Design Drawing

List of Basic Design Drawings

No	Name of Buildings	Name of Drawings	Scale
1		Site Plan of KMTC Nairobi	1/2000
2	KMTC Nairobi -Teaching Clininc	Plan / Roof Plan	1/300
3	KMTC Nairobi -Teaching Clininc	Elevation / Section	1/300
4	KMTC Nairobi -Library & Information Center	Ground Floor / 1st Floor Plan	1/300
5	KMTC Nairobi -Library & Information Center	2nd Floor Plan / Roof Plan	1/300
6	KMTC Nairobi -Library & Information Center	Elevation	1/300
7	KMTC Nairobi -Library & Information Center	Elevation / Section	1/300
8		Site Plan of MTC Kabarnet	1/1000
9	MTC Kabarnet -Tuition Block	Ground Floor	1/300
10	MTC Kabarnet -Tuition Block	1st Floor Plan	1/300
11	MTC Kabarnet -Tuition Block	2nd Floor Plan	1/300
12	MTC Kabarnet -Tuition Block	Elevation	1/300
13	MTC Kabarnet -Tuition Block	Elevation / Section	1/300

Floor Area Tabulation

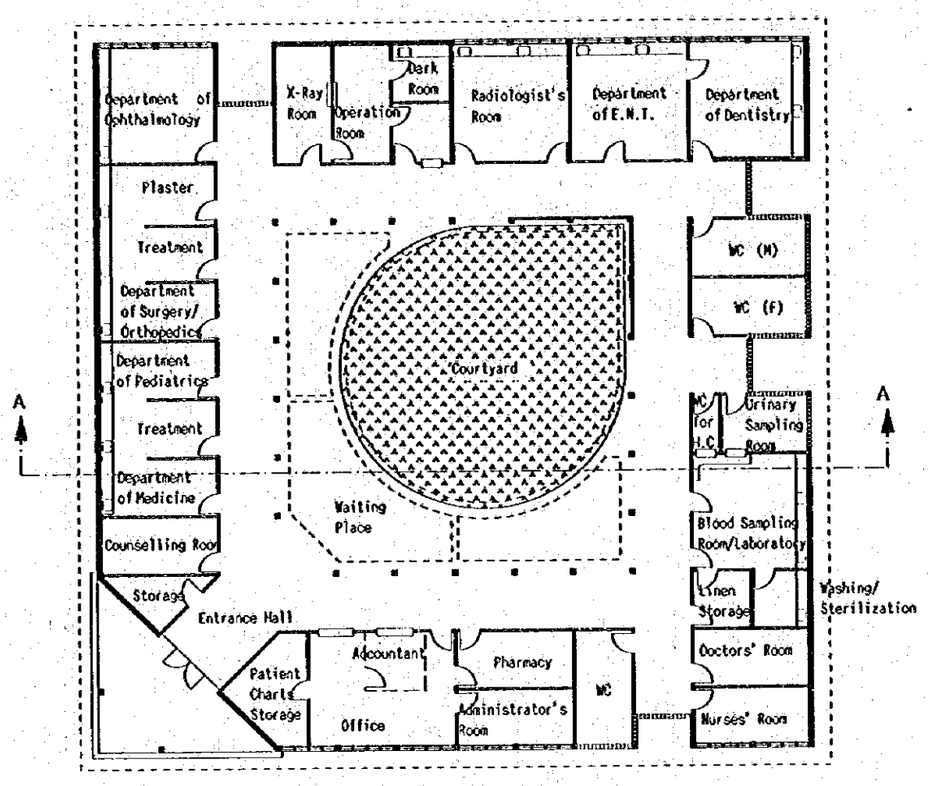
Name of Buildings		m^2
KMTC Nairobi -Teaching Clininc	Total Floor Area	856
KMTC Nairobi -Library & Information Center	Total Floor Area	2,925
MTC Kabarnet -Tuition Block	Total Floor Area	3,295



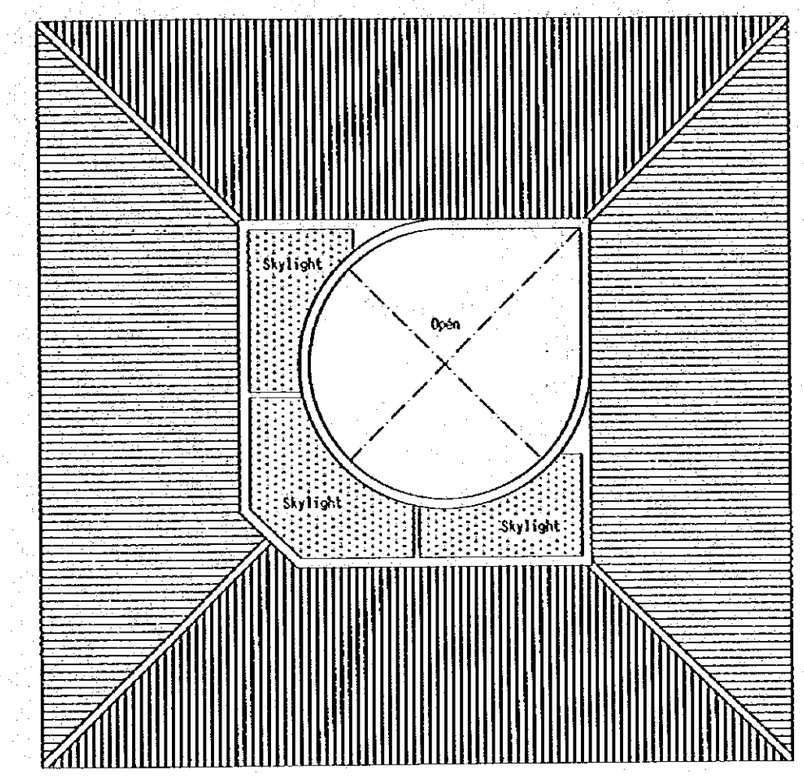
1) KMTC Nairobi
- ①Administration Block
- ②Medical Clinic
- ③Clinical Medicine Block
- ④Men's Dormitory (Soweto)
- ⑤Orthopaedic Technology Block
- ⑥Canteen
- ⑦Dental Technology Block
- ⑧Store
- ⑨Workshop Block
- ⑩Physiotherapy Block
- ⑪Occupational Therapy Block
- ⑫Food Inspection Block
- ⑬Health Record & Information Block
- ⑭Classroom & Laboratory Block
- ⑮Men's Dormitory (Hilton)
- ⑯Clinical Medicine & Lecture Theatre Block
- ⑰Pharmacy Laboratory Block
- ⑱Pharmacy Block
- ⑲Lecture's Office Block
- ⑳Library
- ㉑Men's Dormitory (Kanu)
- ㉒Nursing Block
  - -A Assembly Hall Block
  - -B Classroom & Office Block
  - -C Lecture Theatre Block
  - -D Classroom & Seminar Block
- ㉓Women's Dormitory
  - -A Merry Griffin's Block
  - -B B-W, B-E Block
  - -C Shah Block
  - -D Recreation Block
  - -E Medical Education Block

- ⒶTuition Block
- ⒷMaintenance Center
- ⒸTeaching Clinic
- ⒹLibrary & Information Center & Store

KMTC Nairobi	
Site Plan	SCALE 1:2000
0M 10M 30M 50M 100M	

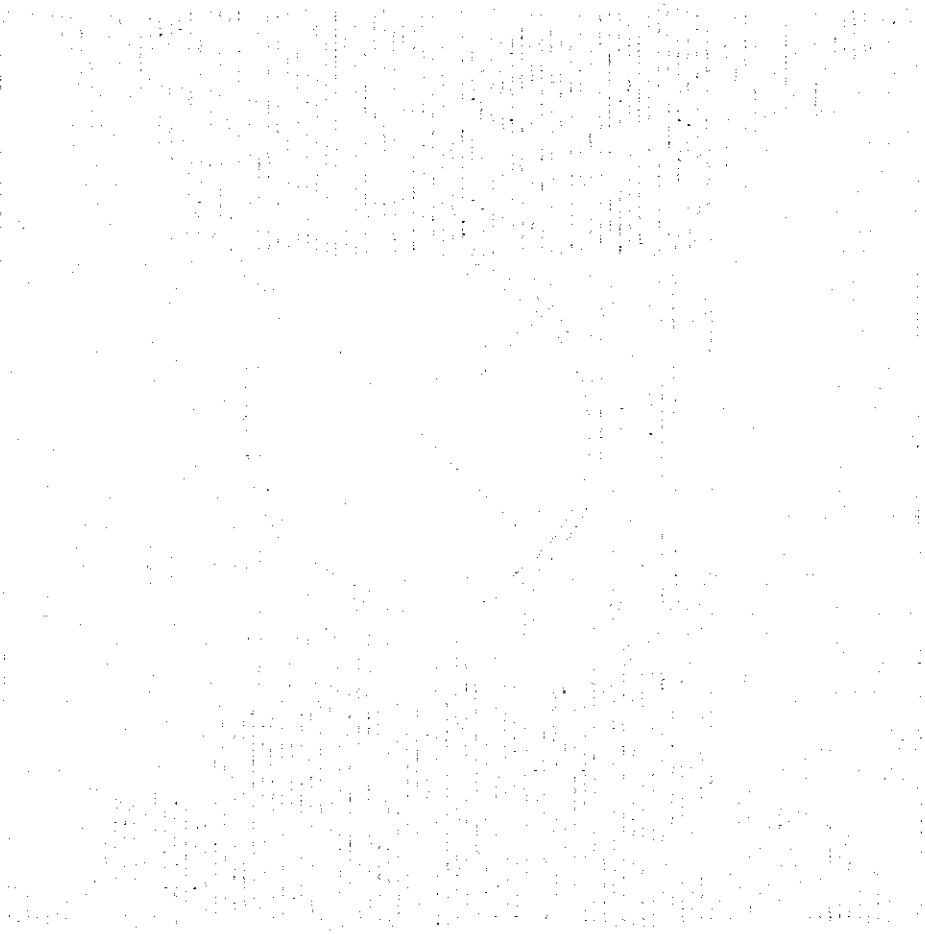


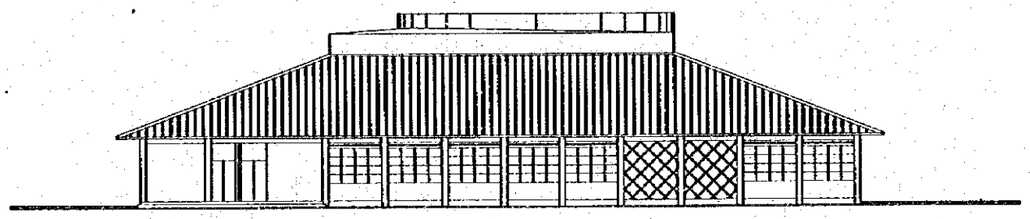
GROUND FLOOR PLAN



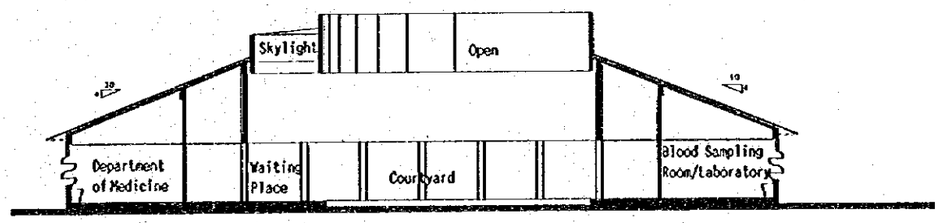
ROOF PLAN

KMTC Nairobi - Teaching Clinic		
Ground Floor Plan / Roof Plan	SCALE	1:300
0M 2M 5M 10M 20M		



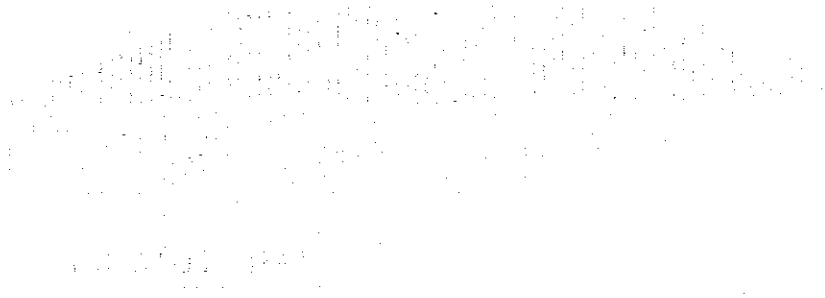


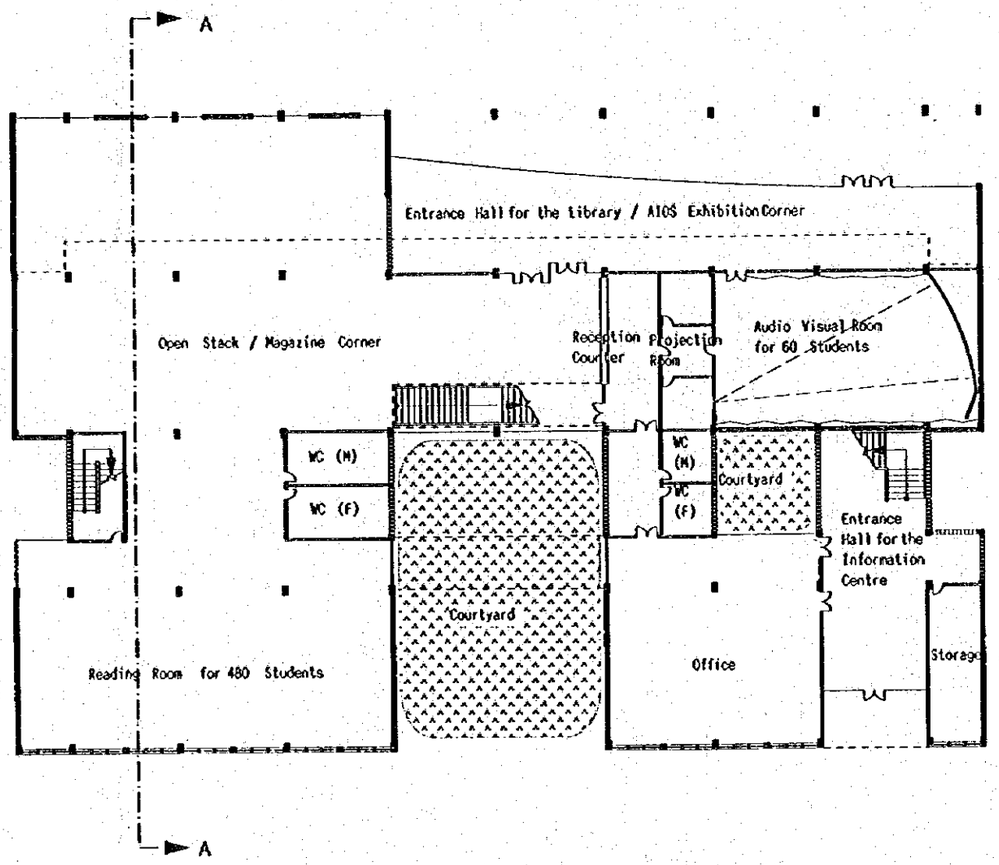
EAST ELEVATION



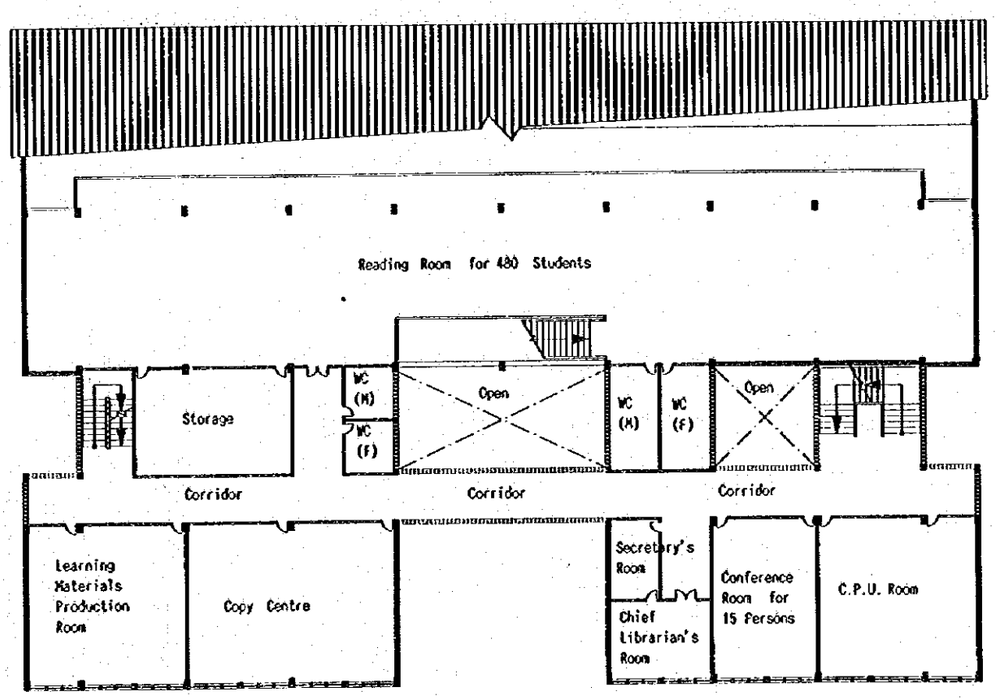
A-A SECTION

KMTC Nairobi - Teaching Clinic		
Elevation / Section	SCALE	1:300
0M 2M 5M 10M 20M		



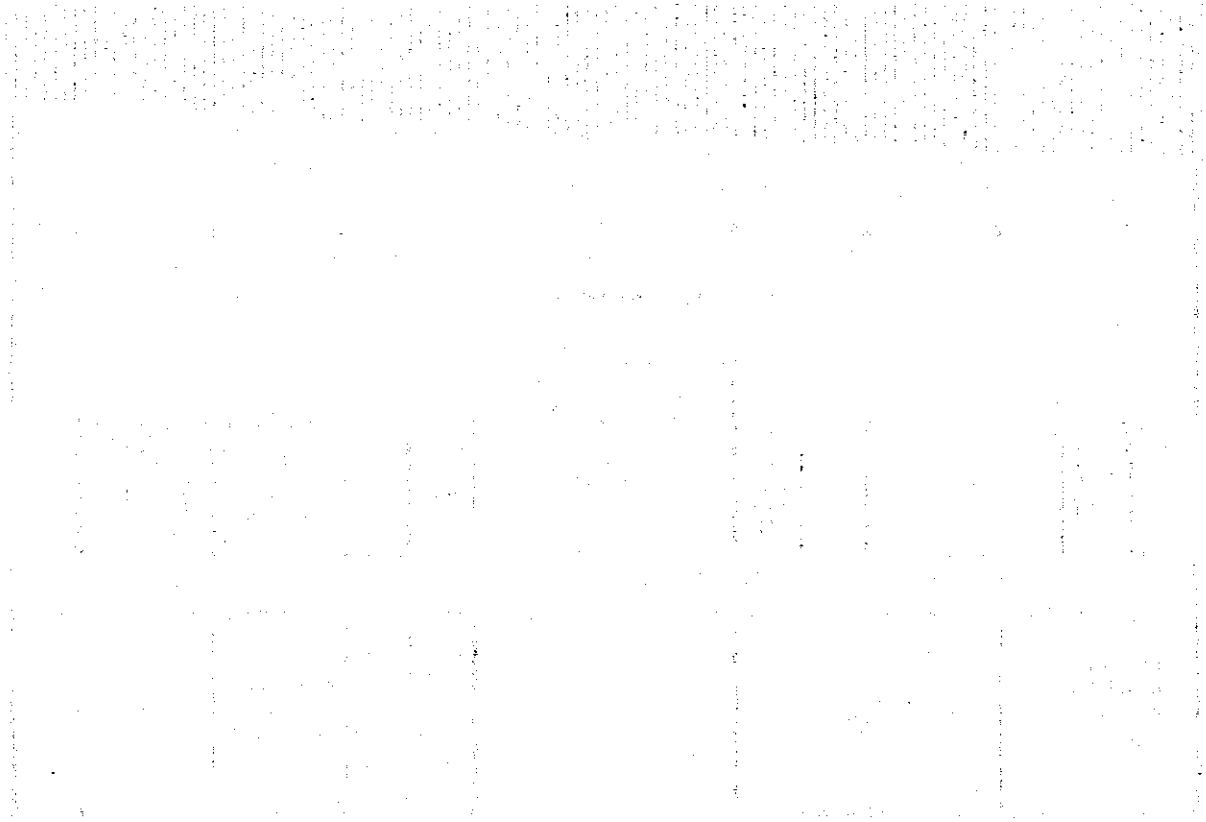


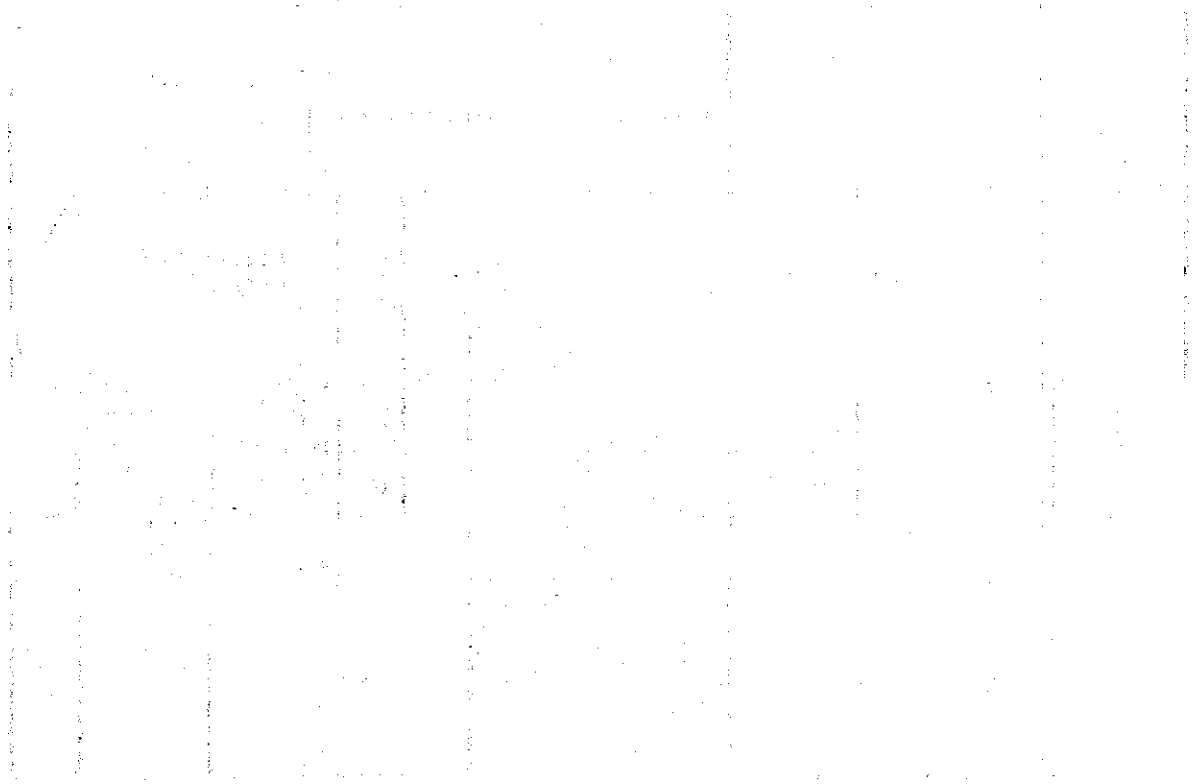
GROUND FLOOR PLAN

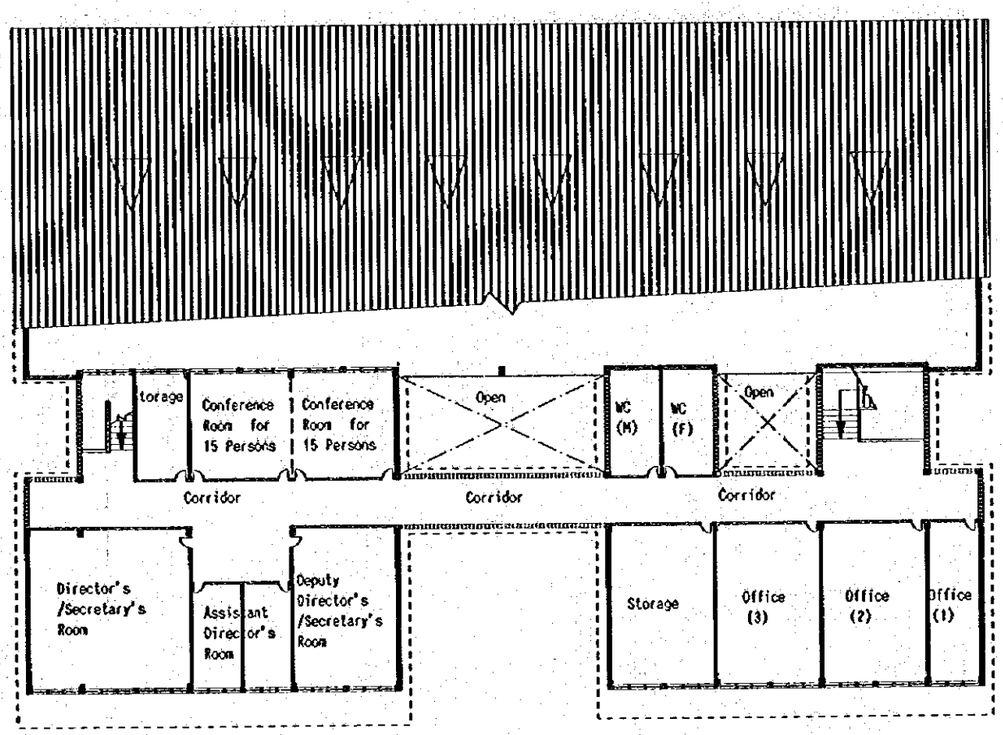


FIRST FLOOR PLAN

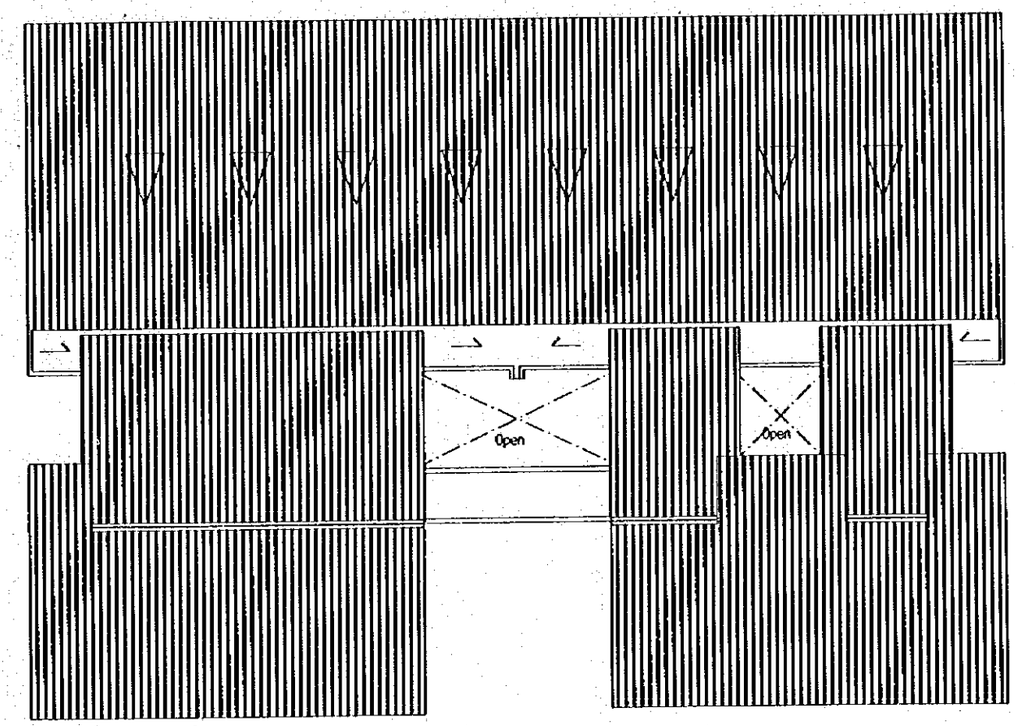
KMTC Nairobi - Library & Information Centre		
Ground Floor Plan/First Floor Plan	SCALE	1:300
0M 2M 5M 10M 20M		





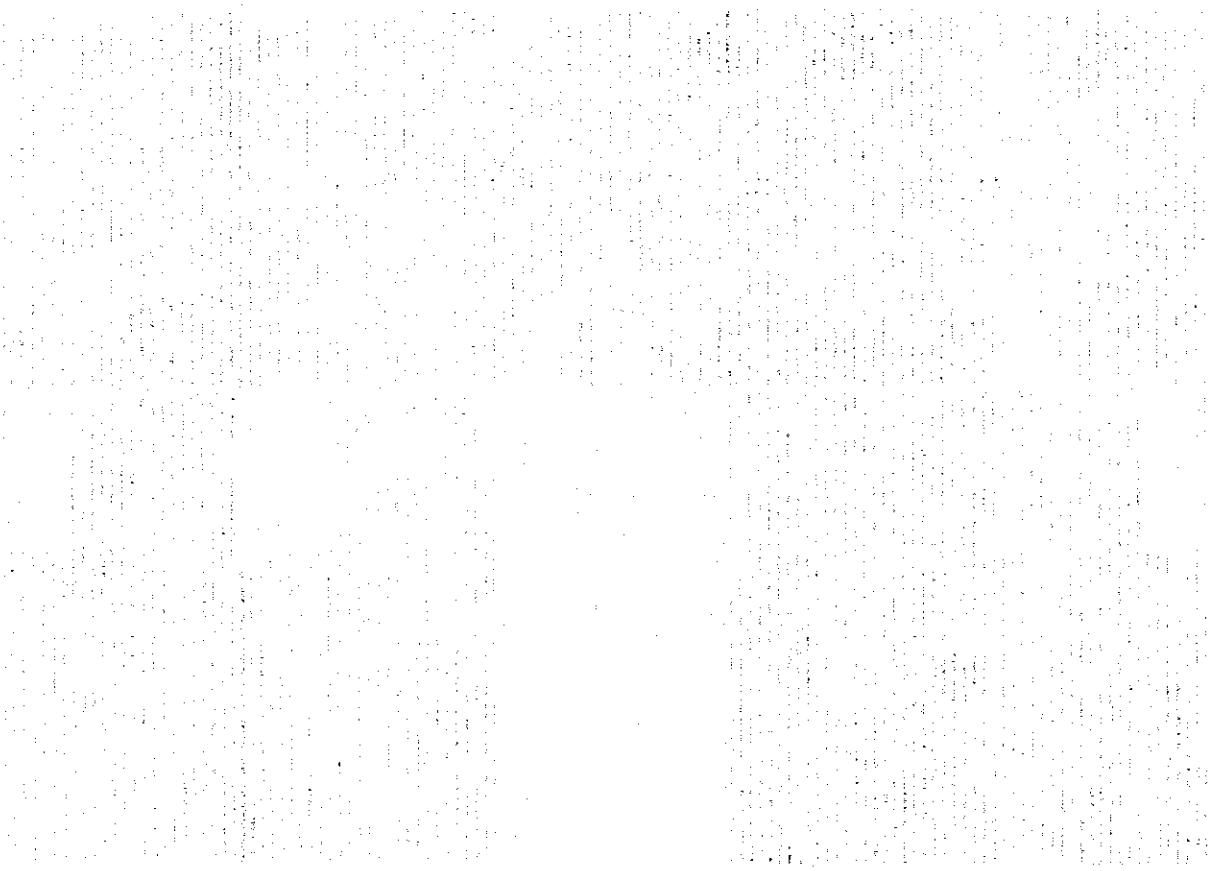


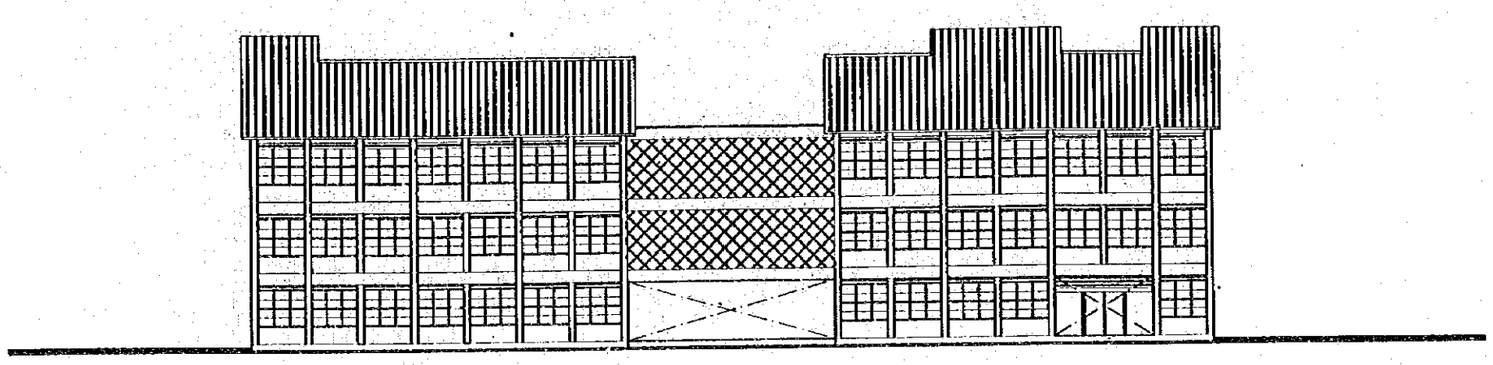
SECOND FLOOR PLAN



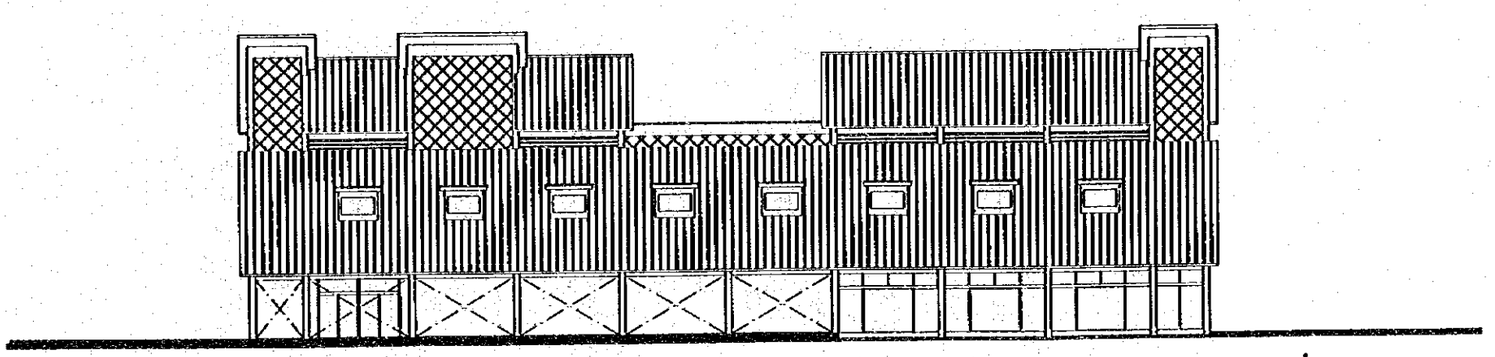
ROOF PLAN

KMTC Nairobi - Library & Information Centre	
Second Floor Plan / Roof Plan	SCALE 1:300
0M 2M 5M 10M 20M	



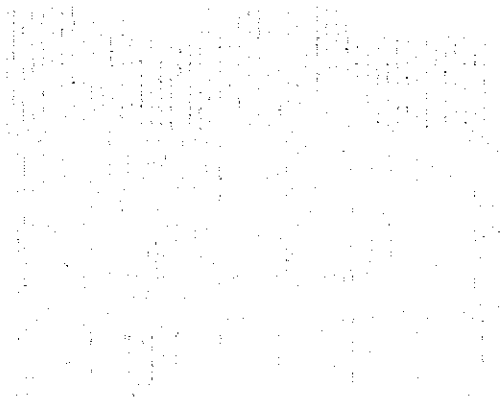


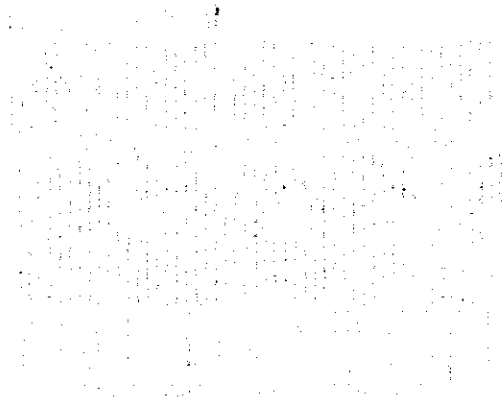
EAST ELEVATION

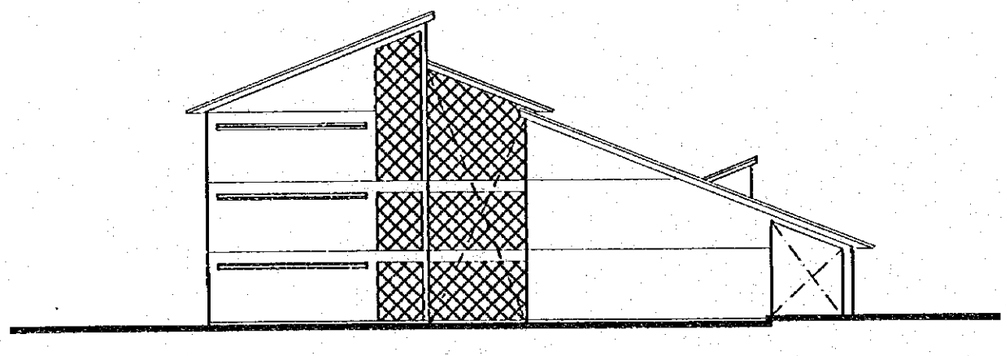


WEST ELEVATION

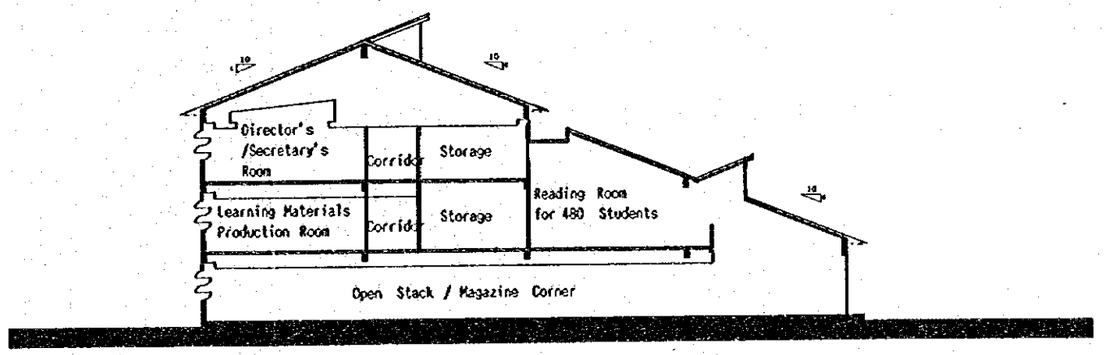
KMTC Nairobi - Library & Information Centre		
East Elevation / West Elevation	SCALE	1:300
0M 2M 5M 10M 20M		







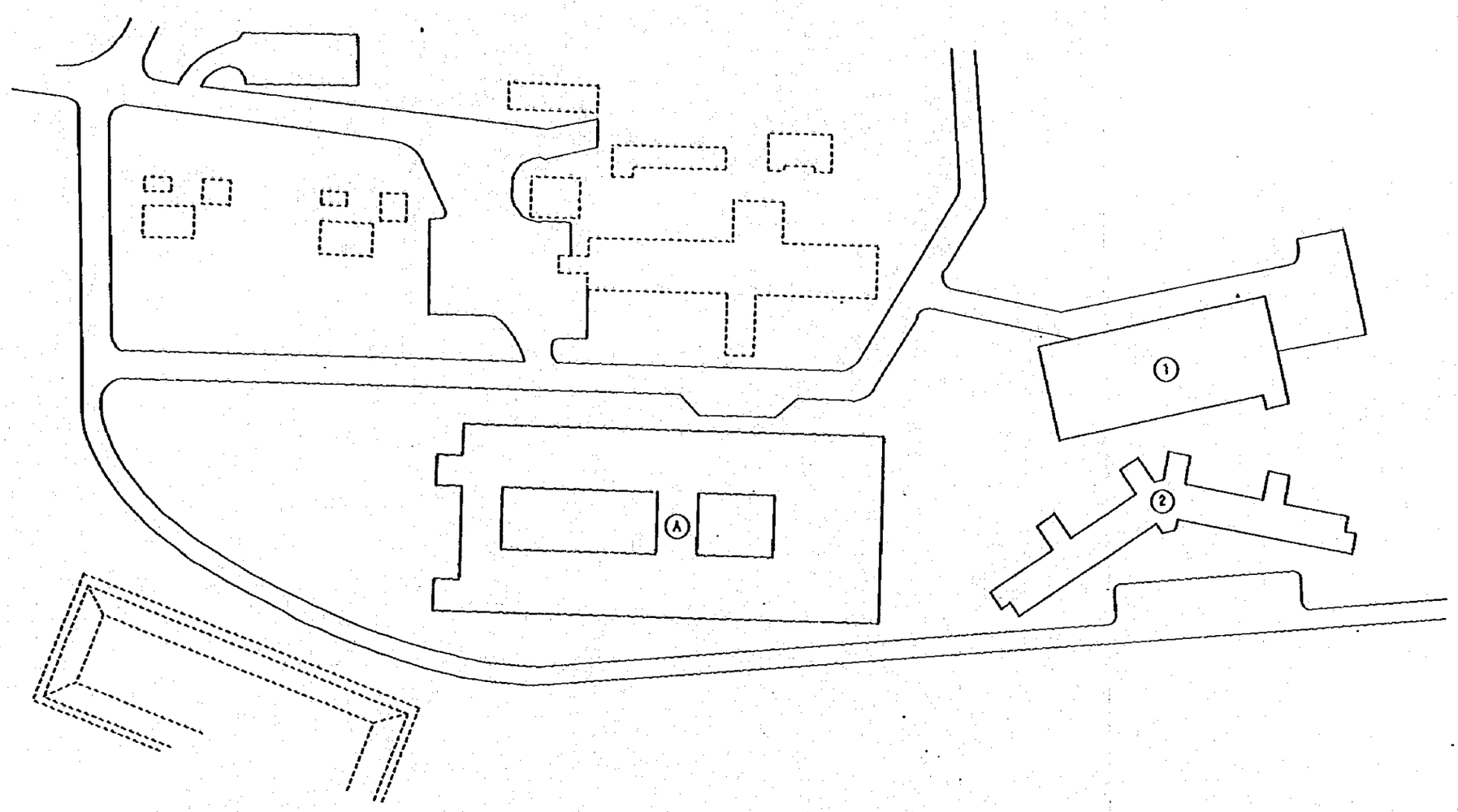
NORTH ELEVATION



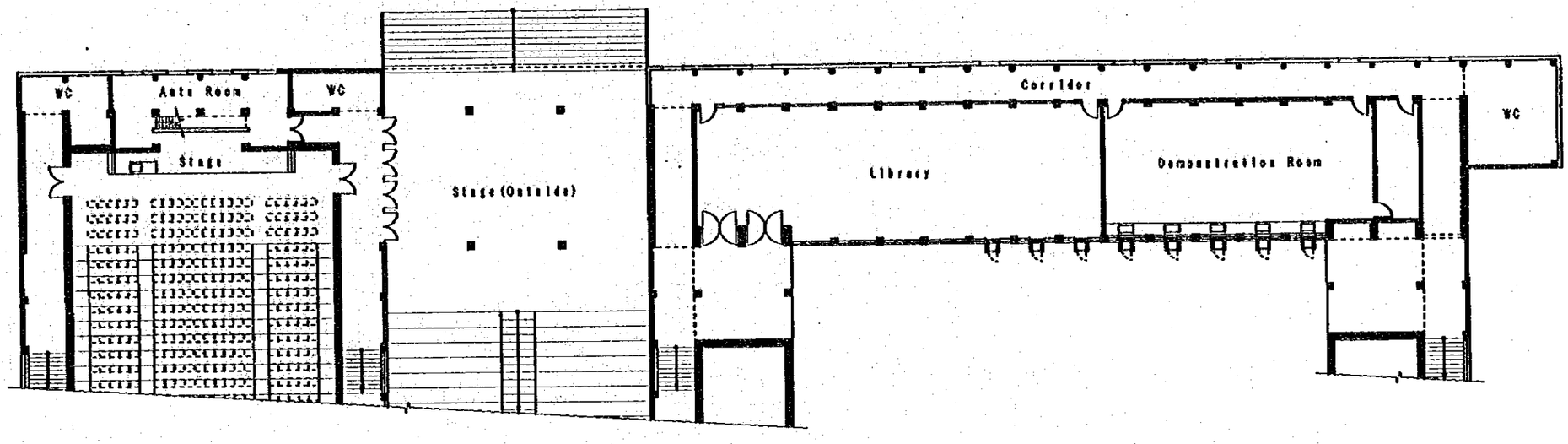
A-A SECTION

KMTC Nairobi - Library & Information Centre	
North Elevation / A-A Section	SCALE 1:300
0M 2M 5M 10M 20M	

9) MTC Kabarnet
① Canteen
② Dormitory
Ⓐ Tuition Block

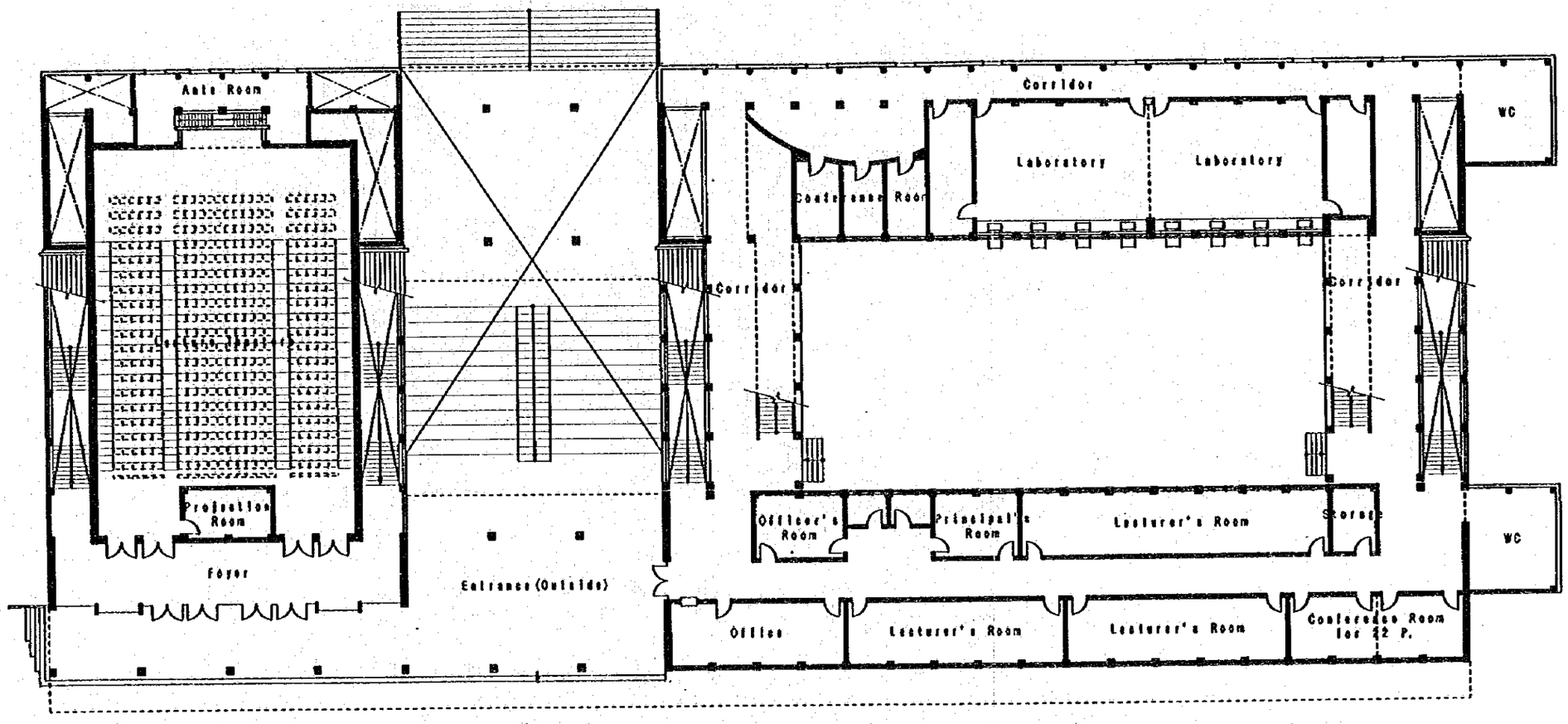


MTC Kabarnet
Site Plan
0M 5M 10M 25M 50M



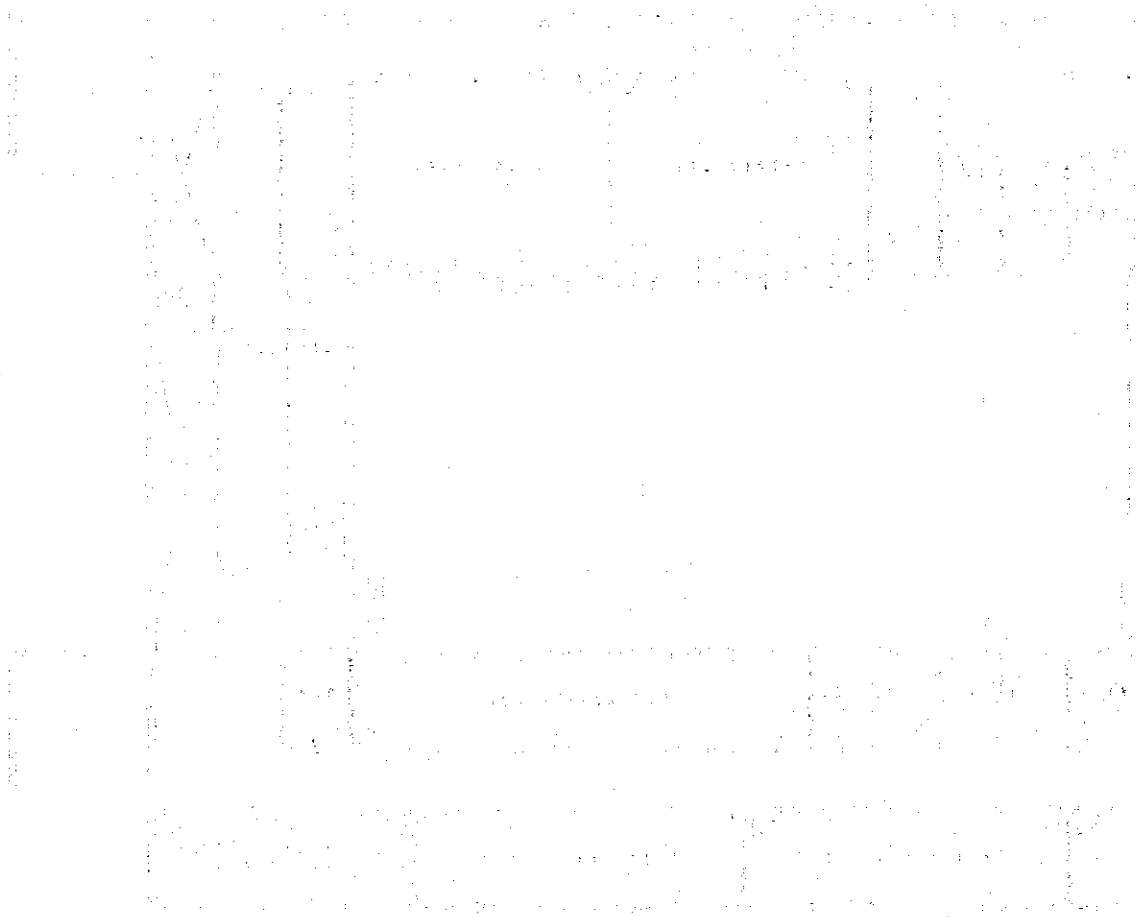
GROUND FLOOR PLAN

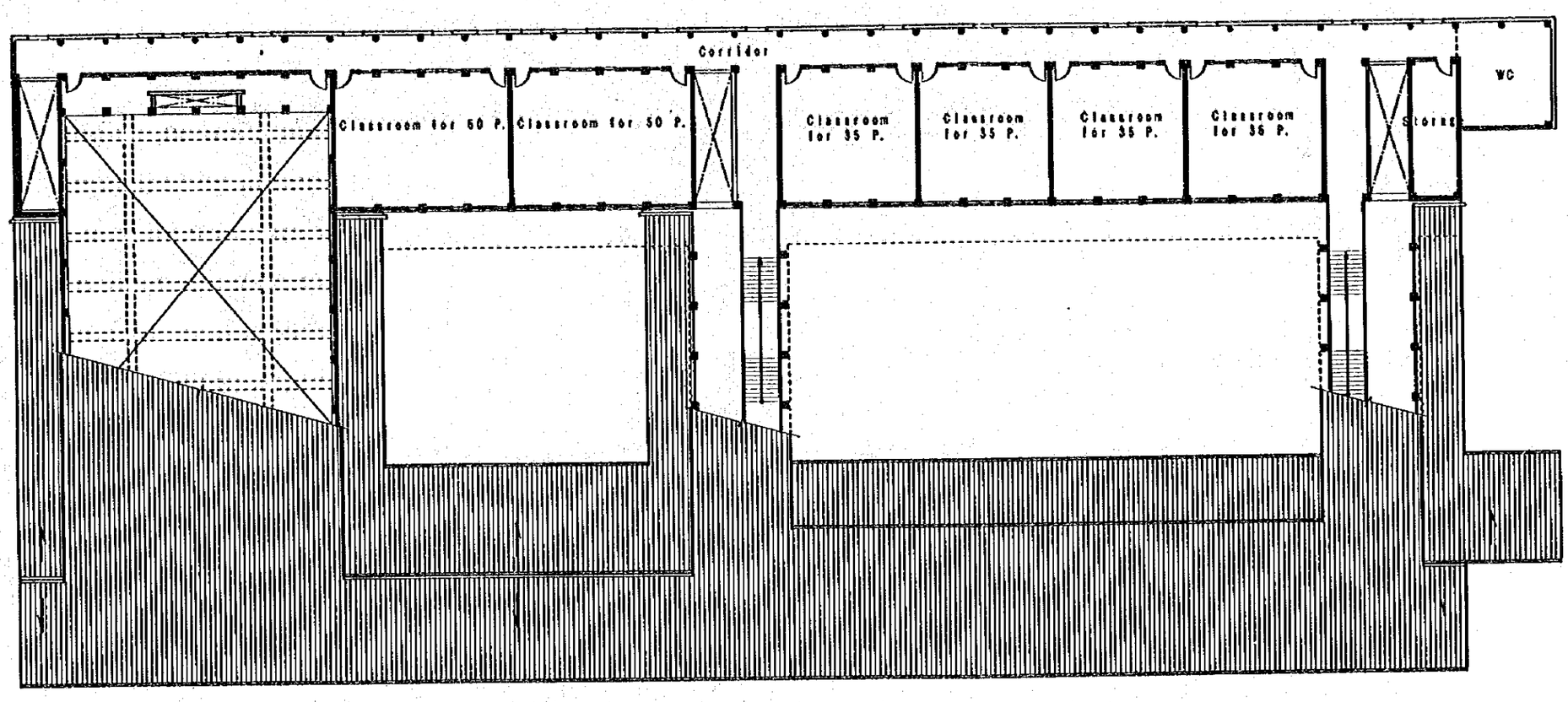
MTC Kabarnet - Tuition Block		
Ground Floor Plan	SCALE	1:300
0M 2M 5M 10M 20M		



FIRST FLOOR PLAN

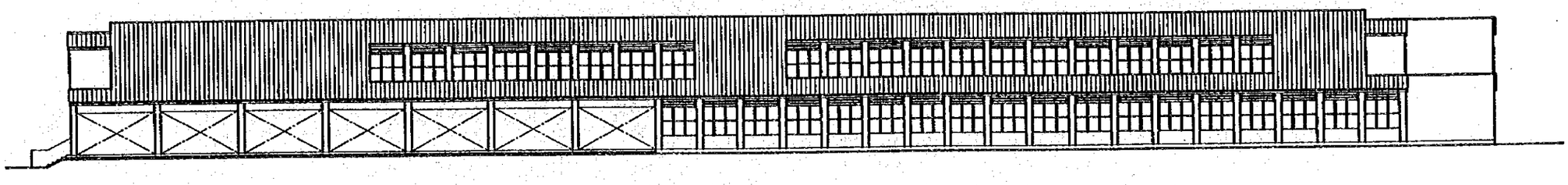
MTC Kabarnet - Tuition Block		
First Floor Plan	SCALE 1:300	
0M 2M 5M 10M 20M		



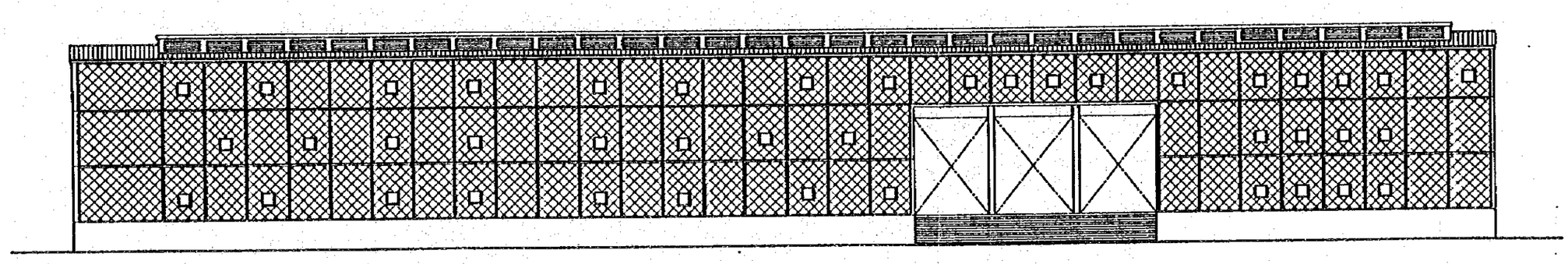


SECOND FLOOR PLAN

MTC Kabarnet - Tuition Block	
Second Floor Plan	SCALE 1:300
0M 2M 5M 10M 20M	

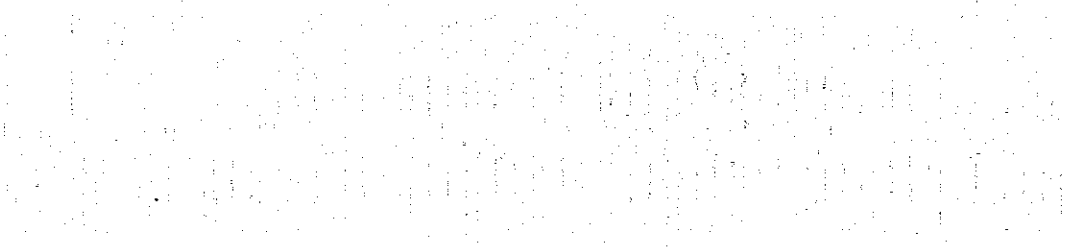


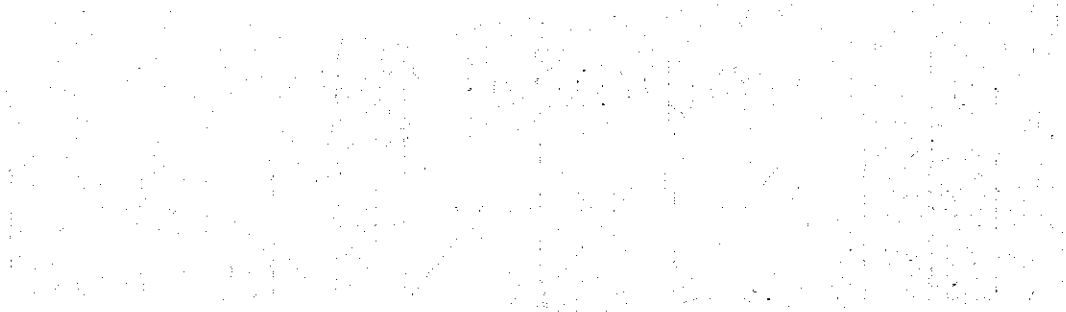
EAST ELEVATION

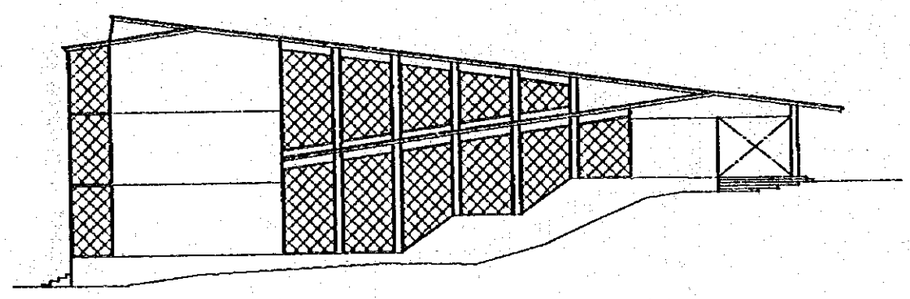


WEST ELEVATION

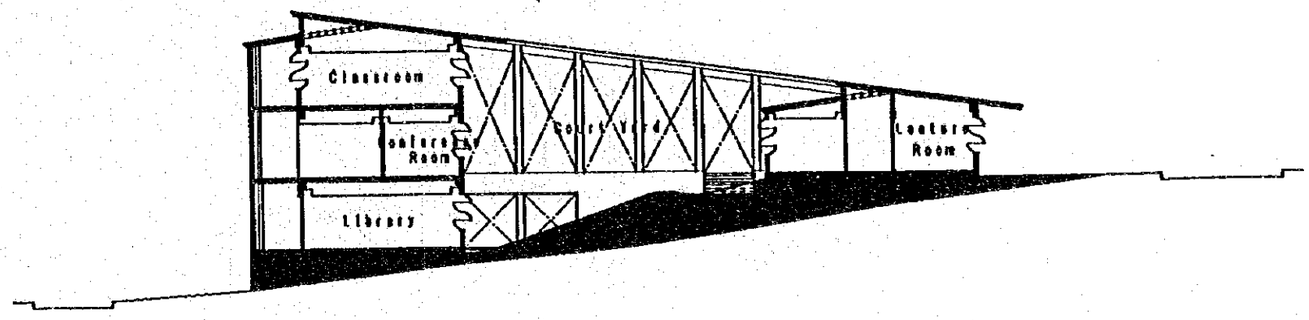
MTC Kabarnet - Tuition Block	
Elevations	SCALE 1:300
0M 2M 5M 10M 20M	



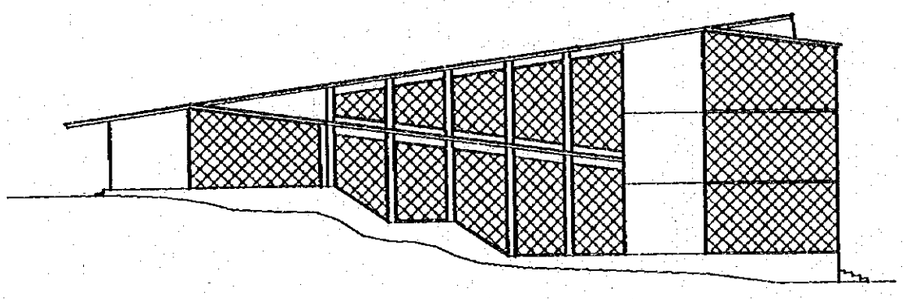




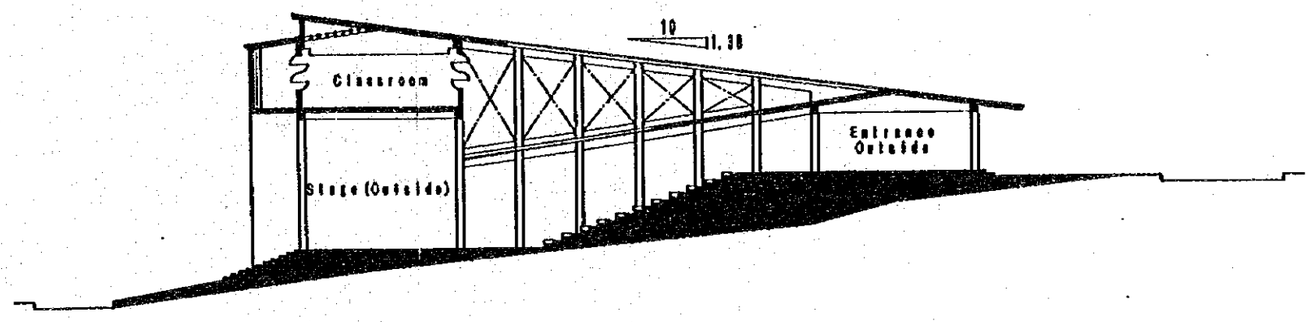
SOUTH ELEVATION



A-A SECTION



NORTH ELEVATION



B-B SECTION

MTC Kabarnet - Tuition Block	
Elevations / Sections	SCALE 1:300
0M 2M 5M 10M 20M