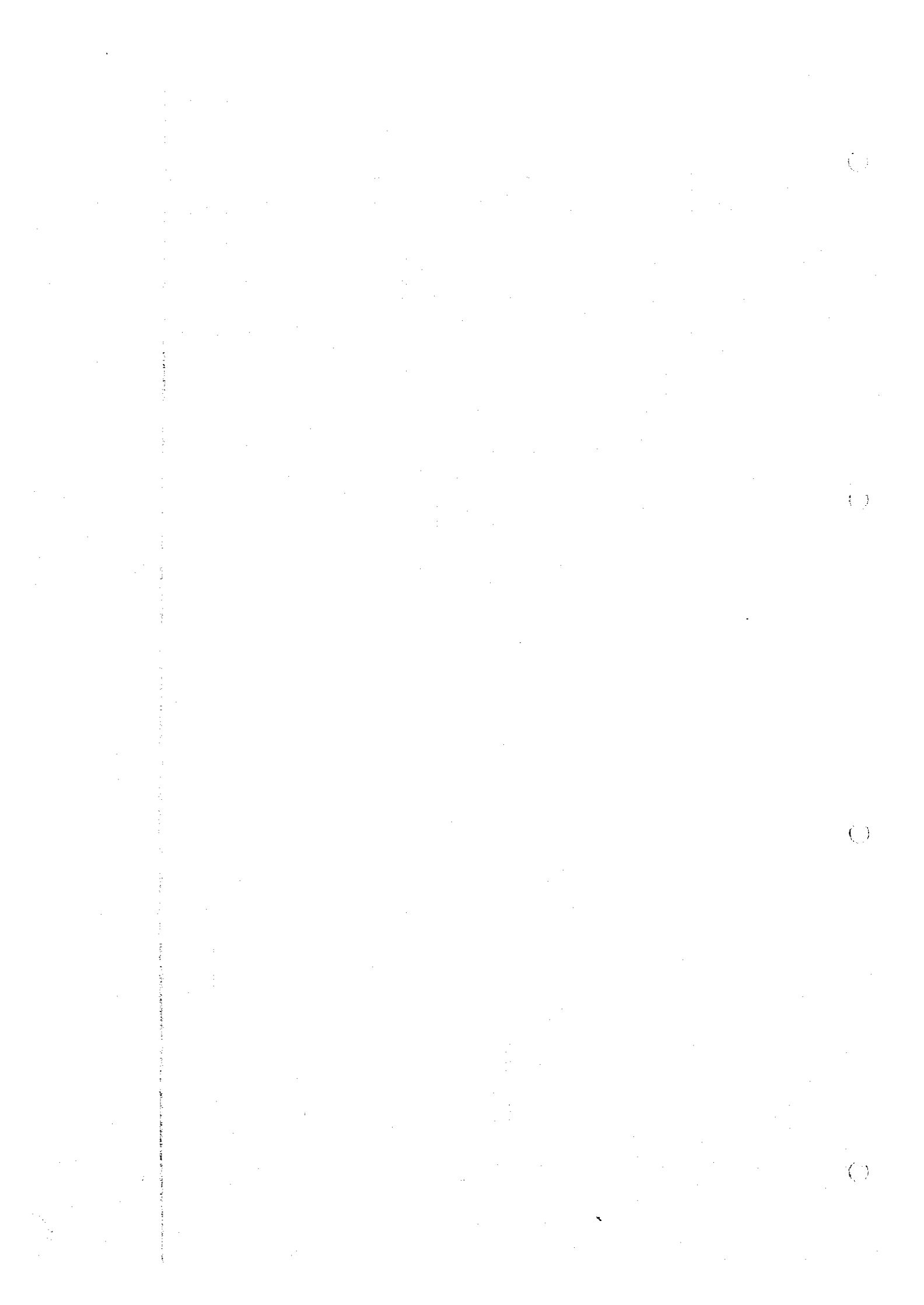


Annex 1-1 Organization of ARETO



Annex 2-1 (1/2) Main telephones per 100 persons and  
GDP per capita in the world

	Name of Country	GDP per Capita	Main Telephones per 100 persons
1.	Canada	9,578	40.0
2.	Dominica	987	3.8
3.	Jamaica	1,086	2.2
4.	U.S.A.	10,510	41.2
5.	Algeria	1,638	1.4
6.	Ethiopia	114	0.2
7.	Egypt	416	1.1
8.	Ghana	899	0.3
9.	Ivory Coast	1,113	0.4
10.	Kenya	345	0.5
11.	Liberia	522	0.4
12.	Malawi	210	0.2
13.	Mozambique	231	2.5
14.	South Africa	1,857	5.7
15.	Sudan	427	0.2
16.	Togo	417	0.2
17.	Tunisia	979	1.6
18.	Uganda	657	0.2
19.	Zambia	579	0.5
20.	Austria	9,119	26.5
21.	Belgium	11,318	23.5
22.	Denmark	12,986	42.5
23.	Finland	8,627	31.8
24.	France	10,699	25.9
25.	Germany	12,483	31.3
26.	Greece	3,588	22.7
27.	Italy	5,697	21.3
28.	Netherlands	10,647	33.7
29.	Norway	13,163	24.7
30.	Portugal	1,894	9.5
31.	Spain	4,886	16.8

Annex 2-1 (2/2) Main telephones per 100 persons and  
GDP per capita in the world

	Name of Country	GDP per Capita	Main Telephones per 100 persons
32.	Sweden	12,228	52.2
33.	Switzerland	14,617	43.6
34.	United Kingdom	7,184	31.7
35.	Yugoslavia	2,783	6.1
36.	Argentina	3,484	7.2
37.	Brazil	1,755	3.4
38.	Chile	1,919	3.1
39.	Colombia	967	4.7
40.	Costa Rica	1,814	5.7
41.	Ecuador	1,174	2.7
42.	Haiti	241	0.4
43.	Honduras	528	1.0
44.	Mexico	1,852	3.3
45.	Nicaragua	600	1.5
46.	Panama	1,539	6.7
47.	Peru	864	0.6
48.	Venezuela	3,377	5.0
49.	Australia	8,938	33.4
50.	New Zealand	5,725	35.0
51.	Papua New Guinea	707	0.7
52.	Philippines	629	0.7
53.	Singapore	3,754	18.8
54.	Thailand	607	0.7
55.	Hong Kong	3,478	23.4
56.	Japan	8,419	34.4
57.	Korea	1,605	6.3
58.	India	170	0.3
59.	Kuwait	17,923	10.5
60.	Pakistan	225	0.3
61.	Saudi Arabia	8,612	3.4
62.	Turkey	1,277	2.5

Annex 2-2 (1/7) Existing Automatic Trunk Exchange Code

LEVEL	ZONE	TRUNK CODE	NUMBERING
DC & ZC	CAIRO-URBAN	2	
TE	Bab-el-Louk*		20000-29999
TE	Bab-el-Louk*		30000-33999
TE	Helwan*		38000-39999
TE	Zamalek		400000-419999
TE	Kubba I		420000-429999
TE	Kubba II		430000-439999
TE	Kubba III		440000-449999
TE	Heliopolis		450000-479999
TE	Imbaba		480000-499999
TE	Maadi		500000-509999
TE	Maadi II		510000-519999
TE	Bab-el-Louk		520000-539999
TE	Pyramid I		540000-549999
TE	Pyramid II		550000-559999
TE	Fawala		560000-579999
TE	Roda E		580000-599999
TE	Nasr I		600000-609999
TE	Nasr II		610000-619999
TE	Nasr III		620000-629999
TE	Nasr IV (Maadi mobiles)		630000-639999
TE	Shoubra III		640000-649999
TE	Shoubra IV (Zamalek mobile)		650000-659999
TE	Almaza I		660000-669999
TE	Almaza II		670000-679999
TE	Almaza III		680000-689999
TE	Almaza IV (Almaza and Heliopolis mobile)		690000-699999
TE	Heliopolis mobile		690000-695999
TE	Almaza mobile		696000-697999
TE	Dokki I		700000-709999
TE	Dokki II		710000-719999
TE	Giza I		720000-729999
TE	Giza II		730000-739999
TE	Ramsis I		740000-749999
TE	Ramsis II		750000-759999
TE	Ramsis III		760000-769999
TE	Ramsis IV		770000-779999
TE	Helwan		780000-789999
TE	Tebbin		790000-792999
TE	15 May City		793000-797999
TE	Zamalek I*		800000-809999
TE	Zamalek II*		810000-819999

\* Cancelled by new exchange

Annex 2-2 (2/7) Existing Automatic Trunk Exchange Code

Level	Zone	Trunk Code	Numbering
	CAIRO-URBAN (cont)	2	
TE	Abbassia I		820000-829999
TE	Abbassia II		830000-839999
TE	Roda I		840000-849999
TE	Roda II		850000-859999
TE	Heliopolis I*		860000-869999
TE	Heliopolis II*		870000-879999
TE	Dokki III & IV		880000-899999
TE	Giza*		890000-899999
TE	Opera I		900000-909999
TE	Opera II		910000-919999
TE	Opera III		920000-929999
TE	Opera IV		930000-939999
TE	Shoubra I		940000-949999
TE	Shoubra II & satellites		950000-959999
TE	Kurba		960000-969999
TE	Gezira		970000-979999
TE	Roda III		980000-989999
TE	Roda IV		990000-999999
	CAIRO-SUBURBAN	1X	
GC	Badrashheen	18	60000-60999
TE	Hawandia		64000-64999
TE	Shoubak		67000-67999
GC	Ayat	18	20000-20999
TE	Abou El Nomrros		70000-70999
TE	Kafr Ammar		30000-30999
TE	Atfeeh		35000-35999
TE	El Saf		40000-40999
TE	Akhsas		45000-45999
TE	Mazghouna		50000-50999
TE	El Asher men Ramadan	15	60000-61999
TE	EL Shlhih	16	
ZC	BENHA	13	
GC	Benha		20000-23999
GC	Toukh		70000-70999
TE	Mit Kanana		75000-75999
TE	Kaha		73000-73999
TE	Degwa		76000-76999
TE	El Amar		77000-77999
TE	Shebin el Qanatar		80000-80999

\* Cancelled by new exchange

Zone	Code	Numbering	Capacity
3. Alexandria to be changed to 6 degits	03	20000-39999	20000 Alex. I, II (rotary)
		40000-59999	20000 Sidi Gaber I, II (x-bar)
		60000-79999	20000 Ramleh & Ibr. (rotary)
		800000-819999	20000 Manshia I, II (x-bar)
		820000-829999	10000 " III (consort.)
		830000-839999	10000 " IV (consort.)
		840000-849999	10000 Sidi Gaber I
		850000-859999	10000 " " II
		860000-879999	20000 " Bishr I, II (x-bar)
		890000-899999	10000 Bilial II (U.S.)
		900000-909999	10000 Auto I (U.S.)
		910000-915999	" " II (U.S.)
		920000-929999	" " III (U.S.)
		930000-939999	" " IV (U.S.)
		940000-949999	" Ibrahimic I (U.S.)
		960000-969999	" Sidi Gaber III E10
	970000-979999	" " " IV E10	
Kafr El dawar ( )	03	980000-981999	2000 (X-bar)
Marsa Matrouh	03	990000-991999	2000 "
El Anacia	03	880000-881999	2000 " Gelial (U.S.)

Annex 2-2 (4/7) Existing Automatic Trunk Exchange Code

DC & ZC TANTA

40

TE	Tanta	20000 - 29999
TE	Tanta ( Consortium )	30000 - 49999
GC	Kafr el Zayat	80000 - 82999
GC	Mehalla	60000 - 67999
GC	Samannoud	68000 - 69999
GC	Zefta	70000 - 73999

ZC MANSOURA

50

TE	Mansoura	20000 - 29999
TE	Mansoura ( Consortium )	30000 - 54999
	Mansoura mobile	58000 - 59999
GC	Mit Ghamr	60000 - 64999
GC	Sinbellawein	90000 - 93999
GC	Belqas	95000 - 96999
GC	Sherbeen	70000 - 71999
GC	Dekernis	75000 - 76999

ZC DAMANHOUR

45

TE	Damanhour	20000 - 26999
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Annex 2-2 (5/7) Existing Automatic Trunk Exchange Code

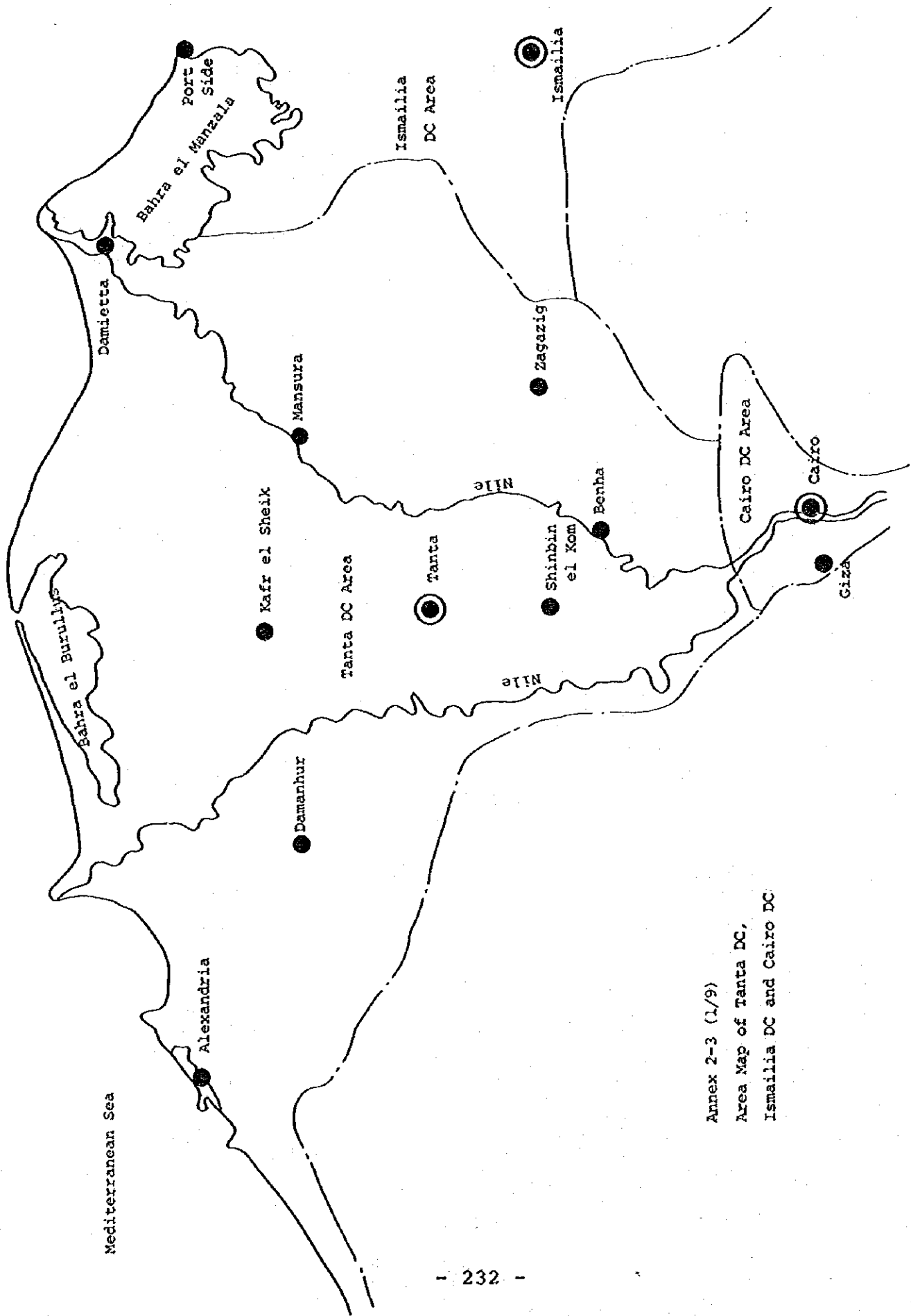
LEVEL	ZONE	TRUNK CODE	NUMBERING
	DAMANHOUR (cont)	45	
GC	Kom Hannada		80000-81999
GC	Rasheed		70000-71999
GC	Abou Hommos		60000-61999
ZC	SHEBIN EL KOUM	48	
GC	Shebin el Koum		20000-24999
GC	Menout		60000-61999
TE	Quesna		70000-70999
TE	El Bagour		73000-73999
TE	Ashmon		76000-76999
GC	Tala		90000-90999
TE	Kafr Rabee		95000-95999
TE	Toukhdelka		97000-97999
TE	El-Shouhada		98000-98999
TE	Berkt el Saba		80000-80999
DC & ZC	ISMAILIA	64	
TE	Ismailia		20000-29999
GC	Arish		40000-41999
GC	Quantara		50000-50999
	Quantara East (mobile)		55000-55999
TE	Fayed		60000-60999
TE	Tall el Kebeer		90000-90999
ZC	SUEZ	62	
TE	Suez		20000-29999
TE	Port Tawfik		50000-50999
GC	Ghardaka		40000-40999
ZC	PORT SAID	66	
TE	Port Foad		70000-73999
ZC	KAFR EL SHEIKH	47	
TE	Kafr El Sheikh		20000-22999
GC	Beyala (mobile)		90000-91999
GC	Dessouk		60000-62999

LEVEL	ZONE	TRUNK CODE	NUMBERING
	KAFR EL SHEIKH (cont)	47	
GC	Beyala		90000-91999
TE	Fowa (mobile)		95000-96999
ZC	ZAGAZIG	55	
TE	Zagazig		20000-39999
TE	Deirb Negm		60000-61999
TE	Hehia		64000-65999
TE	Belbees		40000-43999
TE	Faqous		70000-73999
TE	Hoseneya		76000-76999
TE	Kafr Sakr		86000-87999
GC	Abu Kebber		80000-83999
ZC	DAMIETTA	57	
TE	Damietta		20000-25999
GC	Ras El Bar		60000-61999
ZC	BENI SUEF	82	
TE	Beni Suef		20000-22999
ZC	FAIYOUM	84	
TE	Faiyoun		20000-22999
ZC	MINIA	86	
TE	Minia		20000-24999
GC	Maghageha		60000-61999
GC	Mallawy		50000-52999
GC	Beni-Mazar		70000-71999
GC	Abou-Qurquas		80000-81999
GC	Samallout		90000-91999
DC & ZC	ASYUT	88	
TE	Asyut		20000-27999
GC	Dy rout		70000-71999
GC	Abouteeg		80000-81999

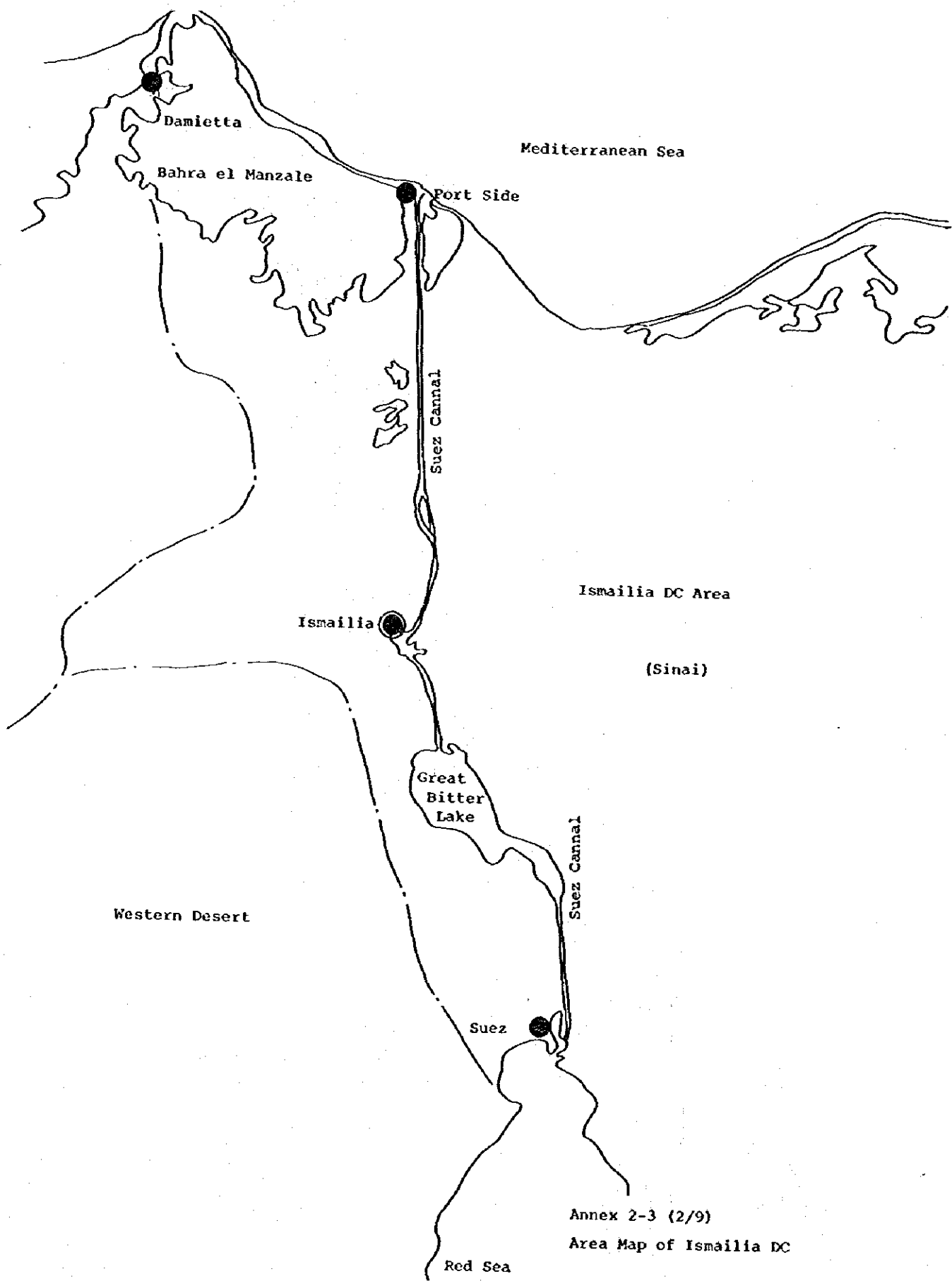
Annex 2-2 (7/7) Existing Automatic Trunk Exchange Code

LEVEL	ZONE	TRUNK CODE	NUMBERING
ZC	SOHAG	93	
TE	Sohag		20000-22999
GC	Tahta		70000-71999
GC	Gerga		60000-62999
TE	Ekhmeem		80000-81999
ZC	QENA	95	
TE	Qena		20000-21999
GC	Luxor		82000-83999
GC	Naga Hammade		80000-81999
ZC	ASWAN	97	
TE	Aswan		20000-22999
TE	High Dam		80000-81999

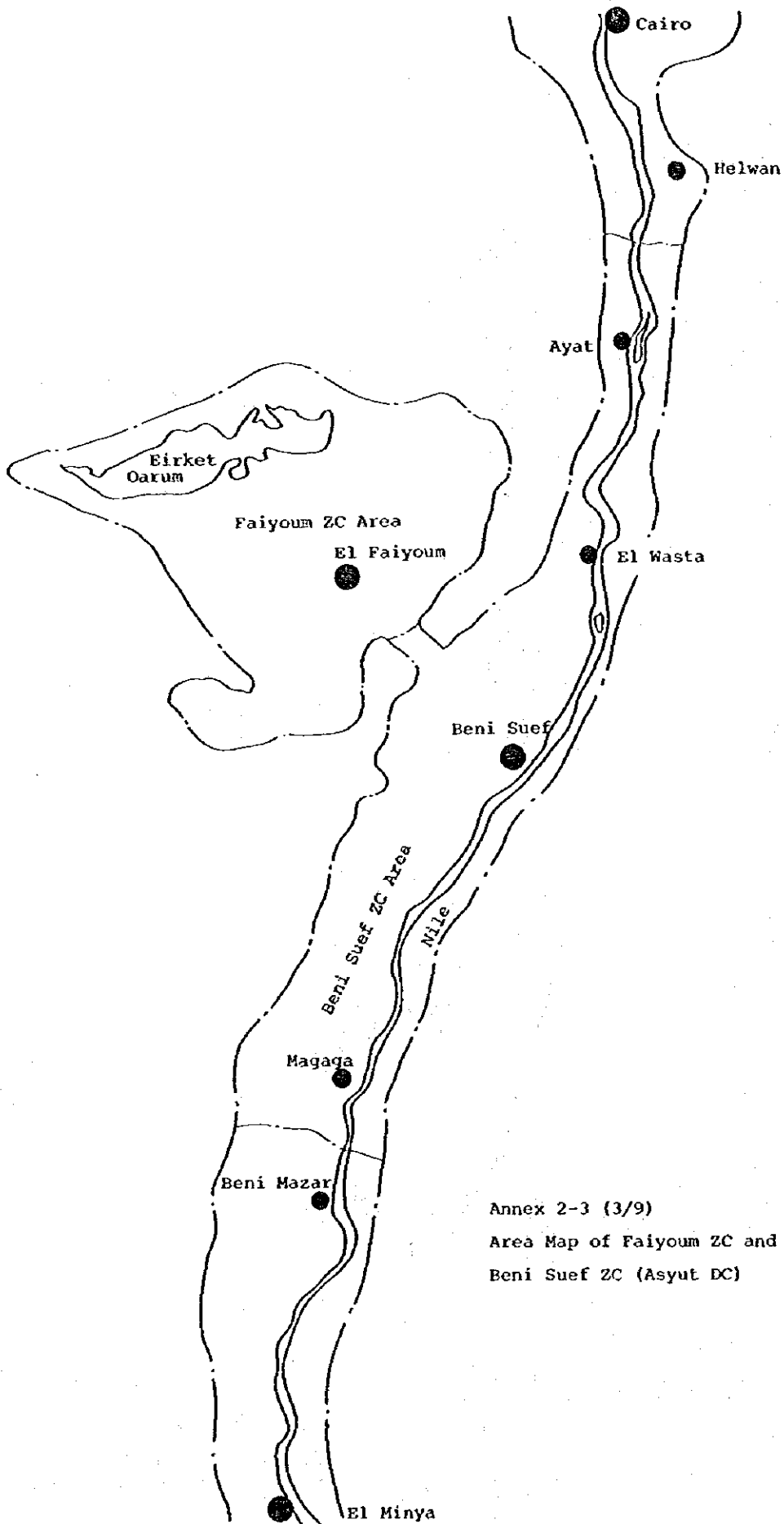
Note DC : District Center  
 ZC : Zone Center  
 GC : Group Center  
 TE : Terminal Exchange  
 (Local Exchange)



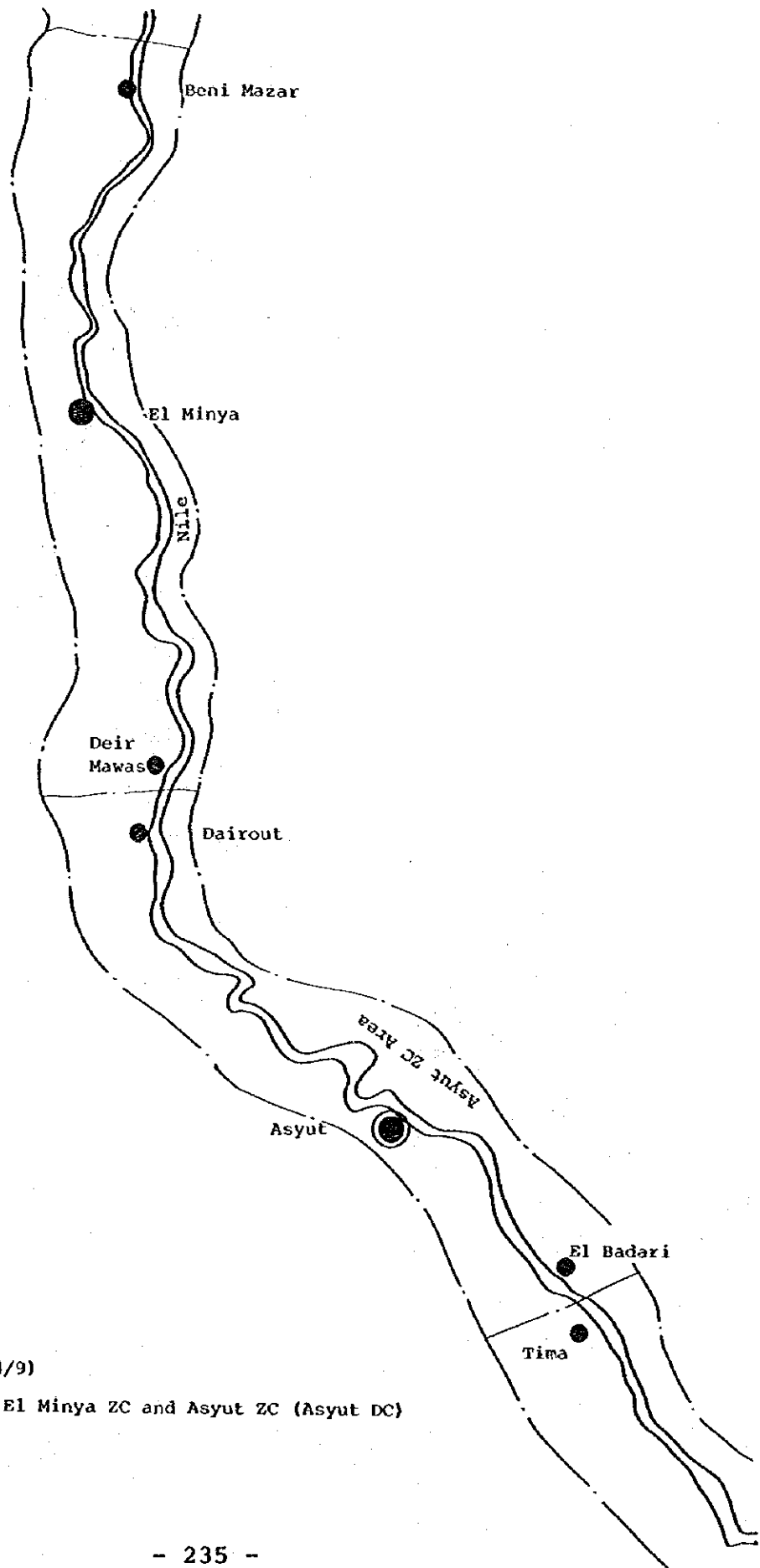
Annex 2-3 (1/9)  
 Area Map of Tanta DC,  
 Ismailia DC and Cairo DC



Annex 2-3 (2/9)  
Area Map of Ismailia DC

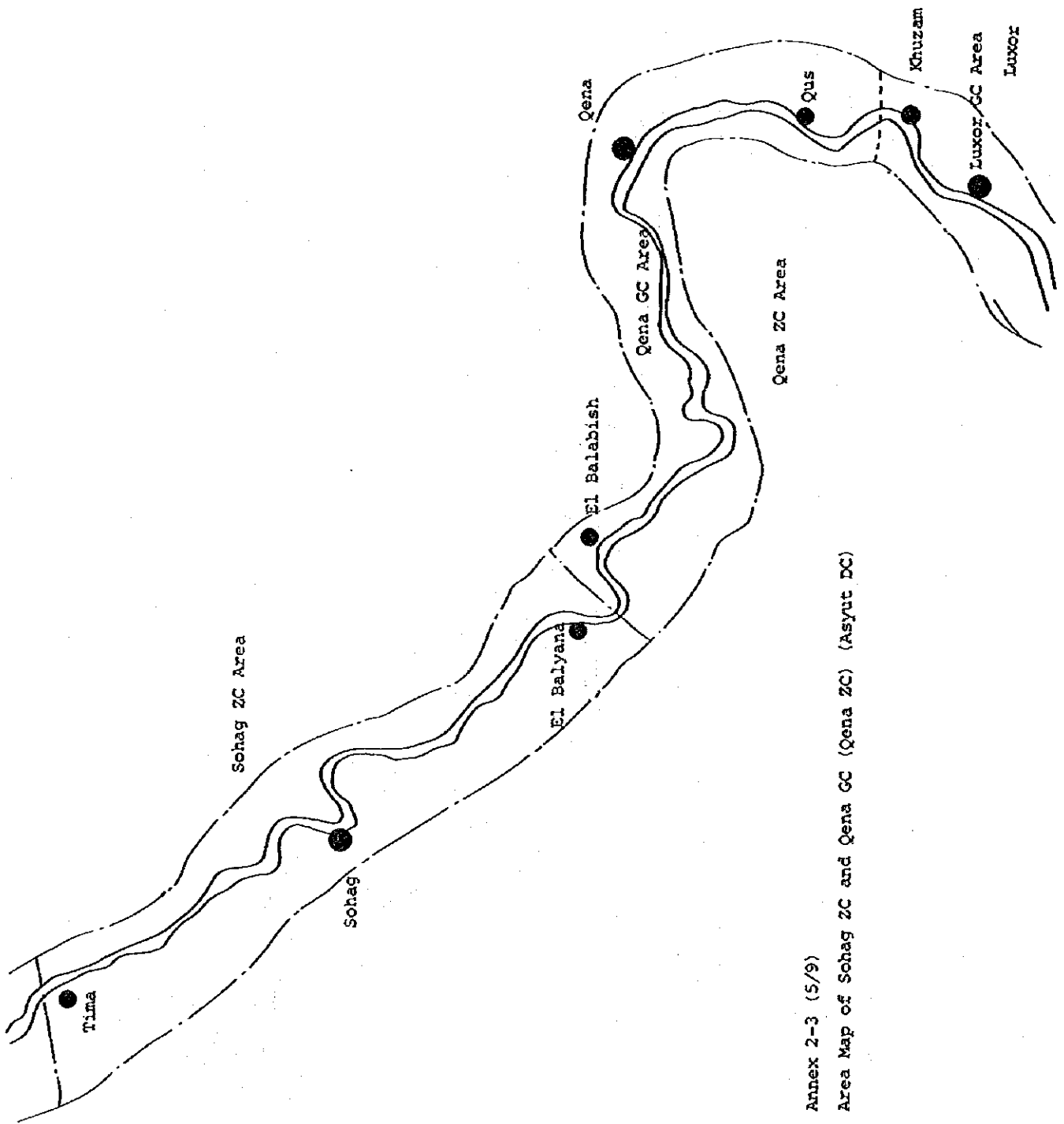


Annex 2-3 (3/9)  
 Area Map of Faiyoum ZC and  
 Beni Suef ZC (Asyut DC)



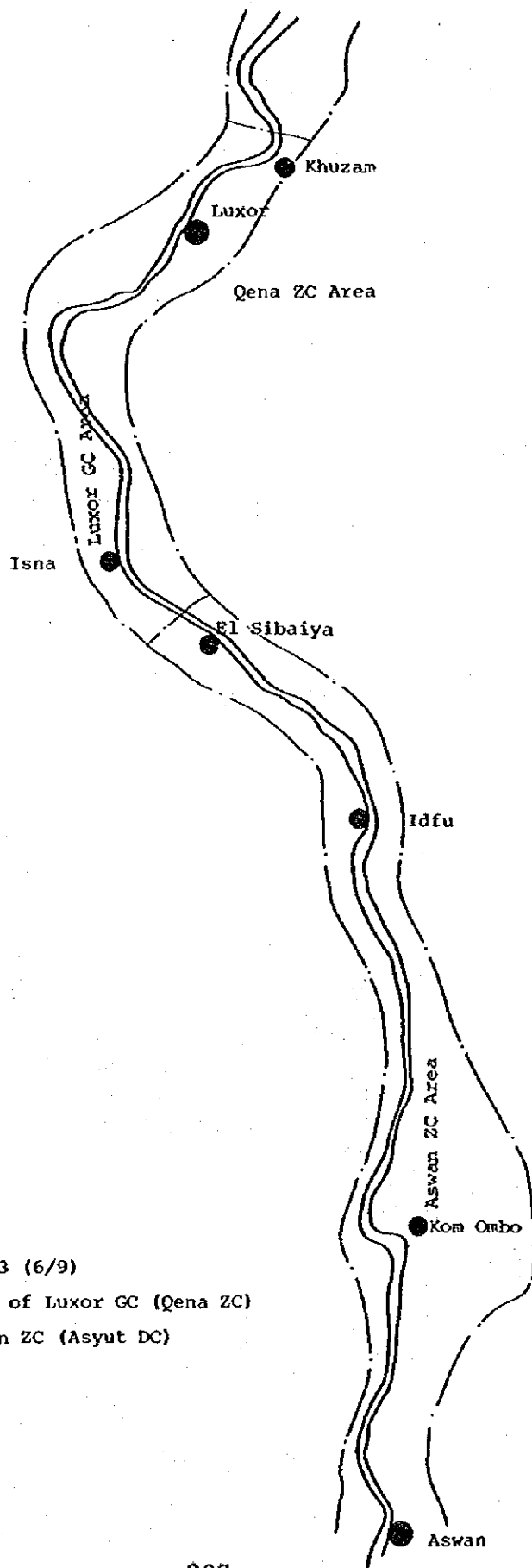
Annex 2-3 (4/9)

Area Map of El Minya ZC and Asyut ZC (Asyut DC)

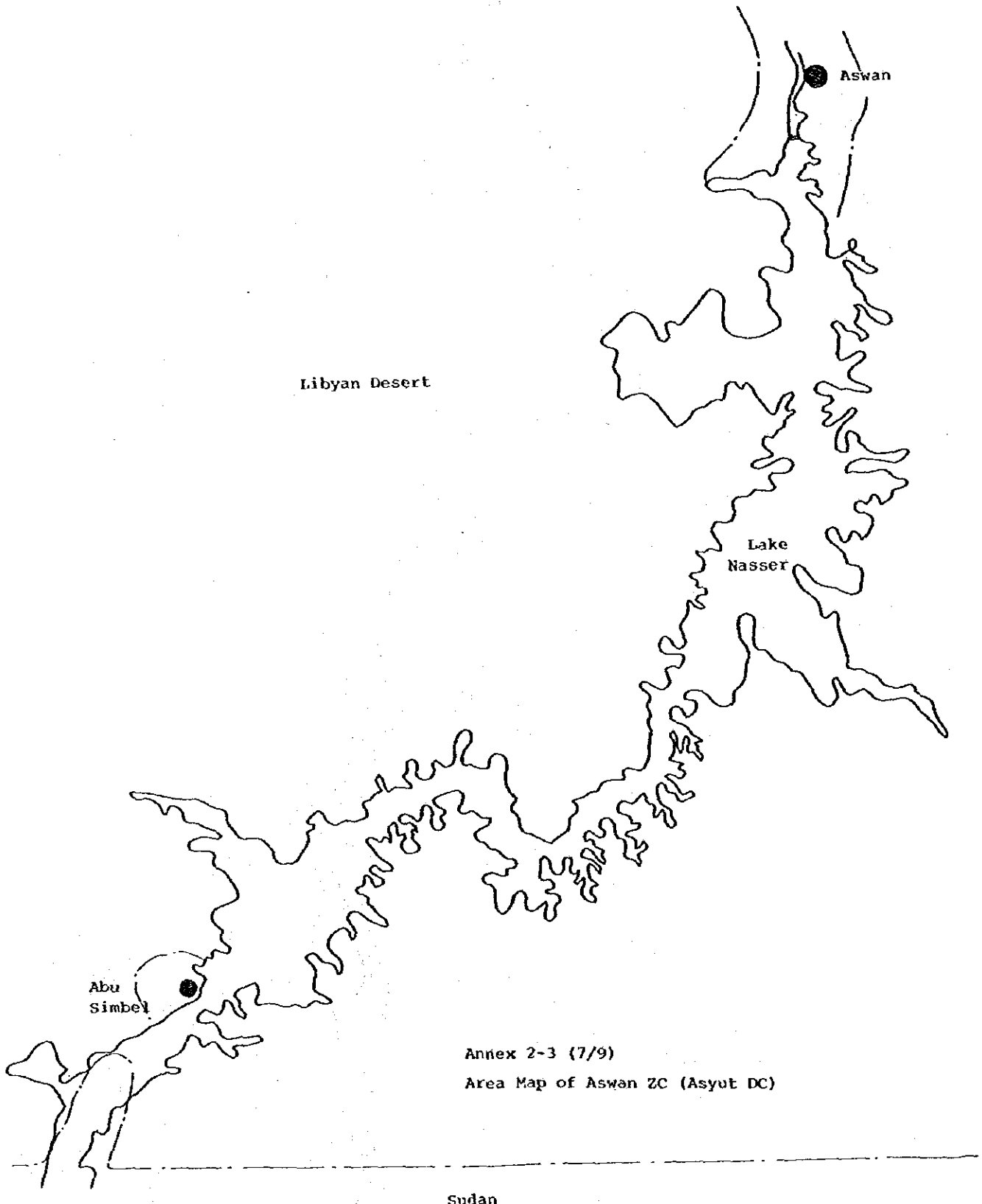


Annex 2-3 (5/9)  
 Area Map of Sohag ZC and Qena GC (Qena ZC) (Asyut DC)





Annex 2-3 (6/9)  
Area Map of Luxor GC (Qena ZC)  
and Aswan ZC (Asyut DC)



Libyan Desert

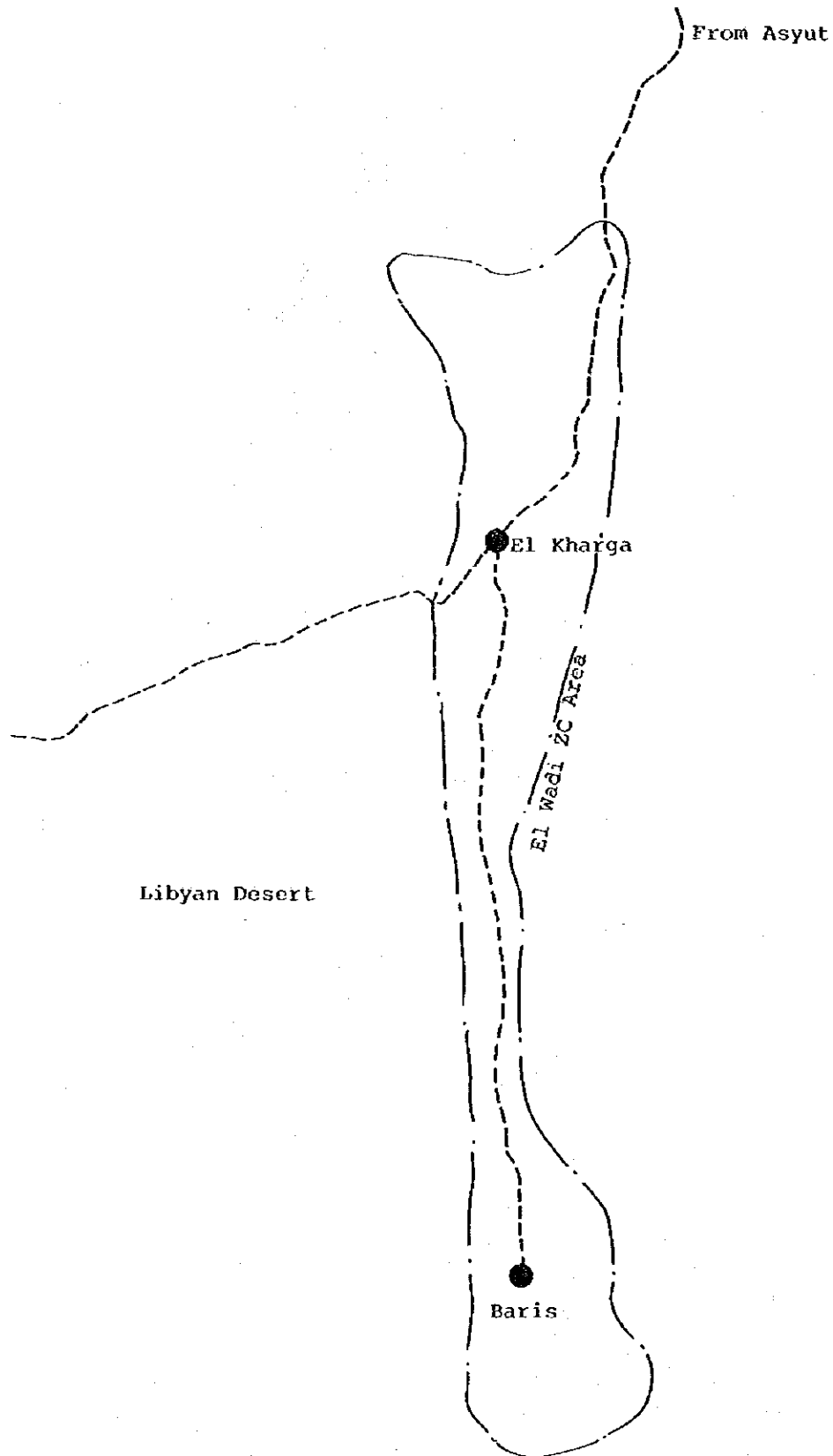
Aswan

Lake Nasser

Abu Simbel

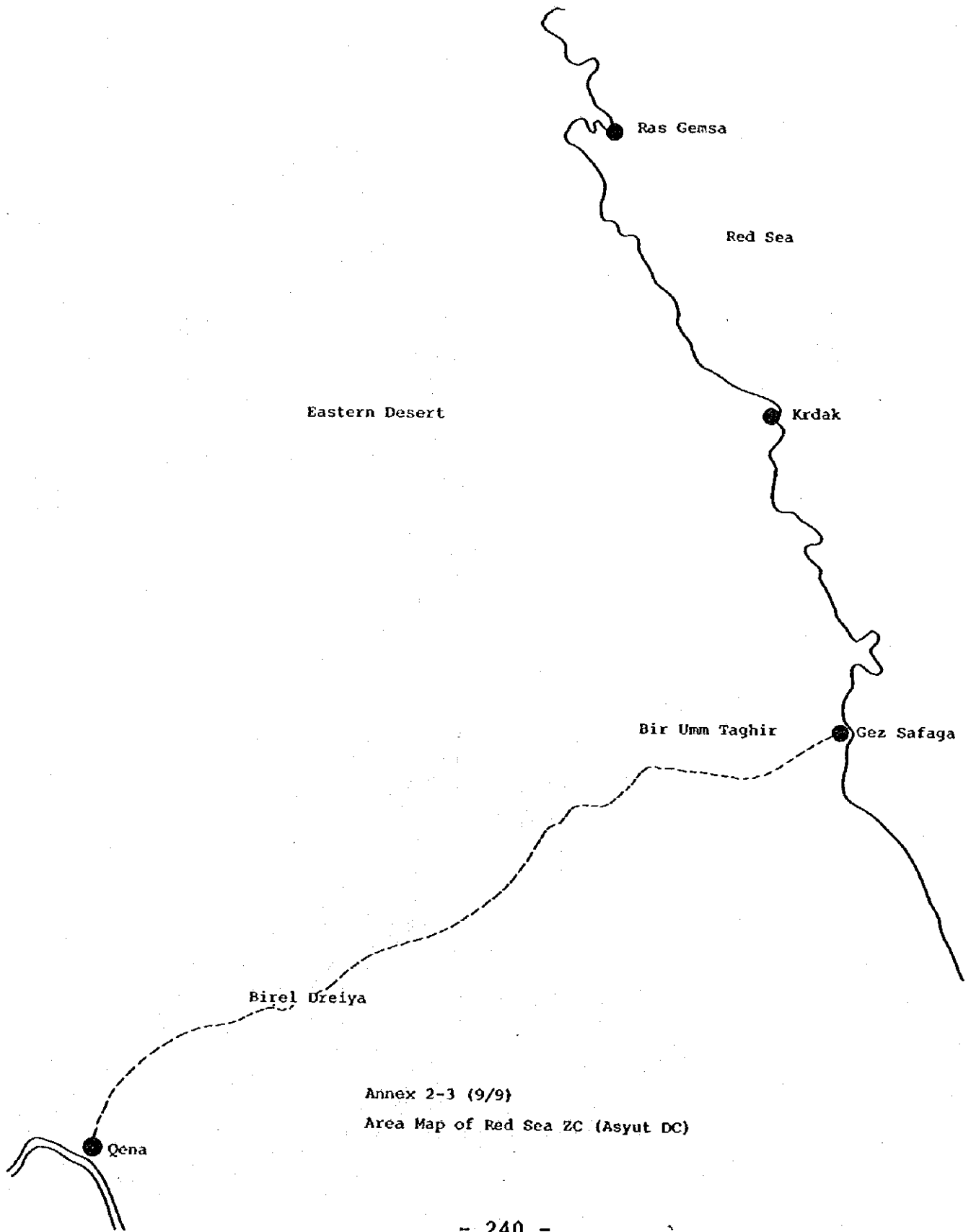
Annex 2-3 (7/9)  
Area Map of Aswan ZC (Asyut DC)

Sudan



Annex 2-3 (8/9)

Area Map of El Wadi ZC (Asyut DC)



Annex 2-3 (9/9)

Area Map of Red Sea ZC (Asyut DC)

ANNEX 3-1 RF Channel Arrangement (6 GHz Band)

Letter Symbol	Frequency (MHz)	
	H(V)	V(H)
F	f <sub>1</sub>	6460
	f <sub>2</sub>	6500
	f <sub>3</sub>	6540
	f <sub>4</sub>	6580
	f <sub>5</sub>	6620
	f <sub>6</sub>	6660
	f <sub>7</sub>	6700
	f <sub>8</sub>	6740
F'	f <sub>1</sub>	6800
	f <sub>2</sub>	6840
	f <sub>3</sub>	6880
	f <sub>4</sub>	6920
	f <sub>5</sub>	6960
	f <sub>6</sub>	7000
	f <sub>7</sub>	7040
	f <sub>8</sub>	7080

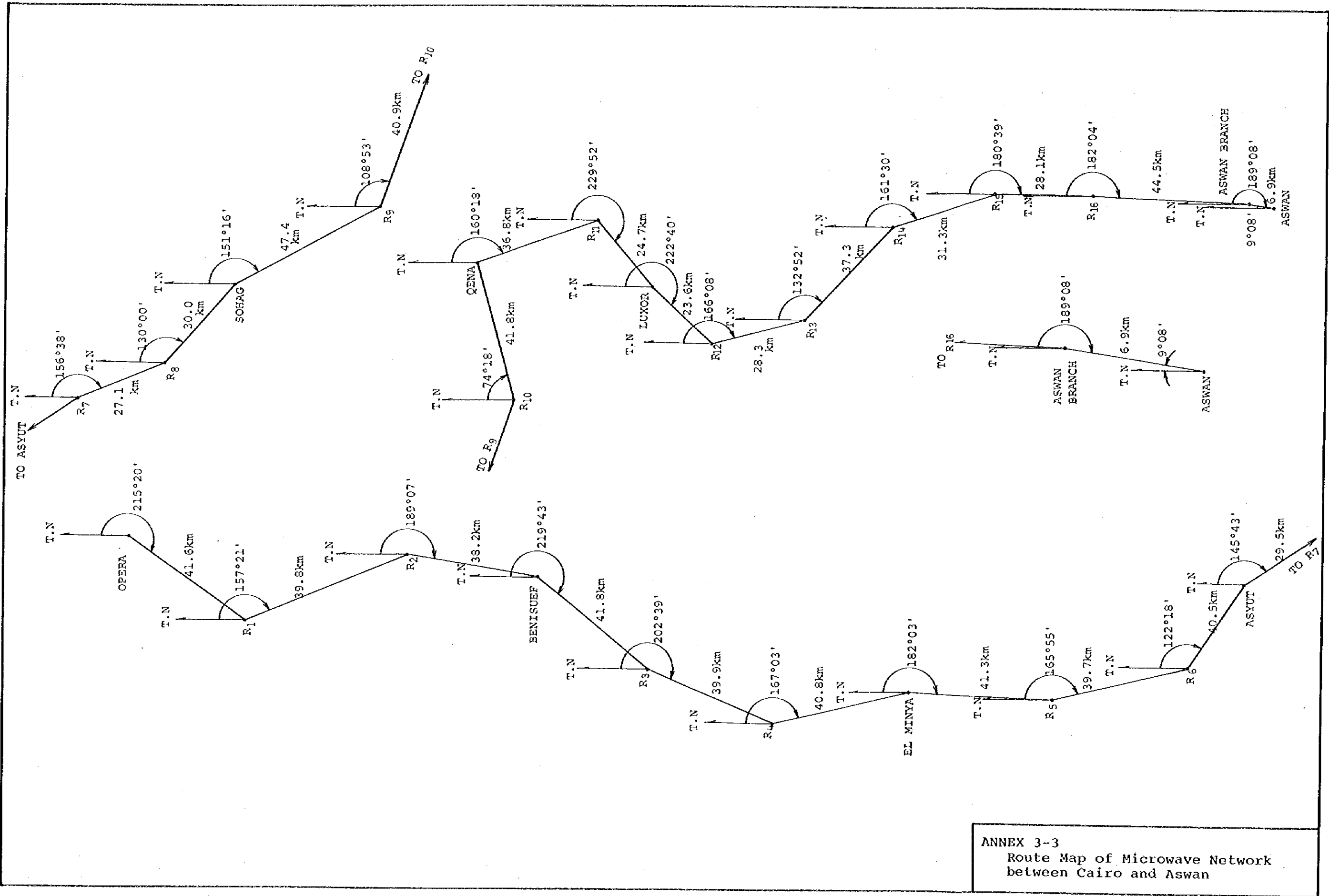
RF Channel Arrangement (15 GHz Band)

Letter Symbol	Frequency (MHz)	
	H(V)	V(H)
F	f <sub>1</sub> (SV)	14410
	f <sub>2</sub> (SV)	14420
	f <sub>3</sub>	14460
	f <sub>4</sub>	14500
	f <sub>5</sub>	14540
	f <sub>6</sub>	14580
	f <sub>7</sub>	14620
	f <sub>8</sub>	14660
	f <sub>9</sub>	14700
	f <sub>10</sub>	14740
F'	f <sub>1</sub> (SV)	14880
	f <sub>2</sub> (SV)	14890
	f <sub>3</sub>	14930
	f <sub>4</sub>	14970
	f <sub>5</sub>	15010
	f <sub>6</sub>	15050
	f <sub>7</sub>	15090
	f <sub>8</sub>	15130
	f <sub>9</sub>	15170
	f <sub>10</sub>	15210

ANNEX 3-2 Elevation and Coordinates of Station Site

No	Site Name	Elevation (m)	Coordinates	
			Longitude	Latitude
1	OPERA (CAIRO)	15.0	31°14'49.9"	30°03'13.7"
2	R <sub>1</sub>	200.0	30°59'53.3"	29°44'49.3"
3	R <sub>2</sub>	43.0	31°09'22.9"	29°24'54.1"
4	BENISUEF	25.0	31°05'38.9"	29°04'27.4"
5	R <sub>3</sub> (EKFHES)	30.0	30°49'14.2"	28°47'01.9"
6	R <sub>4</sub> (HELOA)	35.0	30°39'48.9"	28°27'04.6"
7	ELMINYA	37.0	30°45'24.2"	28°05'31.8"
8	R <sub>5</sub> (DELOUWA)	43.0	30°44'30.2"	27°43'11.3"
9	R <sub>6</sub> (BARUTO)	45.0	30°50'21.9"	27°22'20.5"
10	ASYUT	51.0	31°11'05.5"	27°10'35.8"
11	R <sub>7</sub> (EL DIWEIR)	54.0	31°21'08.5"	26°57'22.6"
12	R <sub>8</sub> (EL TILIHAT)	56.0	31°27'37.6"	26°43'53.8"
13	SOHAG	60.0	31°41'27.2"	26°33'27.1"
14	R <sub>9</sub> (ABYDOS)	65.0	31°55'08.6"	26°10'54.5"
15	R <sub>10</sub> (EL QSAR)	68.0	32°18'20.5"	26°03'42.7"
16	QENA	72.0	32°42'30.4"	26°09'48.3"
17	R <sub>11</sub> (HEGAZA)	77.0	32°49'56"	25°51'02"
18	LUXOR	76.0	32°38'38"	25°42'23.8"
19	R <sub>12</sub> (NAGKHAMIS)	78.0	32°29'05.6"	25°33'00"
20	R <sub>13</sub> (ISNA)	79.0	32°33'09.7"	25°18'08.1"
21	R <sub>14</sub> (EL SAAYDA)	83.0	32°49'25.7"	25°04'22.3"
22	R <sub>15</sub>	120.0	32°55'19.6"	24°48'16.5"
23	R <sub>16</sub>	100.0	32°55'08.2"	24°33'04.2"
24	ASWAN BRANCH	180.0	32°54'11.2"	24°08'58.3"
25	ASWAN	94.0	32°53'32.3"	24°05'16.2"





ANNEX 3-3  
Route Map of Microwave Network  
between Cairo and Aswan

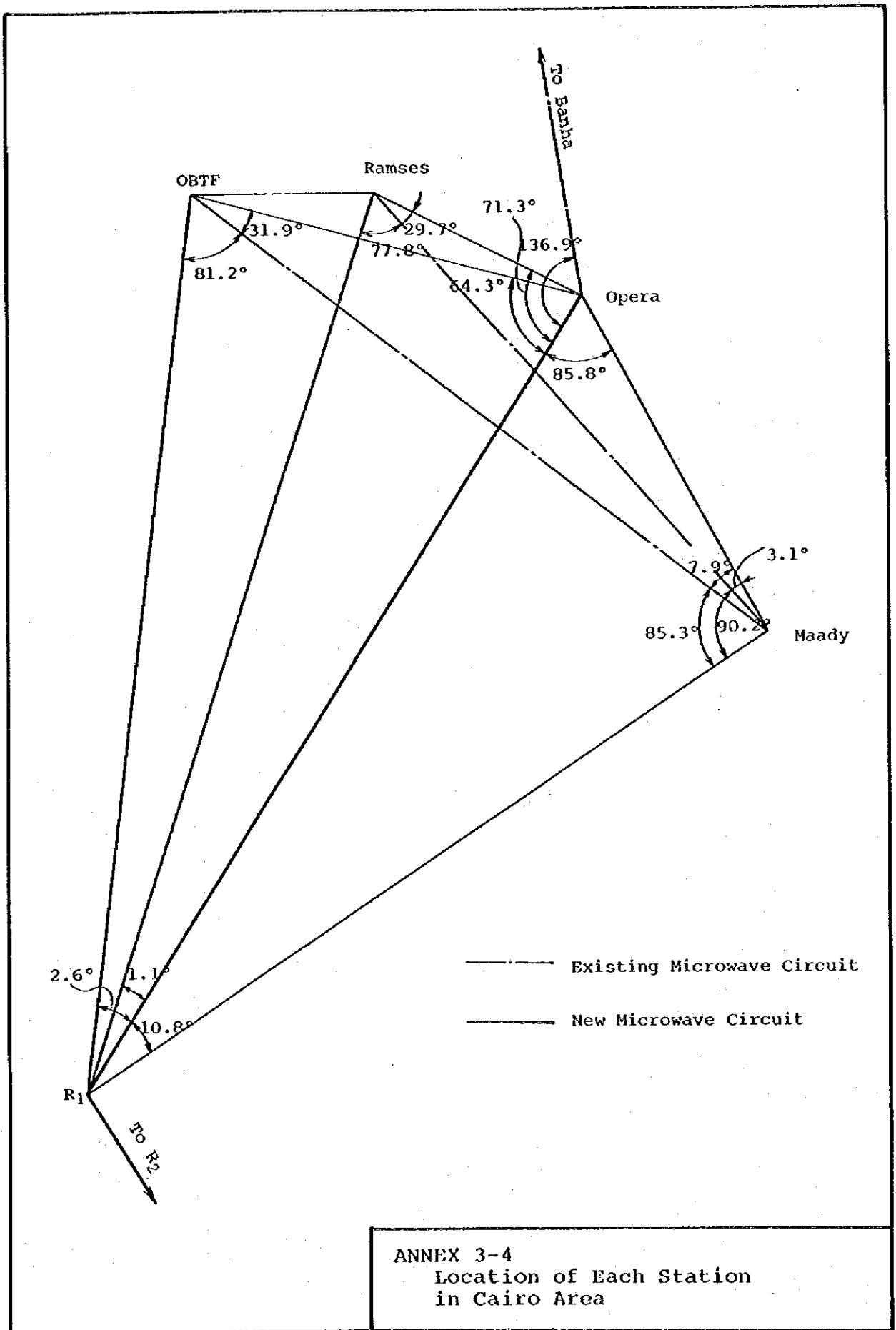


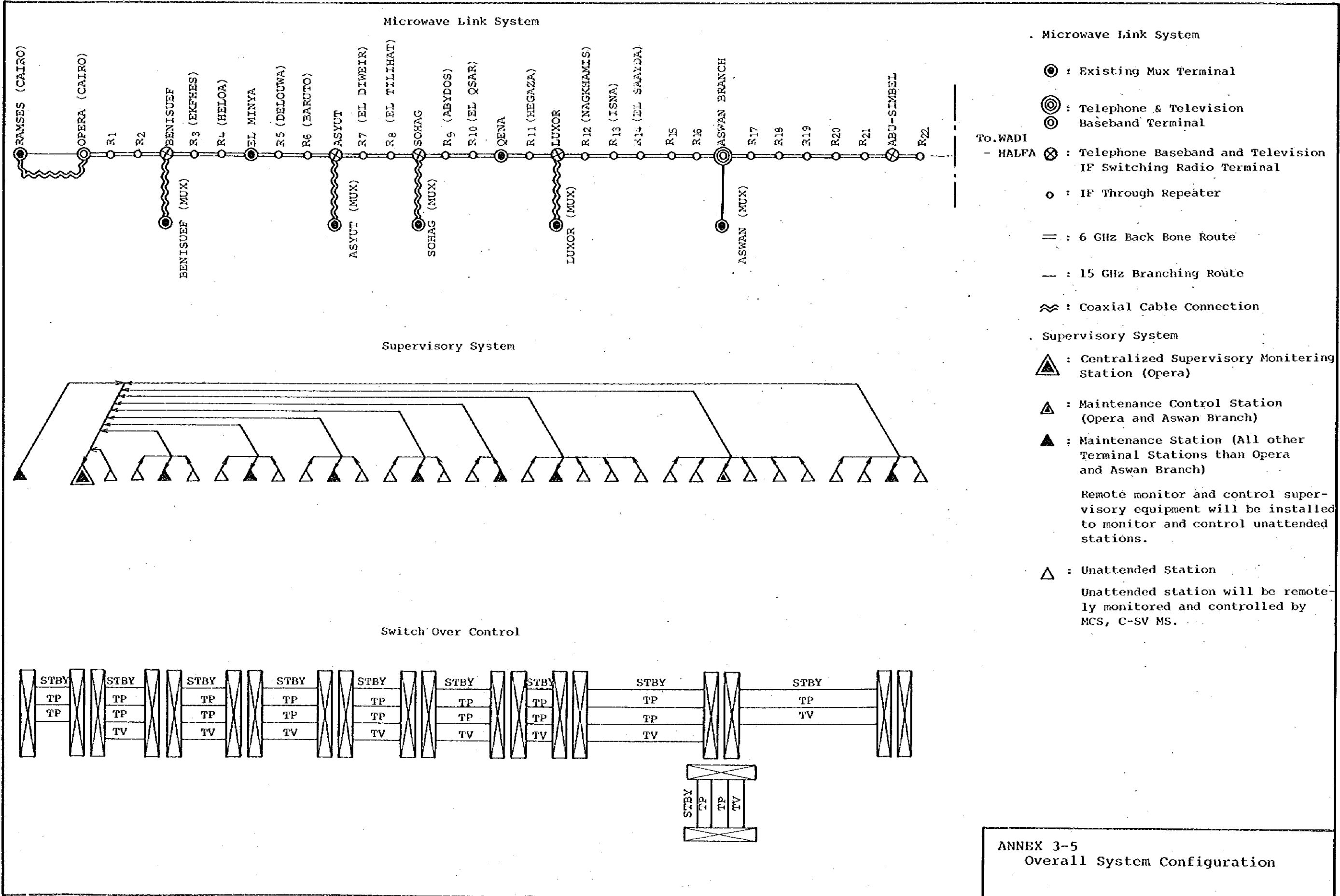
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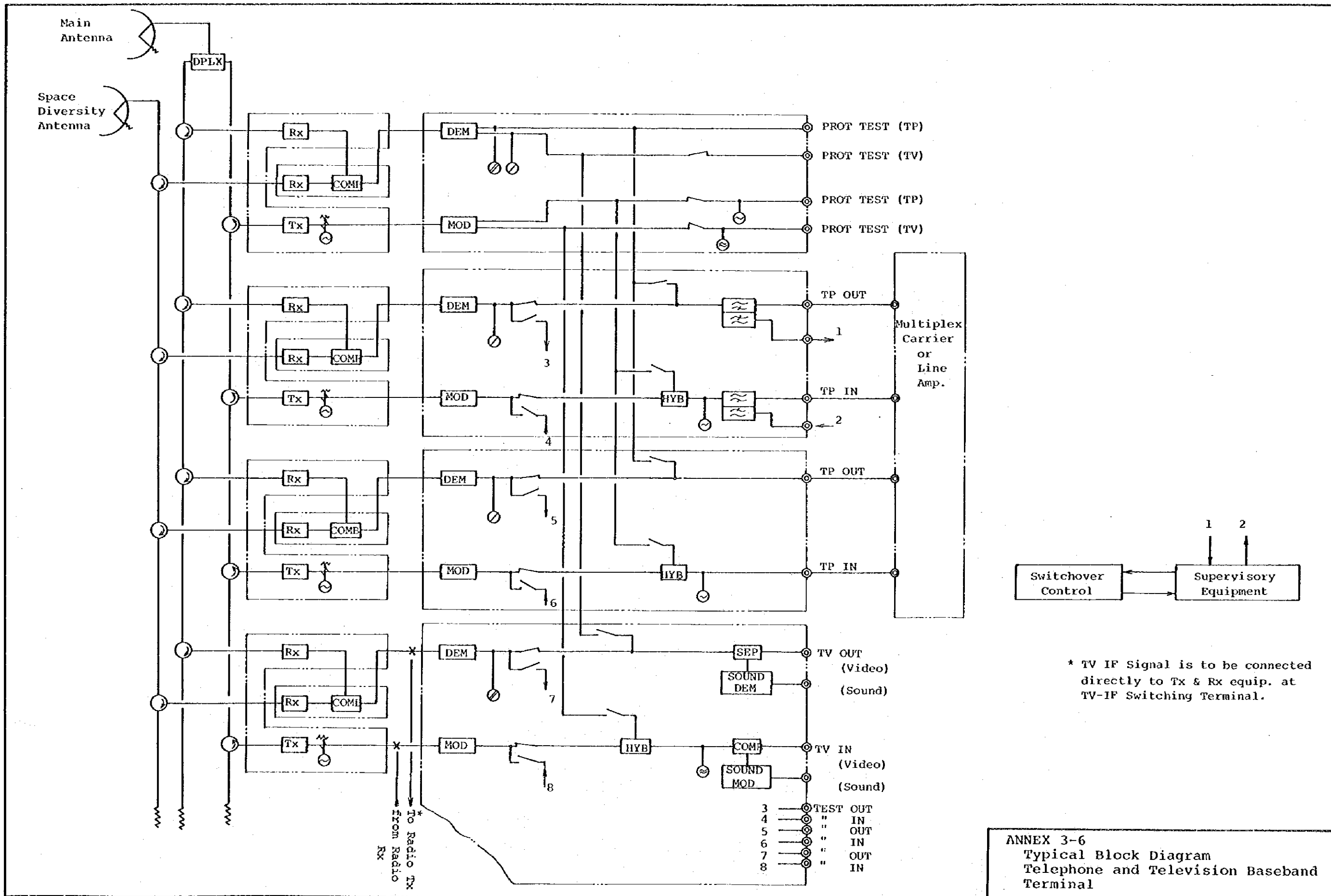
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ANNEX 3-5  
Overall System Configuration



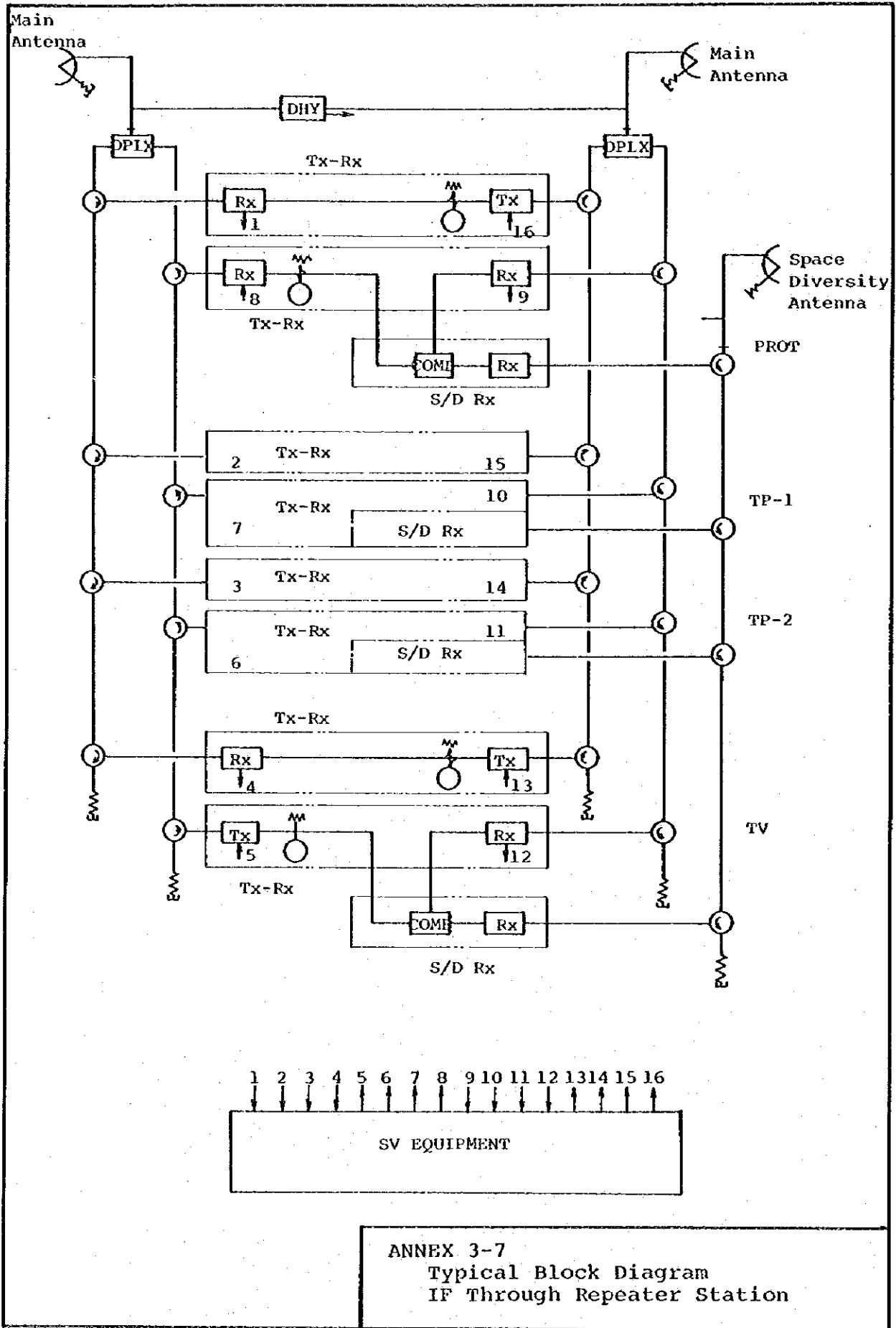
\* TV IF Signal is to be connected directly to Tx & Rx equip. at TV-IF Switching Terminal.

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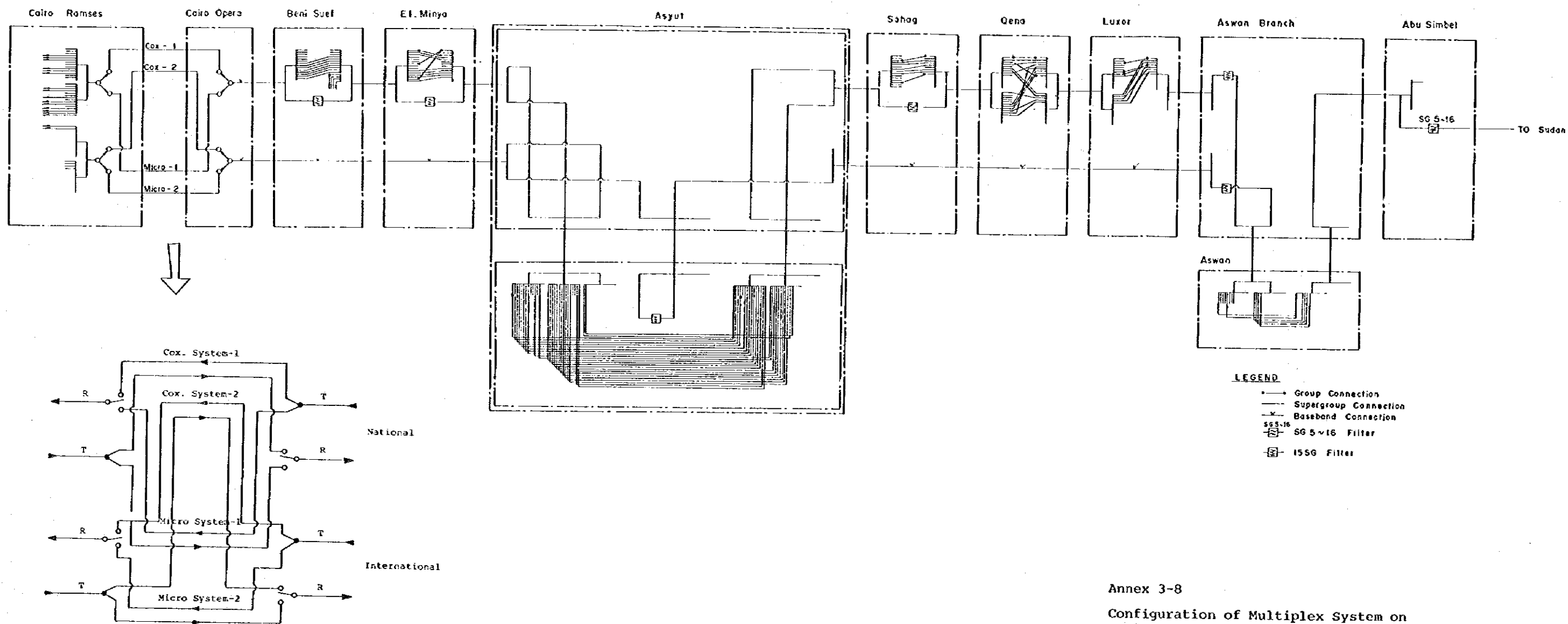
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ANNEX 3-7  
 Typical Block Diagram  
 IF Through Repeater Station



Annex 3-8  
 Configuration of Multiplex System on  
 Upper Egypt Microwave Network

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ANNEX 3-9 Thermal Noise Performance

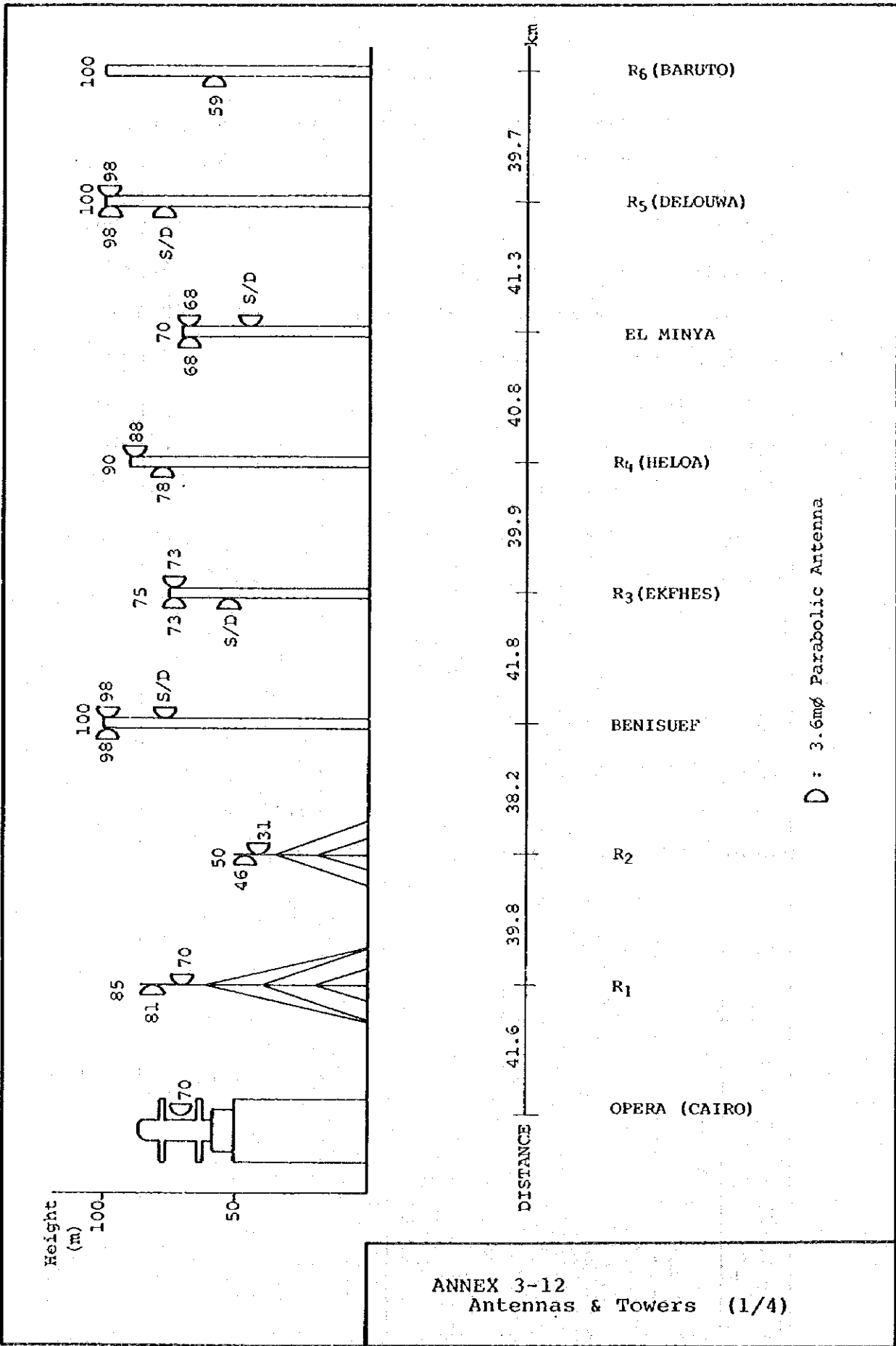
Section Name	No. of Hops	Transmission Path Length	Noise Mean Power (for 20% of any month)			Remarks
			Objective	Calculated Thermal Noise	Allowable Noise for intermodulation and Interference	
CAIRO - BENISUEF	3	119.6 km	558.9 pWOp	32.0 pWOp	526.9 pWOp	
BENISUEF - EL MINYA	3	122.5	567.5	46.6	520.9	
EL MINYA - ASYUT	3	121.5	564.5	47.0	517.5	
ASYUT - SOHAG	3	86.6	459.8	10.2	449.6	
SOHAG - QENA	3	130.1	590.3	69.1	521.2	
QENA - LUXOR	2	61.5	384.5	14.4	370.1	
LUXOR - Aswan Branch	6	193.1	779.3	40.2	739.1	
CAIRO - Aswan Branch	3	834.9	2704.7	259.5	2445.2	

ANNEX 3-10 Estimate of Short Break

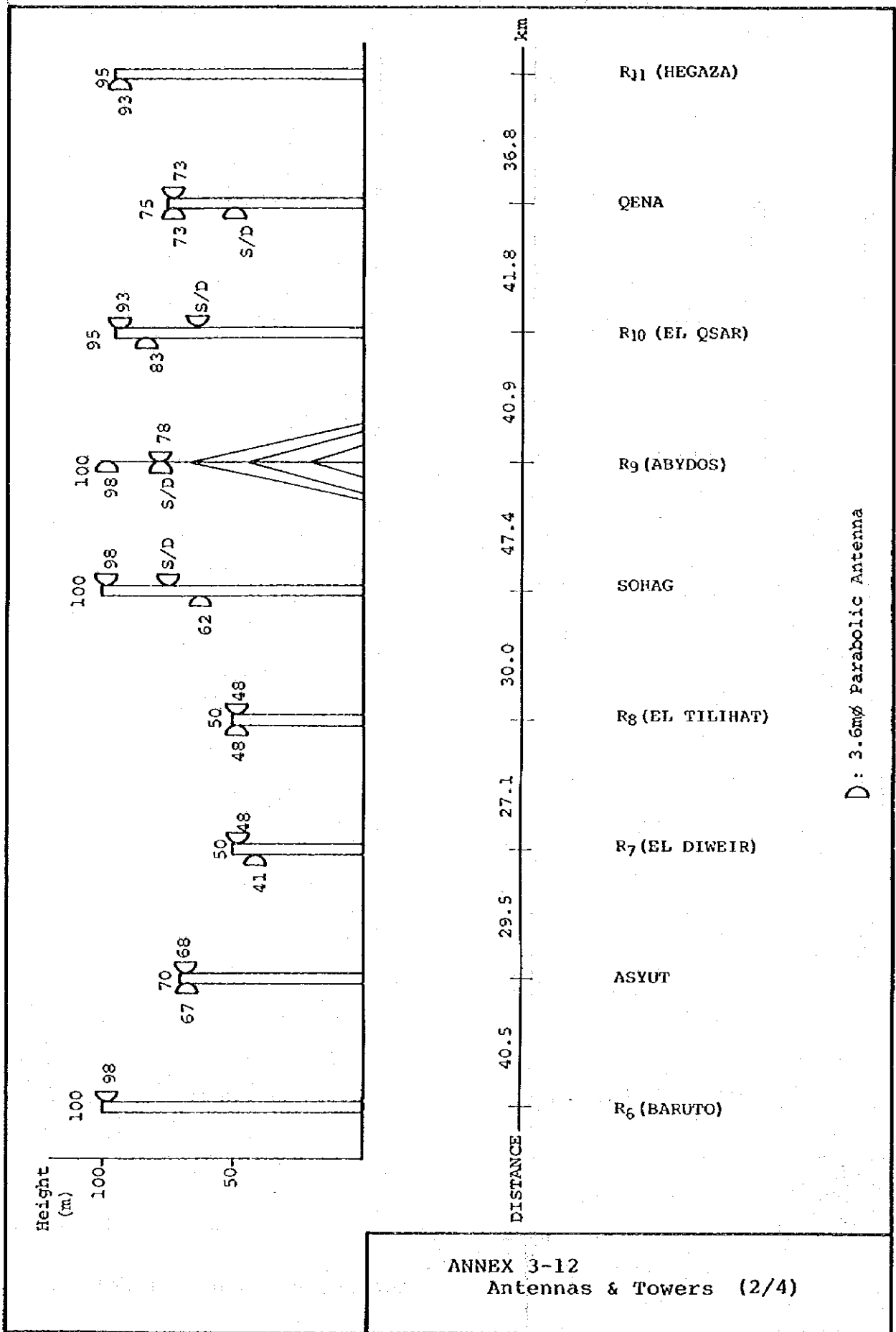
Section Name	No. of Hops	Transmission Path Length	Time Percentage Exceeding 47500 pW (for 0.1% of any month)		Remarks
			Objective	Calculated percentage	
CAIRO - BENISUEF	3	119.6	0.011208	0.002052	
BENISUEF - EL MINYA	3	122.5	0.01120	0.005484	S/D x 1
EL MINYA - ASYUT	3	121.5	0.01120	0.005740	S/D x 1
ASYUT - SOHAG	3	86.6	0.01120	0.000669	
SOHAG - QENA	3	130.1	0.01120	0.003661	S/D x 2
QENA - LUXOR	2	61.5	0.01120	0.004239	
LUXOR - ASWAN Branch	6	193.1	0.01120	0.003958	S/D x 1
CAIRO - ASWAN Branch	23	834.9	0.033396	0.025803	

ANNEX 3-11 The system parameter used in the noise estimation for telephony circuit

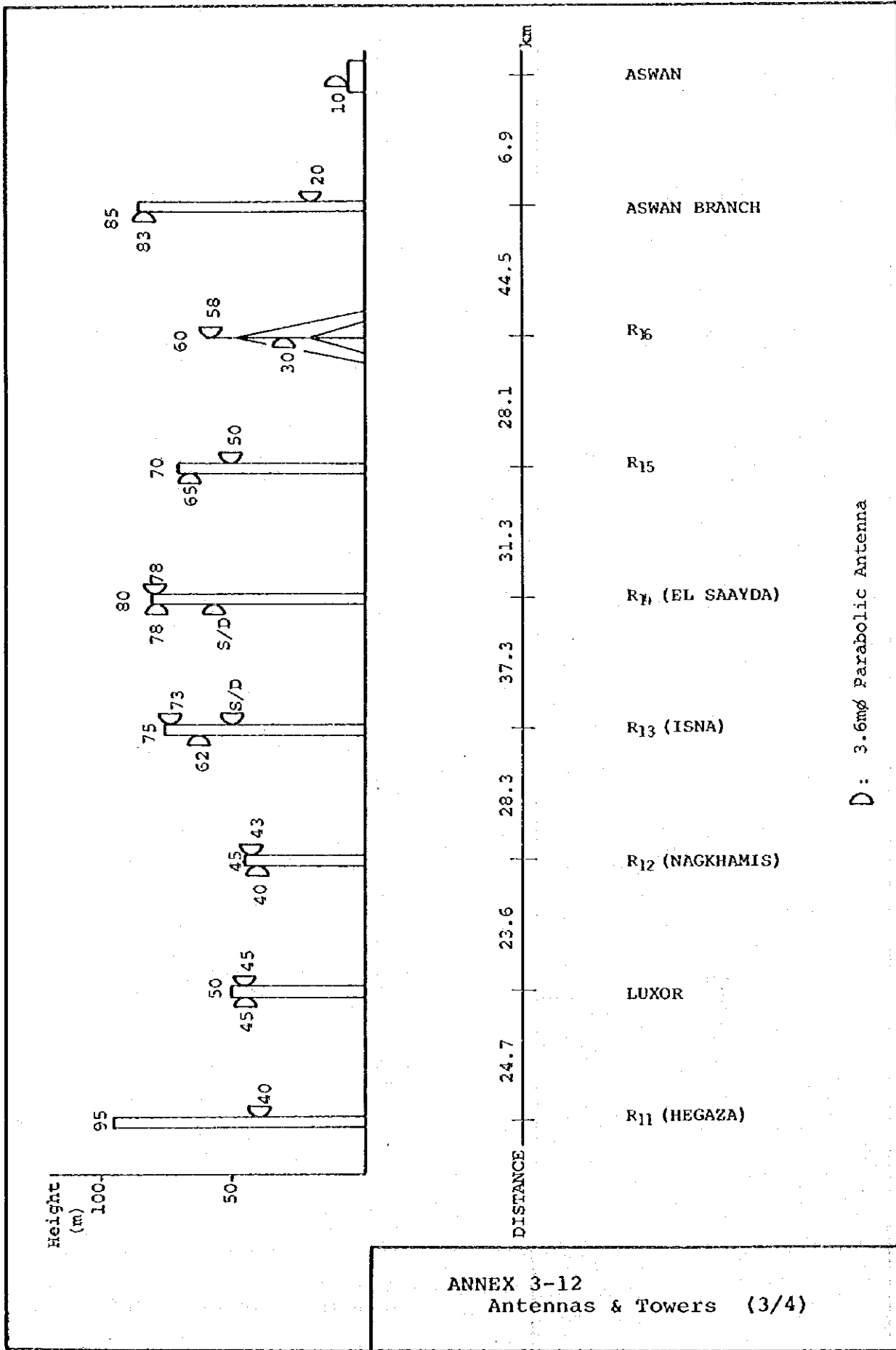
(1) Radio frequency		$f_0 = 6770$ MHz
(2) Test tone deviation (Telephony)		140 kHz
(3) Baseband top frequency (1800 ch)		8204 kHz
(4) Transmitter output power		37 dBm (5 W)
(5) Noise Figure		3.5 dB
(6) Squelch level		-74 dBm
(7) Feeder loss per one meter		0.05 dB/m
(8) Branching circuit loss		3.8 dB/hop
(9) Antenna (Parabolic)		
	3.6 m $\phi$	45.5 dBi
	3.0 m $\phi$	44 dBi
* Transmission capacity		1800 ch
Modulation system		FDM/FM
Preemphasis		CCIR 8 dB
Occupied frequency band		6 GHz upper band



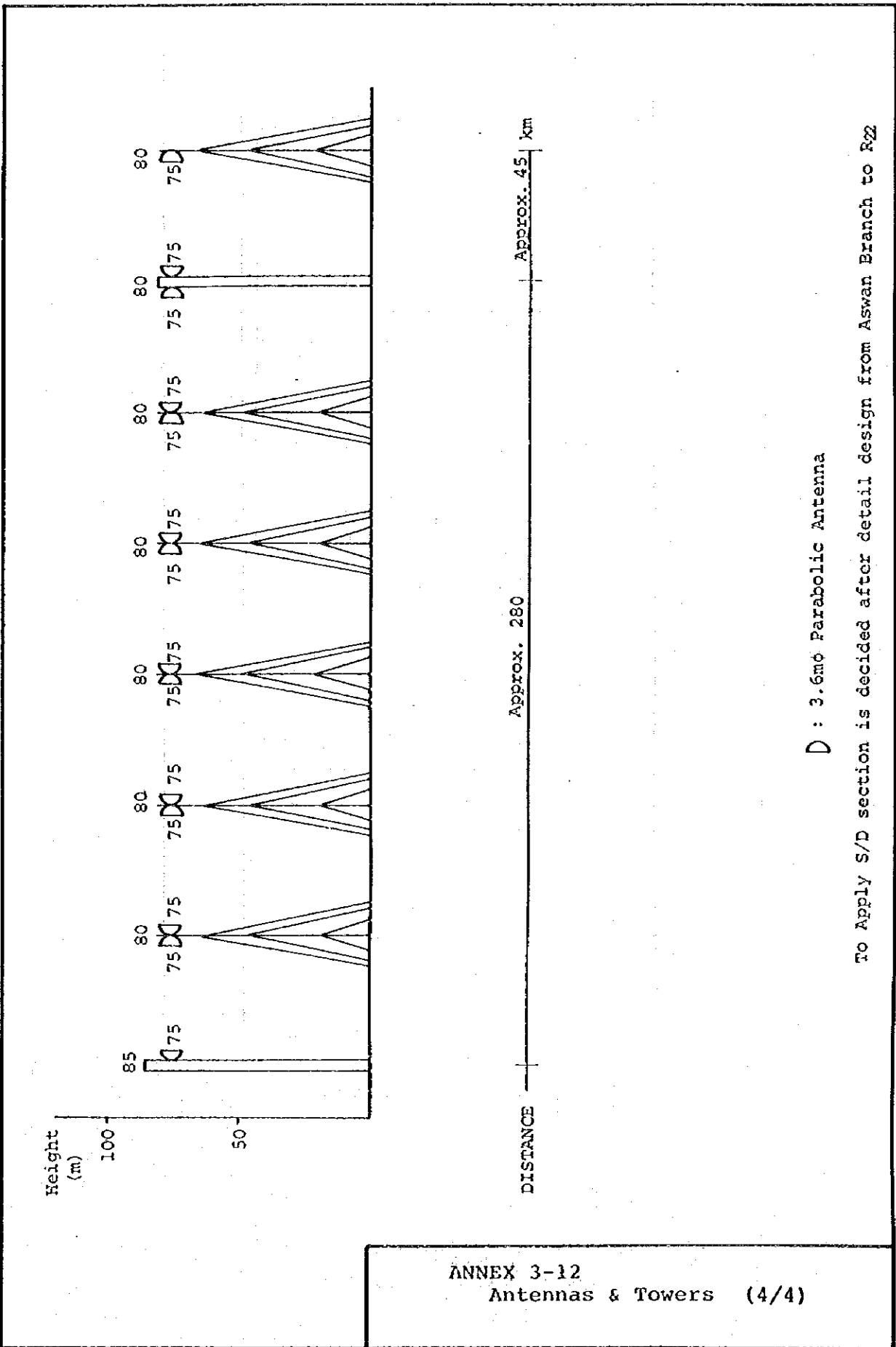
ANNEX 3-12  
Antennas & Towers (1/4)



ANNEX 3-12  
Antennas & Towers (2/4)



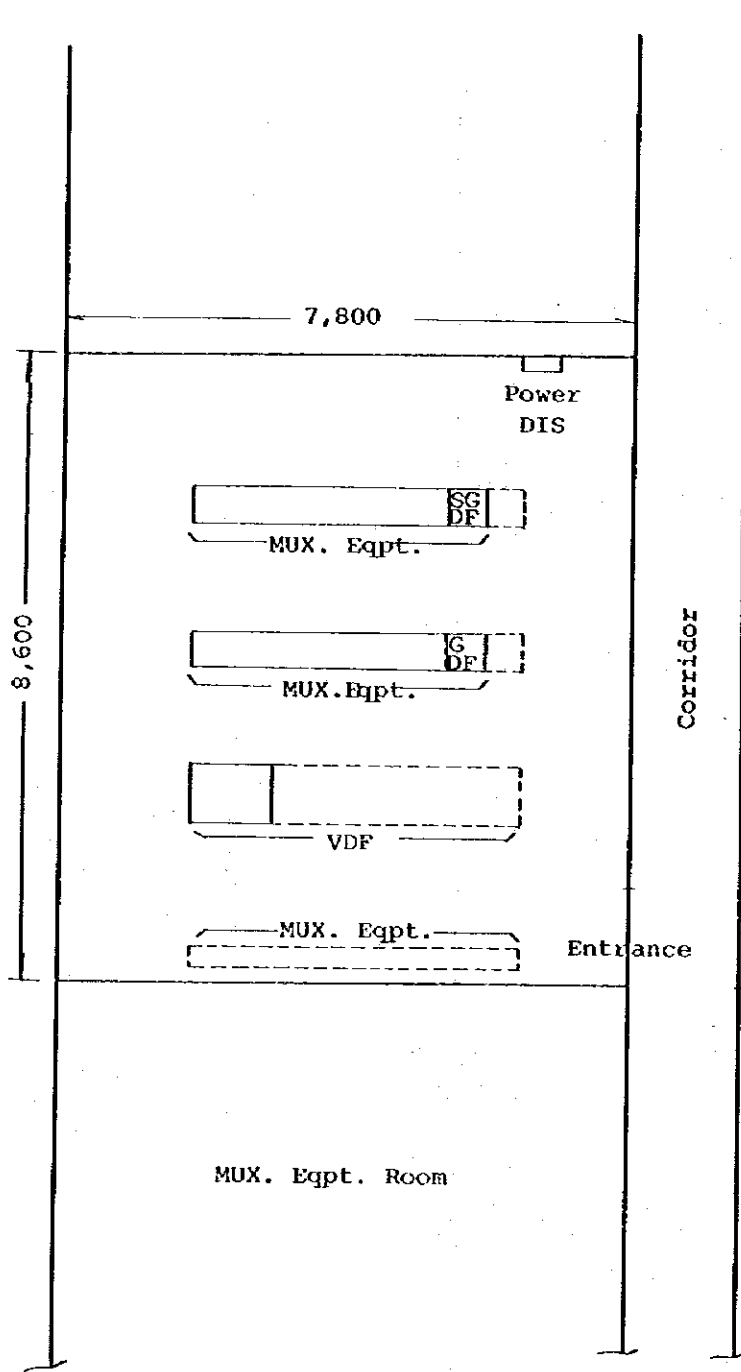
ANNEX 3-12  
Antennas & Towers (3/4)




ANNEX 3-12  
Antennas & Towers (4/4)

D : 3.6m $\phi$  Parabolic Antenna

To Apply S/D section is decided after detail design from Aswan Branch to R22



 Required floor space for MUX. Equipment

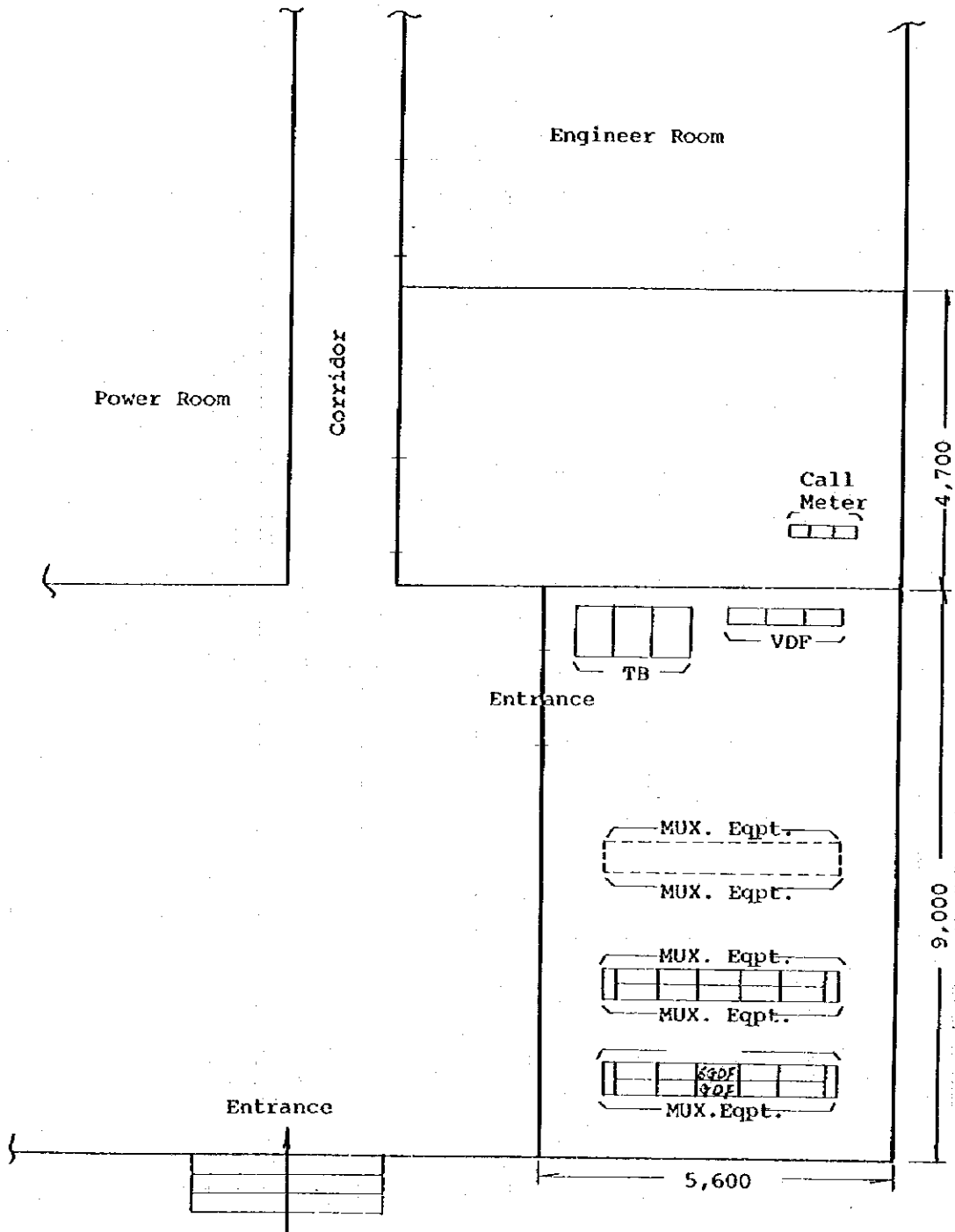
Annex 3-13


Floor Layout Plan for Existing Terminal Station (1/8)

Ramses MUX. Equipment Room

Scale 1/100





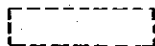
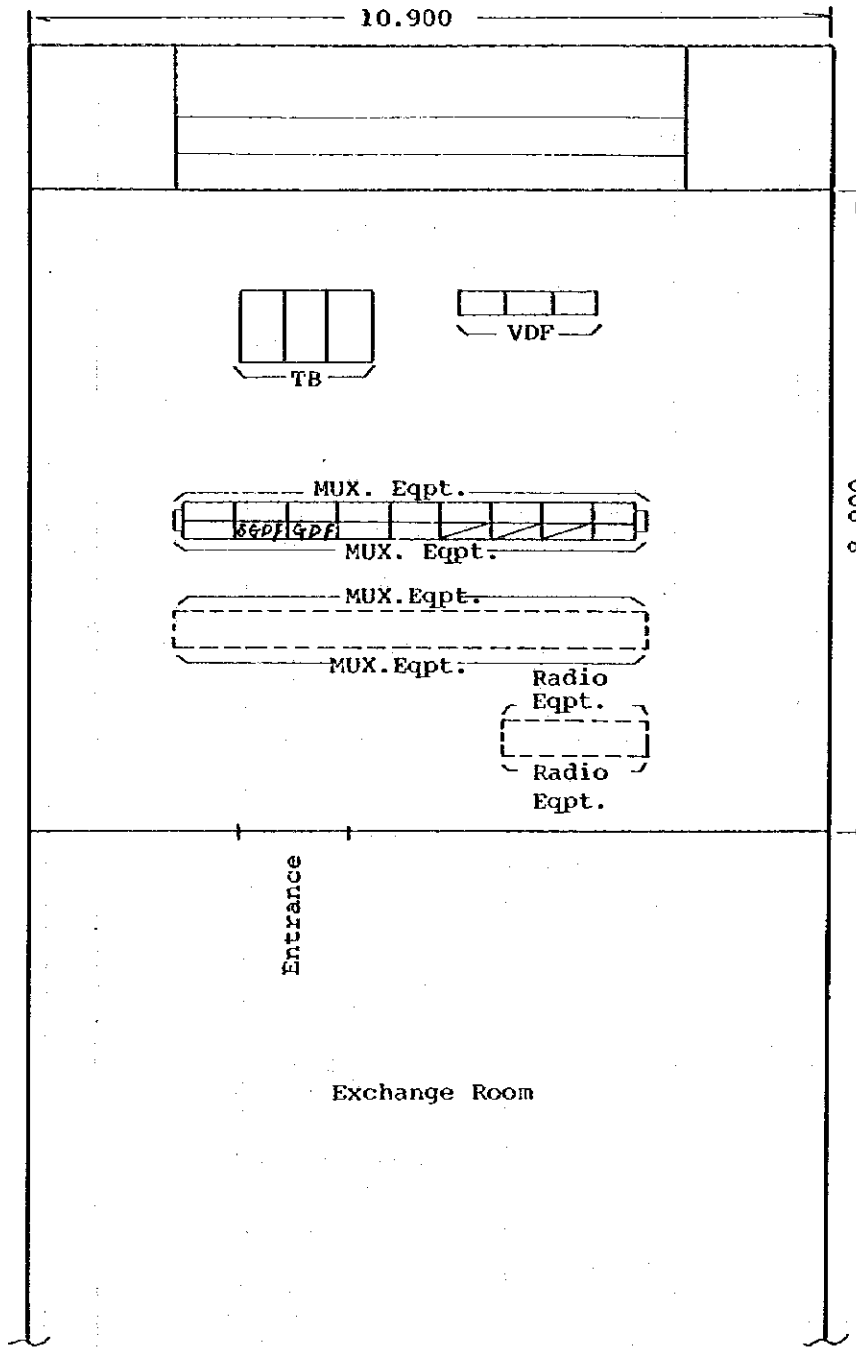
 Required floor space for MUX. Eqpt.

Annex 3-13

Floor Layout Plan for Existing Terminal Station (2/8)

Beni Suef Exchange

Scale 1/100



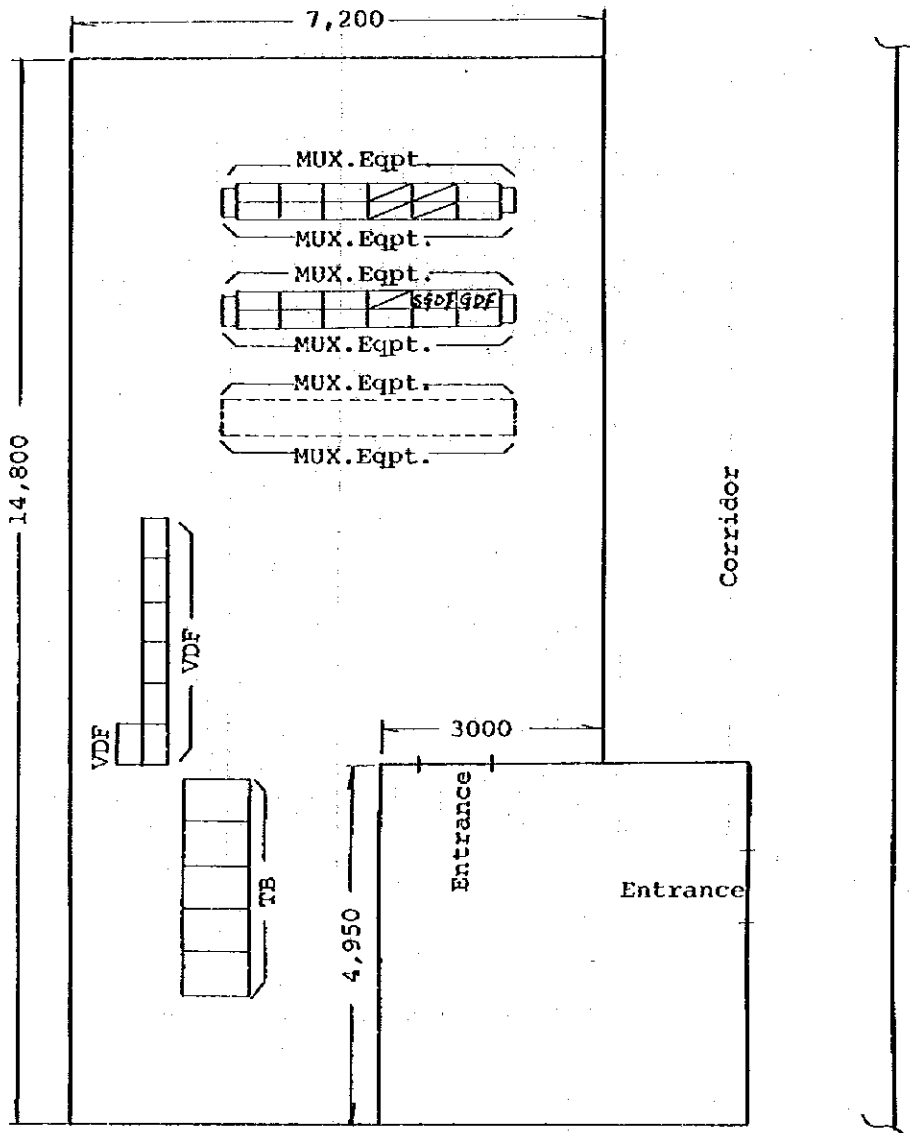
Required floor space for MUX. & Radio Eqpt.

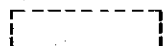
Annex 3-13

Floor Layout Plan for Existing Terminal Station (3/8)

El Minya Exchange

Scale 1/100



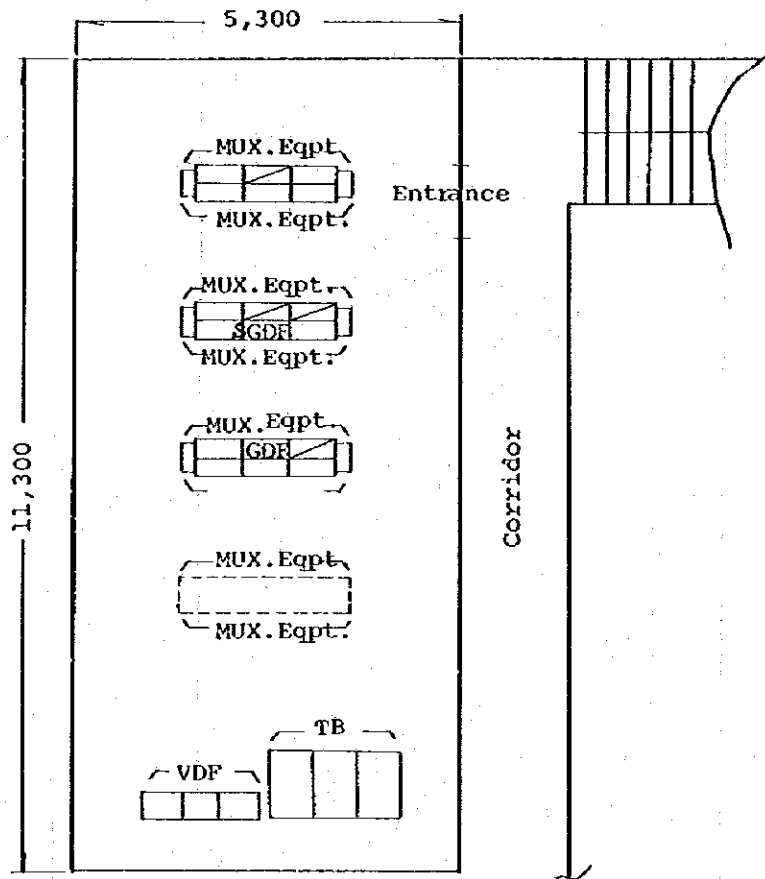
 Required floor space for MUX. Eqpt.

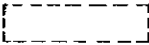
Annex 3-13

Floor Layout Plan for Existing Terminal Station (4/8)

Asyut Exchange

Scale 1/100



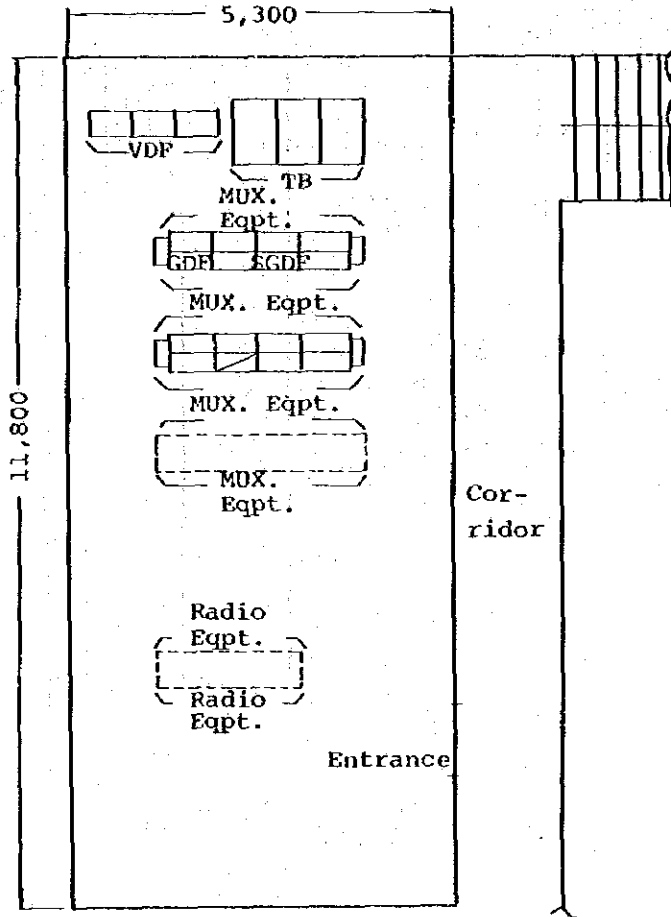
 Required floor space for  
MUX. Eqpt.

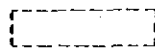
Annex 3-13

Floor Layout Plan for Existing Terminal Station (5/8)

Sohag Exchange

Scale 1/100

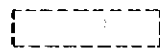
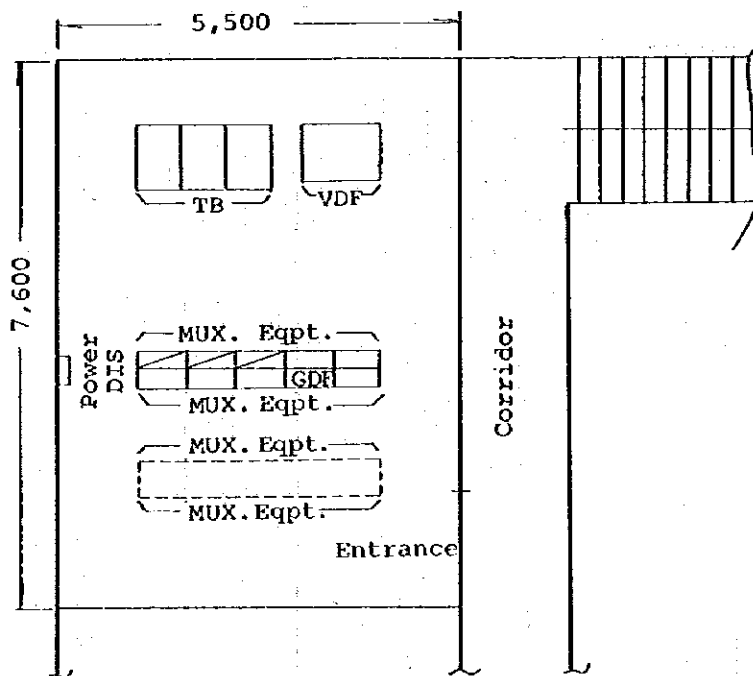


 Required floor space for MUX. & Radio Eqpt.

Annex 3-13

Floor Layout Plan for Existing Terminal Station (6/8)

Qena Exchange (Scale 1/100)



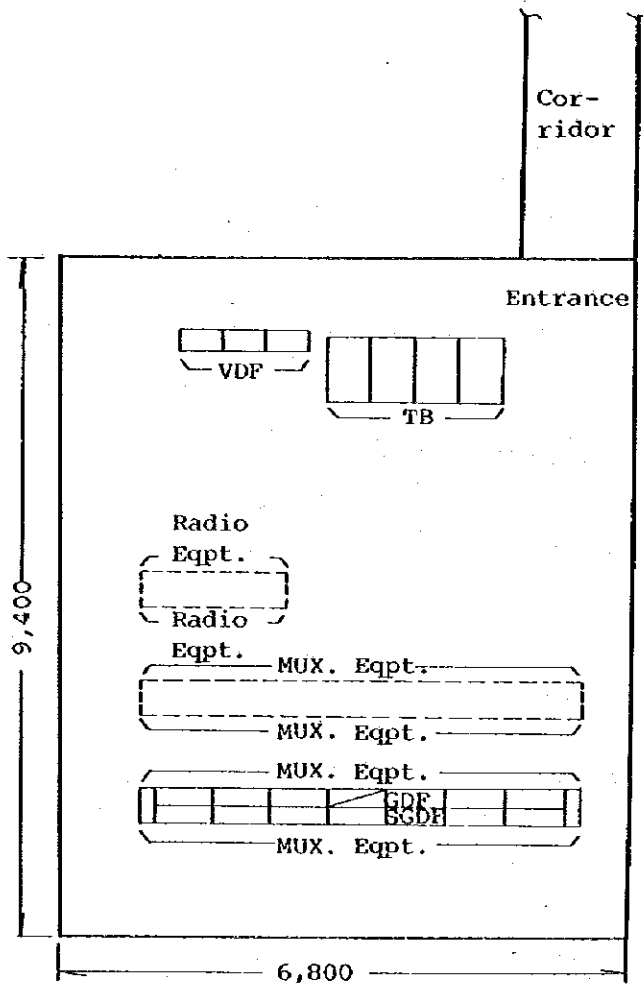
Required floor space for  
MUX. Eqpt.

Annex 3-13

Floor Layout Plan for Existing Terminal Station (7/8)

Luxor Exchange

Scale 1/100



Required floor space for MUX & Radio Eqpt.

Annex 3-13

Floor Layout Plan for Existing Terminal Station (8/8)

Aswan Exchange (Scale 1/100)

6

8

6

0



ANNEX 3-14 Path Profile

K = 4/3 : 1/24 ~ 24/24

K = 2/3 : 1/24 ~ 24/24

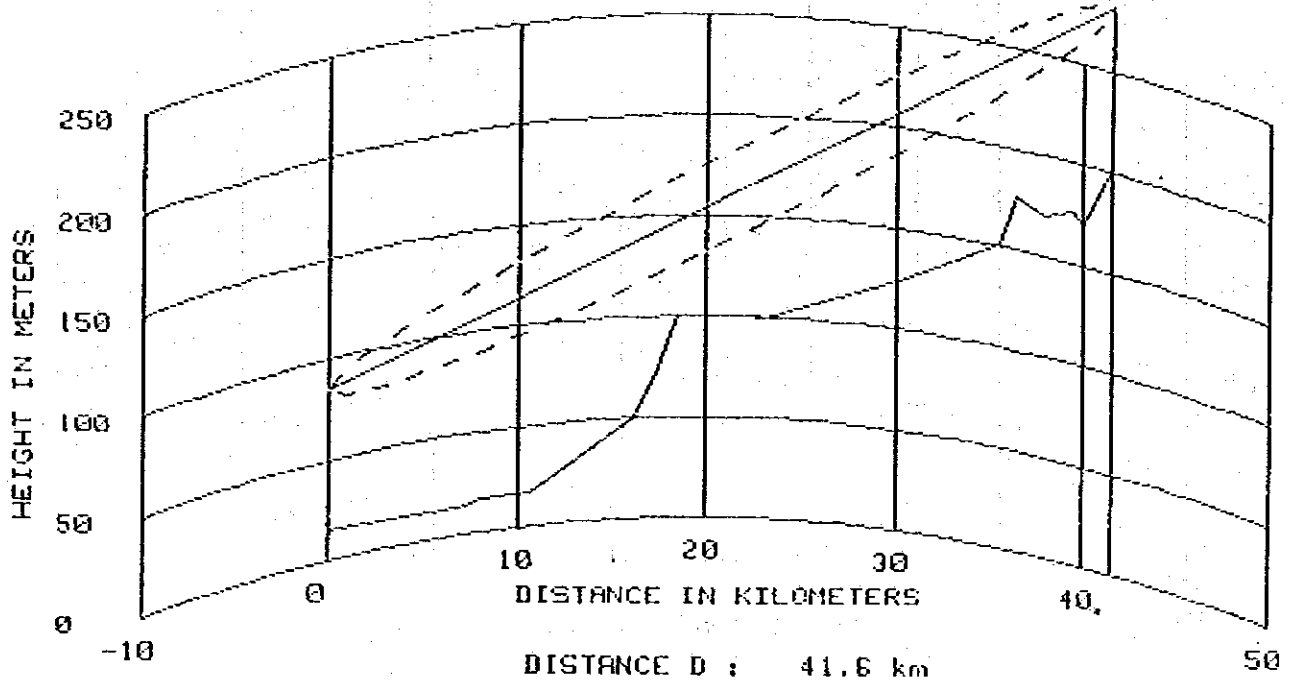
1

2

3

4

# PATH PROFILE ( 4/3 RADIUS )



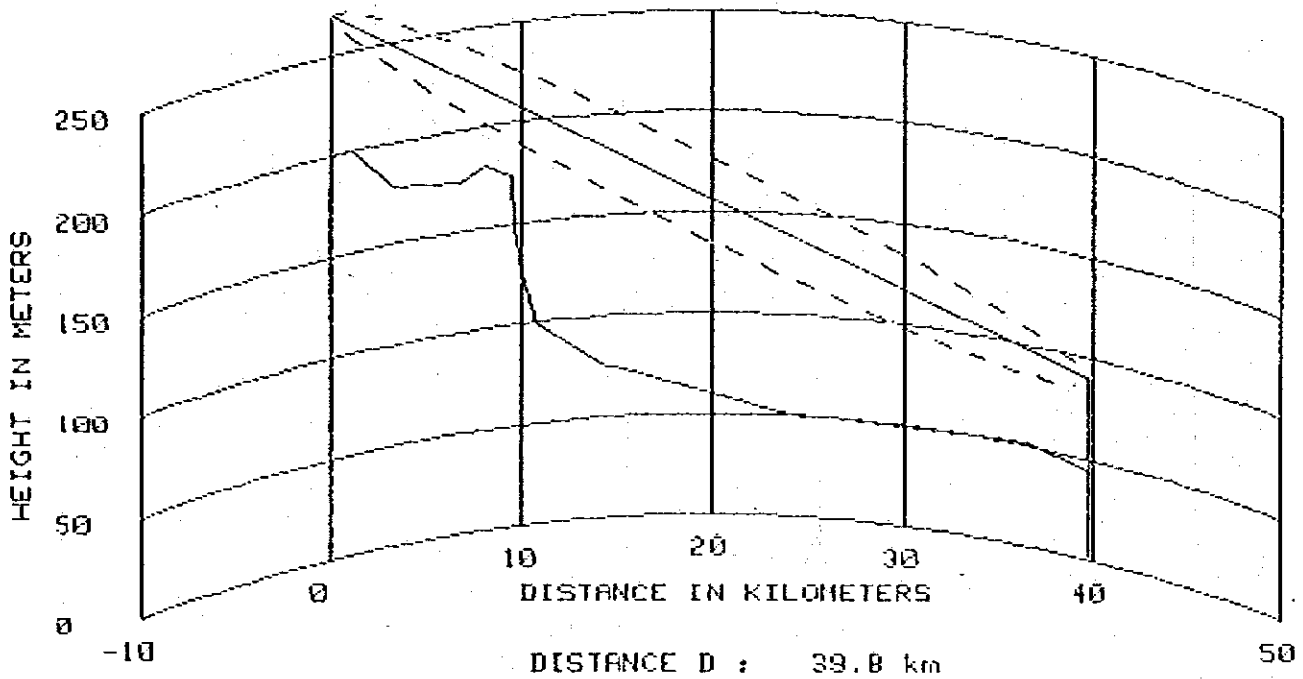
SITE 1 : CAIRO  
 GROUND ELEVATION: 15.0 m  
 ANTENNA HEIGHT: 70.0 m

SITE 2 : R1  
 GROUND ELEVATION: 200.0 m  
 ANTENNA HEIGHT: 81.0 m

```

#####
#
#          PATH CLEARANCE AND RIDGE LOSS          #
#
#  K      =      1.33                               #
#
#  F      =      6770 MHz : (λ = 44 mm)           #
#
#  Hg1    =      15.0 m      Hg2 = 200.0 m        #
#  Ha1    =      70 m       Ha2 = 81 m            #
#
#  D1     =      18.4 km     D2  = 23.2 km      Hm = 190.0 m
#  U      =      2.18
#
#  Lfs    =      141.5 dB
#
#####
    
```

# PATH PROFILE ( 4/3 RADIUS )



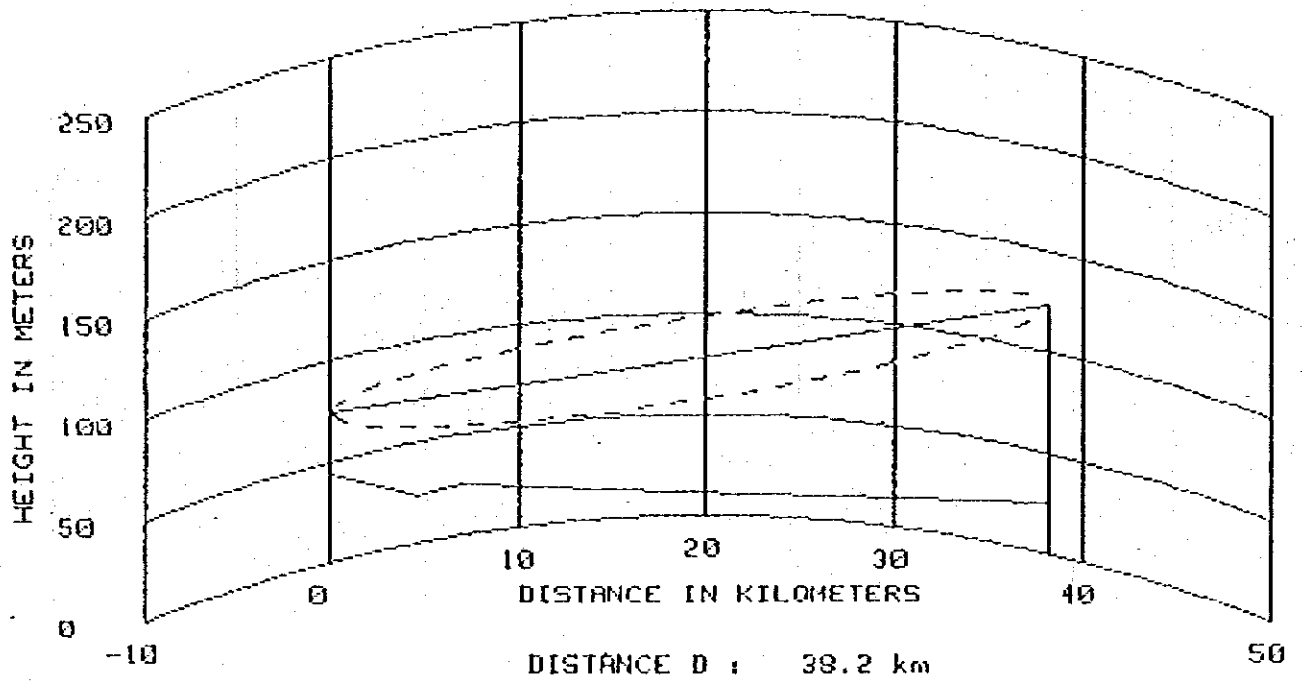
SITE 1 : R1  
 GROUND ELEVATION: 200.0 m  
 ANTENNA HEIGHT: 70.0 m

SITE 2 : R2  
 GROUND ELEVATION: 43.0 m  
 ANTENNA HEIGHT: 46.0 m

```

#####
#
#           PATH CLEARANCE AND RIDGE LOSS           #
#
#
#   K       =      1.33
#
#   F       =      6770 MHz ; (λ = 44 mm)
#
#   Hg1    =      200.0 m      Hg2    =      43.0 m
#   Ha1    =       70 m       Ha2    =      46 m
#
#   D1     =       9.5 km     D2     =      30.3 km   Hm = 175.0 m
#   U      =       1.95
#
#
#   Lfs    = 141.1 dB
#
#####
    
```

PATH PROFILE ( 4/3 RADIUS )



SITE 1 : R2

GROUND ELEVATION: 43.0 m

ANTENNA HEIGHT: 31.0 m

SITE 2 : BENISUEF

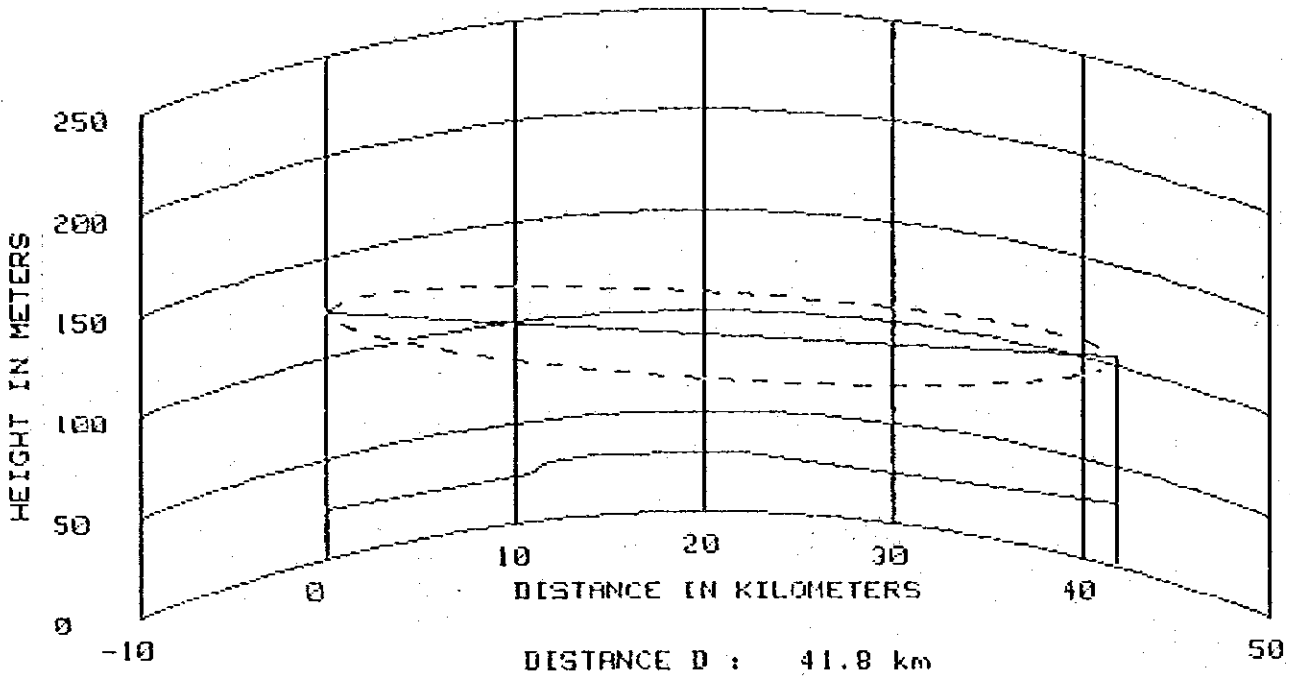
GROUND ELEVATION: 25.0 m

ANTENNA HEIGHT: 98.0 m

```

#####
#                                     #
#           PATH CLEARANCE AND RIDGE LOSS           #
#                                     #
#   K   =   1.33                                     #
#                                     #
#   F   =   6770 MHz ; (λ = 44 mm)                 #
#                                     #
#   Hg1 = 43.0 m   Hg2 = 25.0 m                     #
#   Ha1 = 31.0 m   Ha2 = 98.0 m                     #
#                                     #
#   D1  = 19.1 km   D2  = 19.1 km   Hm = 25.0 m     #
#   U   = 2.53                                           #
#                                     #
#   Lfs = 149.7 dB                                       #
#                                     #
#####
    
```

# PATH PROFILE ( 4/3 RADIUS )



SITE 1 : BENISUEF

SITE 2 : R3

GROUND ELEVATION: 25.0 m

GROUND ELEVATION: 30.0 m

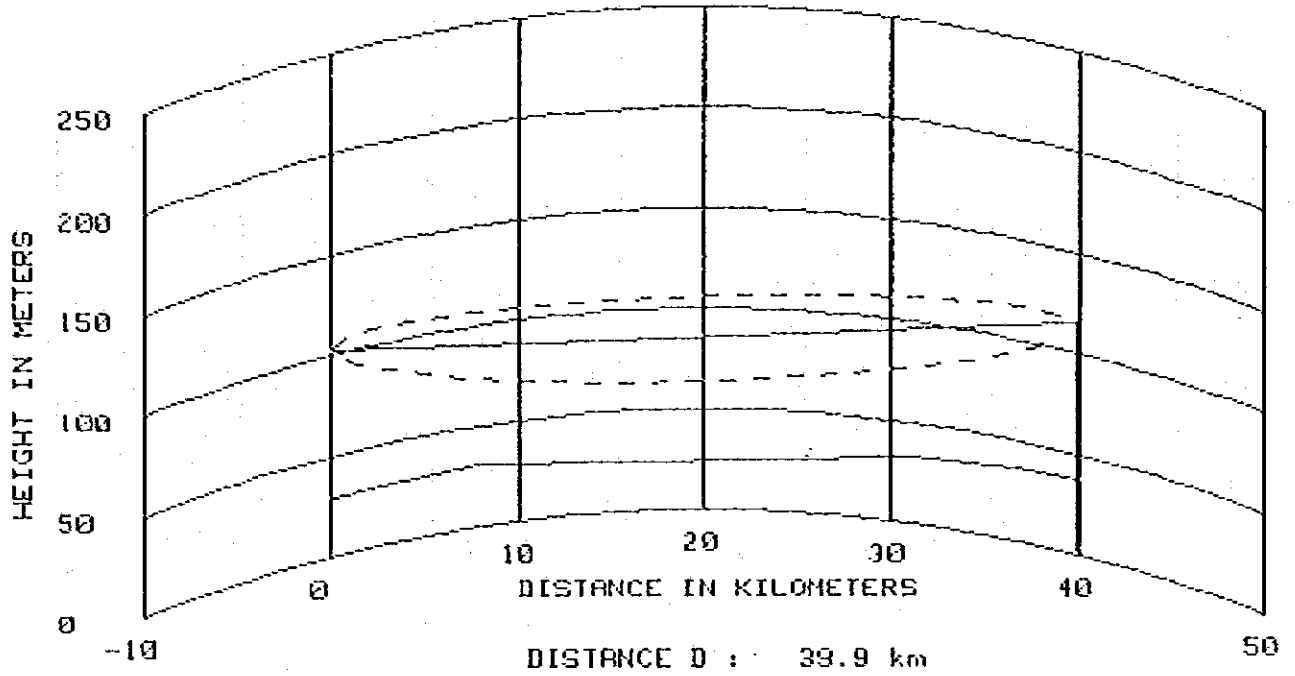
ANTENNA HEIGHT: 98.0 m

ANTENNA HEIGHT: 73.0 m

```

#####
#                                     #
#           PATH CLEARANCE AND RIDGE LOSS           #
#                                     #
#   K   =   1.33                                     #
#                                     #
#   F   =   6770 MHz ; (λ = 44 m)                   #
#                                     #
#   Hg1 = 25.0 m   Hg2 = 30.0 m                     #
#   Ha1 = 98 m     Ha2 = 73 m                       #
#                                     #
#   D1  = 20.9 km   D2  = 20.9 km   Hm = 30.0 m    #
#   U   = 2.66                                           #
#                                     #
#   Lfs = 141.5 dB                                       #
#                                     #
#####
    
```

PATH PROFILE ( 4/3 RADIUS )



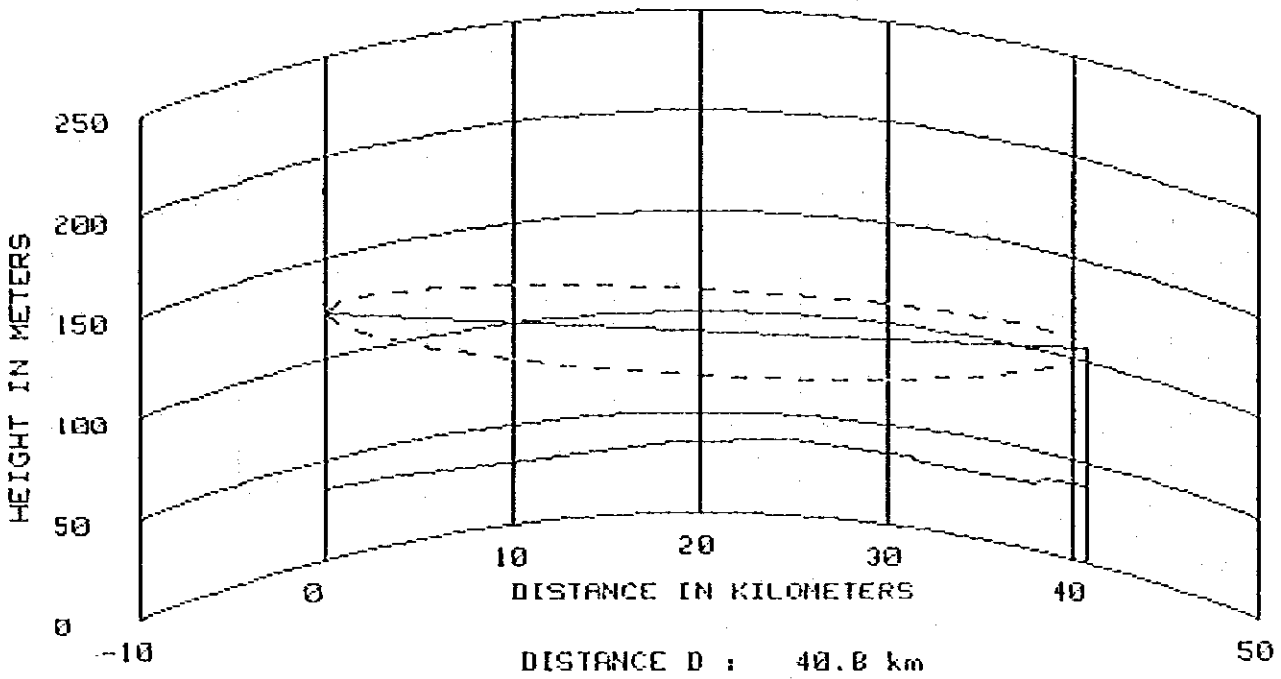
SITE 1 : R3(EKFHES)  
 GROUND ELEVATION: 30.0 m  
 ANTENNA HEIGHT: 73.0 m

SITE 2 : R4(HEROAI)  
 GROUND ELEVATION: 35.0 m  
 ANTENNA HEIGHT: 79.0 m

```

#####
#
#           PATH CLEARANCE AND RIDGE LOSS
#
#
#   K       =    1.33
#
#   F       =   6770 MHz : (λ = 44 mm)
#
#   Hg1    =   30.0 m      Hg2    =   35.0 m
#   Ha1    =   73  m      Ha2    =   78  m
#
#   D1     =   20.0 km    D2     =   19.9 km    Hm    =   30.0 m
#   U      =   2.60
#
#   Lfs    = 141.1 dB
#
#####
    
```

# PATH PROFILE ( 4/3 RADIUS )



SITE 1 : R4(HELWA)

GROUND ELEVATION: 35.0 m

ANTENNA HEIGHT: 88.0 m

SITE 2 : EL MINYA

GROUND ELEVATION: 37.0 m

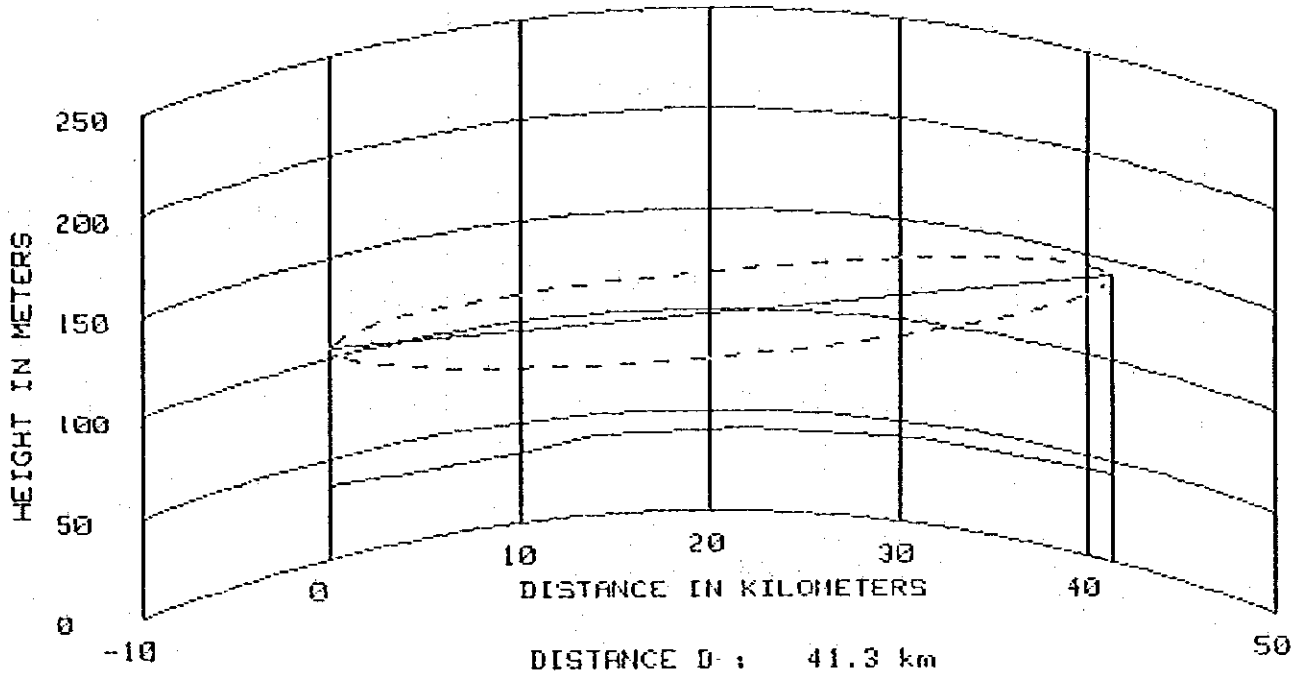
ANTENNA HEIGHT: 68.0 m

```

#####
#
#           PATH CLEARANCE AND RIDGE LOSS           #
#
#   K       =       1.33                           #
#
#   F       =       6770  MHz : (λ = 44  mm)        #
#
#   Hg1     =       35.0  m       Hg2     =       37.0  m       #
#   Ha1     =       88    m       Ha2     =       68    m       #
#
#   D1      =       20.4  km       D2      =       20.4  km       Hm =       35.0  m       #
#   U       =       2.56                                                    #
#
#   Lfs     =       141.3  dB
#
#####
    
```



# PATH PROFILE ( 4/3 RADIUS )



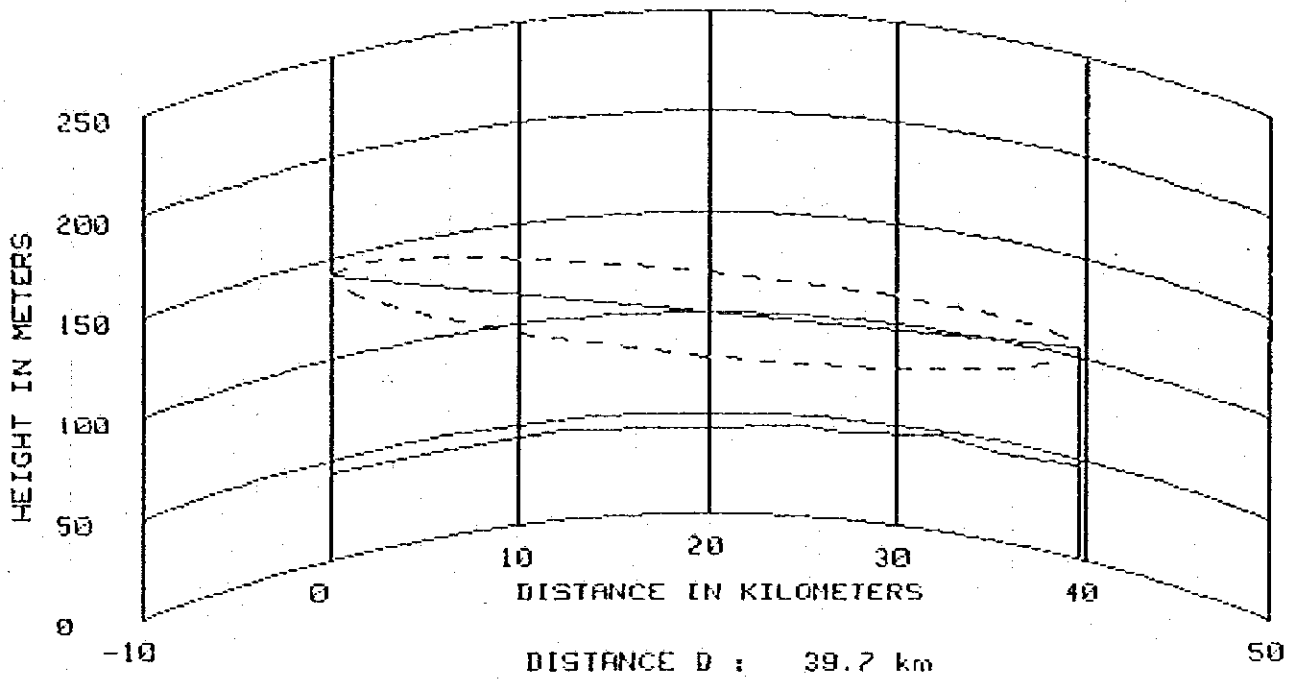
SITE 1 : EL MINYA  
 GROUND ELEVATION: 37.0 m  
 ANTENNA HEIGHT: 68.0 m

SITE 2 : R5(DEROUWA)  
 GROUND ELEVATION: 43.0 m  
 ANTENNA HEIGHT: 98.0 m

```

#####
#
#           PATH CLEARANCE AND RIDGE LOSS           #
#
#   K       =   1.33                               #
#
#   F       =   6770 MHz ; (λ = 44 mm)             #
#
#   Hg1     =   37.0 m       Hg2 = 43.0 m         #
#   Ha1     =   68 m        Ha2 = 98 m           #
#
#   D1      =   18.0 km     D2 = 23.3 km   Hm = 42.0 m #
#   U       =   2.55
#
#   Lfs     =   141.4 dB
#
#####
  
```

# PATH PROFILE ( 4/3 RADIUS )



SITE 1 : R5(DEROUNA)

GROUND ELEVATION: 43.0 m

ANTENNA HEIGHT: 98.0 m

SITE 2 : R6(BARUTO)

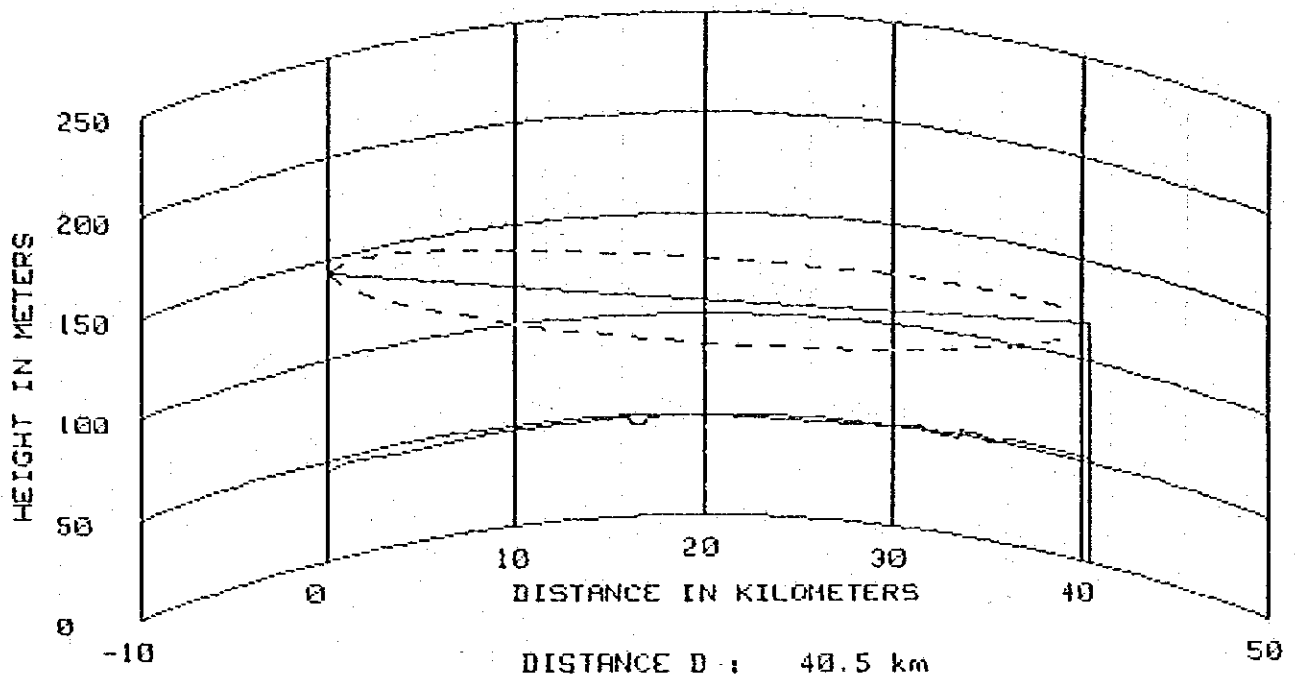
GROUND ELEVATION: 45.0 m

ANTENNA HEIGHT: 59.0 m

```

#####
#
#           PATH CLEARANCE AND RIDGE LOSS           #
#
#   K       =      1.33                               #
#
#   F       =      6770 MHz : (A = 44 mm)           #
#
#   Hg1     =      43.0 m      Hg2 = 45.0 m         #
#   Ha1     =      98 m       Ha2 = 59 m            #
#
#   D1      =      20.0 km    D2 = 19.7 km    Hm = 45.0 m #
#   U       =      2.58
#
#   Lfs     =      141.0 dB
#
#####
    
```

# PATH PROFILE ( 4/3 RADIUS )



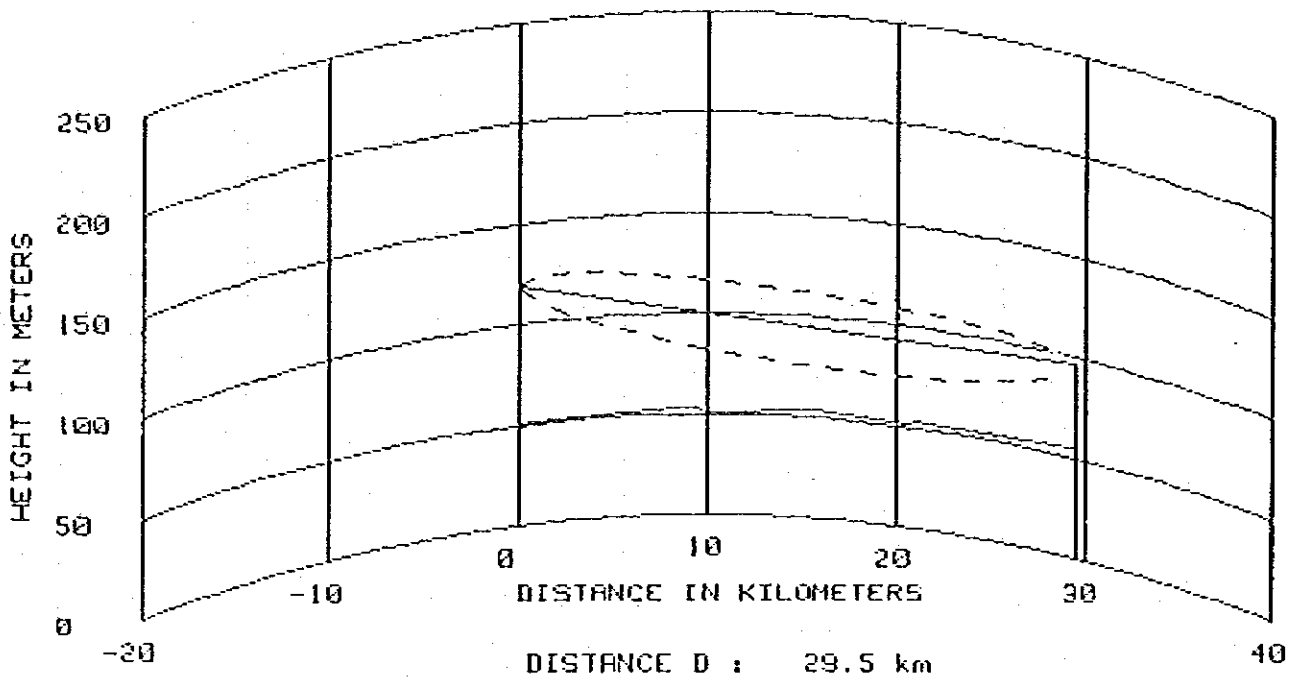
SITE 1 : R6(BARUTO)  
 GROUND ELEVATION: 45.0 m  
 ANTENNA HEIGHT: 98.0 m

SITE 2 : ASYUT  
 GROUND ELEVATION: 51.0 m  
 ANTENNA HEIGHT: 67.0 m

```

#####
#
#           PATH CLEARANCE AND RIDGE LOSS
#
#
#   K   =   1.33
#
#   F   =   6770 MHz : (λ = 44 mm)
#
#   Hg1 = 45.0 m   Hg2 = 51.0 m
#   Ha1 = 98.0 m   Ha2 = 67.0 m
#
#   D1  = 23.0 km   D2  = 17.5 km   Hm = 50.0 m
#   U   = 2.63
#
#
#   Lfs = 141.2 dB
#
#####
    
```

# PATH PROFILE ( 4/3 RADIUS )



SITE 1 : ASYUT

GROUND ELEVATION: 51.0 m

ANTENNA HEIGHT: 68.0 m

SITE 2 : R7(EL DIWEIR)

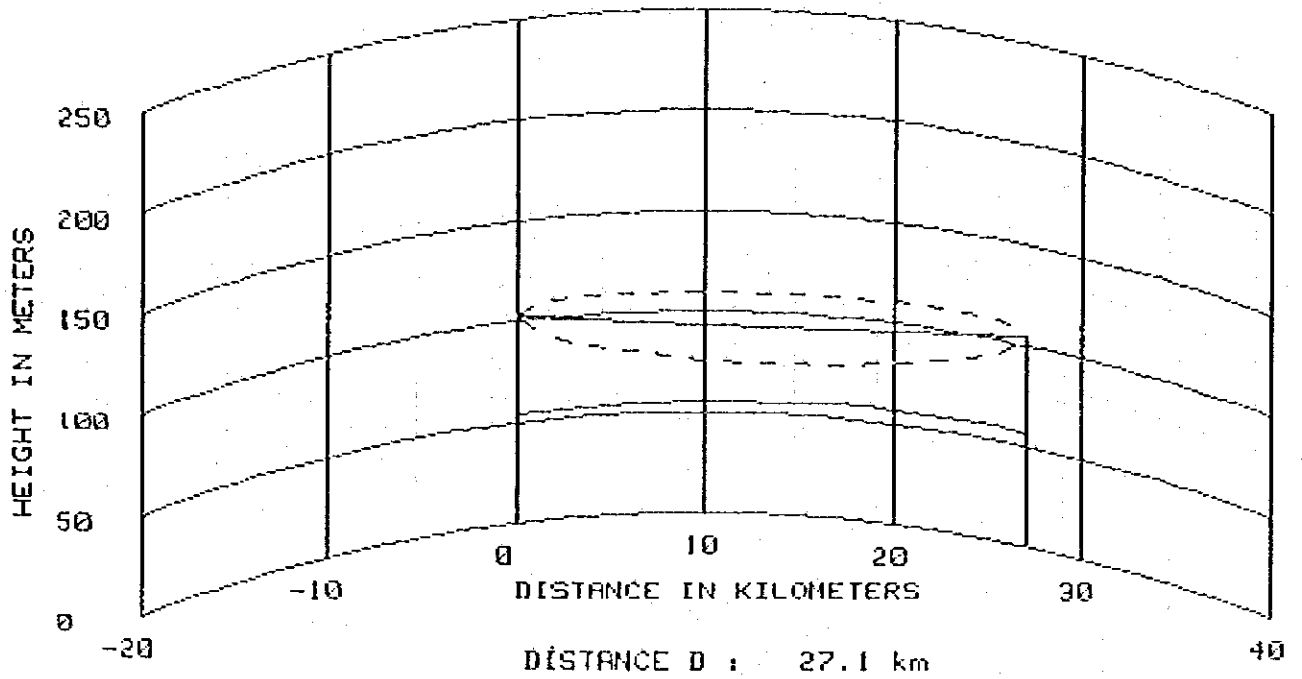
GROUND ELEVATION: 54.0 m

ANTENNA HEIGHT: 41.0 m

```

#####
#
#          PATH CLEARANCE AND RIDGE LOSS          #
#
#
#   K   =   1.33
#
#   F   =   6770 MHz : (λ = 44 mm)
#
#   Hg1 = 51.0 m   Hg2 = 54.0 m
#   Ha1 = 68 m    Ha2 = 41 m
#
#   D1  = 17.0 km   D2  = 12.5 km   Hm = 52.0 m
#   U   = 2.28
#
#
#   Lfs = 138.5 dB
#
#####
    
```

PATH PROFILE ( 4/3 RADIUS )



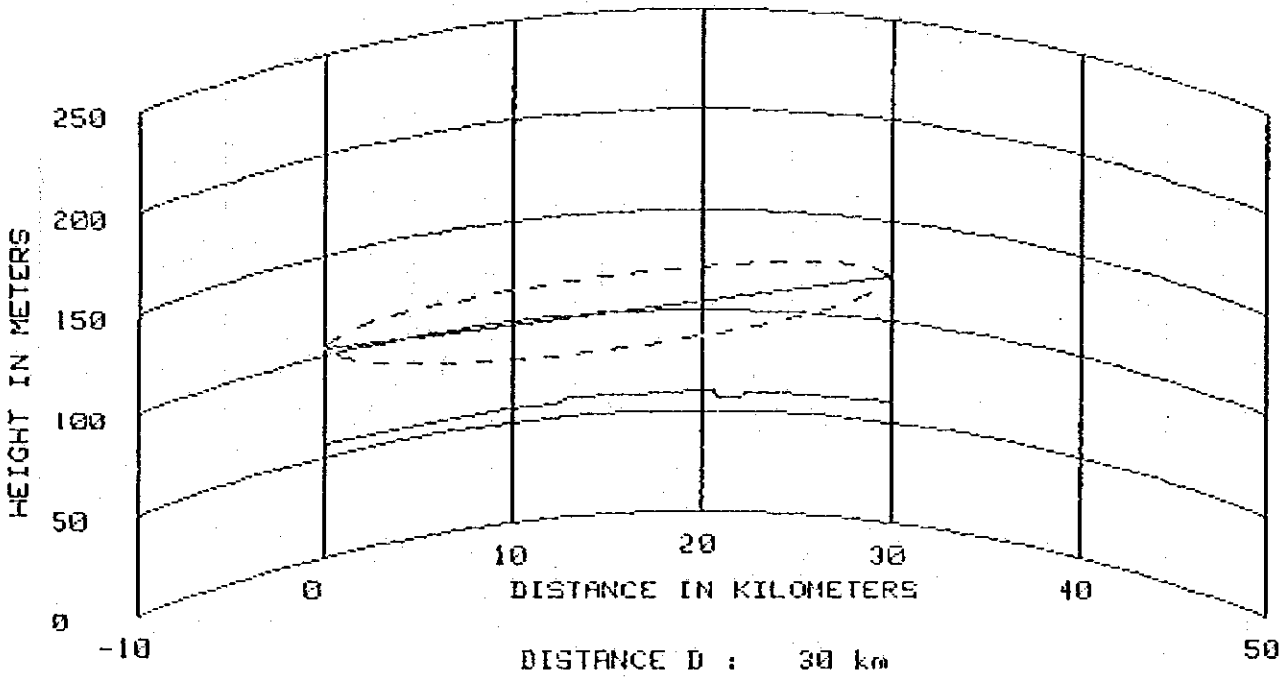
SITE 1 : R7(OINEIR)  
 GROUND ELEVATION: 54.0 m  
 ANTENNA HEIGHT: 48.0 m

SITE 2 : R8(TILIHAT)  
 GROUND ELEVATION: 56.0 m  
 ANTENNA HEIGHT: 48.0 m

```

#####
#
#           PATH CLEARANCE AND RIDGE LOSS           #
#
#   K       =      1.33                               #
#
#   F       =      6770 MHz ; (λ = 44 mm)           #
#
#   Hg1     =      54.0 m       Hg2     =      56.0 m   #
#   Ha1     =      48 m         Ha2     =      48 m     #
#
#   D1      =      13.0 km      D2      =      14.1 km   Hm =      55.0 m #
#   U       =      2.15                                               #
#
#   Lfs     =      137.7 dB                                           #
#
#####
    
```

PATH PROFILE ( 4/3 RADIUS )



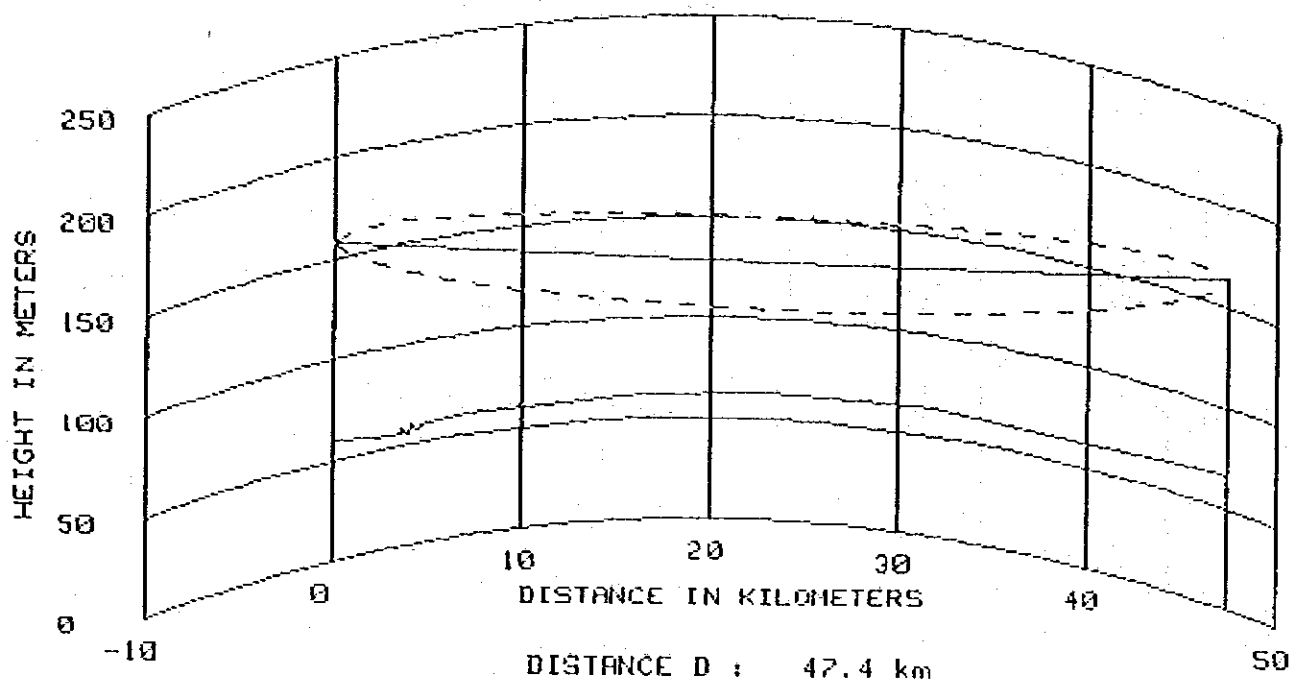
SITE 1 : R8(TILIHAT)  
 GROUND ELEVATION: 56.0 m  
 ANTENNA HEIGHT: 48.0 m

SITE 2 : SOHAG  
 GROUND ELEVATION: 60.0 m  
 ANTENNA HEIGHT: 62.0 m

```

#####
#
#          PATH CLEARANCE AND RIDGE LOSS          #
#
#  K      =      1.33                               #
#
#  F      =      6770 MHz : (λ = 44 mm)           #
#
#  Hg1    =      56.0 m      Hg2    =      60.0 m   #
#  Ha1    =      48 m       Ha2    =      62 m     #
#
#  D1     =      17.0 km    D2     =      13.0 km   #
#  U      =      2.28      Hm     =      60.0 m    #
#
#
#  Lfs    =      138.6 dB                          #
#
#####
    
```

# PATH PROFILE ( 4/3 RADIUS )



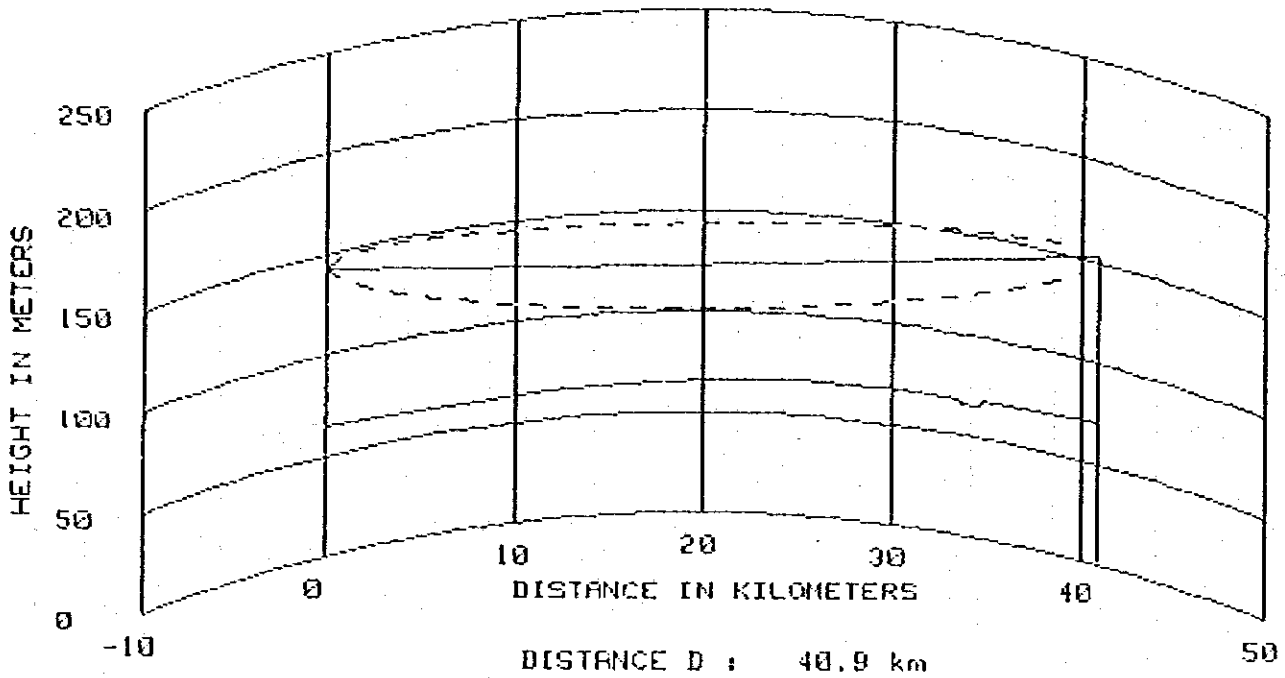
SITE 1 : SOHAG  
 GROUND ELEVATION: 60.0 m  
 ANTENNA HEIGHT: 98.0 m

SITE 2 : R9 (ABYDOS)  
 GROUND ELEVATION: 65.0 m  
 ANTENNA HEIGHT: 98.0 m

```

#####
#
#           PATH CLEARANCE AND RIDGE LOSS           #
#
#   K   =   1.33                                     #
#
#   F   =   6770 MHz : (λ = 44 m)                   #
#
#   Hg1 = 60.0 m   Hg2 = 65.0 m                     #
#   Ha1 = 98 m     Ha2 = 98 m                       #
#
#   D1  = 23.7 km   D2  = 23.7 km   Hm = 62.0 m    #
#   U   = 2.86                                           #
#
#   Lfs = 142.6 dB
#
#####
    
```

# PATH PROFILE ( 4/3 RADIUS )



SITE 1 : R9 (ABYDOS)

GROUND ELEVATION: 65.0 m

ANTENNA HEIGHT: 78.0 m

SITE 2 : R10 (EL QSAR)

GROUND ELEVATION: 68.0 m

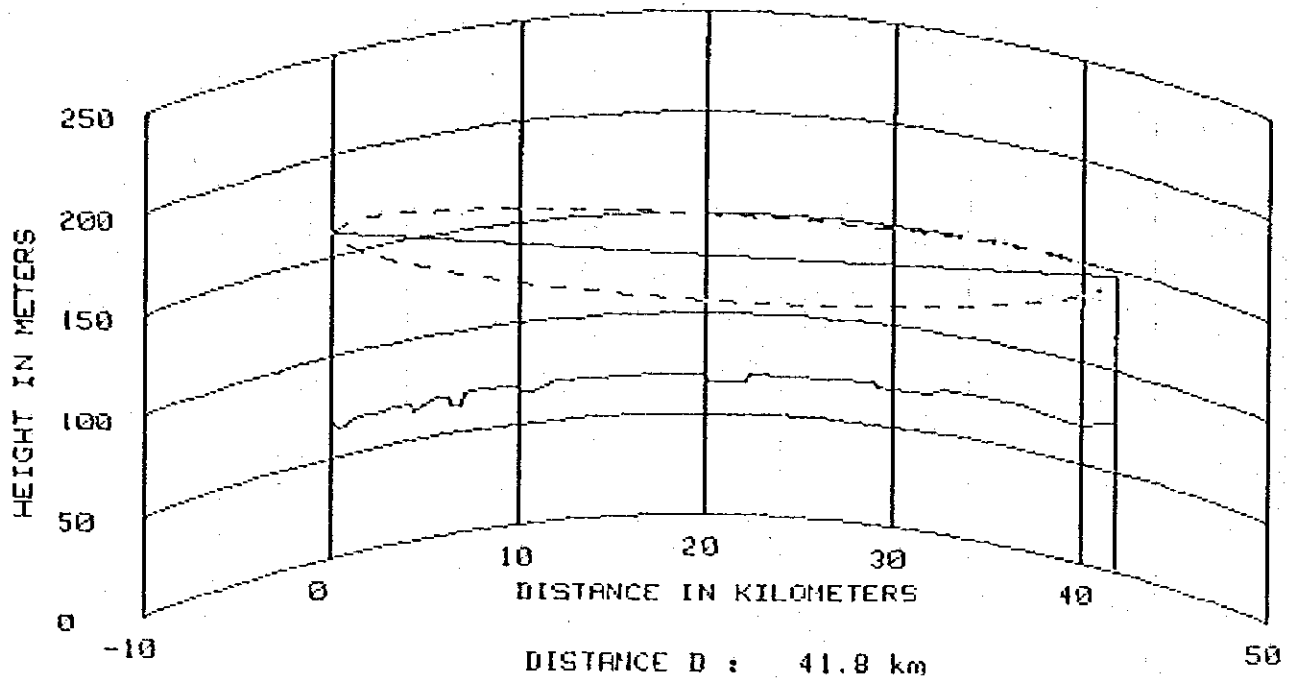
ANTENNA HEIGHT: 83.0 m

```

#####
#
#           PATH CLEARANCE AND RIDGE LOSS           #
#
#   K       =       1.33                             #
#
#   F       =       6770 MHz : (λ = 44 m)           #
#
#   Hg1     =       65.0 m       Hg2 = 68.0 m       #
#   Ha1     =       78.0 m       Ha2 = 83.0 m       #
#
#   D1      =       20.0 km       D2 = 20.9 km       Hm = 67.0 m #
#   U       =       2.60                                               #
#
#   Lfs     =       141.3 dB                                           #
#
#####
    
```



PATH PROFILE ( 4/3 RADIUS )



SITE 1 : RIOCEL OSAR)

GROUND ELEVATION: 68.0 m

ANTENNA HEIGHT: 93.0 m

SITE 2 : QENA

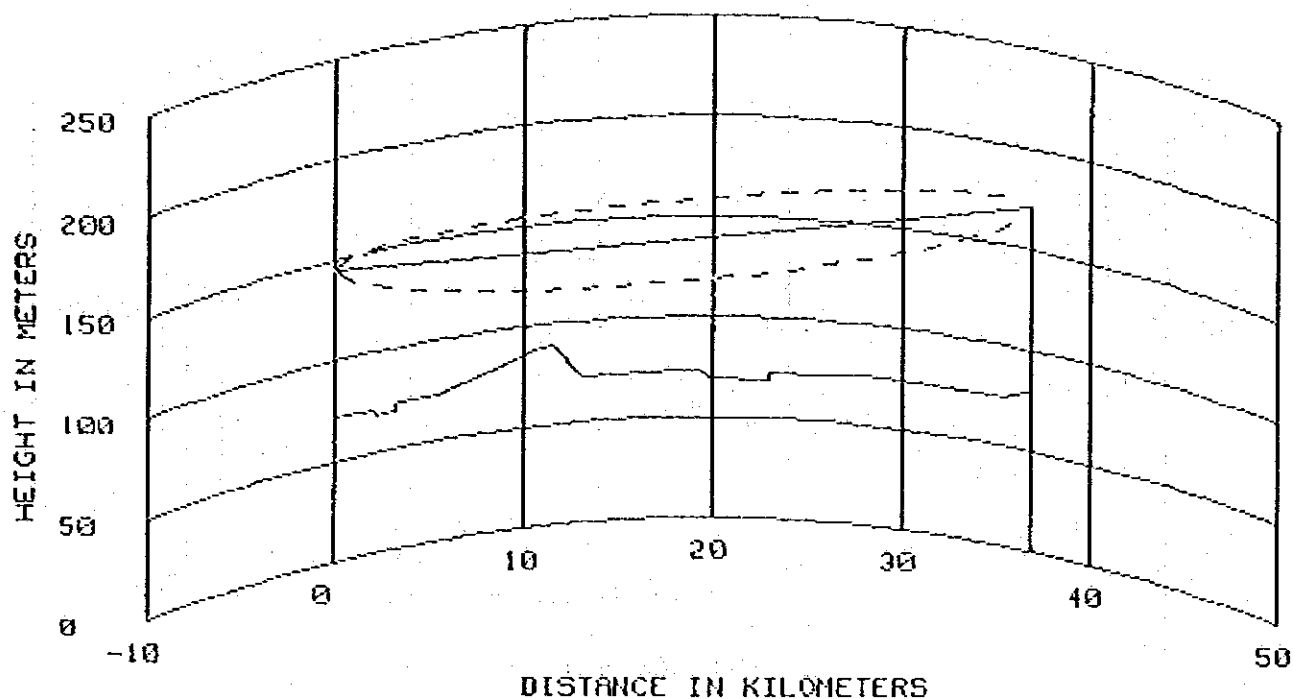
GROUND ELEVATION: 72.0 m

ANTENNA HEIGHT: 73.0 m

```

#####
#
#           PATH CLEARANCE AND RIDGE LOSS
#
#   K       =    1.33
#
#   F       =  6770  MHz : (λ = 44 mm)
#
#   Hg1     =  68.0  m   Hg2   =  72.0  m
#   Ha1     =  93.0  m   Ha2   =  73.0  m
#
#   D1      =  21.0  km   D2    =  20.8  km   Hm   =  70.0  m
#   U       =  2.66
#
#   Lfs     = 141.5 dB
#
#####
    
```

# PATH PROFILE ( 4/3 RADIUS )



DISTANCE IN KILOMETERS

DISTANCE : 36.8 km

SITE 1 : QENA

SITE 2 : R11(HE-AZA)

GROUND ELEVATION: 72.0 m

GROUND ELEVATION: 77.0 m

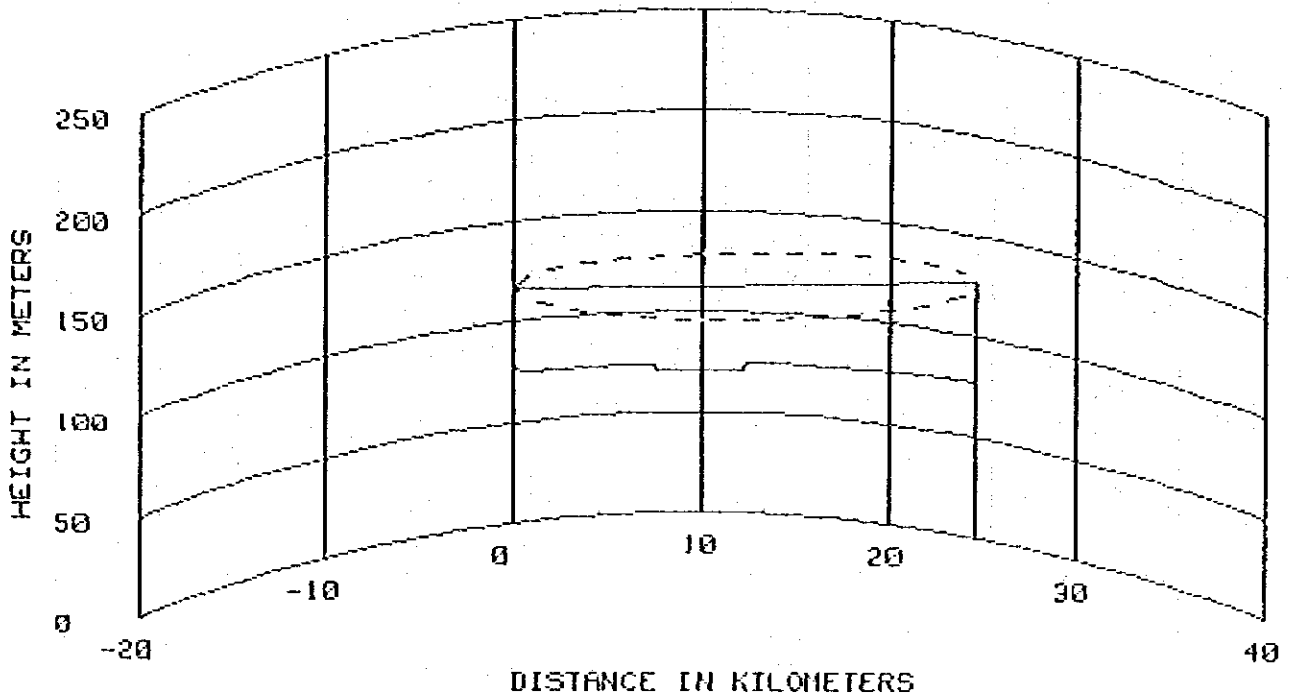
ANTENNA HEIGHT: 73.0 m

ANTENNA HEIGHT: 93.0 m

```

#####
#
#          PATH CLEARANCE AND RIDGE LOSS          #
#
#
#   K   =   1.33   #
#
#   F   =   6770 MHz ; (λ = 44 mm) #
#
#   Hg1 = 72.0 m   Hg2 = 77.0 m #
#   Ha1 = 73.0 m   Ha2 = 93.0 m #
#
#   D1  = 11.5 km   D2  = 25.3 km   Hm = 90.0 m #
#   U   = 2.44 #
#
#   Lfs = 140.4 dB #
#
#####
    
```

# PATH PROFILE ( 4/3 RADIUS )



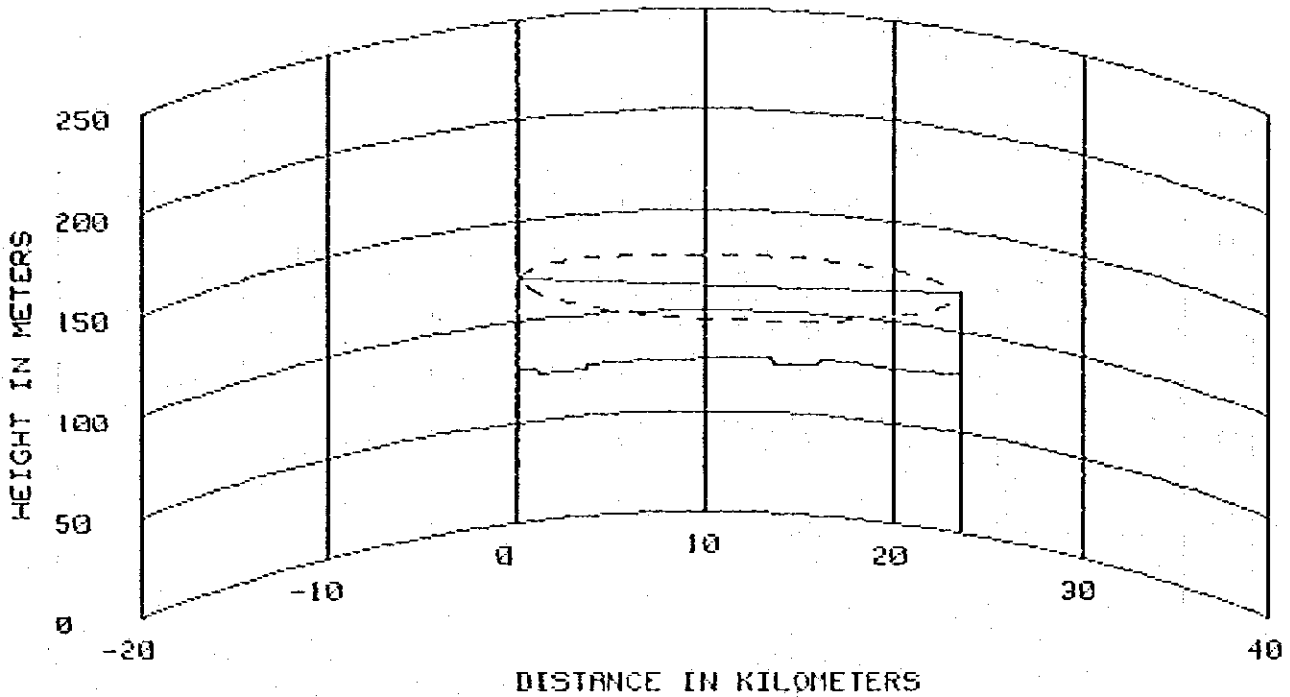
DISTANCE : 24.7 km

SITE 1 : RIH (HEGAZA)	SITE 2 : LUXOR
GROUND ELEVATION: 77.0 m	GROUND ELEVATION: 76.0 m
ANTENNA HEIGHT: 40.0 m	ANTENNA HEIGHT: 50.0 m

```

#####
#
#           PATH CLEARANCE AND RIDGE LOSS
#
#   K   =   1.33
#
#   F   =   6770 MHz ;   (λ = 44 m)
#
#   Hg1 = 77.0 m   Hg2 = 76.0 m
#   Ha1 = 40.0 m   Ha2 = 50.0 m
#
#   D1  = 14.2 km   D2  = 10.5 km   Hm = 75.0 m
#   U   = 2.35
#
#   Lfs = 136.9 dB
#
#####
    
```

# PATH PROFILE ( 4/3 RADIUS )



DISTANCE IN KILOMETERS

DISTANCE : 23.6 km

SITE 1 : LUXOR

SITE 2 : R12 (NAG-KHAMIS)

GROUND ELEVATION: 76.0 m

GROUND ELEVATION: 78.0 m

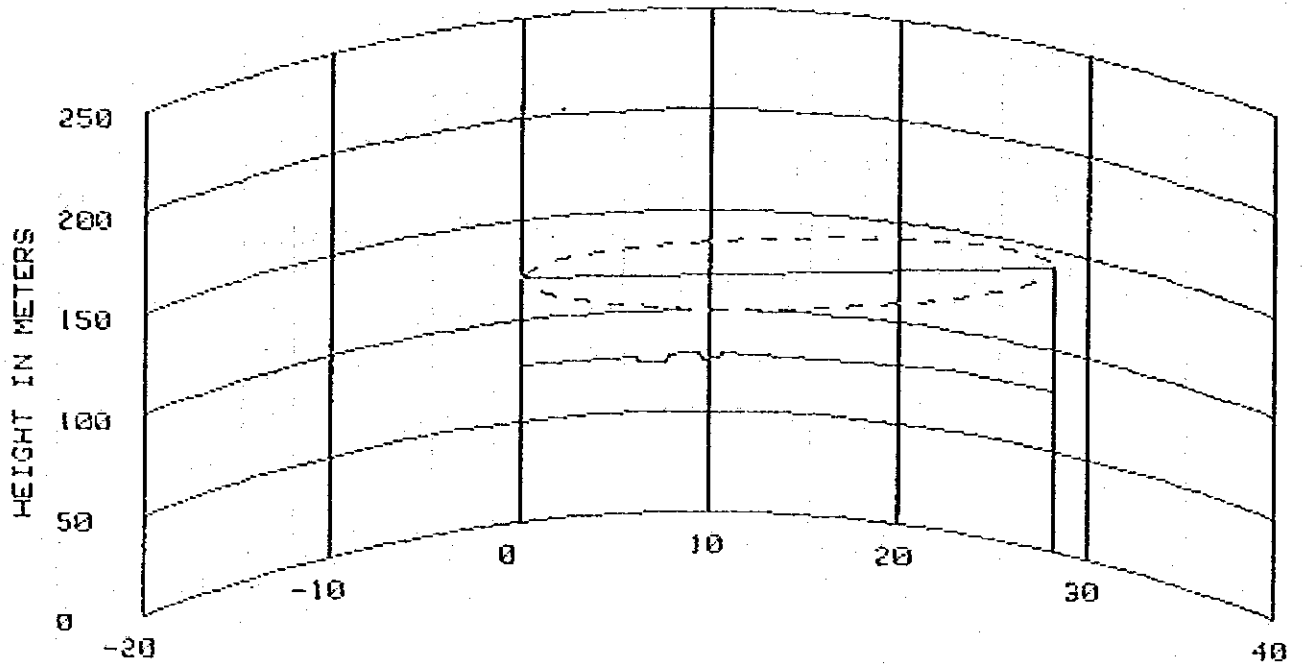
ANTENNA HEIGHT: 45.0 m

ANTENNA HEIGHT: 40.0 m

```

#####
#
#           PATH CLEARANCE AND RIDGE LOSS
#
#   K       =   1.33
#
#   F       =   6770 MHz : (λ = 44 mm)
#
#   Hg1    =   76.0 m   Hg2    =   78.0 m
#   Ha1    =   45.0 m   Ha2    =   40.0 m
#
#   D1     =   11.9 km   D2     =   11.7 km   Hm    =   77.9 m
#   U      =   2.12
#
#   Lfs    = 136.5 dB
#
#####
    
```

PATH PROFILE ( 4/3 RADIUS )



DISTANCE IN KILOMETERS

DISTANCE : 28.3 km

SITE 1 : R12 (NAG-KHA/S)

SITE 2 : R13 (S/A)

GROUND ELEVATION: 78.0 m

GROUND ELEVATION: 79.0 m

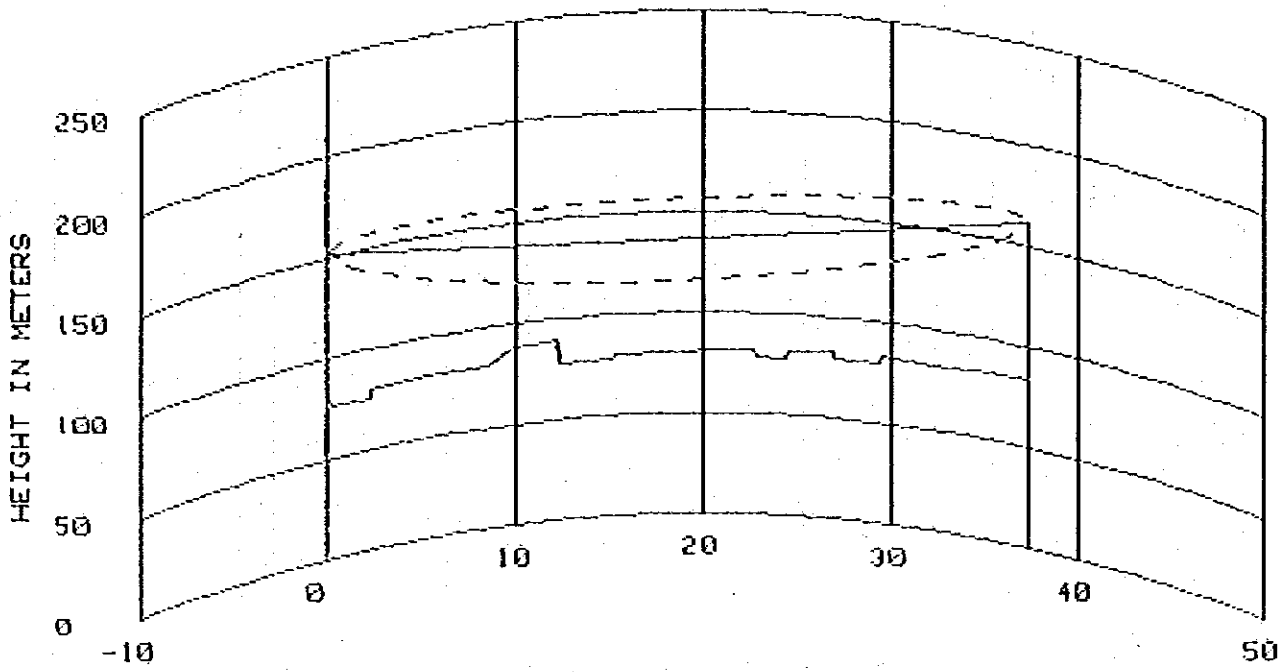
ANTENNA HEIGHT: 43.0 m

ANTENNA HEIGHT: 62.0 m

```

#####
#
#           PATH CLEARANCE AND RIDGE LOSS           #
#
#   K   =   1.33                                     #
#
#   F   =   6770 MHz : (λ = 44 m)                   #
#
#   Hg1 = 78.0 m   Hg2 = 79.0 m                     #
#   Ha1 = 43.0 m   Ha2 = 62.0 m                     #
#
#   D1  = 10.6 km   D2  = 17.7 km   Hm = 79.0 m    #
#   U   = 2.24                                           #
#
#   Lfs = 138.1 dB
#
#####
    
```

# PATH PROFILE ( 4/3 RADIUS )



DISTANCE IN KILOMETERS

DISTANCE : 37.3 km

SITE 1 : R13 (174)

SITE 2 : R14 (E-SAYDA)

GROUND ELEVATION: 79.0 m

GROUND ELEVATION: 83.0 m

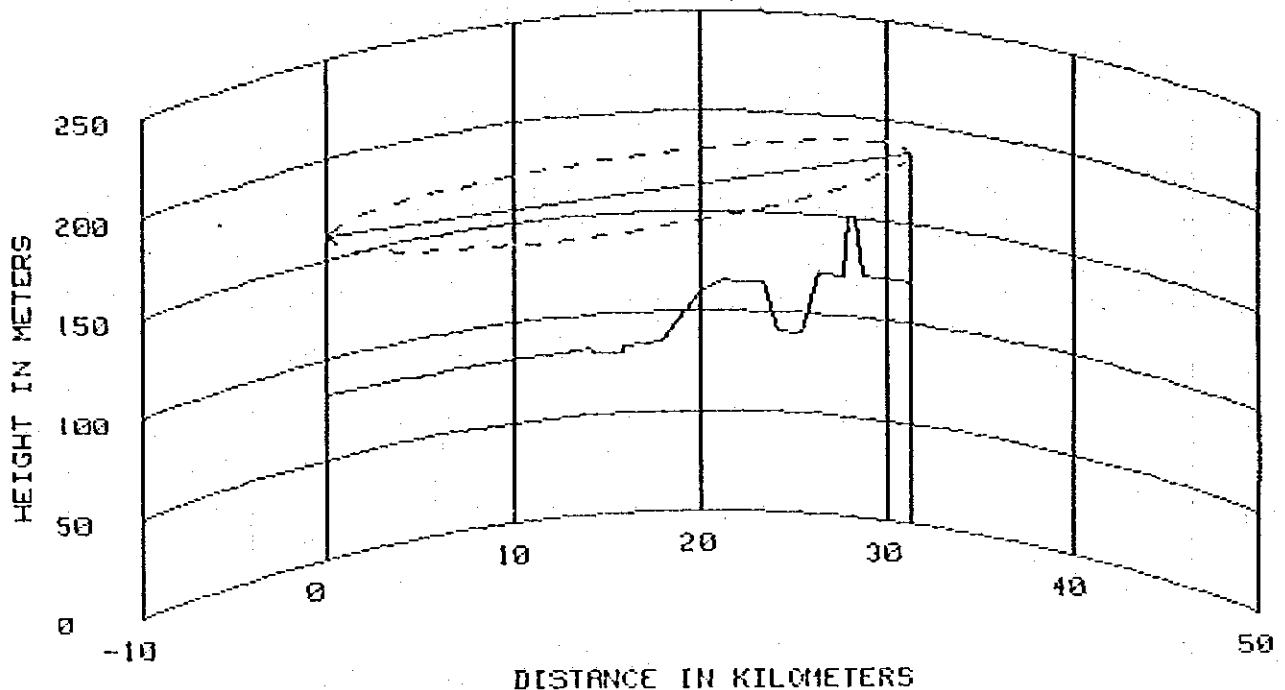
ANTENNA HEIGHT: 73.0 m

ANTENNA HEIGHT: 78.0 m

```

#####
#
#           PATH CLEARANCE AND RIDGE LOSS           #
#
#   K       =       1.33                               #
#
#   F       =       6770 MHz : (λ = 44 m)           #
#
#   Hg1    =       79.0 m       Hg2    =       83.0 m   #
#   Ha1    =       73.0 m       Ha2    =       78.0 m   #
#
#   D1     =       12.2 km      D2     =       25.1 km   Hm =       90.0 m #
#   U      =       2.46                                               #
#
#   Lfs    =       140.5 dB                                           #
#
#####
    
```

PATH PROFILE ( 4/3 RADIUS )



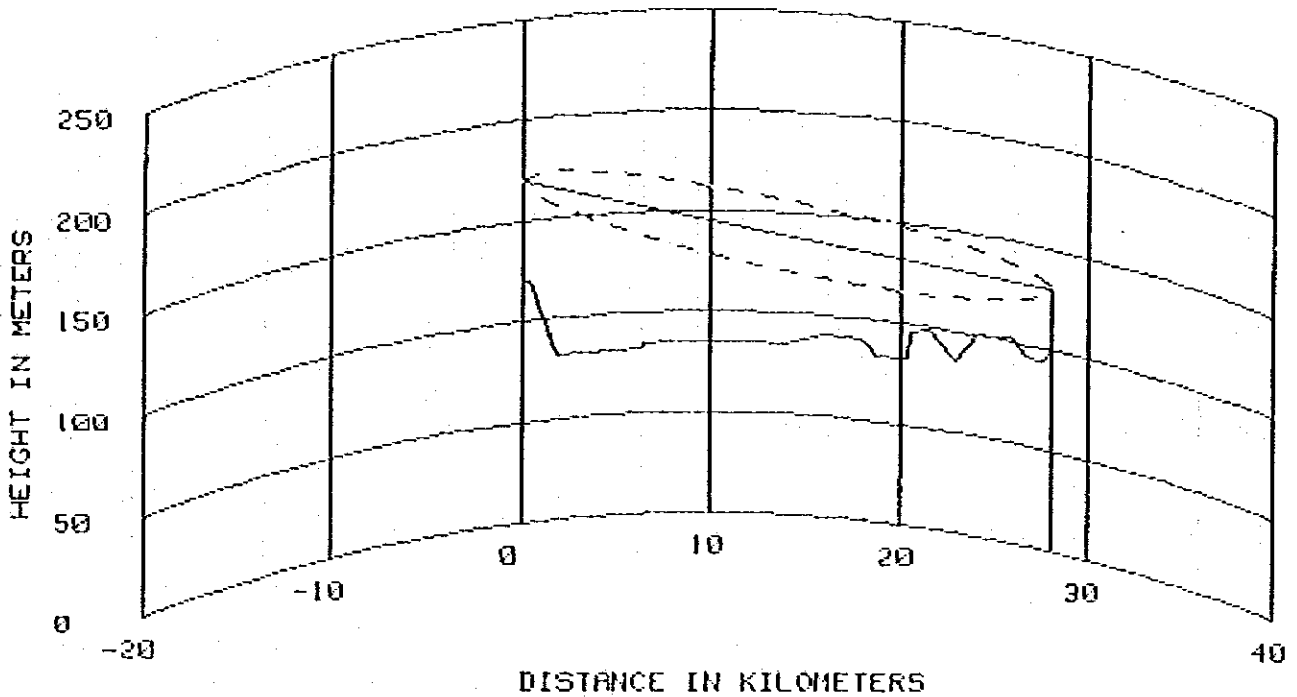
DISTANCE : 31.3 km

SITE 1 : R14 (EL-SAYLA)	SITE 2 : R15
GROUND ELEVATION: 83.0 m	GROUND ELEVATION: 120.0 m
ANTENNA HEIGHT: 78.0 m	ANTENNA HEIGHT: 65.0 m

```

#####
#                                     #
#           PATH CLEARANCE AND RIDGE LOSS           #
#                                     #
#   K   =   1.33                                     #
#                                     #
#   F   =   6770 MHz ; (λ = 44 mm)                 #
#                                     #
#   Hg1 = 83.0 m   Hg2 = 120.0 m                   #
#   Ha1 = 78.0 m   Ha2 = 65.0 m                   #
#                                     #
#   D1  = 28.0 km   D2  = 3.3 km   Hm = 150.0 m   #
#   U   = 2.36                                           #
#                                     #
#   Lfs = 139.0 dB                                       #
#                                     #
#####
    
```

# PATH PROFILE ( 4/3 RADIUS )



DISTANCE IN KILOMETERS  
 DISTANCE : 28.1 km

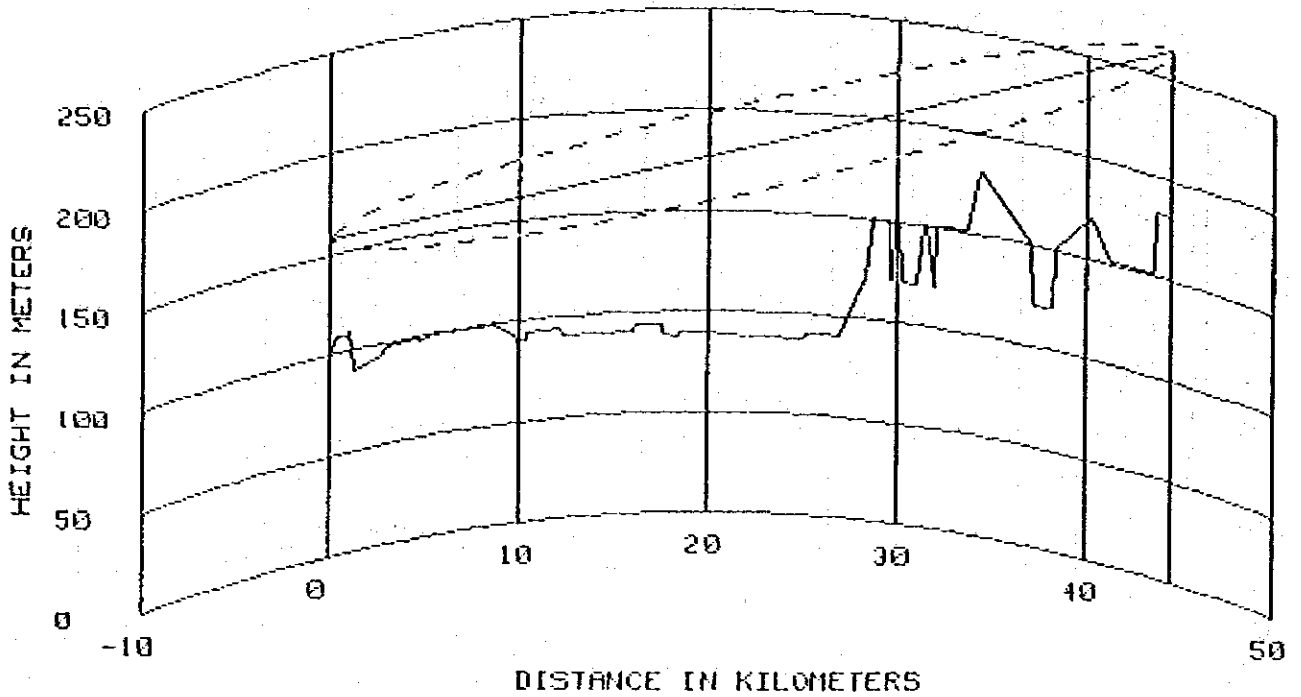
SITE 1 : R15	SITE 2 : R16
GROUND ELEVATION: 120.0 m	GROUND ELEVATION: 100.0 m
ANTENNA HEIGHT: 50.0 m	ANTENNA HEIGHT: 30.0 m

```

#####
#
#           PATH CLEARANCE AND RIDGE LOSS           #
#
#   K       =       1.33                             #
#
#   F       =       6770 MHz : (λ = 44 mm)          #
#
#   Hg1     =       120.0 m       Hg2 = 100.0 m      #
#   Ha1     =       50.0 m       Ha2 = 30.0 m      #
#
#   D1      =       21.6 km       D2  = 6.5 km      #
#   U       =       2.22         Hm  = 98.0 m      #
#
#   Lfs     =       138.0 dB
#
#####
    
```



# PATH PROFILE ( 4/3 RADIUS )



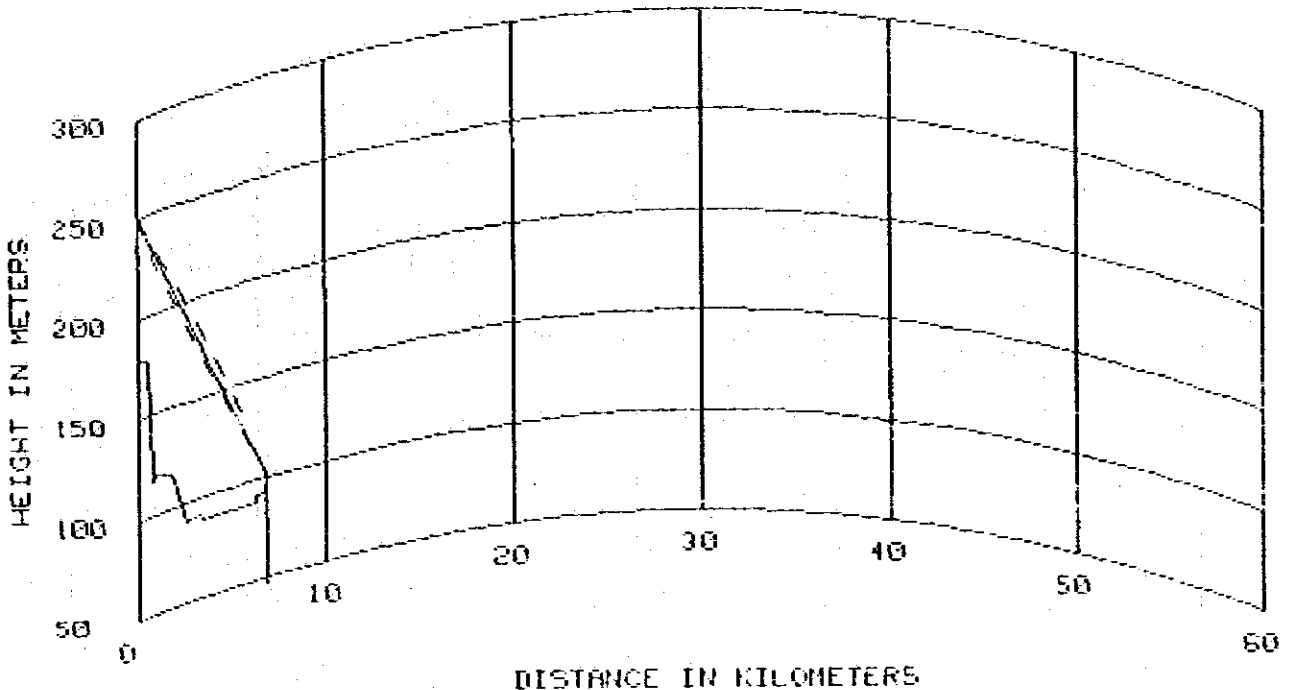
DISTANCE : 44.5 km

SITE 1 : R16	SITE 2 : A WILHIA
GROUND ELEVATION: 100.0 m	GROUND ELEVATION: 180.0 m
ANTENNA HEIGHT: 50.0 m	ANTENNA HEIGHT: 83.0 m

```

#####
#
#           PATH CLEARANCE AND RIDGE LOSS           #
#
#   K       =       1.33                             #
#
#   F       =       6770 MHz : (λ = 44 mm)          #
#
#   Hg1     =       100.0 m       Hg2 = 180.0 m     #
#   Ha1     =       58.0 m       Ha2 = 83.0 m     #
#
#   D1      =       34.4 km       D2  = 10.1 km     #
#   U       =       2.08         Hm  = 180.0 m     #
#
#
#   Lfs     =       142.0 dB
#
#####
    
```

PATH PROFILE (4/3 RADIUS)



DISTANCE IN KILOMETERS  
 DISTANCE : 6.9 km

SITE 1 : ASWAN BRANCH

SITE 2 : Aswan

GROUND ELEVATION: 180.0 m

GROUND ELEVATION: 94.0 m

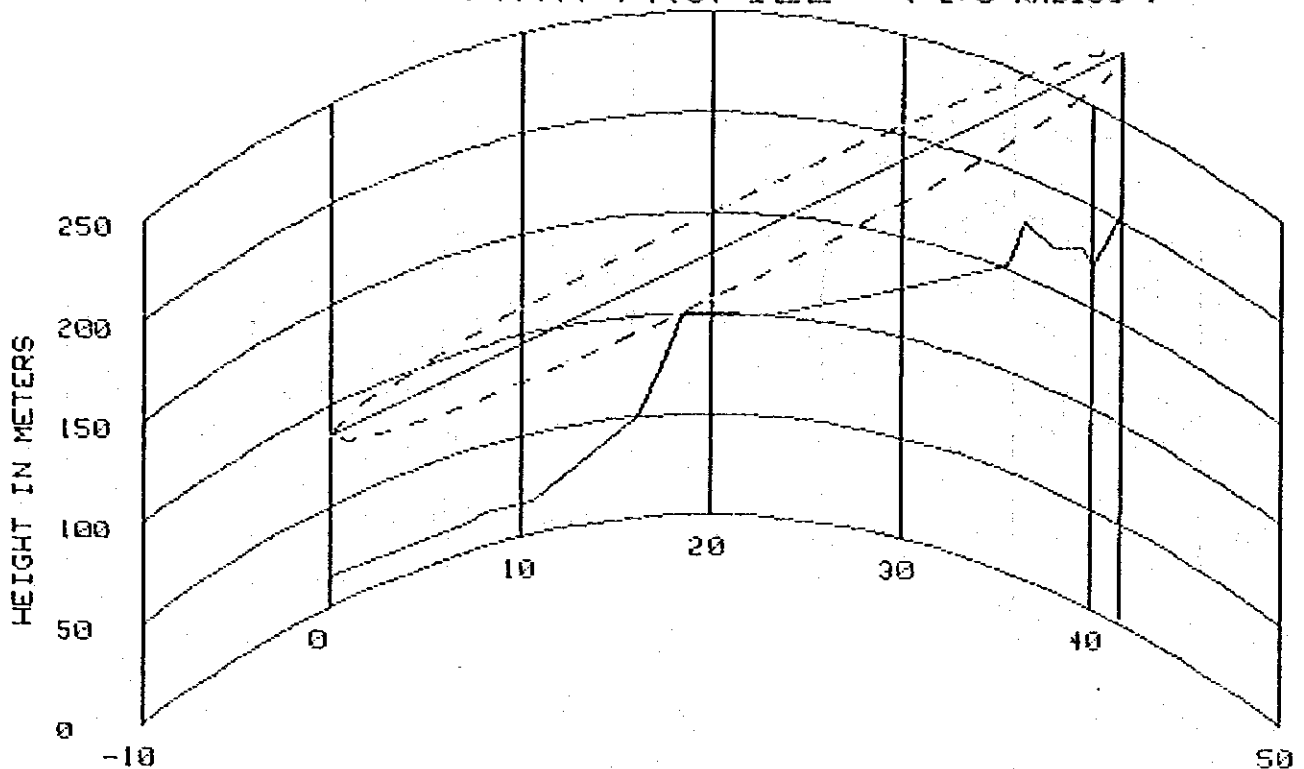
ANTENNA HEIGHT: 70.0 m

ANTENNA HEIGHT: 10.0 m

```

#####
#
#          PATH CLEARANCE AND RIDGE LOSS
#
#
#   K      =      1.33
#
#   F      = 15000 MHz ; (A = 20 m)
#
#   Hg1    = 180.0 m      Hg2    = 94.0 m
#   Ha1    = 70.0 m      Ha2    = 10.0 m
#
#   D1     = 6.4 km      D2     = 0.5 km      Hm = 93.0 m
#   U      = 7.02
#
#
#   Lfs    = 132.8 dB
#
#####
    
```

# PATH PROFILE ( 2/3 RADIUS )



DISTANCE IN KILOMETERS

DISTANCE D : 41.6 km

SITE 1 : CAIRO

SITE 2 : RI

GROUND ELEVATION: 15.0 m

GROUND ELEVATION: 200.0 m

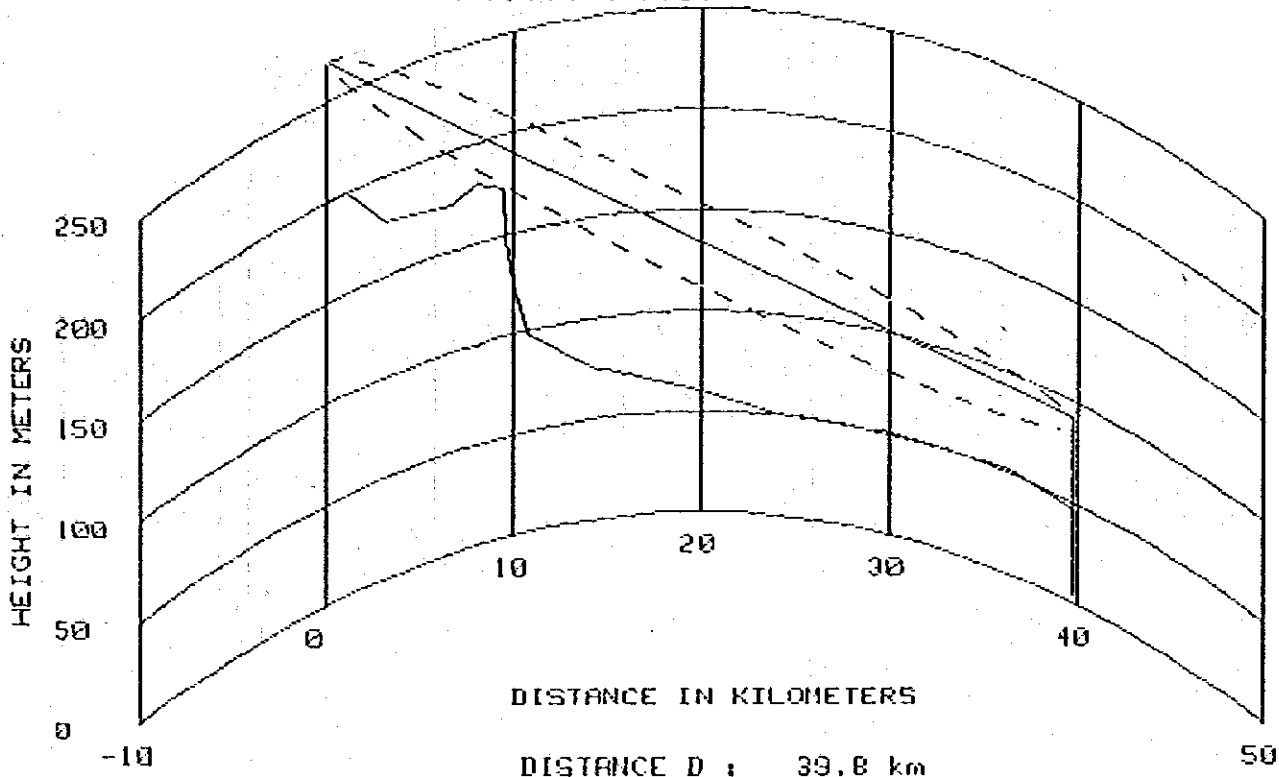
ANTENNA HEIGHT: 70.0 m

ANTENNA HEIGHT: 81.0 m

```

#####
#
#           PATH CLEARANCE AND RIDGE LOSS           #
#
# K = .67 #
#
# F = 6770 MHz : (λ = 44 mm) #
#
# Hg1 = 15.0 m   Hg2 = 200.0 m #
# Ha1 = 70 m     Ha2 = 81 m #
#
# D1 = 18.4 km   D2 = 23.2 km   Hm = 100.0 m #
# U = 1.01 #
#
# Lfs = 141.5 dB #
#
#####
    
```

PATH PROFILE ( 2/3 RADIUS )



SITE 1 : R1

GROUND ELEVATION: 200.0 m

ANTENNA HEIGHT: 70.0 m

SITE 2 : R2

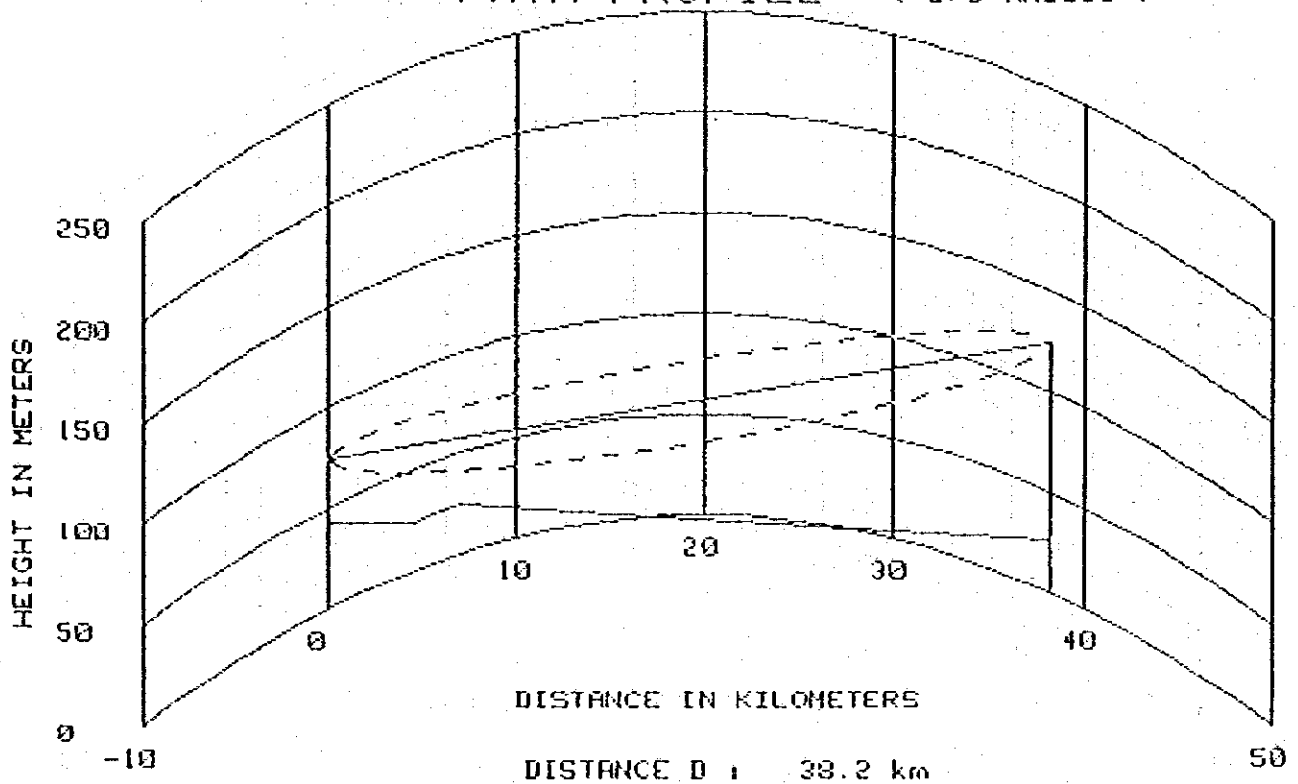
GROUND ELEVATION: 43.0 m

ANTENNA HEIGHT: 46.0 m

```

#####
#
#           PATH CLEARANCE AND RIDGE LOSS
#
#   K       =      .67
#
#   F       =  6770  MHz : (λ =  44  mm)
#
#   Hg1     =  200.0  m      Hg2     =  43.0  m
#   Ha1     =   70    m      Ha2     =   46   m
#
#   D1      =   9.5  km      D2      =  30.3  km      Hm     =  175.0  m
#   U       =   1.00
#
#   Lfs     =  141.1  dB
#
#####
    
```

# PATH PROFILE ( 2/3 RADIUS )

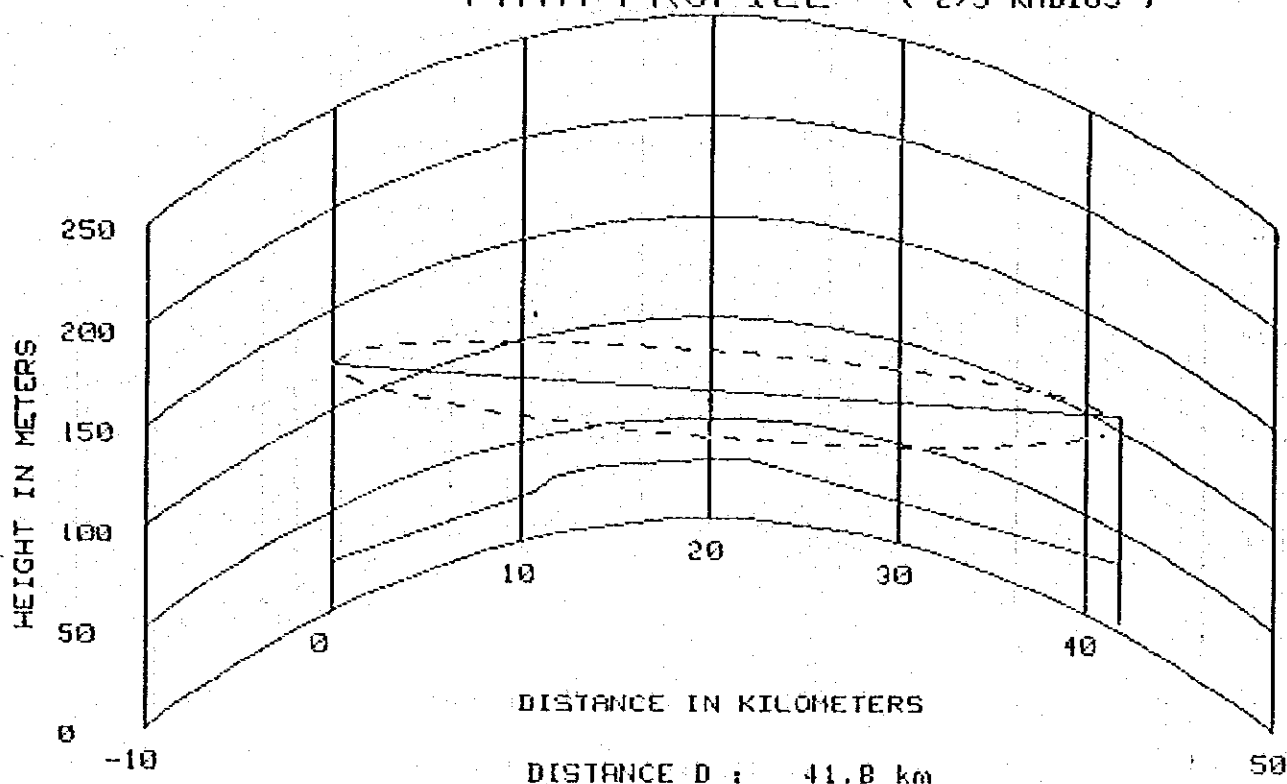


SITE 1 : R2	SITE 2 : BENISUEF
GROUND ELEVATION: 43.0 m	GROUND ELEVATION: 25.0 m
ANTENNA HEIGHT: 31.0 m	ANTENNA HEIGHT: 98.0 m

```

#####
#                                     #
#           PATH CLEARANCE AND RIDGE LOSS           #
#                                     #
#   K   =   .67                                     #
#                                     #
#   F   =   6770 MHz : (λ = 44 mm)                 #
#                                     #
#   Hg1 = 43.0 m   Hg2 = 25.0 m                   #
#   Ha1 = 31.0 m   Ha2 = 98.0 m                   #
#                                     #
#   D1  = 19.1 km   D2  = 19.1 km   Hm = 25.0 m   #
#   U   = 1.43                                           #
#                                     #
#   Lfs = 140.7 dB                                       #
#                                     #
#####
    
```

# PATH PROFILE ( 2/3 RADIUS )



SITE 1 : BENISUEF

GROUND ELEVATION: 25.0 m

ANTENNA HEIGHT: 98.0 m

SITE 2 : R3(EKFHES)

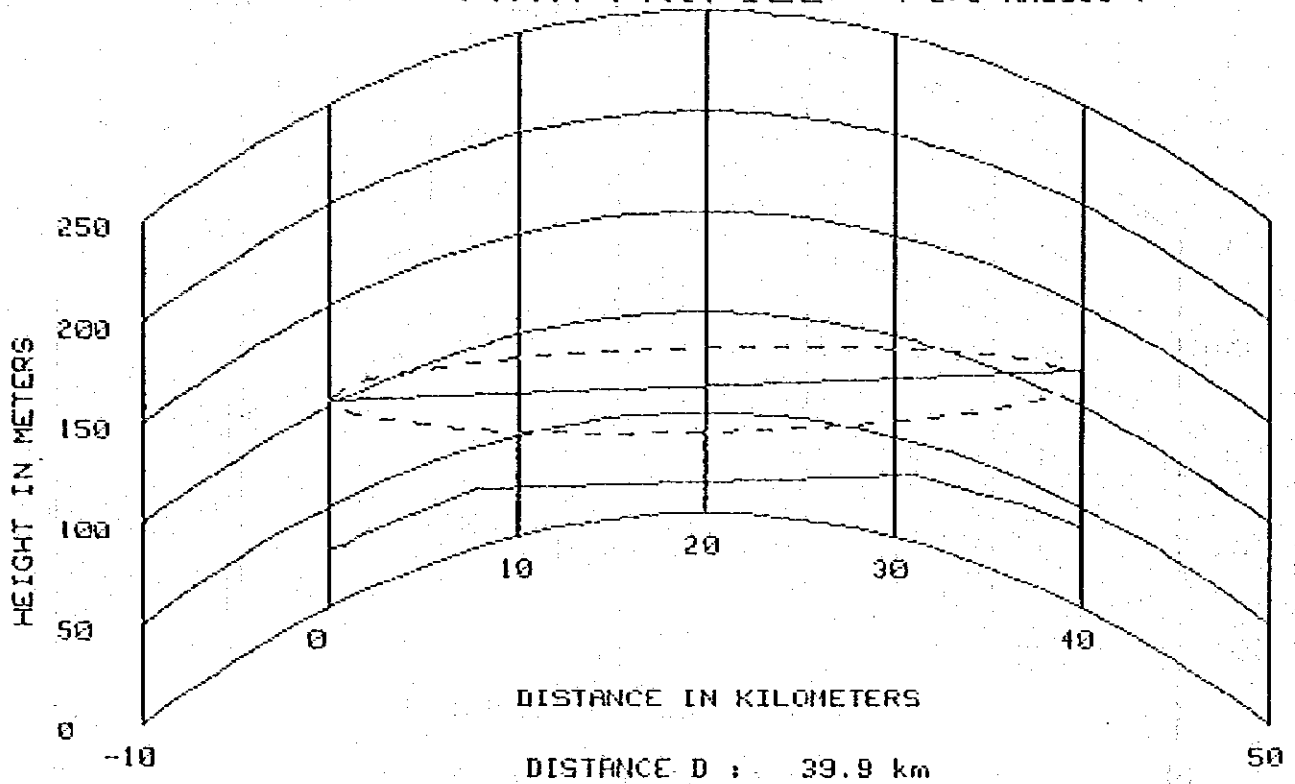
GROUND ELEVATION: 30.0 m

ANTENNA HEIGHT: 73.0 m

```

#####
#
#           PATH CLEARANCE AND RIDGE LOSS           #
#
# K = .67 #
#
# F = 6770 MHz ; (λ = 44 mm) #
#
# Hg1 = 25.0 m   Hg2 = 30.0 m #
# Ha1 = 98 m     Ha2 = 73 m   #
#
# D1 = 20.9 km   D2 = 20.9 km   Hm = 30.0 m #
# U = 1.47 #
#
# Lfs = 141.5 dB #
#
#####
    
```

# PATH PROFILE ( 2/3 RADIUS )



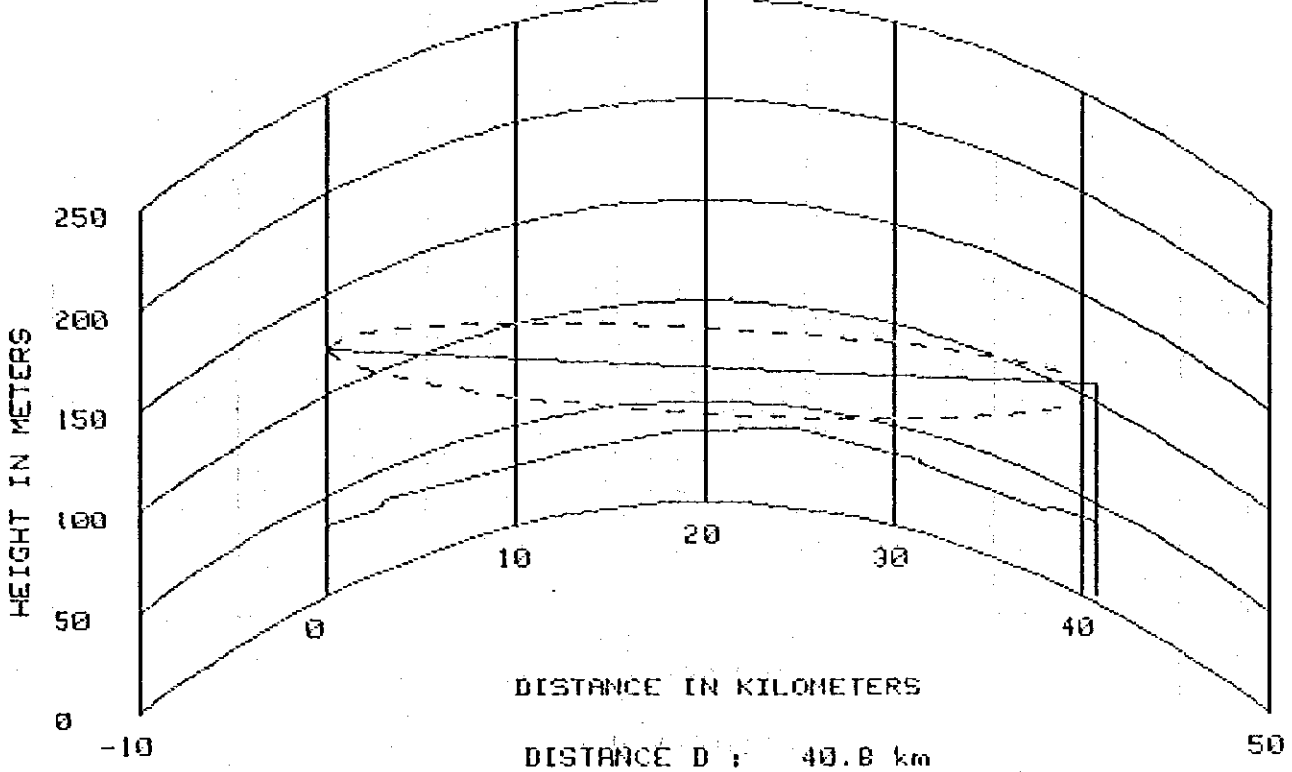
SITE 1 : R3(EKFHES)  
 GROUND ELEVATION: 30.0 m  
 ANTENNA HEIGHT: 73.0 m

SITE 2 : R4(HELOR)  
 GROUND ELEVATION: 35.0 m  
 ANTENNA HEIGHT: 78.0 m

```

#####
#
#           PATH CLEARANCE AND RIDGE LOSS
#
#
#   K       =      .67
#
#   F       =      6770 MHz ; (λ = 44 m)
#
#   Hg1     =      30.0 m      Hg2     =      35.0 m
#   Ha1     =      73 m       Ha2     =      78 m
#
#   D1      =      20.0 km     D2      =      19.9 km     Hm     =      30.0 m
#   U       =      1.48
#
#   Lfs     =      141.1 dB
#
#####
    
```

# PATH PROFILE ( 2/3 RADIUS )



SITE 1 : R4(HELOR)  
 GROUND ELEVATION: 35.0 m  
 ANTENNA HEIGHT: 88.0 m

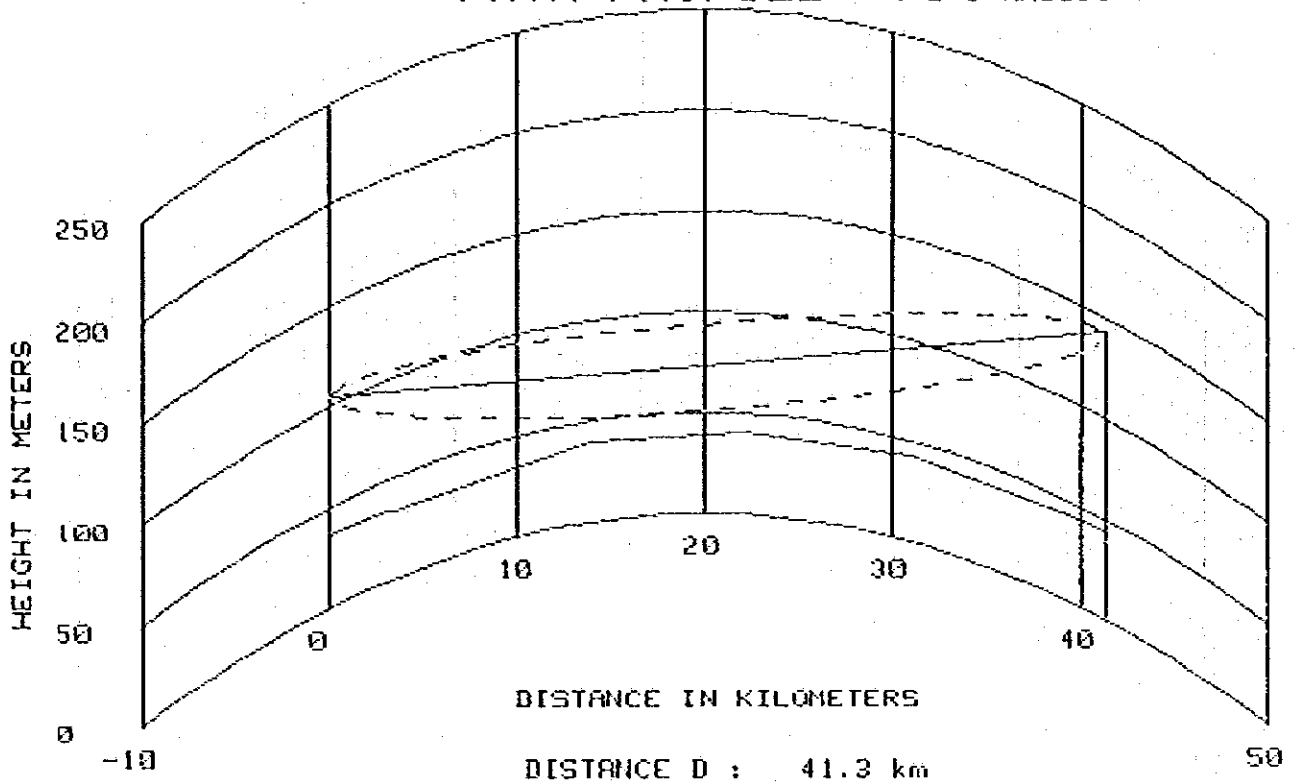
SITE 2 : EL MINYA  
 GROUND ELEVATION: 37.0 m  
 ANTENNA HEIGHT: 68.0 m

```

#####
#
#           PATH CLEARANCE AND RIDGE LOSS
#
#   K       =      .67
#
#   F       =  6770  MHz ; (λ =  44  mm)
#
#   Hg1     =  35.0  m      Hg2     =  37.0  m
#   Ha1     =  88    m      Ha2     =  68    m
#
#   D1      =  20.4  km     D2      =  20.4  km     Hm     =  35.0  m
#   U       =  1.41
#
#   Lfs     = 141.3 dB
#
#####
    
```



# PATH PROFILE ( 2/3 RADIUS )



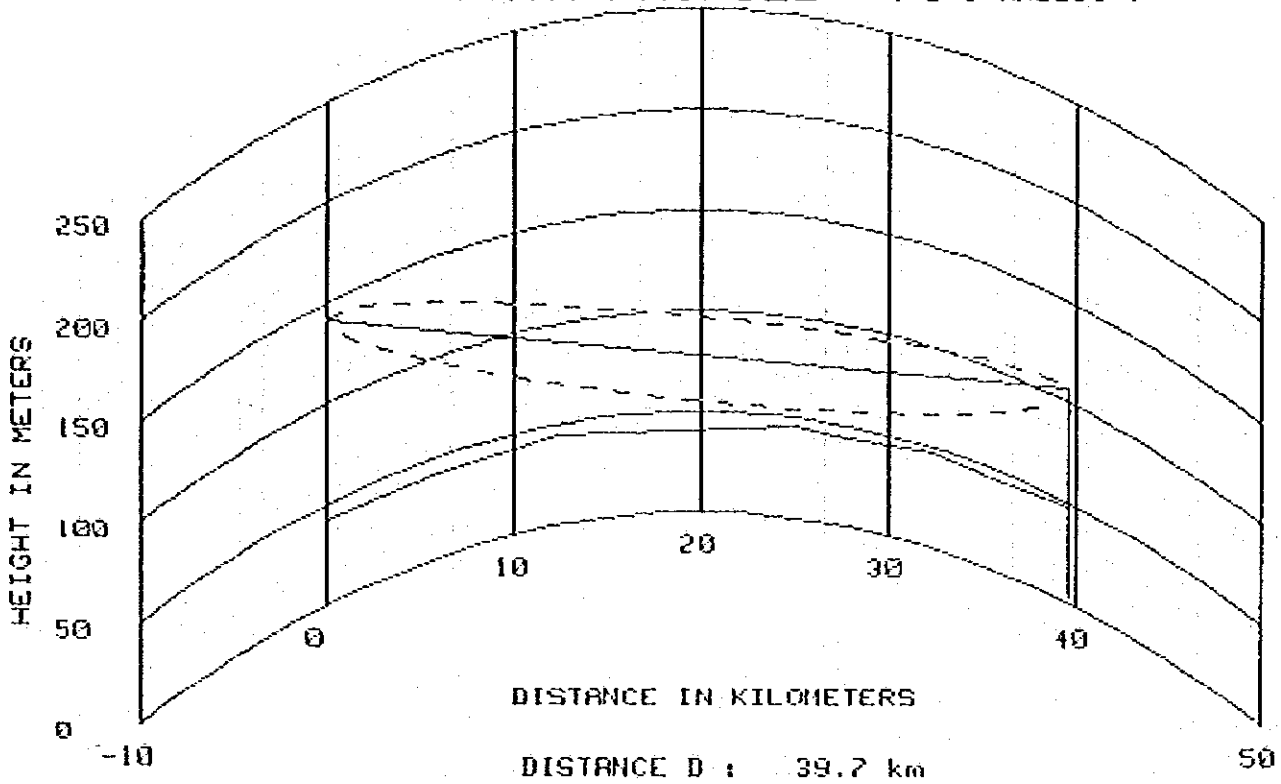
SITE 1 : EL MINYA  
 GROUND ELEVATION: 37.0 m  
 ANTENNA HEIGHT: 68.0 m

SITE 2 : RS(DEROUWA)  
 GROUND ELEVATION: 43.0 m  
 ANTENNA HEIGHT: 98.0 m

```

#####
#
#           PATH CLEARANCE AND RIDGE LOSS
#
# K = .67
#
# F = 6770 MHz ; (λ = 44 mm)
#
# Hg1 = 37.0 m   Hg2 = 43.0 m
# Ha1 = 68 m    Ha2 = 98 m
#
# D1 = 18.0 km   D2 = 23.3 km   Hm = 42.0 m
# U = 1.38
#
# Lfs = 141.4 dB
#
#####
    
```

# PATH PROFILE ( 2/3 RADIUS )



SITE 1 : R5 (DEROUNA)

GROUND ELEVATION: 43.0 m

ANTENNA HEIGHT: 98.0 m

SITE 2 : R6 (BARUTO)

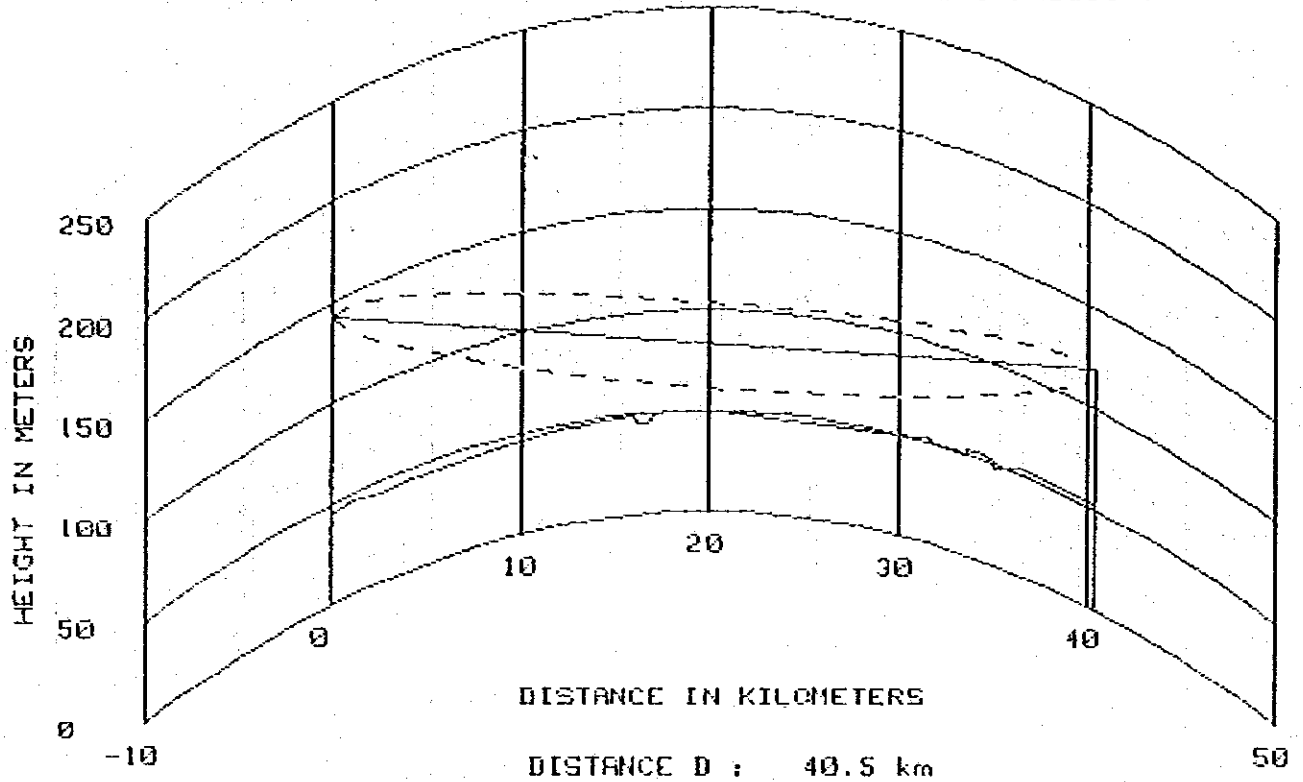
GROUND ELEVATION: 45.0 m

ANTENNA HEIGHT: 59.0 m

```

#####
#
#           PATH CLEARANCE AND RIDGE LOSS           #
#
#   K   =   .67                                     #
#
#   F   =   6770 MHz : (λ = 44 m)                   #
#
#   Hg1 = 43.0 m   Hg2 = 45.0 m                     #
#   Ha1 = 98 m     Ha2 = 59 m                       #
#
#   D1  = 20.0 km   D2  = 19.7 km   Hm = 45.0 m    #
#   U   = 1.48                                           #
#
#   Lfs = 141.0 dB
#
#####
    
```

# PATH PROFILE ( 2/3 RADIUS )



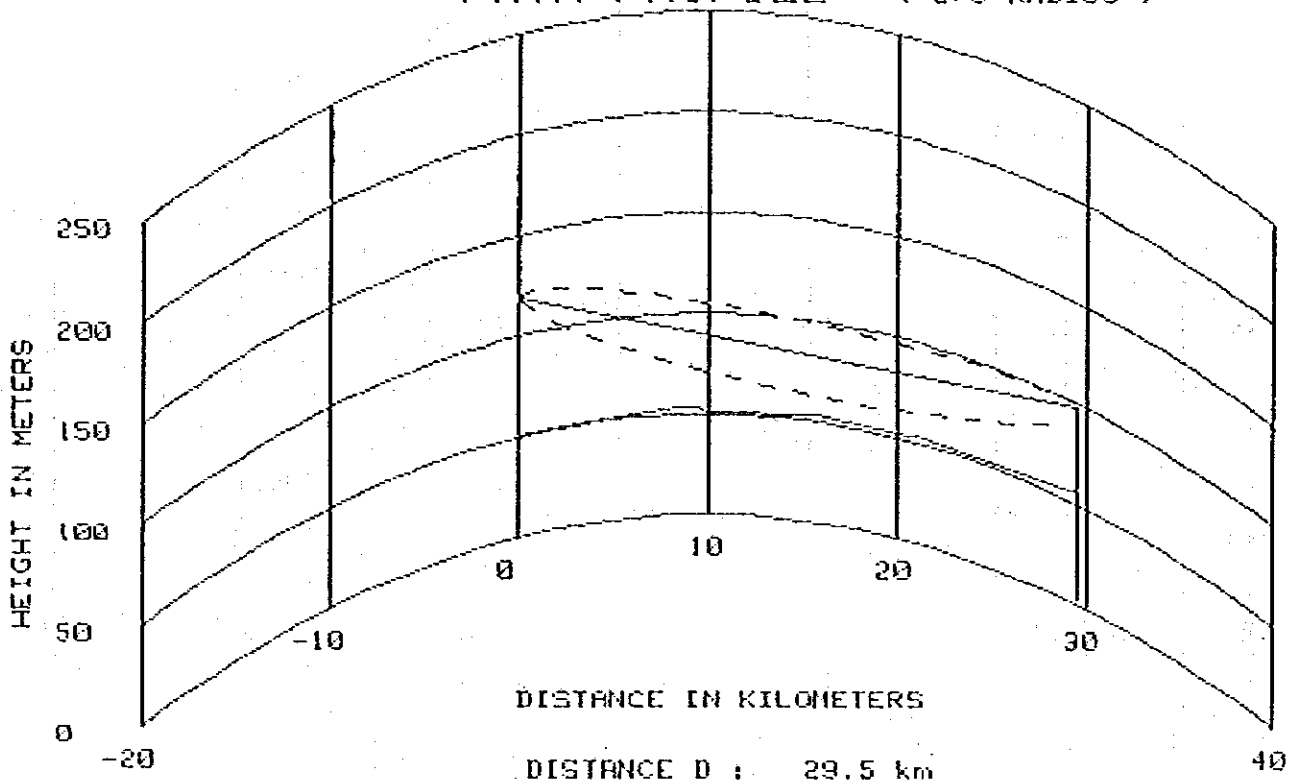
SITE 1 : R6(BARUTO)  
 GROUND ELEVATION: 45.0 m  
 ANTENNA HEIGHT: 98.0 m

SITE 2 : ASYUT  
 GROUND ELEVATION: 51.0 m  
 ANTENNA HEIGHT: 67.0 m

```

#####
#
#           PATH CLEARANCE AND RIDGE LOSS           #
#
# K = .67 #
#
# F = 6770 MHz : (λ = 44 mm) #
#
# Hg1 = 45.0 m   Hg2 = 51.0 m #
# Ha1 = 98 m     Ha2 = 67 m   #
#
# D1 = 23.0 km   D2 = 17.5 km   Hm = 50.0 m #
# U = 1.50 #
#
# Lfs = 141.2 dB #
#
#####
    
```

# PATH PROFILE ( 2/3 RADIUS )



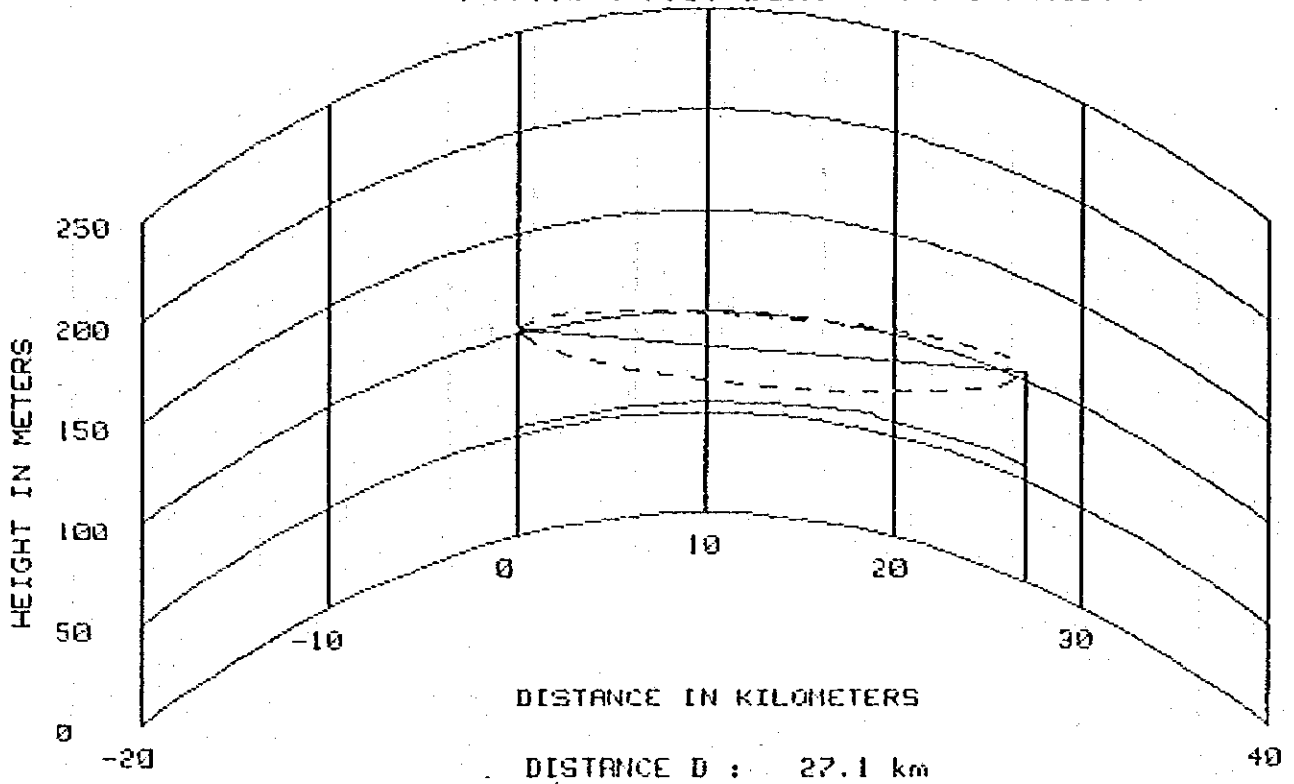
SITE 1 : ASYUT  
 GROUND ELEVATION: 51.0 m  
 ANTENNA HEIGHT: 68.0 m

SITE 2 : R7(EL DIWEIR)  
 GROUND ELEVATION: 54.0 m  
 ANTENNA HEIGHT: 41.0 m

```

#####
#
#           PATH CLEARANCE AND RIDGE LOSS           #
#
#   K       =       .67                               #
#
#   F       =       6770 MHz ; (λ = 44 mm)           #
#
#   Hg1     =       51.0 m       Hg2 = 54.0 m       #
#   Ha1     =       68 m        Ha2 = 41 m          #
#
#   D1      =       17.0 km      D2 = 12.5 km      Hm = 52.0 m #
#   U       =       1.58                                               #
#
#   Lfs     =       138.5 dB                                           #
#
#####
    
```

# PATH PROFILE ( 2/3 RADIUS )



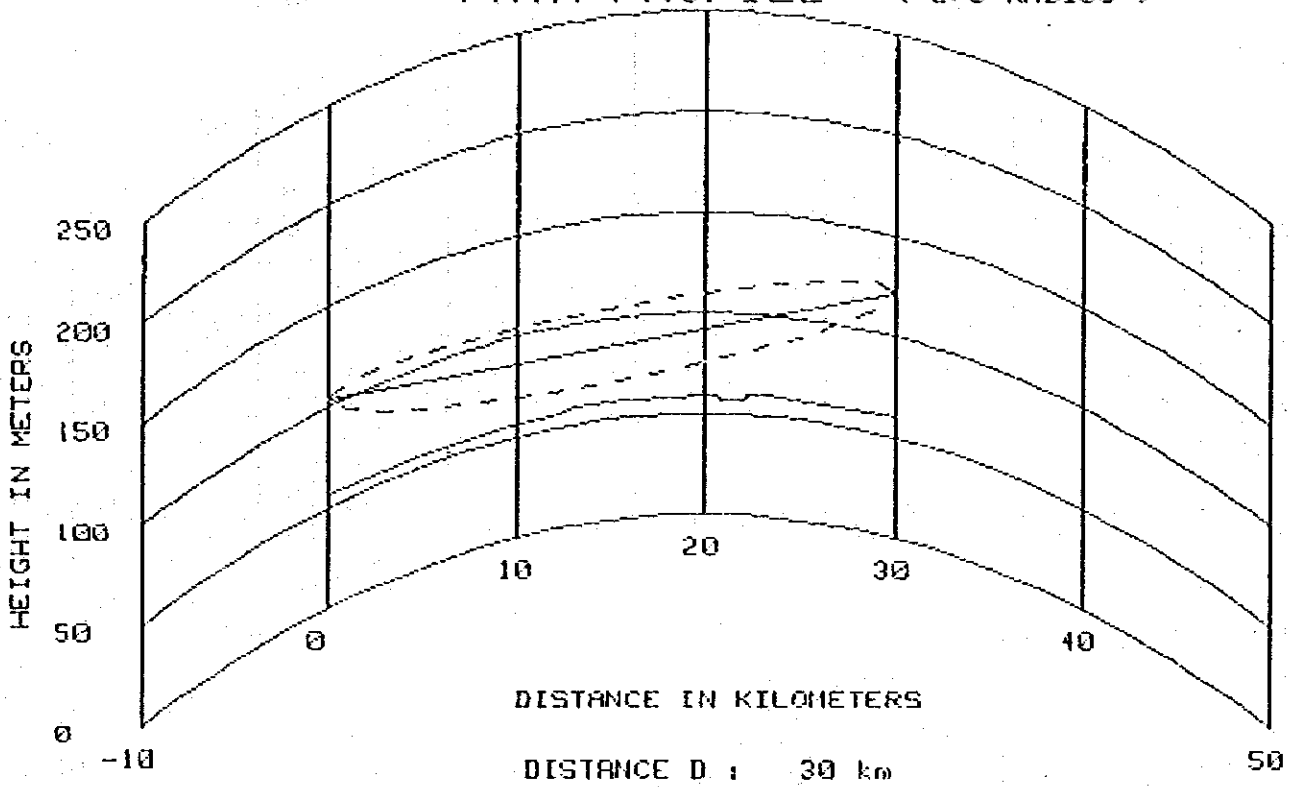
SITE 1 : R7(EL OINEIR)  
 GROUND ELEVATION: 54.0 m  
 ANTENNA HEIGHT: 48.0 m

SITE 2 : R6(EL TILIHAT)  
 GROUND ELEVATION: 56.0 m  
 ANTENNA HEIGHT: 48.0 m

```

#####
#
#           PATH CLEARANCE AND RIDGE LOSS           #
#
#
#   K       =       .67
#
#   F       =   6770 MHz : (λ = 44 mm)
#
#   Hg1     =   54.0 m       Hg2     =   56.0 m
#   Ha1     =   48 m        Ha2     =   48 m
#
#   D1      =   13.0 km     D2      =   14.1 km   Hm =   55.0 m
#   U       =   1.52
#
#
#   Lfs     = 137.7 dB
#
#####
    
```

# PATH PROFILE ( 2/3 RADIUS )



SITE 1 : R8(TILIHAT)

GROUND ELEVATION: 56.0 m

ANTENNA HEIGHT: 48.0 m

SITE 2 : SOHAG

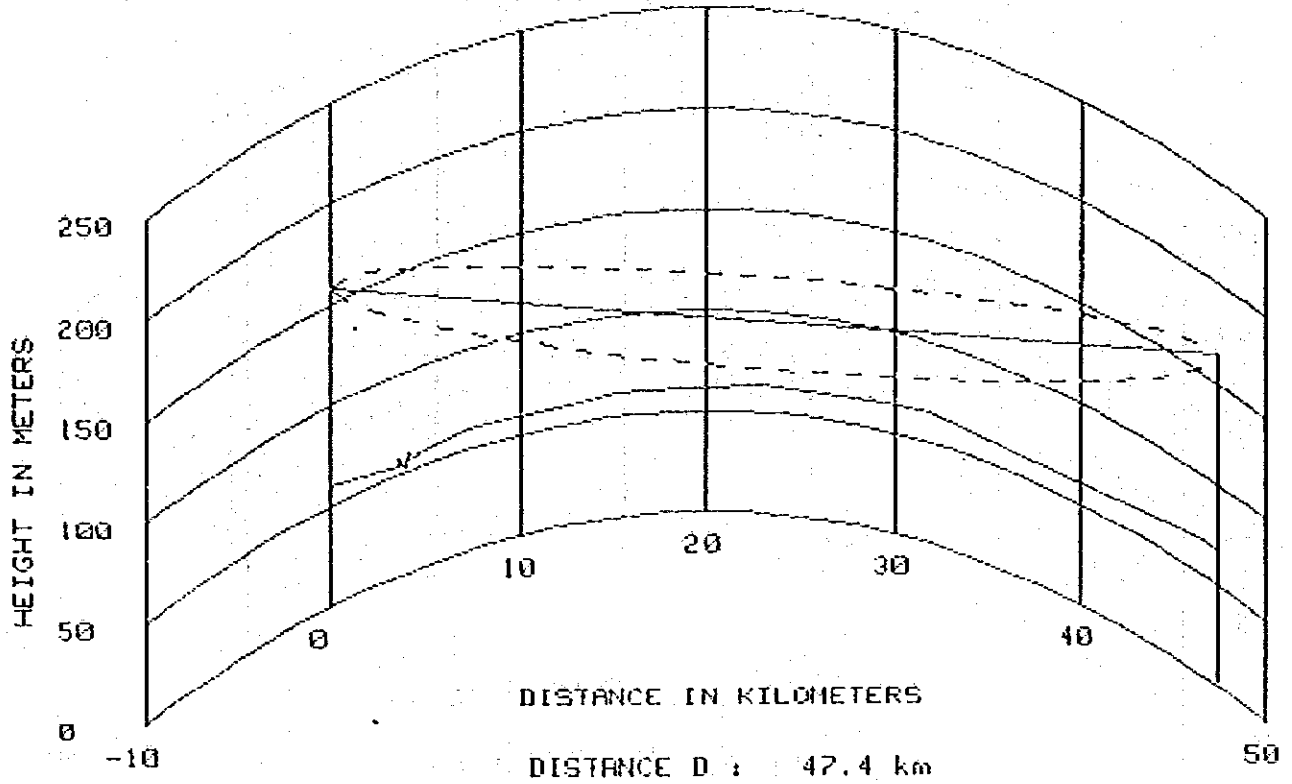
GROUND ELEVATION: 60.0 m

ANTENNA HEIGHT: 62.0 m

```

#####
#
#           PATH CLEARANCE AND RIDGE LOSS           #
#
#   K       =       .67                               #
#
#   F       =   6770 MHz : (λ = 44 mm)                #
#
#   Hg1     =   56.0 m      Hg2     =   60.0 m          #
#   Ha1     =   48 m       Ha2     =   62 m            #
#
#   D1      =   17.0 km    D2      =   13.0 km    Hm = 60.0 m #
#   U       =   1.56
#
#   Lfs     = 138.6 dB
#
#####
    
```

# PATH PROFILE ( 2/3 RADIUS )



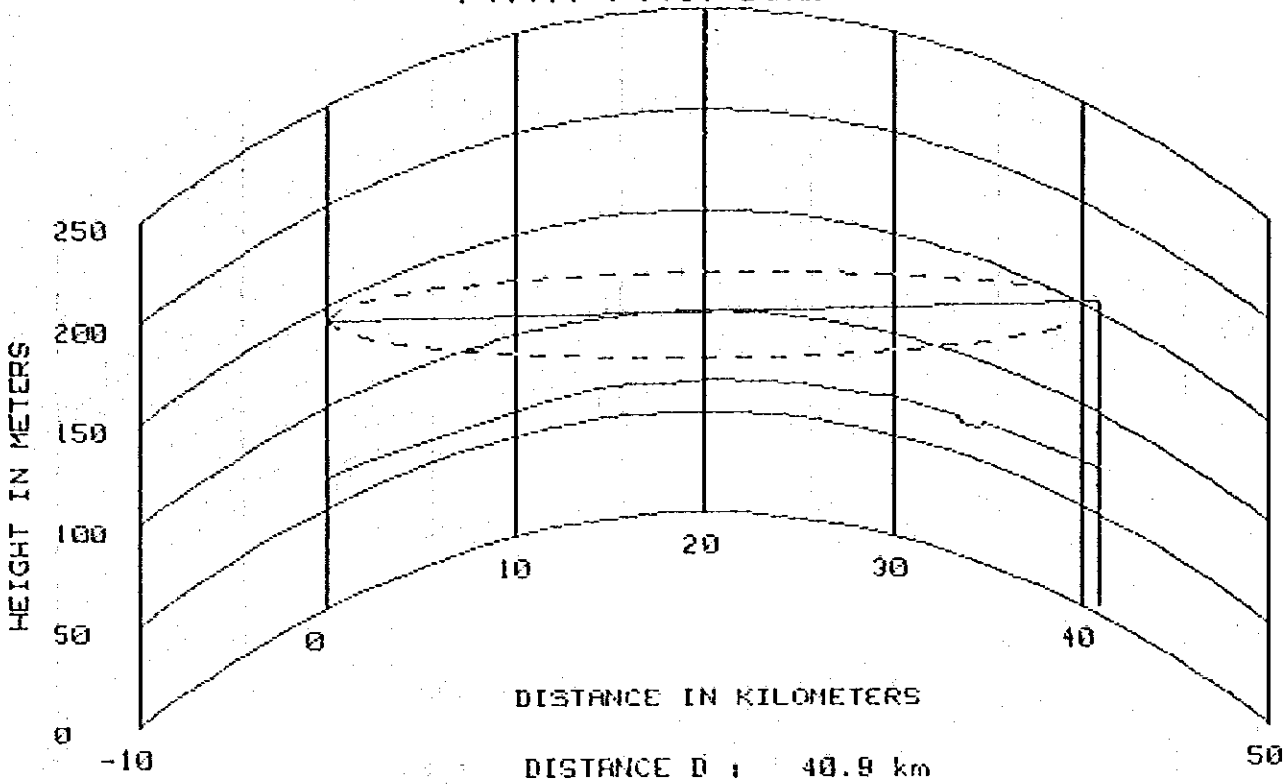
SITE 1 : SOHAG  
 GROUND ELEVATION: 60.0 m  
 ANTENNA HEIGHT: 98.0 m

SITE 2 : R9 (ABYDOS)  
 GROUND ELEVATION: 65.0 m  
 ANTENNA HEIGHT: 98.0 m

```

#####
#
#           PATH CLEARANCE AND RIDGE LOSS
#
#   K   =   .67
#
#   F   =   6770 MHz : (λ = 44 mm)
#
#   Hg1 = 60.0 m   Hg2 = 65.0 m
#   Ha1 = 98.0 m   Ha2 = 98.0 m
#
#   D1  = 23.7 km   D2  = 23.7 km   Hm = 62.0 m
#   U   = 1.41
#
#   Lfs = 142.6 dB
#
#####
    
```

# PATH PROFILE ( 2/3 RADIUS )



SITE 1 : R9(RBYDOS)  
 GROUND ELEVATION: 65.0 m  
 ANTENNA HEIGHT: 78.0 m

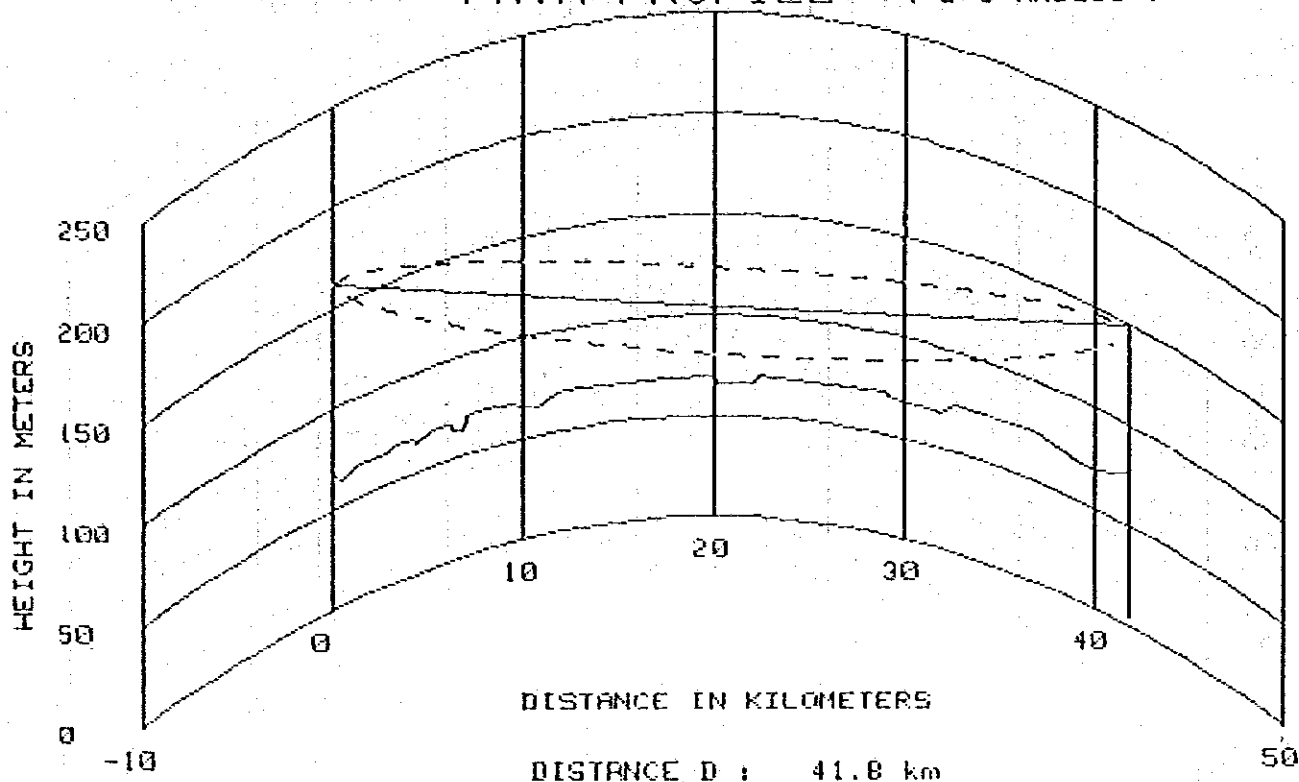
SITE 2 : R10(EL QSAR)  
 GROUND ELEVATION: 68.0 m  
 ANTENNA HEIGHT: 83.0 m

```

#####
#
#           PATH CLEARANCE AND RIDGE LOSS
#
#   K       =   .67
#
#   F       =  6770 MHz : (λ = 44 m)
#
#   Hg1     =  65.0 m   Hg2   =  68.0 m
#   Ha1     =  78   m   Ha2   =  83   m
#
#   D1      =  20.0 km   D2    =  20.9 km   Hm   =  67.0 m
#   U       =  1.44
#
#   Lfs     = 141.3 dB
#
#####
    
```



# PATH PROFILE ( 2/3 RADIUS )



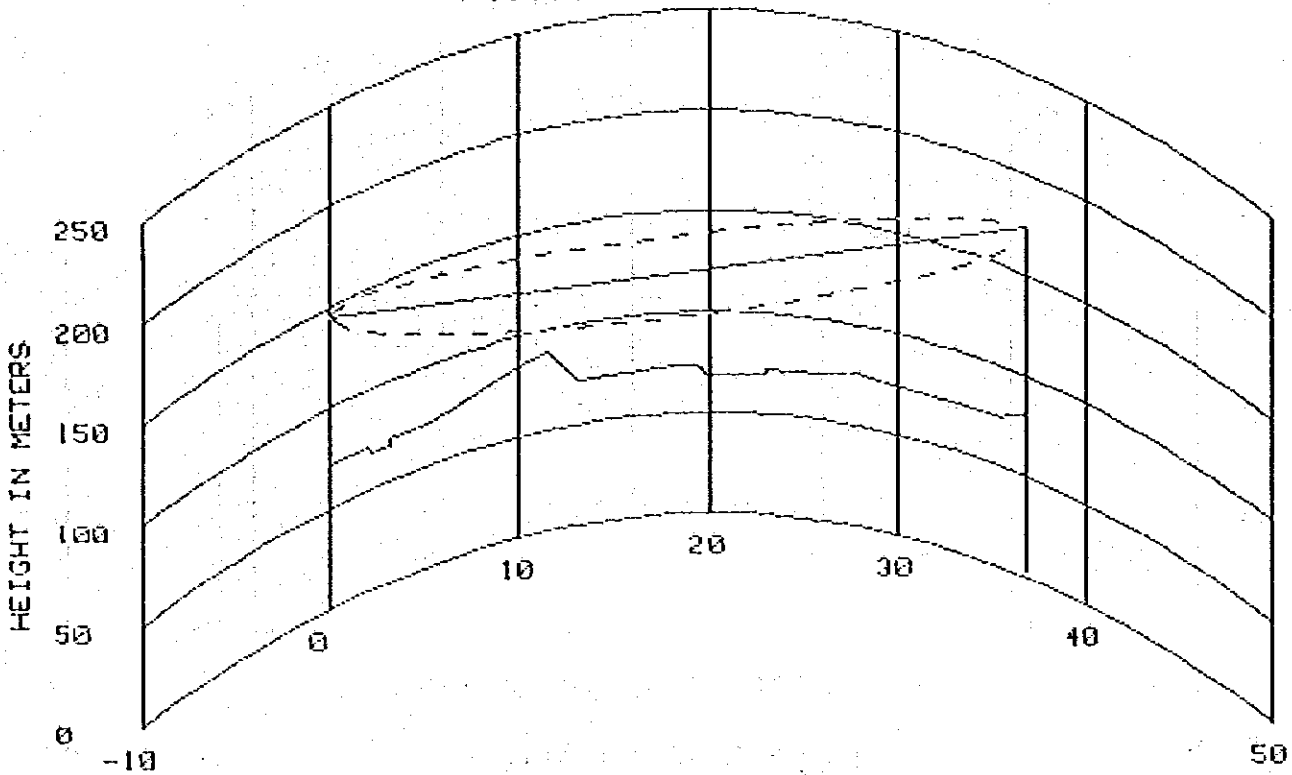
SITE 1 : RIQ(EL QSAR)  
 GROUND ELEVATION: 68.0 m  
 ANTENNA HEIGHT: 93.0 m

SITE 2 : QENA  
 GROUND ELEVATION: 72.0 m  
 ANTENNA HEIGHT: 73.0 m

```

#####
#                                     #
#           PATH CLEARANCE AND RIDGE LOSS           #
#                                     #
# K = .67                                     #
# F = 6770 MHz ; (λ = 44 m)                 #
# Hg1 = 68.0 m      Hg2 = 72.0 m            #
# Ha1 = 93 m        Ha2 = 73 m              #
# D1 = 21.0 km      D2 = 20.8 km      Hm = 79.0 m  #
# U = 1.47                                     #
#                                     #
# Lfs = 141.5 dB                               #
#                                     #
#####
    
```

# PATH PROFILE ( 2/3 RADIUS )



DISTANCE IN KILOMETERS

DISTANCE : 36.8 km

SITE 1 : QENA

GROUND ELEVATION: 72.0 m

ANTENNA HEIGHT: 73.0 m

SITE 2 : R11(HEGAZA)

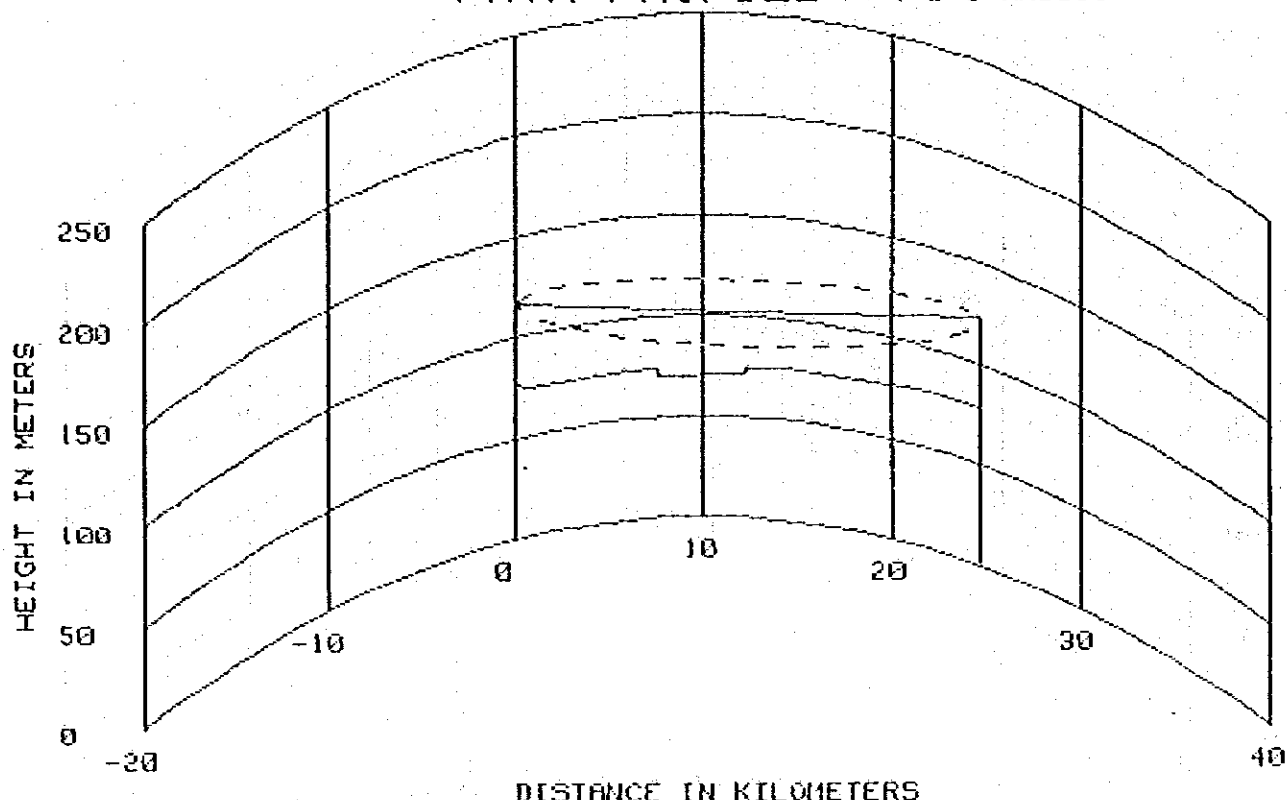
GROUND ELEVATION: 77.0 m

ANTENNA HEIGHT: 93.0 m

```

#####
#
#           PATH CLEARANCE AND RIDGE LOSS
#
#   K       =   0.67
#
#   F       =   6770 MHz : (λ = 44 mm)
#
#   Hg1    =   72.0 m      Hg2    =   77.0 m
#   Ha1    =   73.0 m      Ha2    =   93.0 m
#
#   D1     =   11.5 km     D2     =   25.3 km     Hm    =   90.0 m
#   U      =   1.53
#
#   Lfs    =   140.4 dB
#
#####
    
```

# PATH PROFILE ( 2/3 RADIUS )



DISTANCE IN KILOMETERS  
DISTANCE : 24.7 km

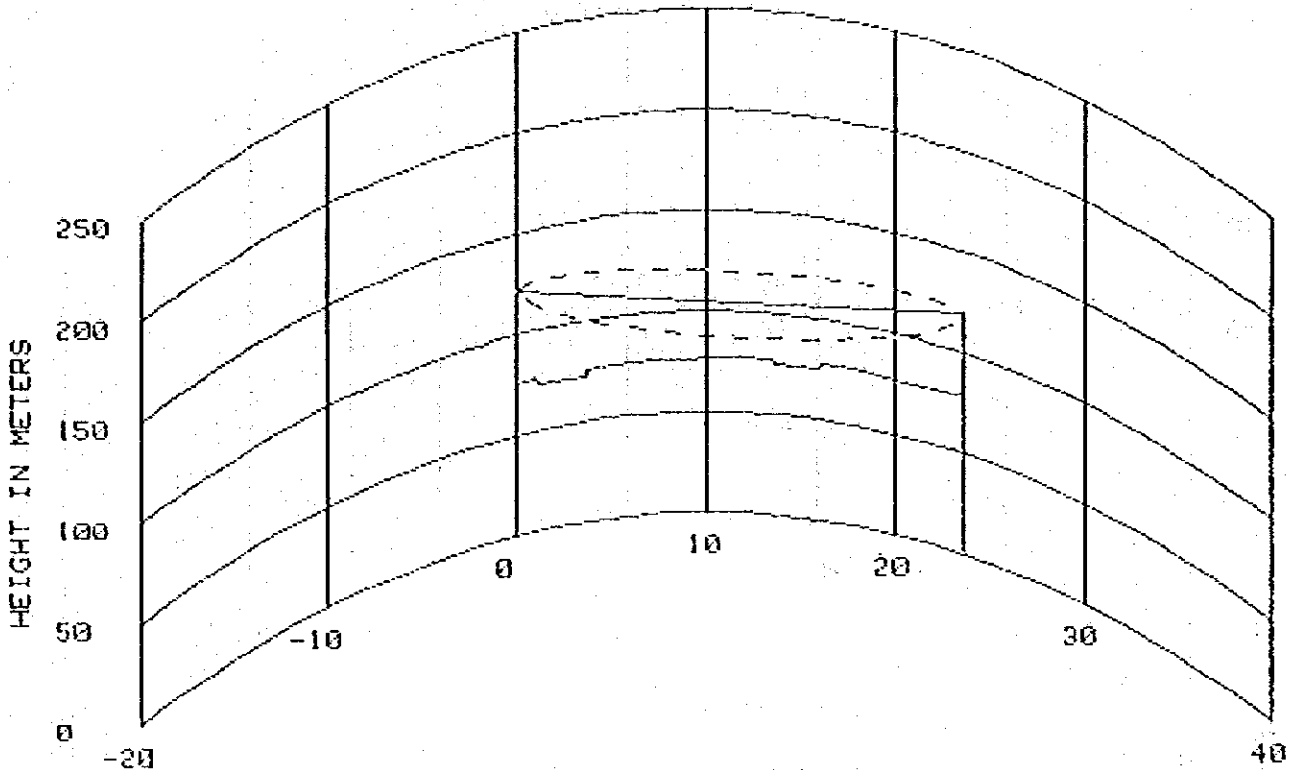
SITE 1 : RI1 (HEGAZA)	SITE 2 : LUXOR
GROUND ELEVATION: 77.0 m	GROUND ELEVATION: 76.0 m
ANTENNA HEIGHT: 40.0 m	ANTENNA HEIGHT: 45.0 m

```

#####
#
#           PATH CLEARANCE AND RIDGE LOSS           #
#
#   K       =   0.67                               #
#
#   F       =   6770 MHz : (λ = 44 m)              #
#
#   Hg1     =   77.0 m      Hg2 = 76.0 m          #
#   Ha1     =   40.0 m      Ha2 = 45.0 m          #
#
#   D1      =   14.2 km    D2 = 10.5 km    Hm = 75.0 m #
#   U       =   1.64
#
#   Lfs     = 136.9 dB
#
#####
    
```

N

# PATH PROFILE ( 2/3 RADIUS )



DISTANCE IN KILOMETERS

DISTANCE : 23.6 km

SITE 1 : LUXOR

GROUND ELEVATION: 76.0 m

ANTENNA HEIGHT: 45.0 m

SITE 2 : R12 (IAG-KHAMIS)

GROUND ELEVATION: 78.0 m

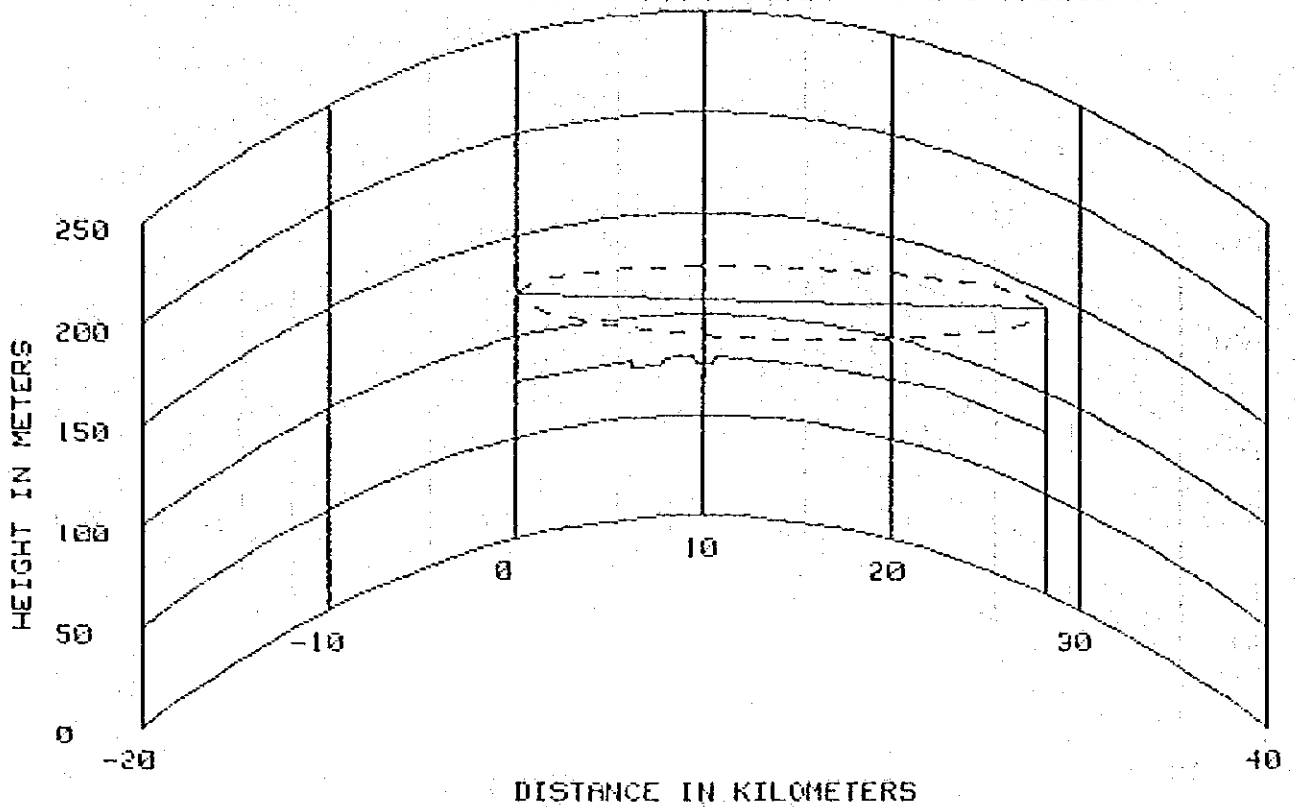
ANTENNA HEIGHT: 40.0 m

```

#####
#
#          PATH CLEARANCE AND RIDGE LOSS          #
#
#  K      =      0.67                               #
#
#  F      =      6770 MHz : (λ = 44 mm)           #
#
#  Hg1    =      76.0 m      Hg2    =      78.0 m   #
#  Ha1    =      45.0 m      Ha2    =      40.0 m   #
#
#  D1     =      11.9 km     D2     =      11.7 km   #
#  U      =      1.61      Hm     =      77.0 m     #
#
#
#  Lfs    =      136.5 dB
#
#####

```

# PATH PROFILE ( 2/3 RADIUS )



DISTANCE : 28.3 km

SITE 1 : R12 (NAG-KHAMIS)

SITE 2 : R13 (ISNA)

GROUND ELEVATION: 78.0 m

GROUND ELEVATION: 79.0 m

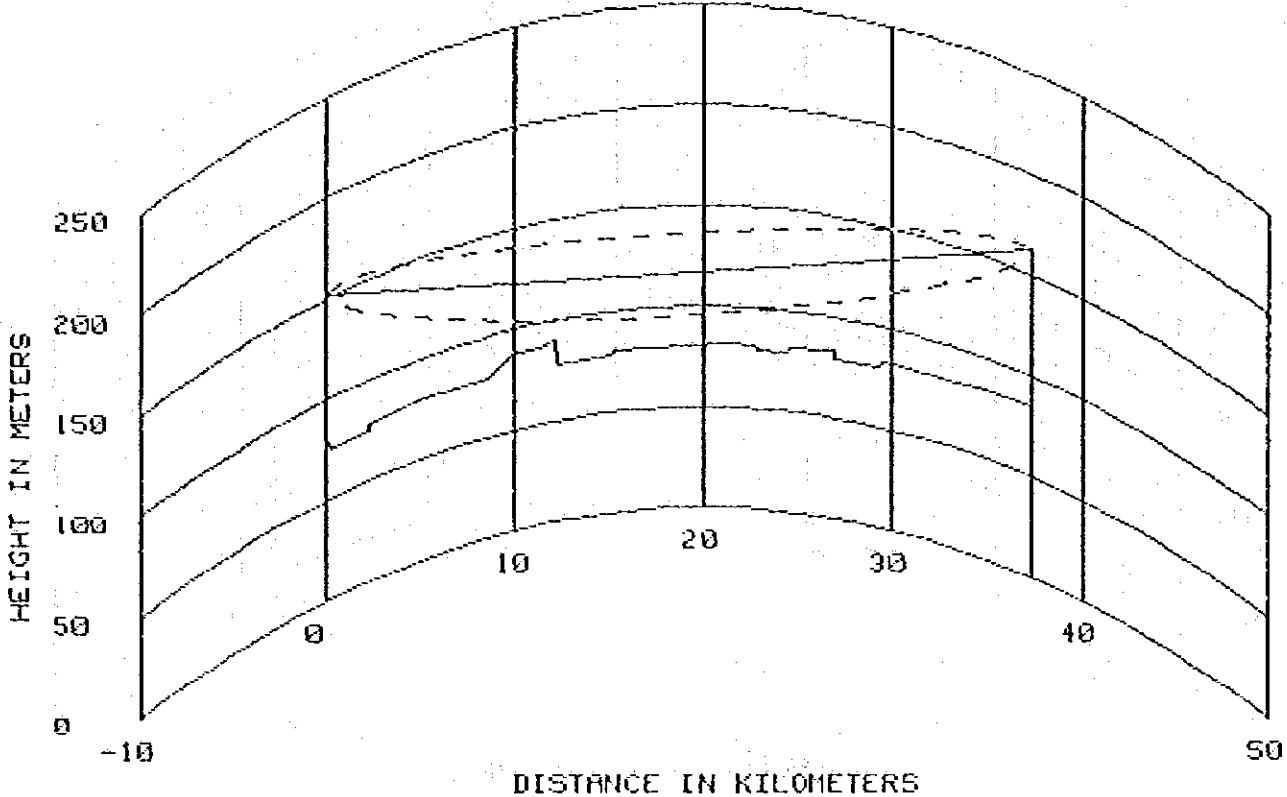
ANTENNA HEIGHT: 43.0 m

ANTENNA HEIGHT: 62.0 m

```

#####
#                                     #
#           PATH CLEARANCE AND RIDGE LOSS           #
#                                     #
#   K   =   0.67                                     #
#                                     #
#   F   =   6770 MHz ; (λ = 44 mm)                 #
#                                     #
#   Hg1 = 78.0 m   Hg2 = 79.0 m                     #
#   Ha1 = 43.0 m   Ha2 = 62.0 m                     #
#                                     #
#   D1  = 10.6 km   D2  = 17.7 km   Hm = 79.0 m     #
#   U   = 1.60                                           #
#                                     #
#   Lfs = 138.1 dB                                       #
#                                     #
#####
    
```

# PATH PROFILE ( 2/3 RADIUS )

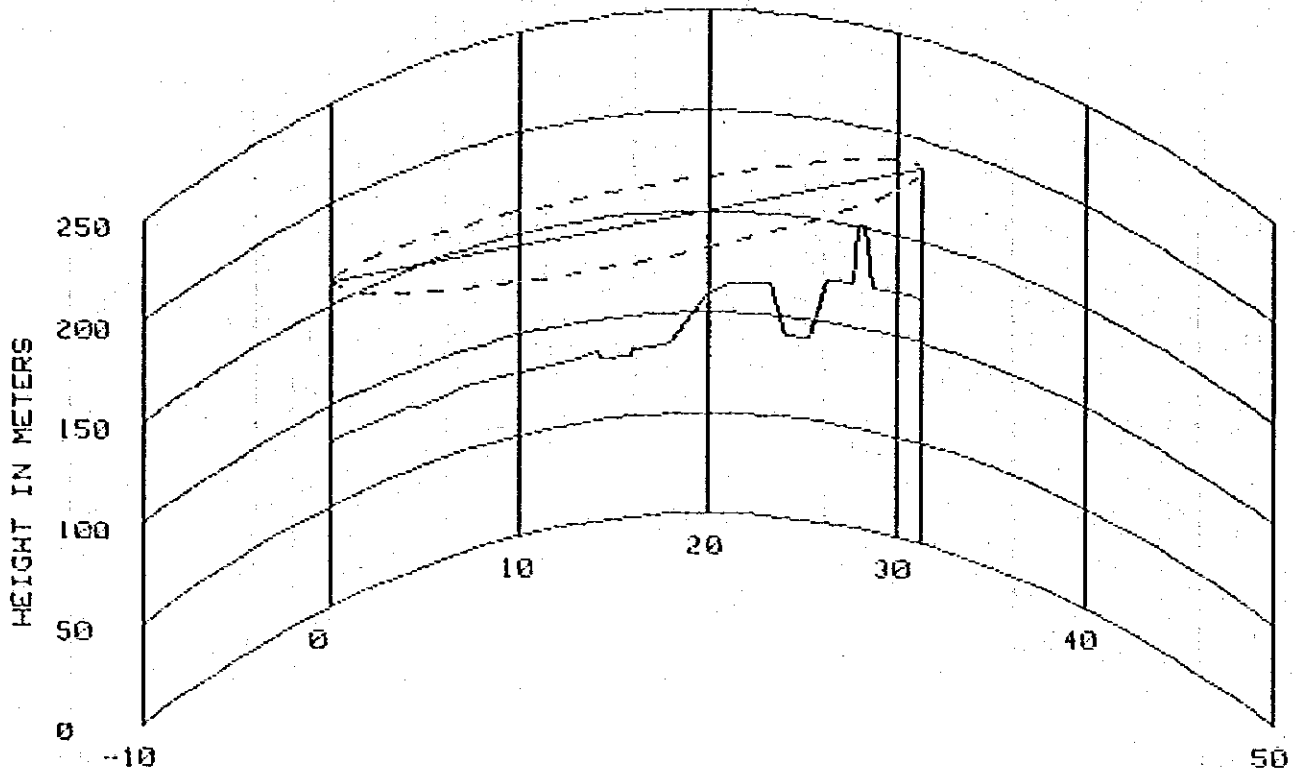


SITE 1 : R13 (ISNA)	SITE 2 : R14 (EL-SAYDA)
GROUND ELEVATION: 79.0 m	GROUND ELEVATION: 83.0 m
ANTENNA HEIGHT: 73.0 m	ANTENNA HEIGHT: 79.0 m

```

#####
#
#           PATH CLEARANCE AND RIDGE LOSS
#
#
#   K   =   0.67
#
#   F   =   6770 MHz : (λ = 44 mm)
#
#   Hg1 = 79.0 m      Hg2 = 83.0 m
#   Ha1 = 73.0 m      Ha2 = 79.0 m
#
#   D1  = 12.2 km     D2  = 25.1 km   Hm = 90.0 m
#   U   = 1.51
#
#
#   Lfs = 140.5 dB
#
#####
    
```

# PATH PROFILE ( 2/3 RADIUS )



DISTANCE IN KILOMETERS

DISTANCE : 31.3 km

SITE 1 : R14 (EL-SAAYDA)

SITE 2 : R15

GROUND ELEVATION: 83.0 m

GROUND ELEVATION: 120.0 m

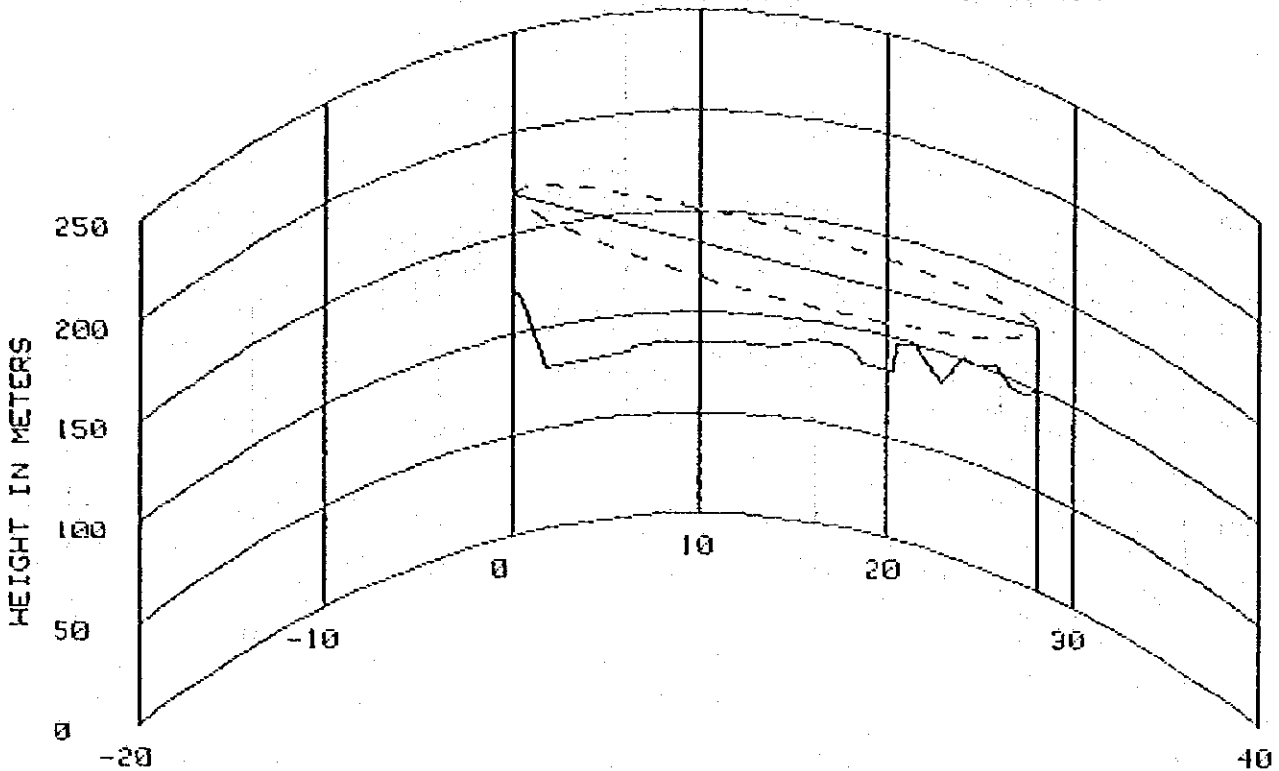
ANTENNA HEIGHT: 78.0 m

ANTENNA HEIGHT: 65.0 m

```

#####
#
#           PATH CLEARANCE AND RIDGE LOSS
#
#
#   K       =   0.67
#
#   F       =   6770 MHz : (λ = 44 mm)
#
#   Hg1     =   83.0 m       Hg2     =   120.0 m
#   Ha1     =   78.0 m       Ha2     =   65.0 m
#
#   D1      =   28.0 km      D2      =   3.3 km   Hm     =   150.0 m
#   U       =   1.89
#
#   Lfs     =   139.0 dB
#
#####
    
```

# PATH PROFILE ( 2/3 RADIUS )



DISTANCE IN KILOMETERS

DISTANCE : 28.1 km

SITE 1 : R15

SITE 2 : R16

GROUND ELEVATION: 120.0 m

GROUND ELEVATION: 100.0 m

ANTENNA HEIGHT: 50.0 m

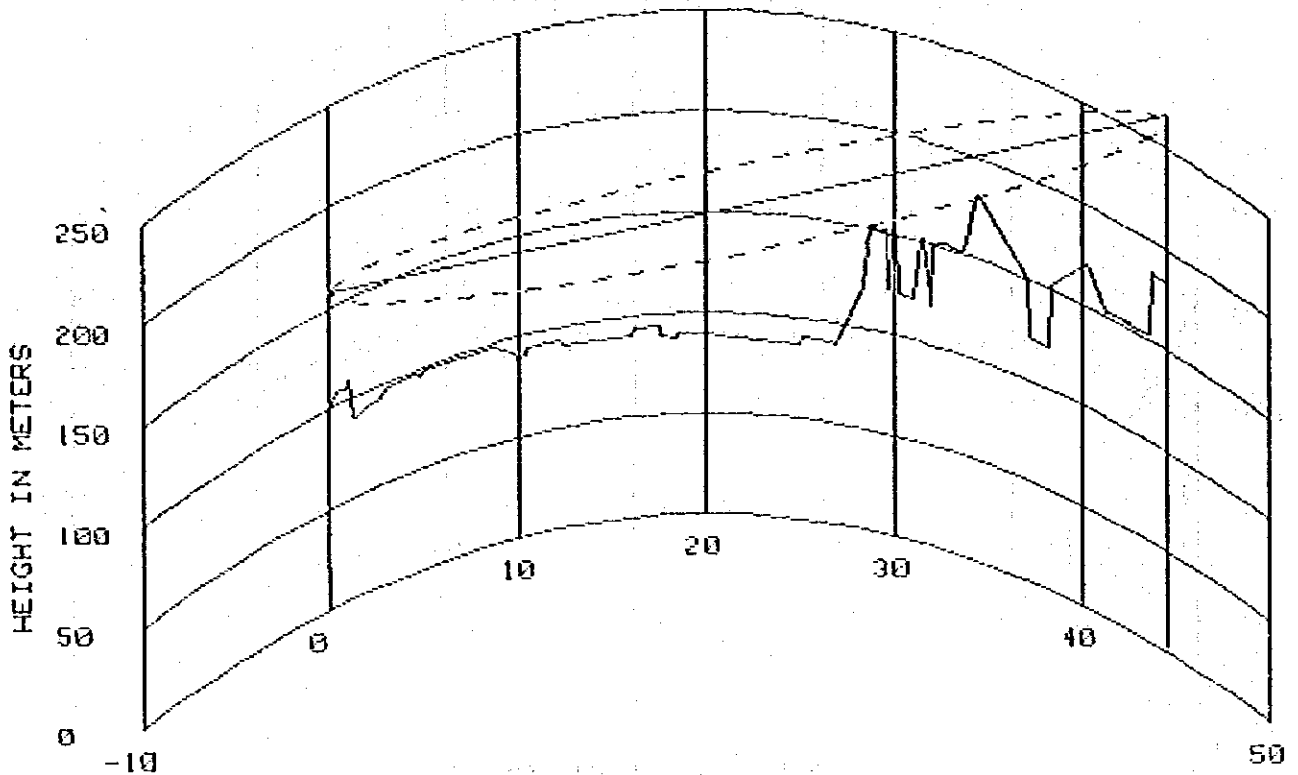
ANTENNA HEIGHT: 30.0 m

```

#####
#
#          PATH CLEARANCE AND RIDGE LOSS          #
#
#   K   =   0.67                                  #
#
#   F   =   6770 MHz : (λ = 44 mm)                #
#
#   Hg1 = 120.0 m      Hg2 = 100.0 m              #
#   Ha1 = 50.0 m       Ha2 = 30.0 m               #
#
#   D1  = 21.6 km     D2  = 6.5 km     Hm = 98.0 m #
#   U   = 1.66
#
#   Lfs = 138.0 dB
#
#####
    
```



# PATH PROFILE ( 2/3 RADIUS )



DISTANCE IN KILOMETERS

DISTANCE : 44.5 km

SITE 1 : R16

GROUND ELEVATION: 100.0 m

ANTENNA HEIGHT: 58.0 m

SITE 2 : ASWAN-BRANCH

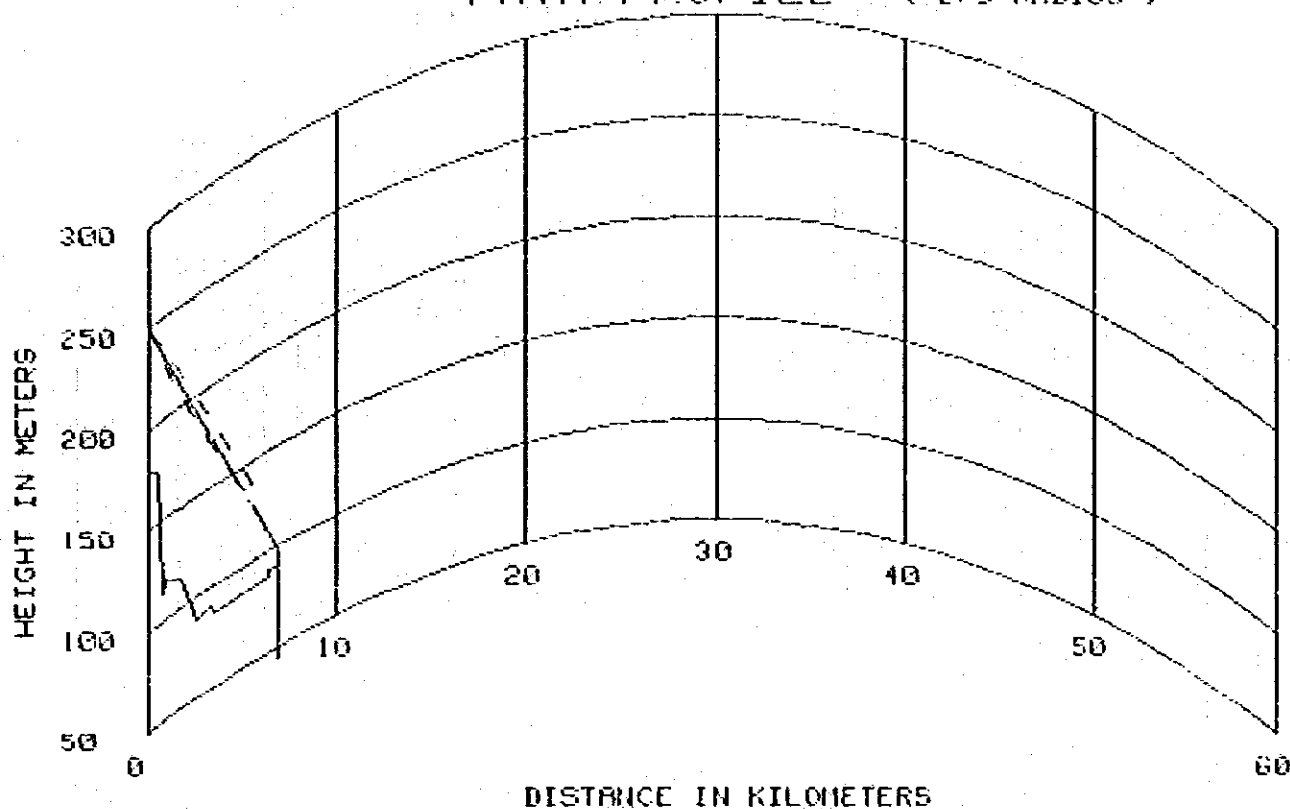
GROUND ELEVATION: 180.0 m

ANTENNA HEIGHT: 83.0 m

```

#####
#
#           PATH CLEARANCE AND RIDGE LOSS
#
#
#   K       =   0.67
#
#   F       =   6770 MHz : (λ = 44 mm)
#
#   Hg1    =   100.0 m      Hg2    =   180.0 m
#   Ha1    =   58.0 m      Ha2    =   83.0 m
#
#   D1     =   34.4 km     D2     =   10.1 km   Hm = 180.0 m
#   U      =   0.98
#
#
#   LFs    = 142.0 dB
#
#####
    
```

# PATH PROFILE ( 2/3 RADIUS )



DISTANCE IN KILOMETERS

DISTANCE : 6.3 km

SITE 1 : ASVAN BRANCH

GROUND ELEVATION: 180.0 m

ANTENNA HEIGHT: 70.0 m

SITE 2 : Aswan

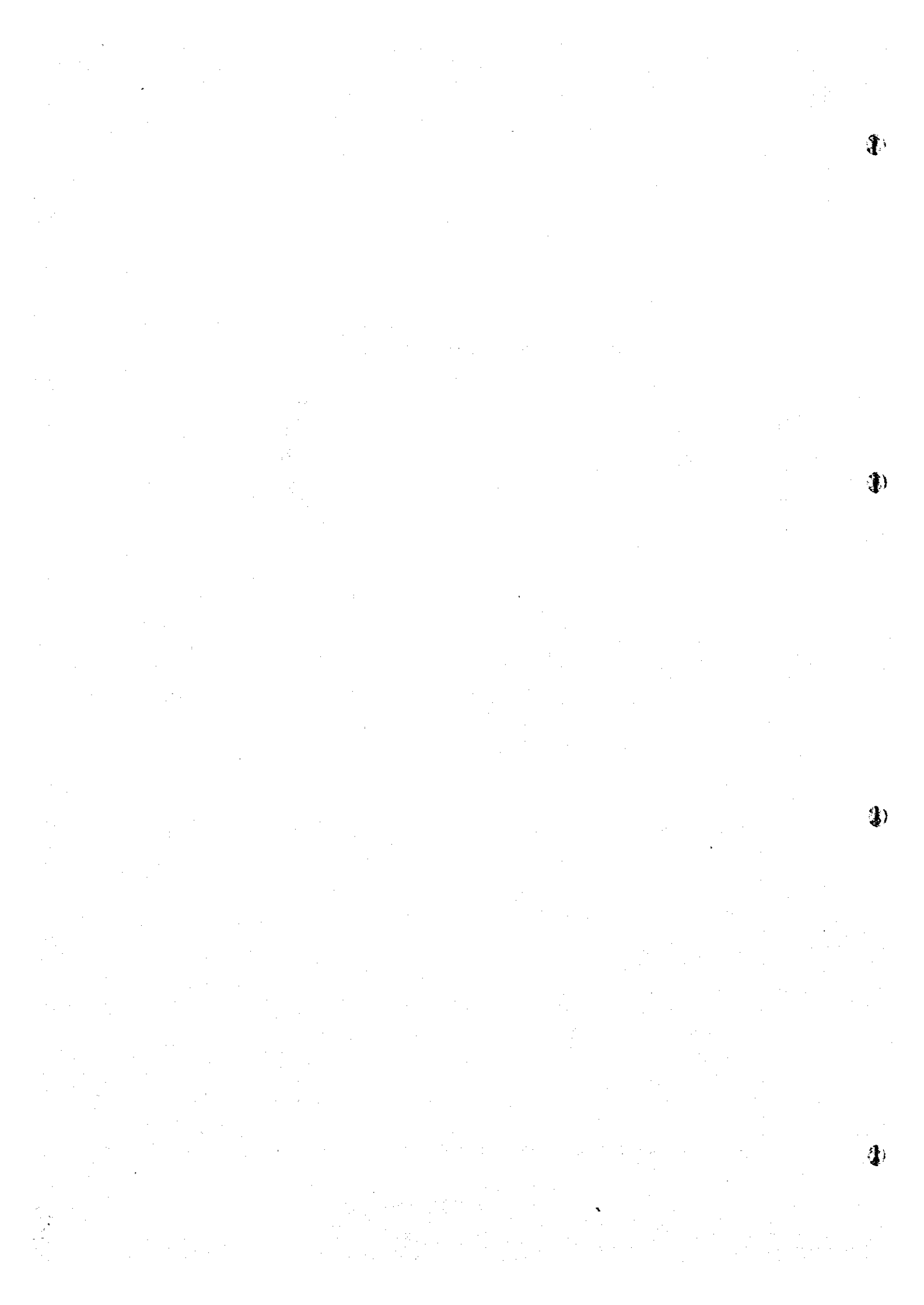
GROUND ELEVATION: 94.0 m

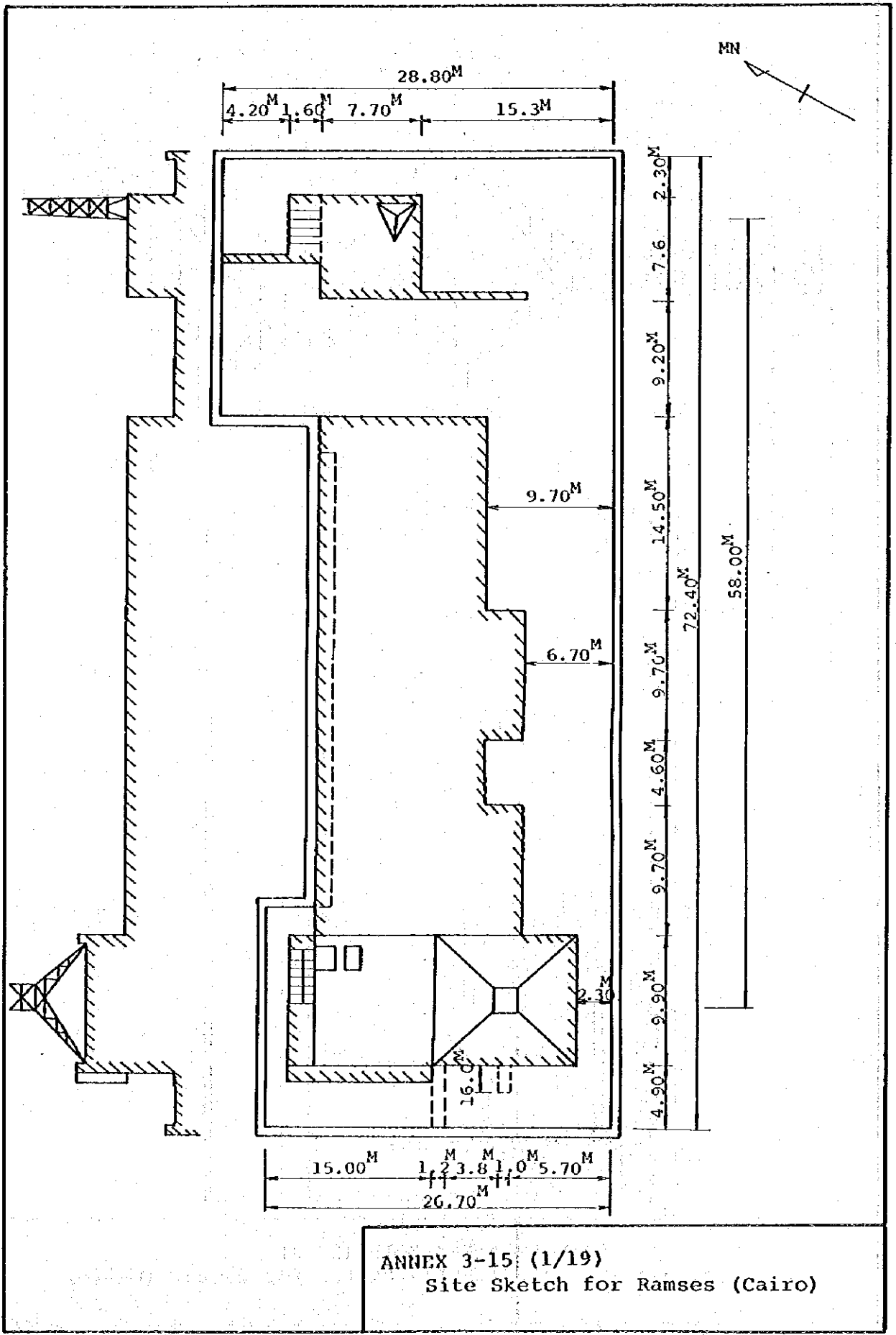
ANTENNA HEIGHT: 10.0 m

```

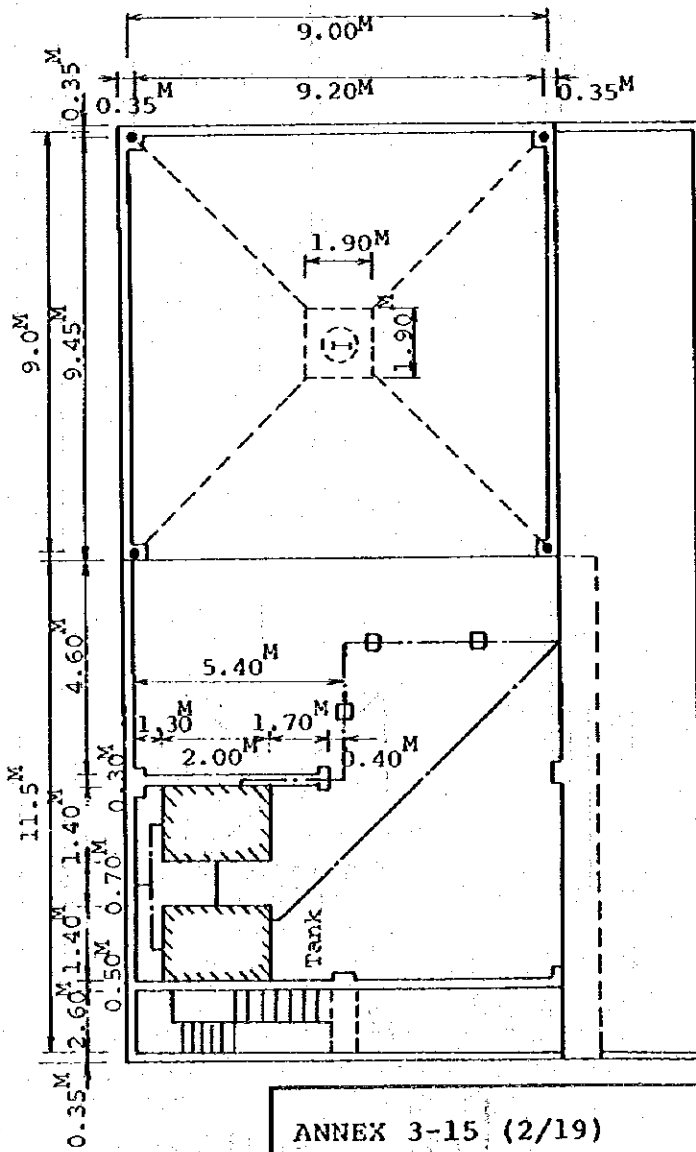
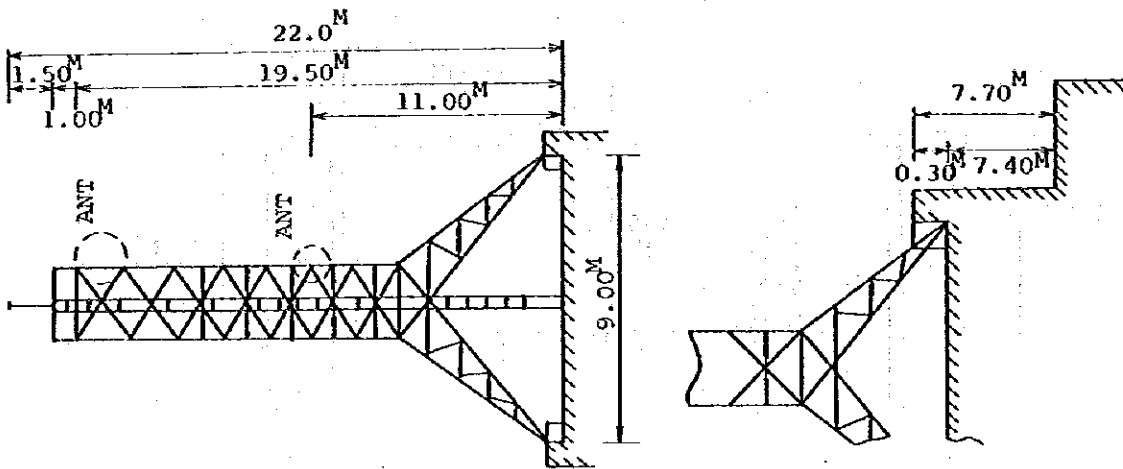
#####
#
#          PATH CLEARANCE AND RIDGE LOSS
#
#  K      =      0.67
#
#  F      =      15000 MHz : (λ = 20 mm)
#
#  Hg1    =      180.0 m      Hg2    =      94.0 m
#  Ha1    =      70.0 m      Ha2    =      10.0 m
#
#  D1     =      6.4 km      D2     =      0.5 km      Hm =      93.0 m
#  U      =      6.96
#
#  Lfs    =      132.8 dB
#
#####
    
```

ANNEX 3-15 Site Sketch (1/19-19/19)

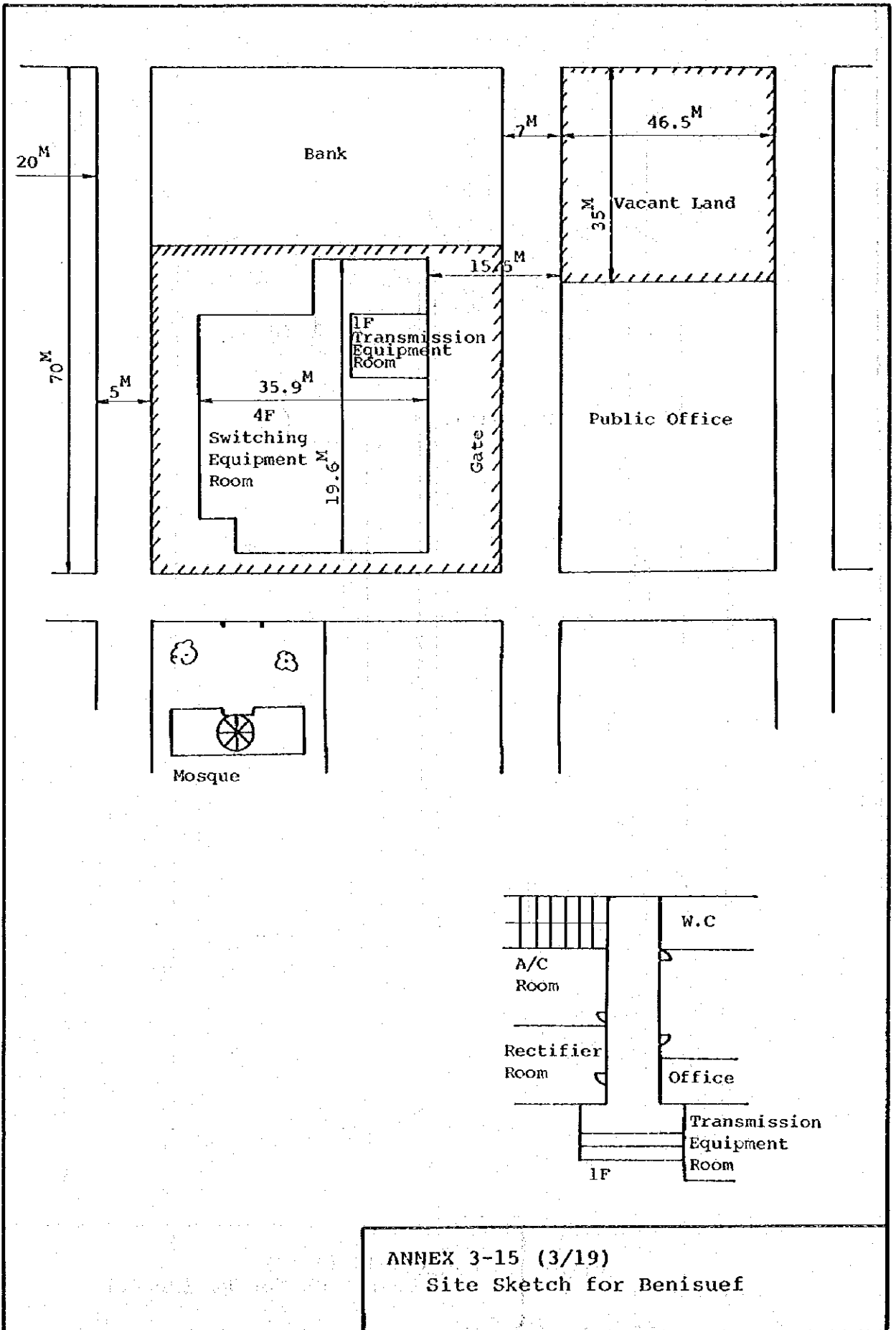


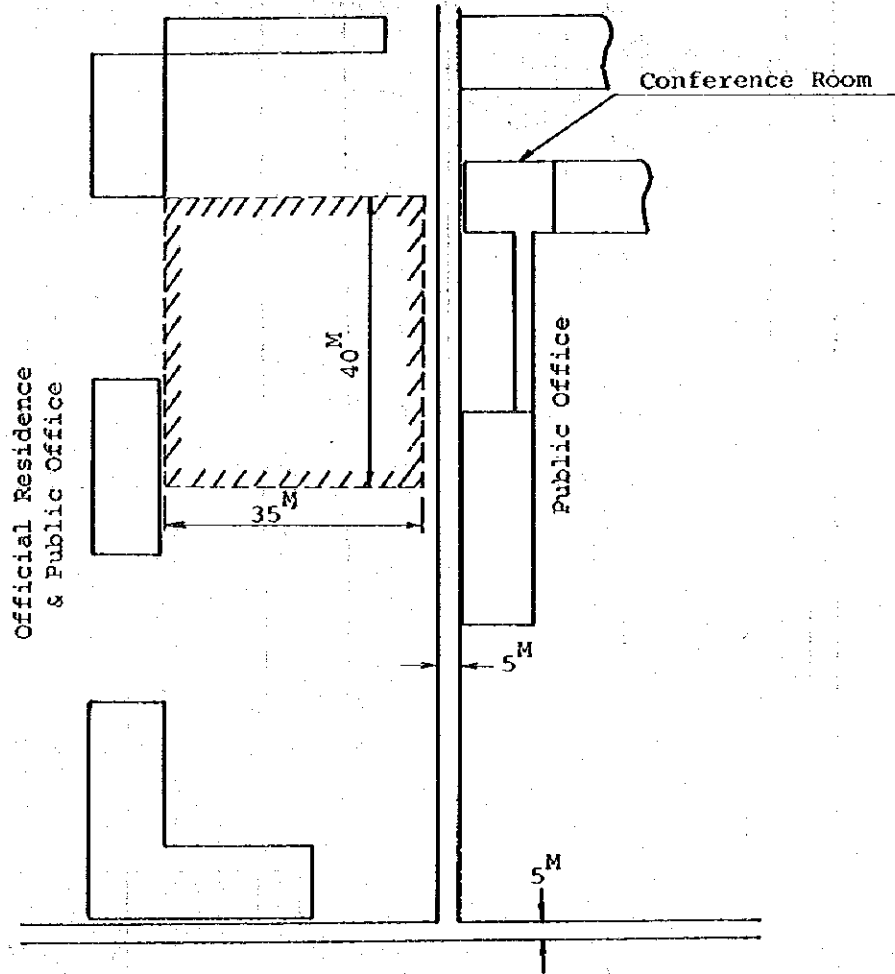
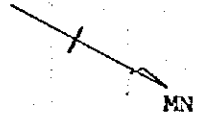


ANNEX 3-15 (1/19)  
 Site Sketch for Ramses (Cairo)



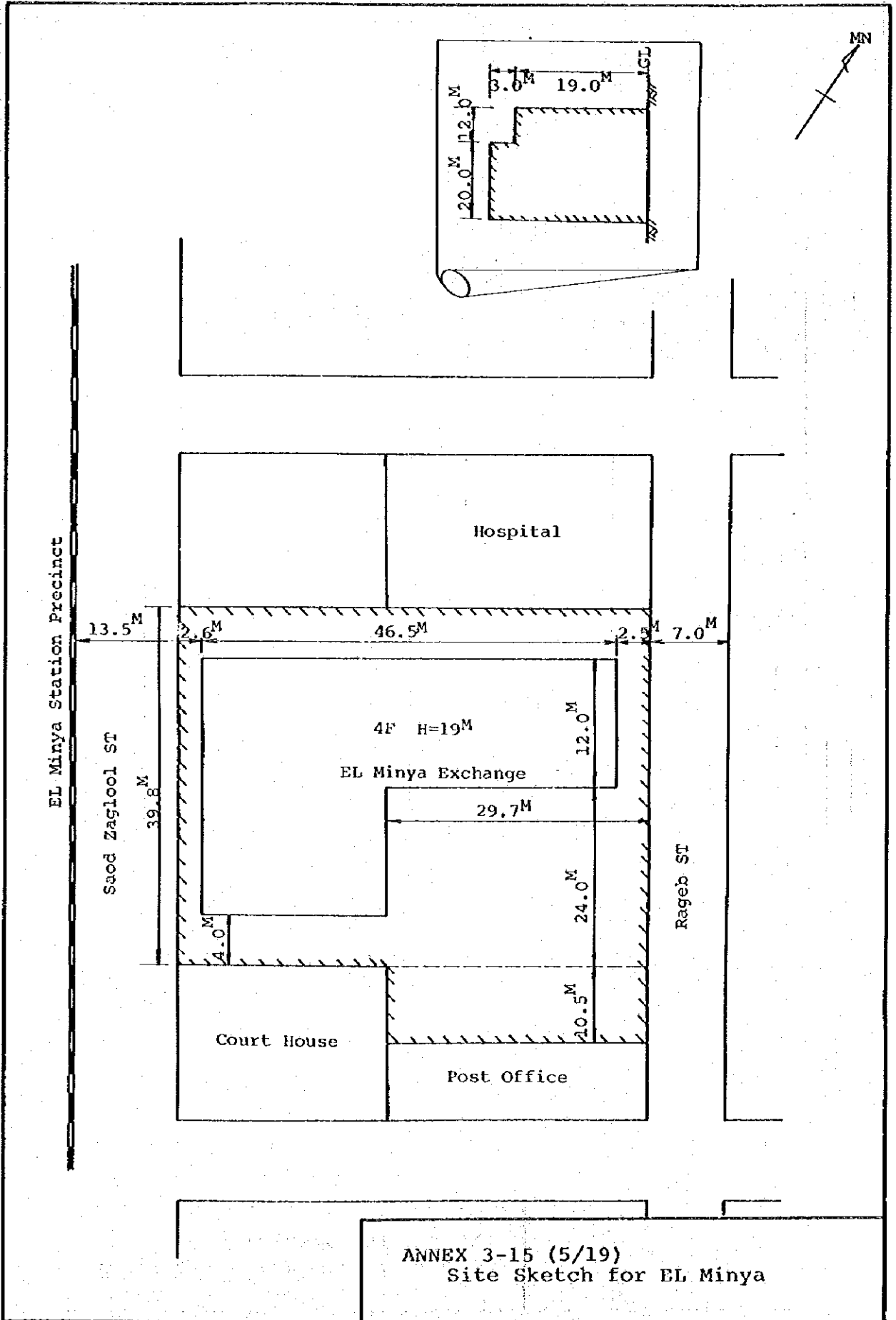
ANNEX 3-15 (2/19)  
Site Sketch for Ramses (Cairo)



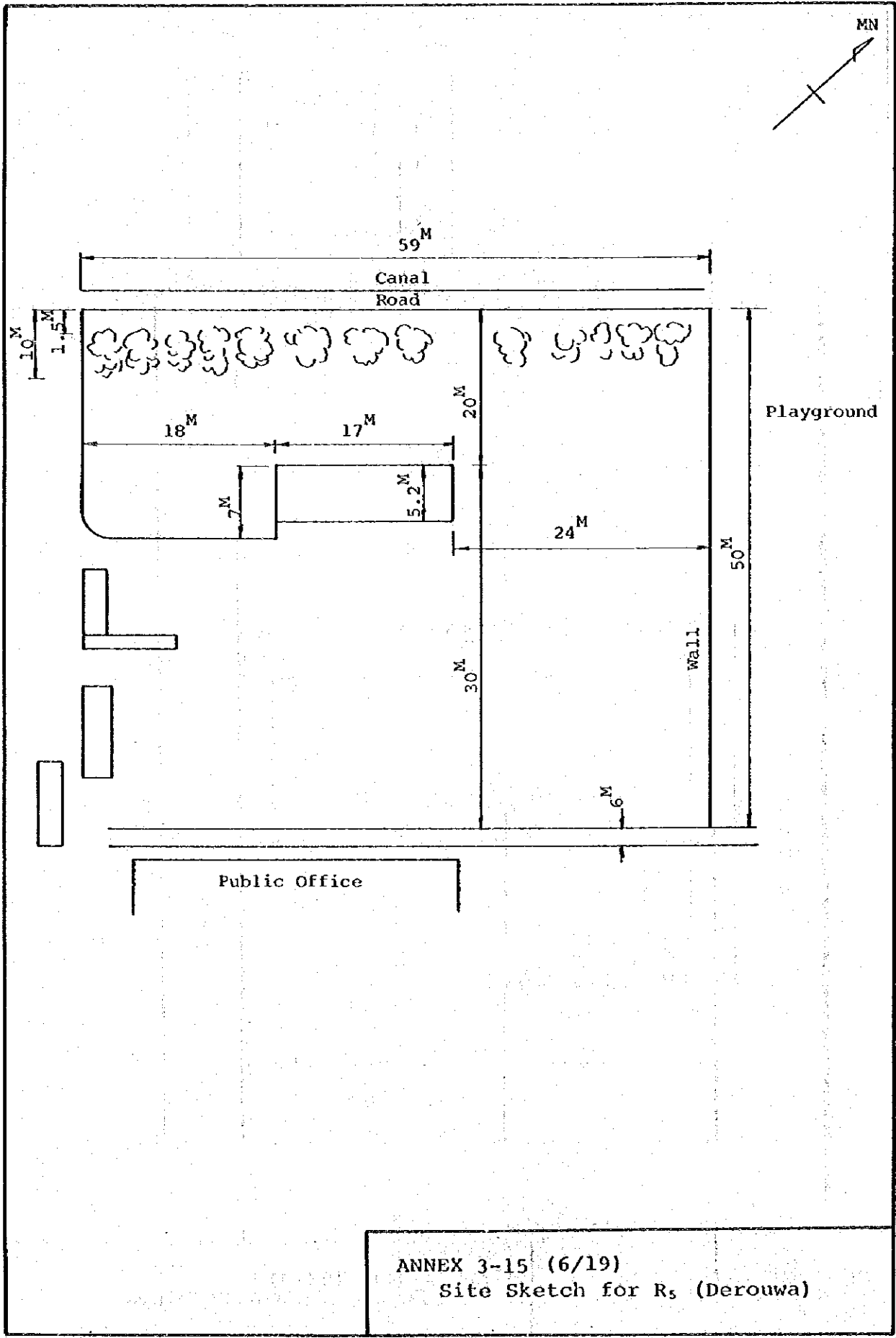


ANNEX 3-15 (4/19)  
Site Sketch for R<sub>1</sub> (Heloia)

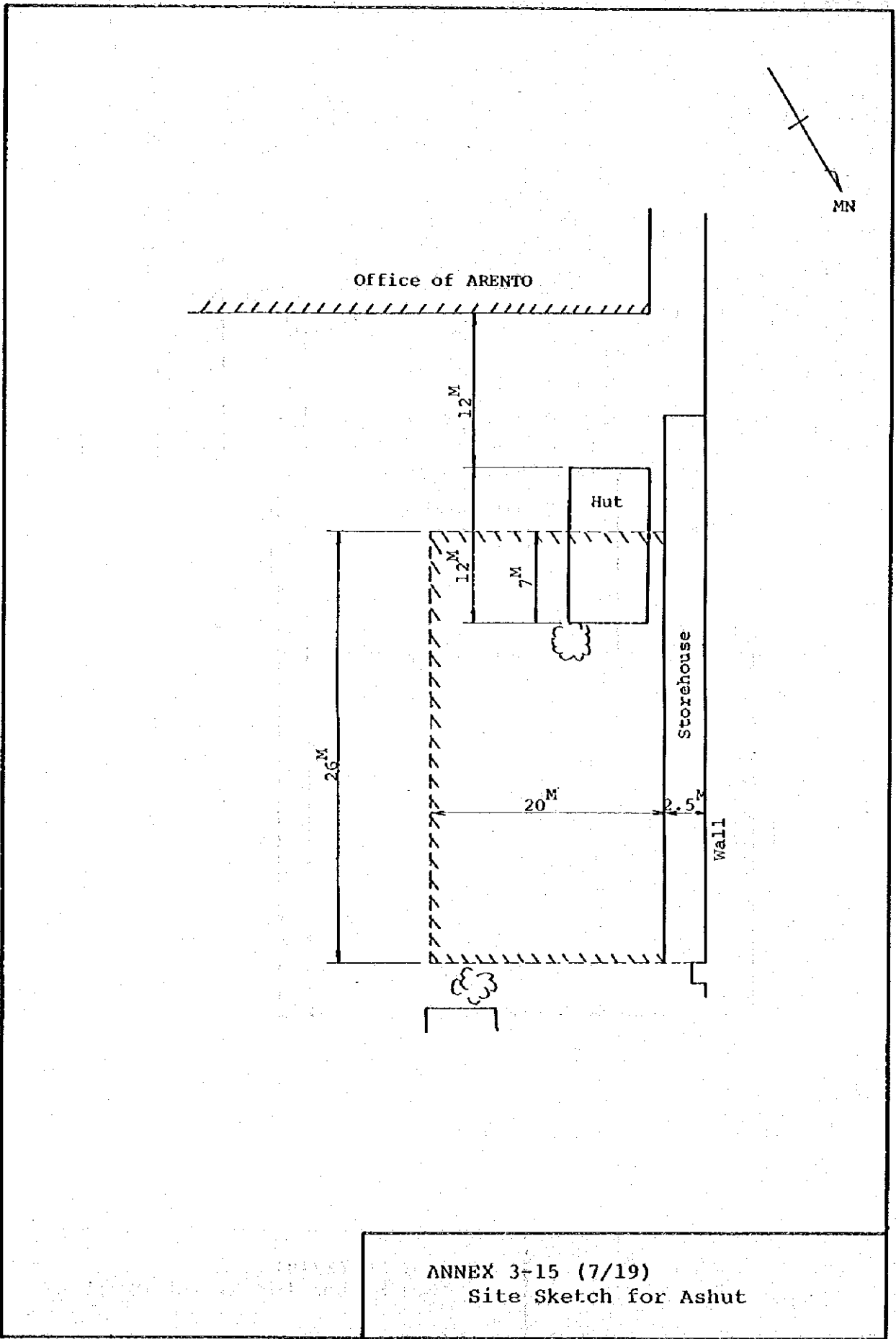




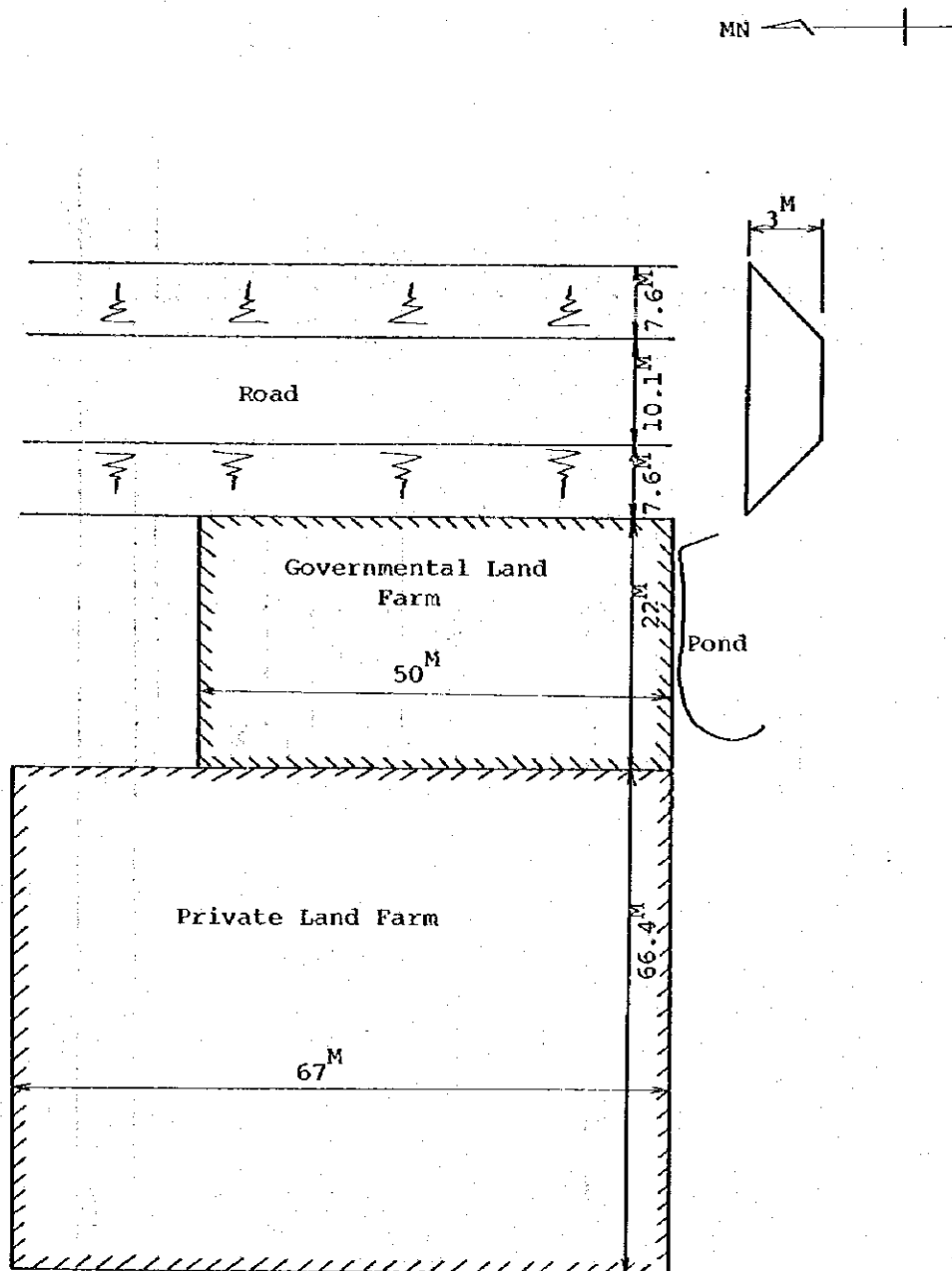
ANNEX 3-15 (5/19)  
Site Sketch for EL Minya



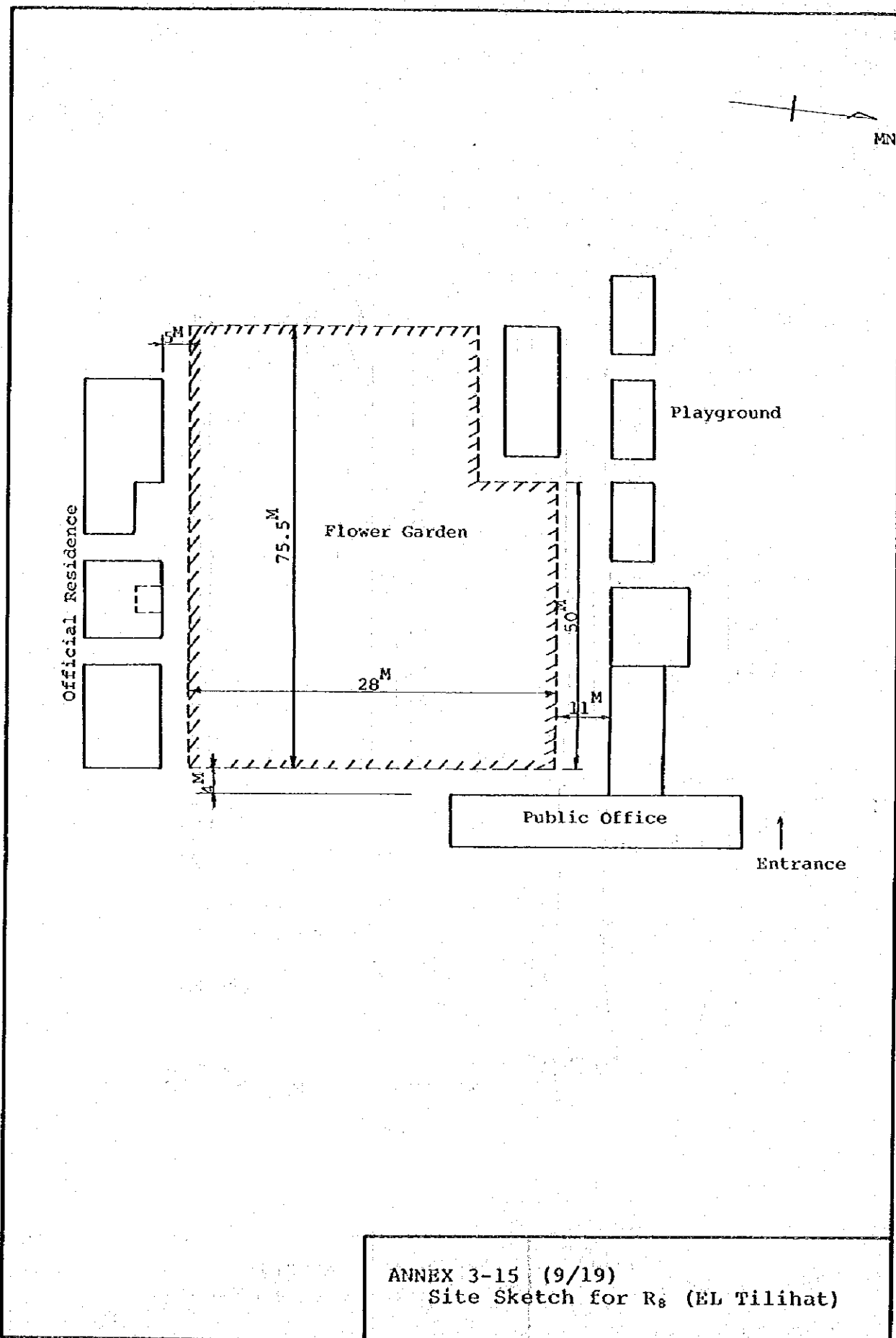
ANNEX 3-15 (6/19)  
 Site Sketch for R<sub>5</sub> (Derouwa)



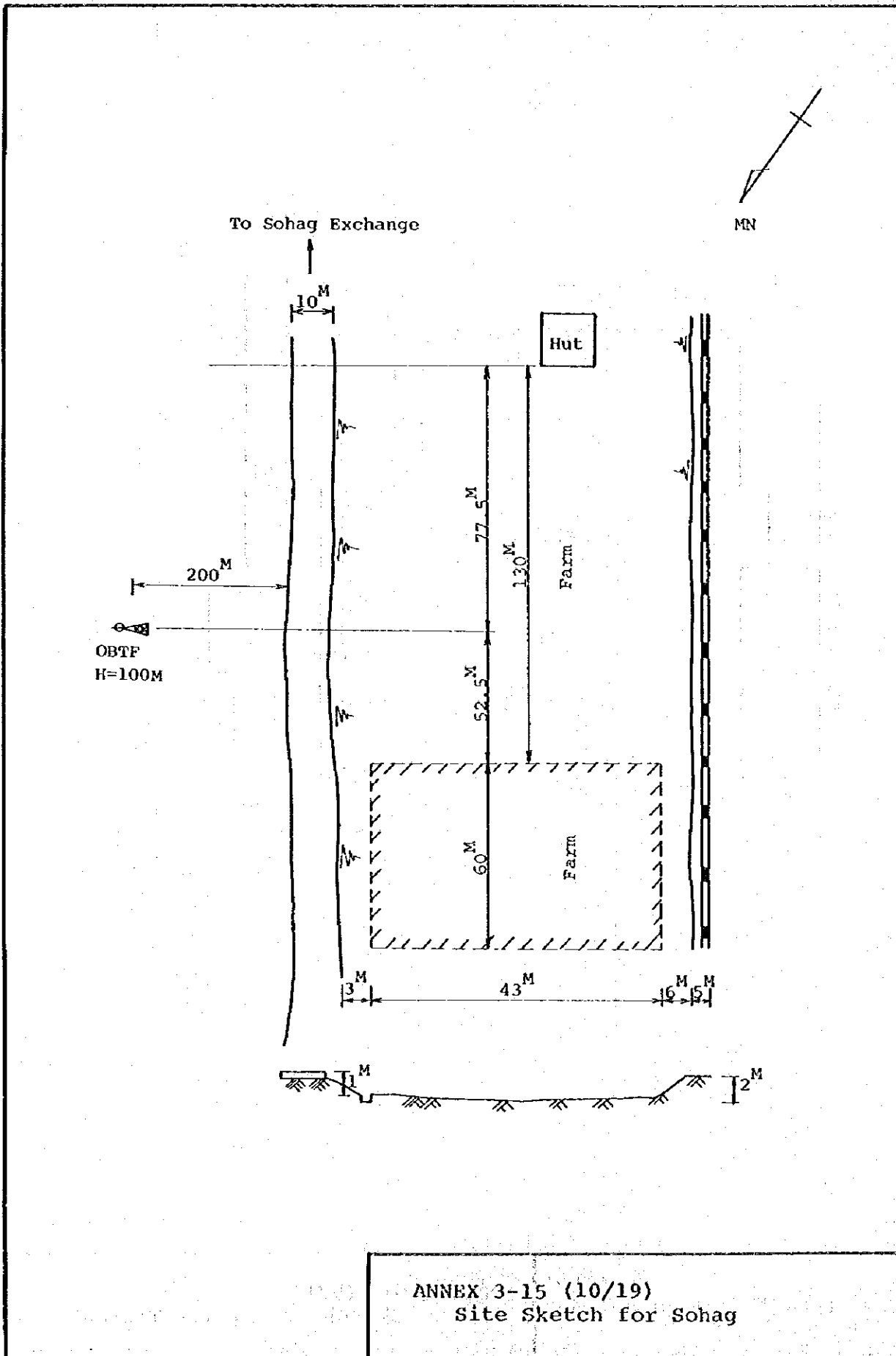
ANNEX 3-15 (7/19)  
Site Sketch for Ashut



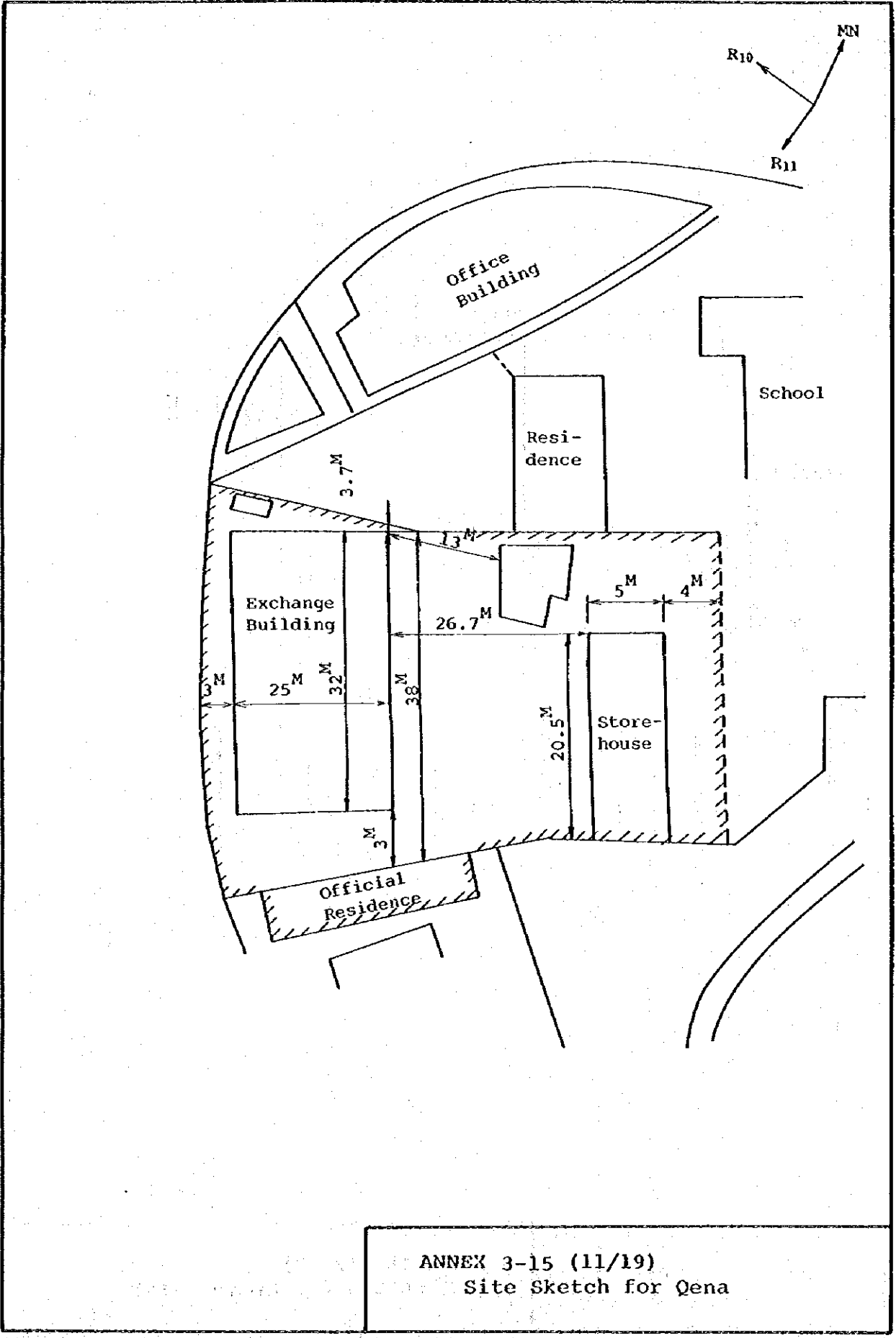
ANNEX 3-15 (8/19)  
 Site Sketch for R<sub>7</sub> (EL Diweir)



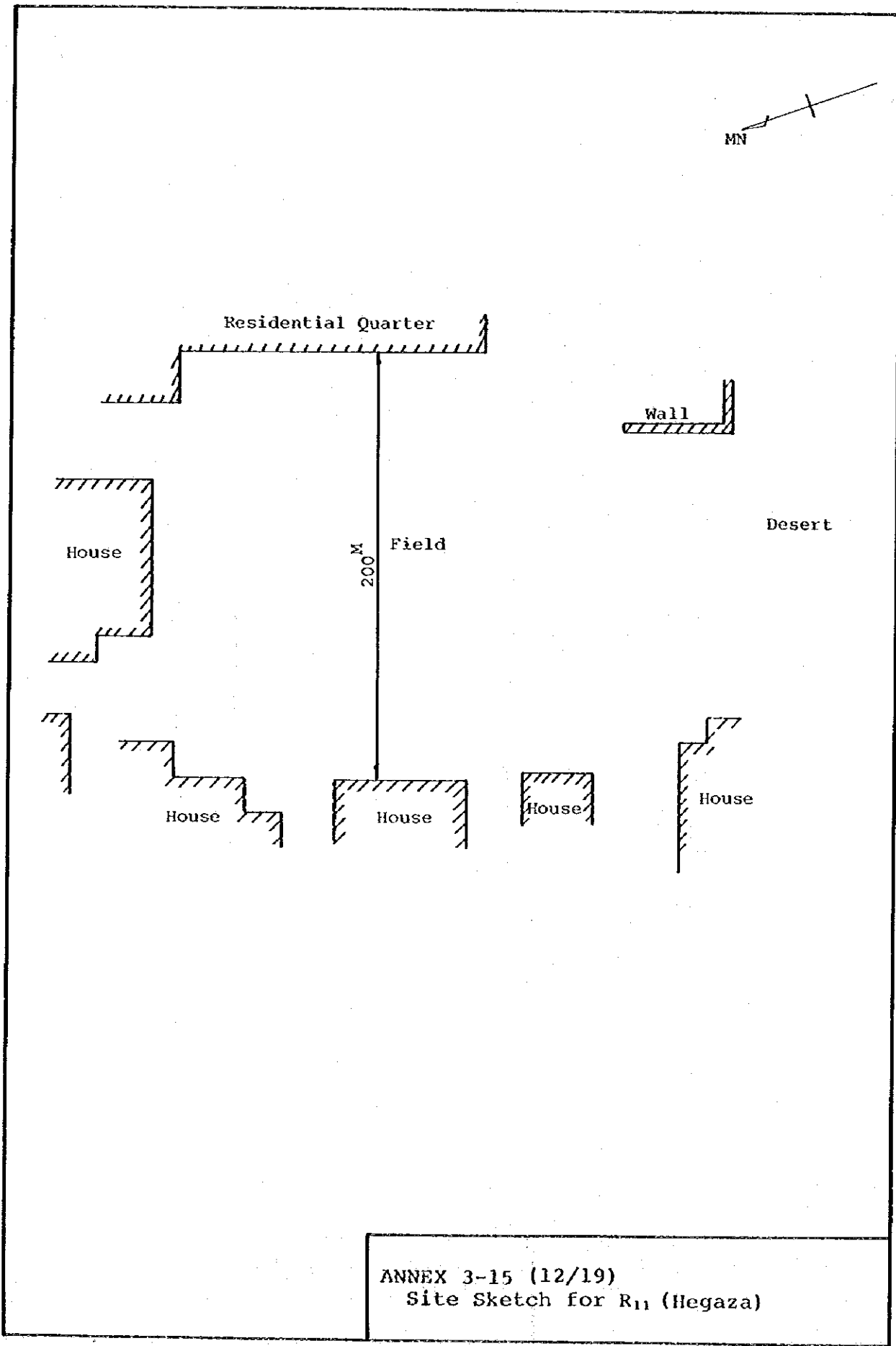
ANNEX 3-15 (9/19)  
 Site Sketch for R<sub>8</sub> (EL Tilihat)



ANNEX 3-15 (10/19)  
Site Sketch for Sohag

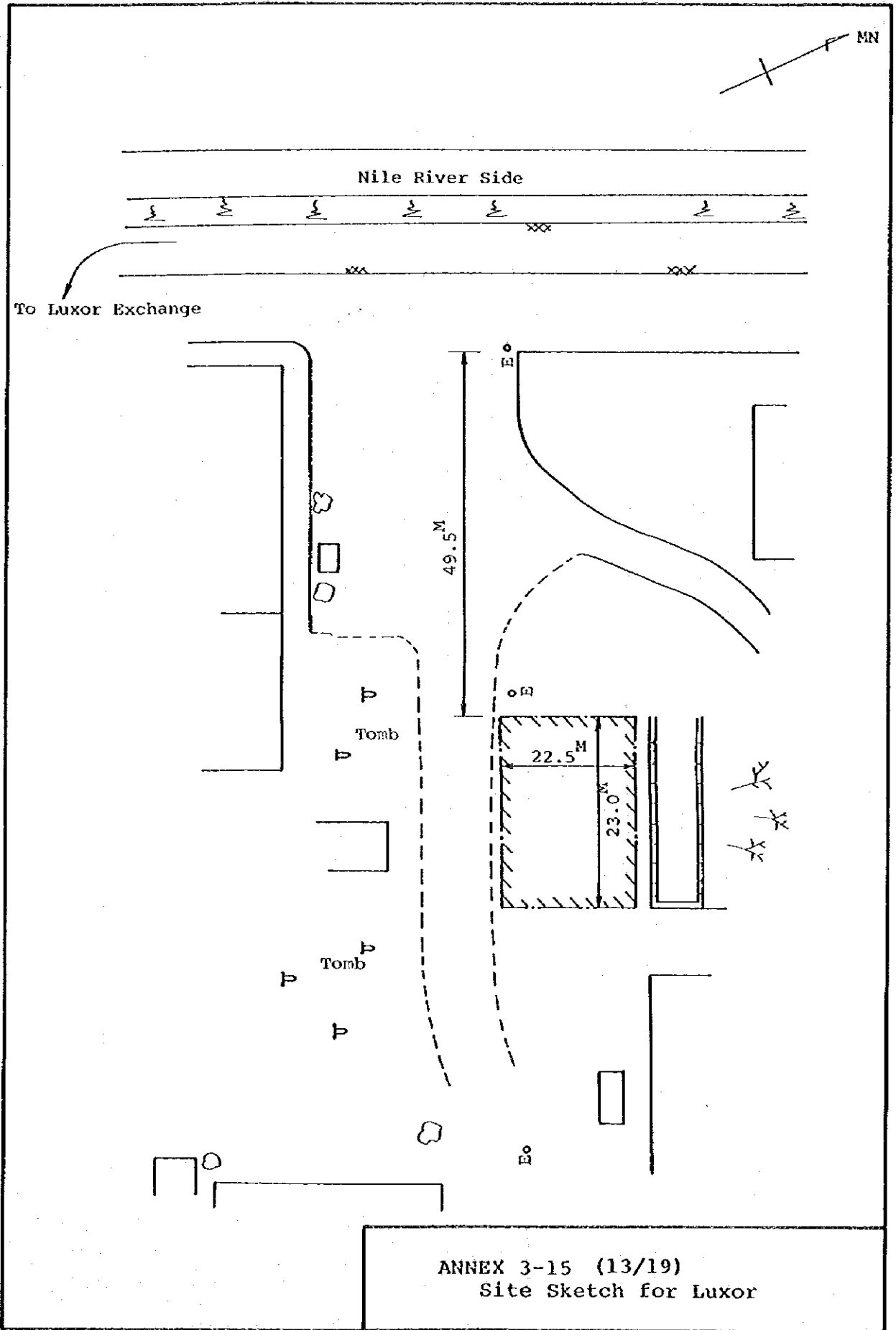


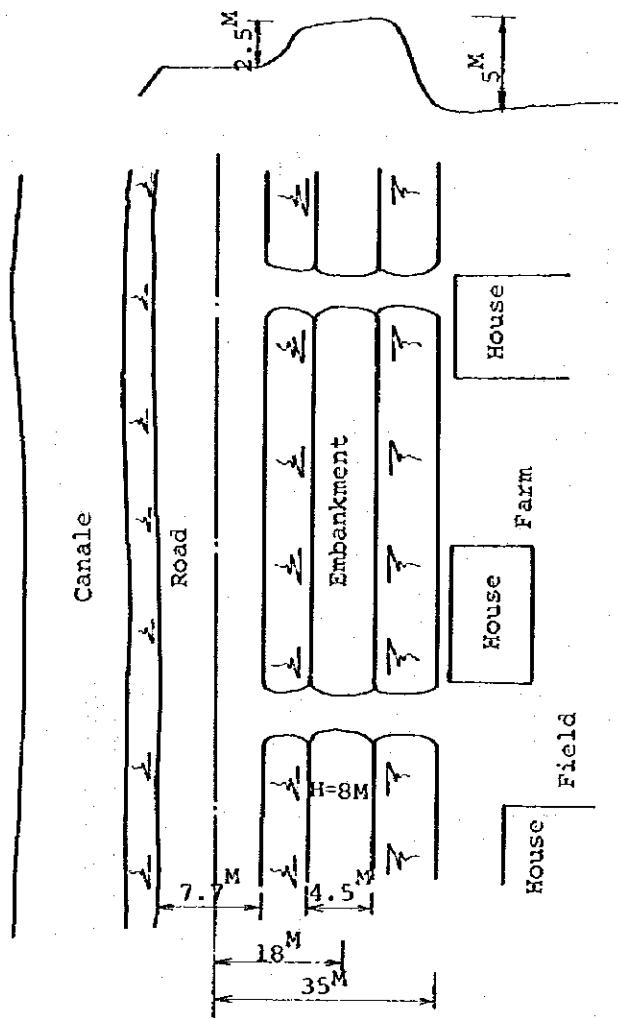
ANNEX 3-15 (11/19)  
 Site Sketch for Qena



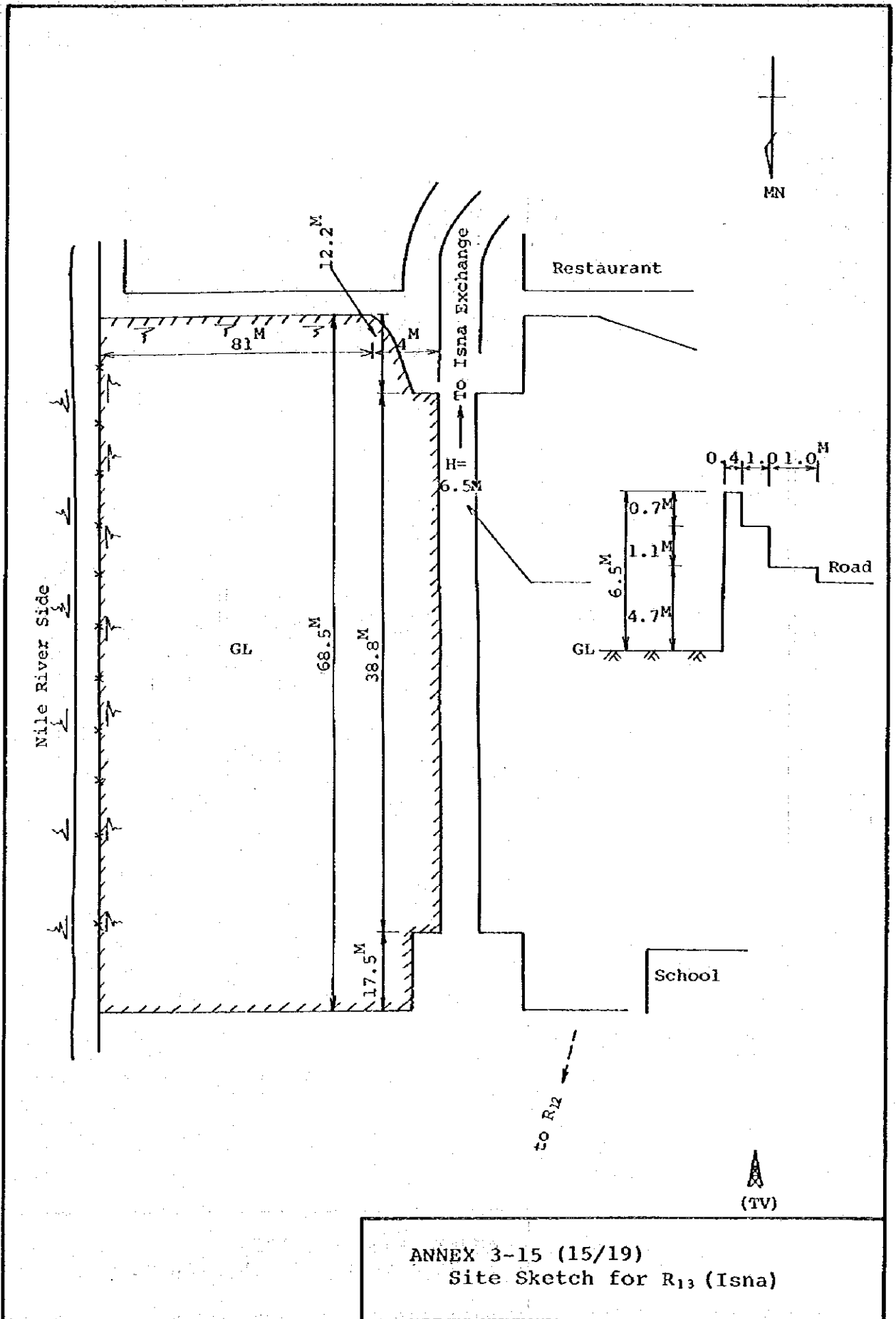
ANNEX 3-15 (12/19)  
Site Sketch for R<sub>11</sub> (Hegaza)



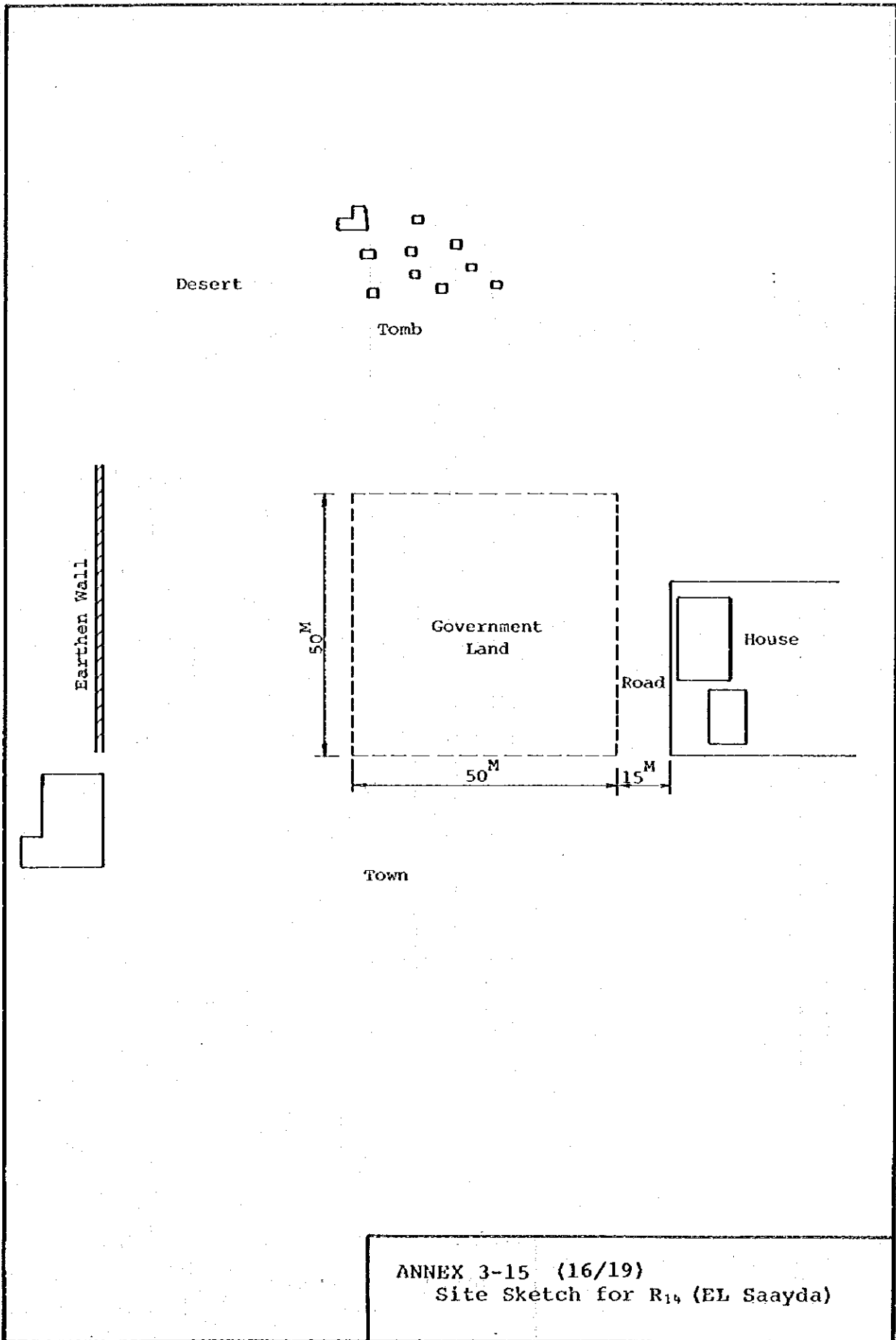


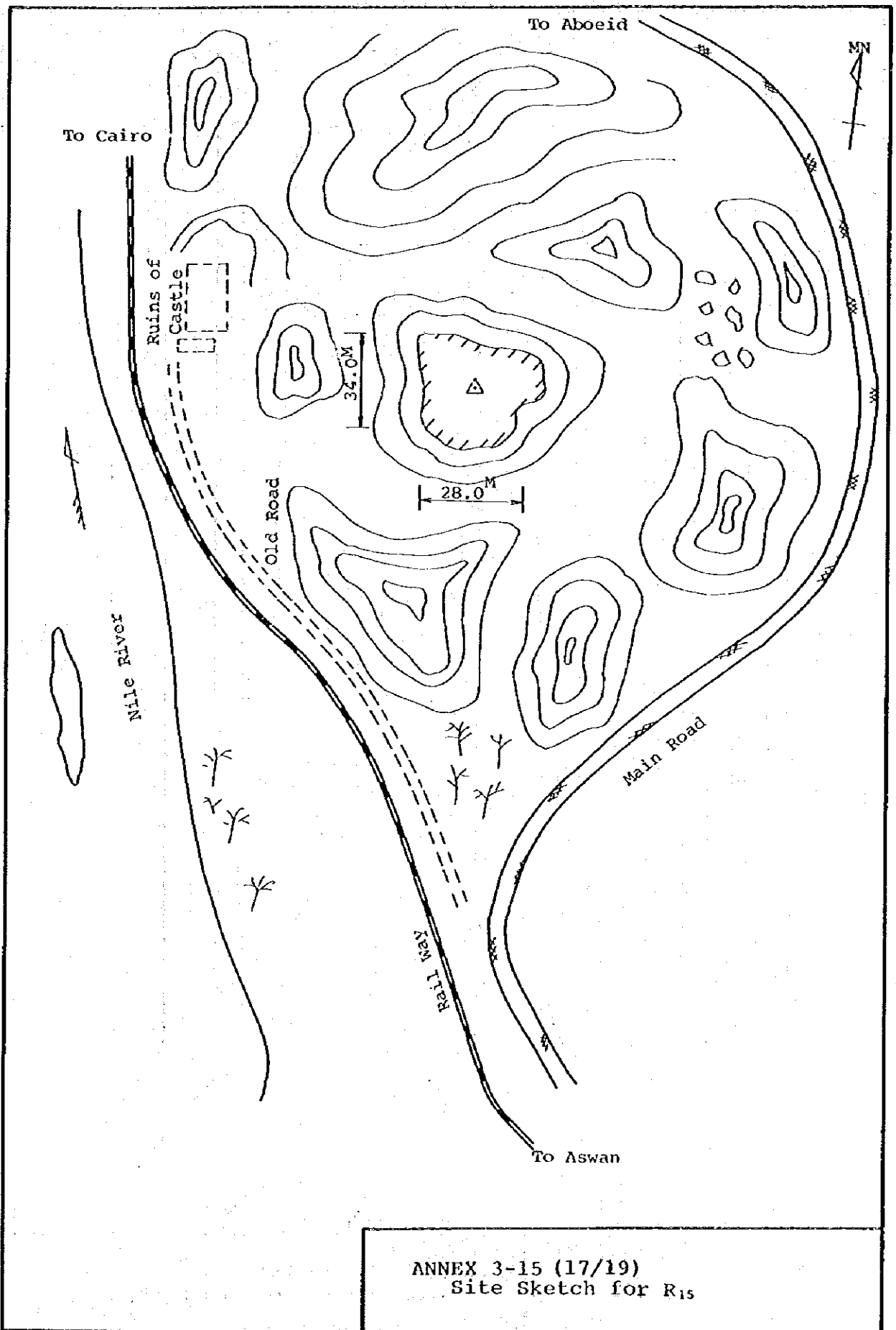


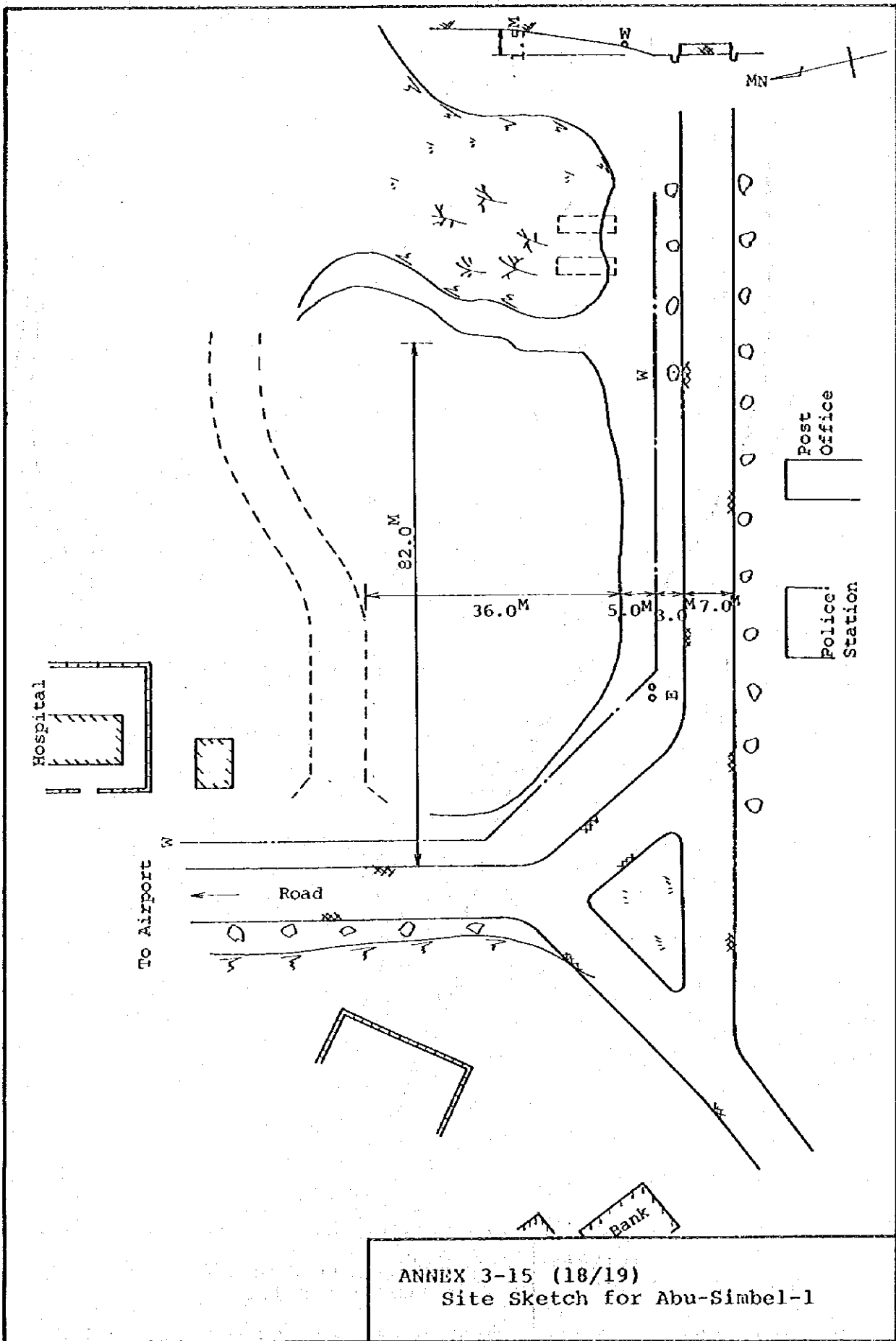
ANNEX 3-15 (14/19)  
 Site Sketch for R<sub>12</sub> (Nag Khamis)



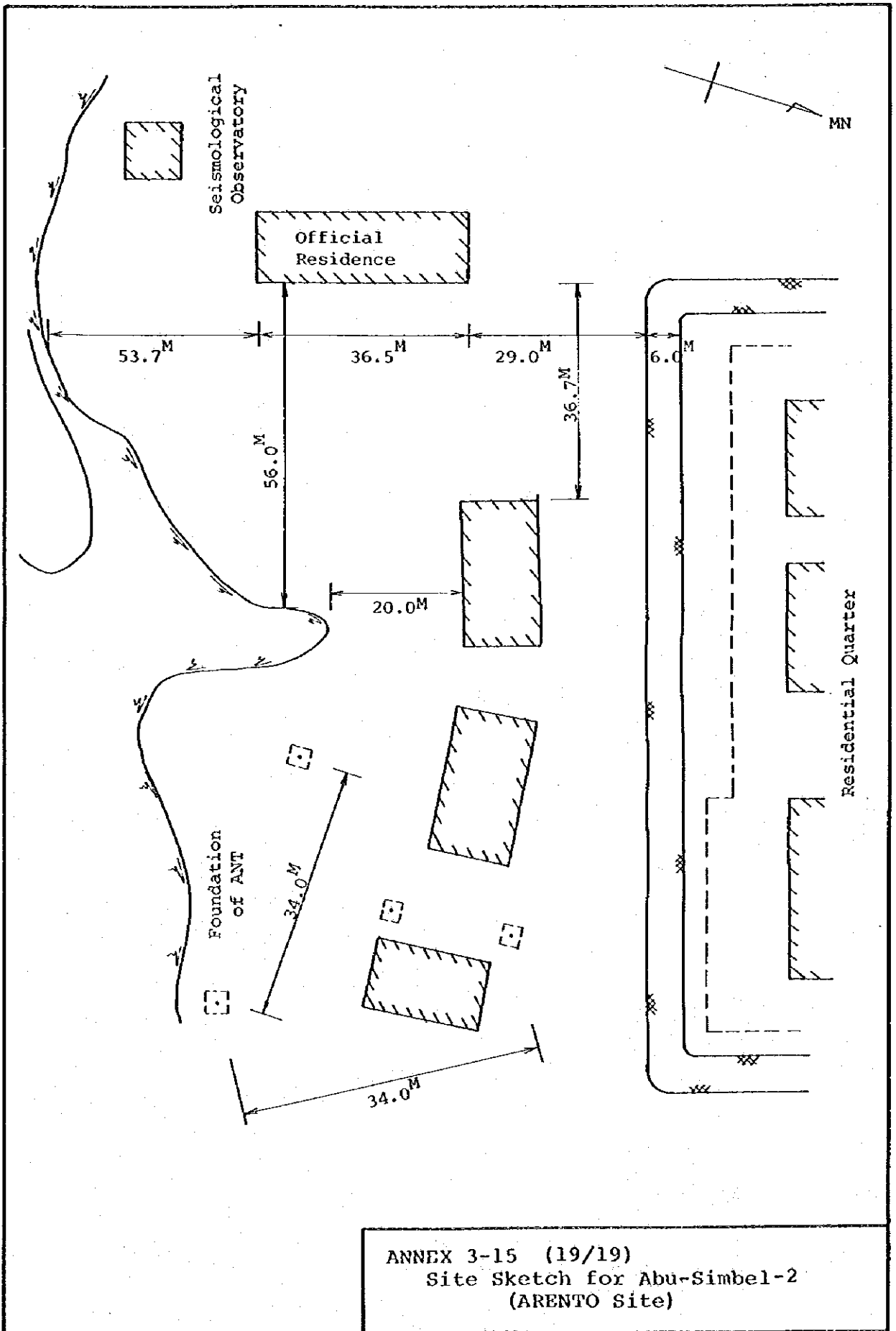
ANNEX 3-15 (15/19)  
Site Sketch for R<sub>13</sub> (Isna)



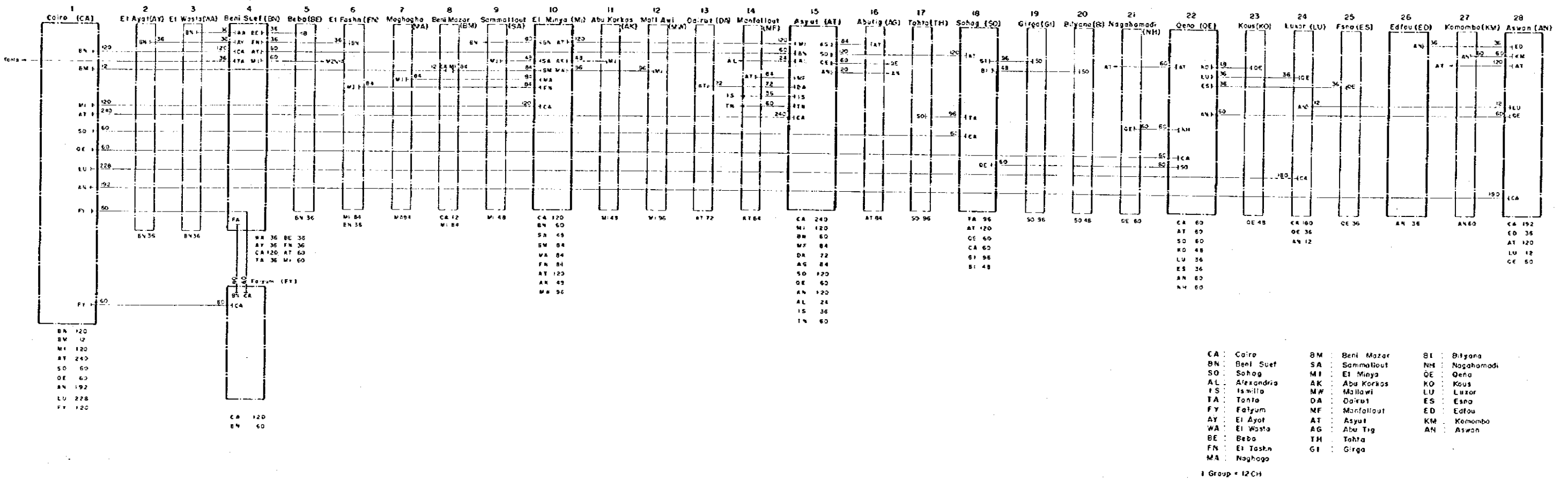




ANNEX 3-15 (18/19)  
 Site Sketch for Abu-Simbel-1

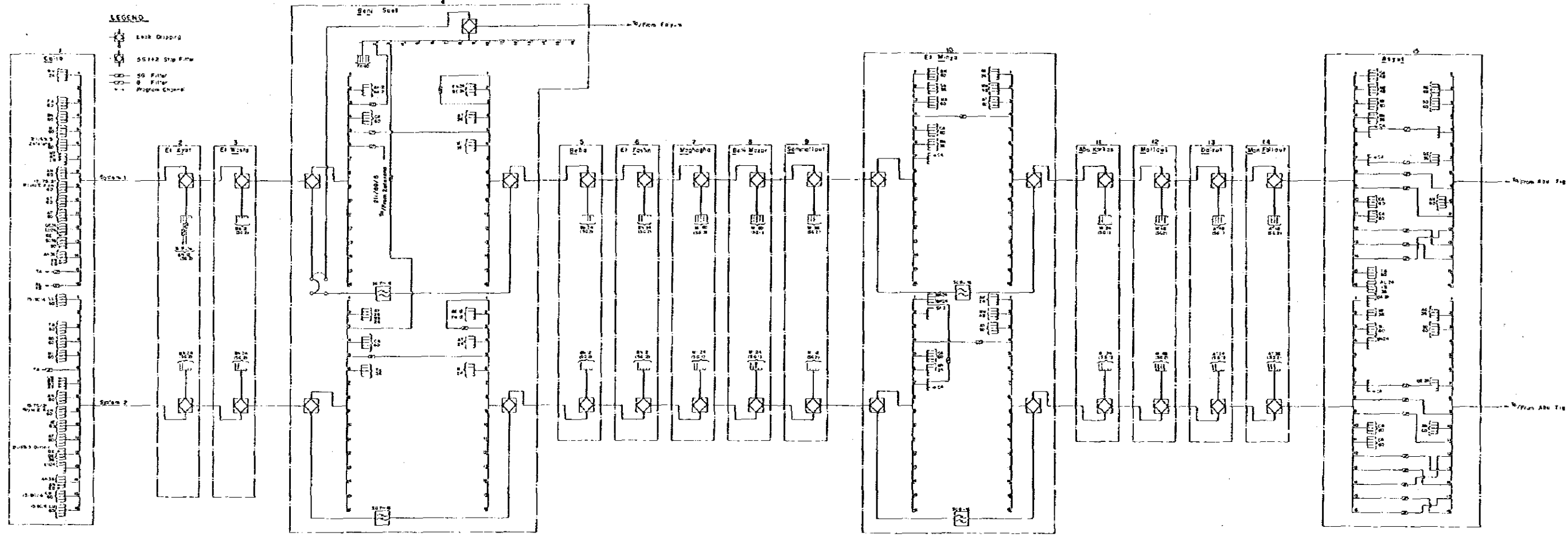


ANNEX 3-15 (19/19)  
 Site Sketch for Abu-Simbel-2  
 (ARENTO Site)

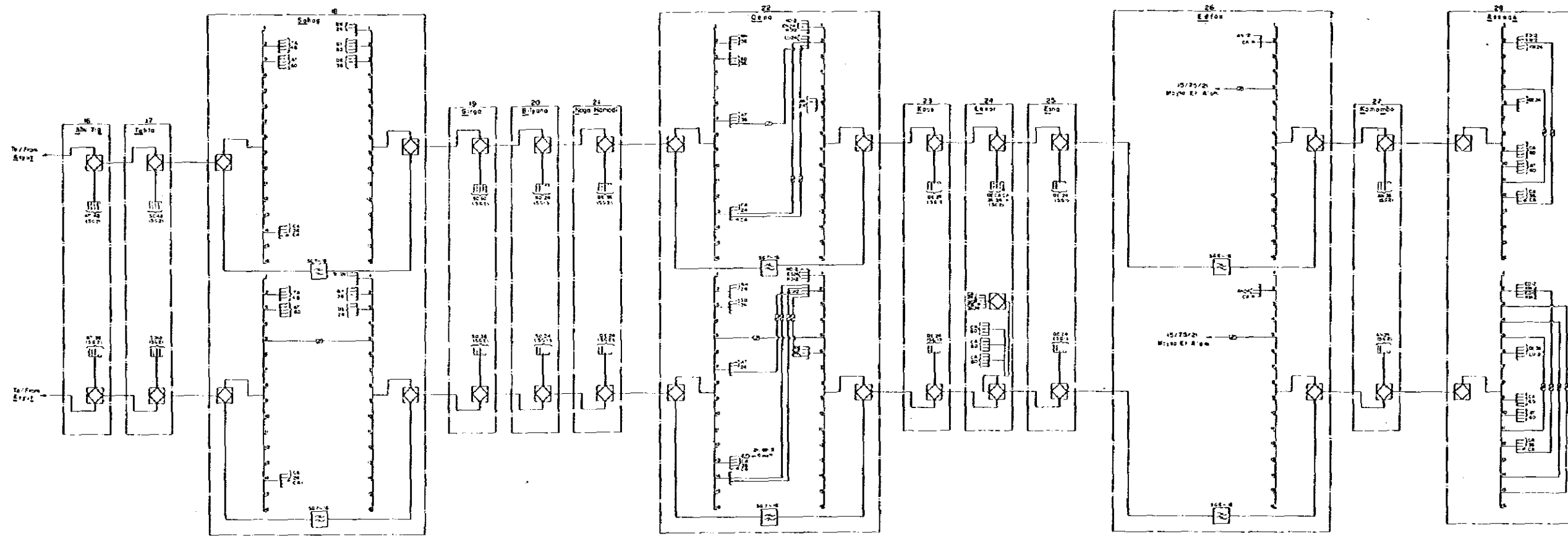


Annex 3-16  
 The Number of Existing Telephone Channels  
 on Upper Egypt Coaxial Network

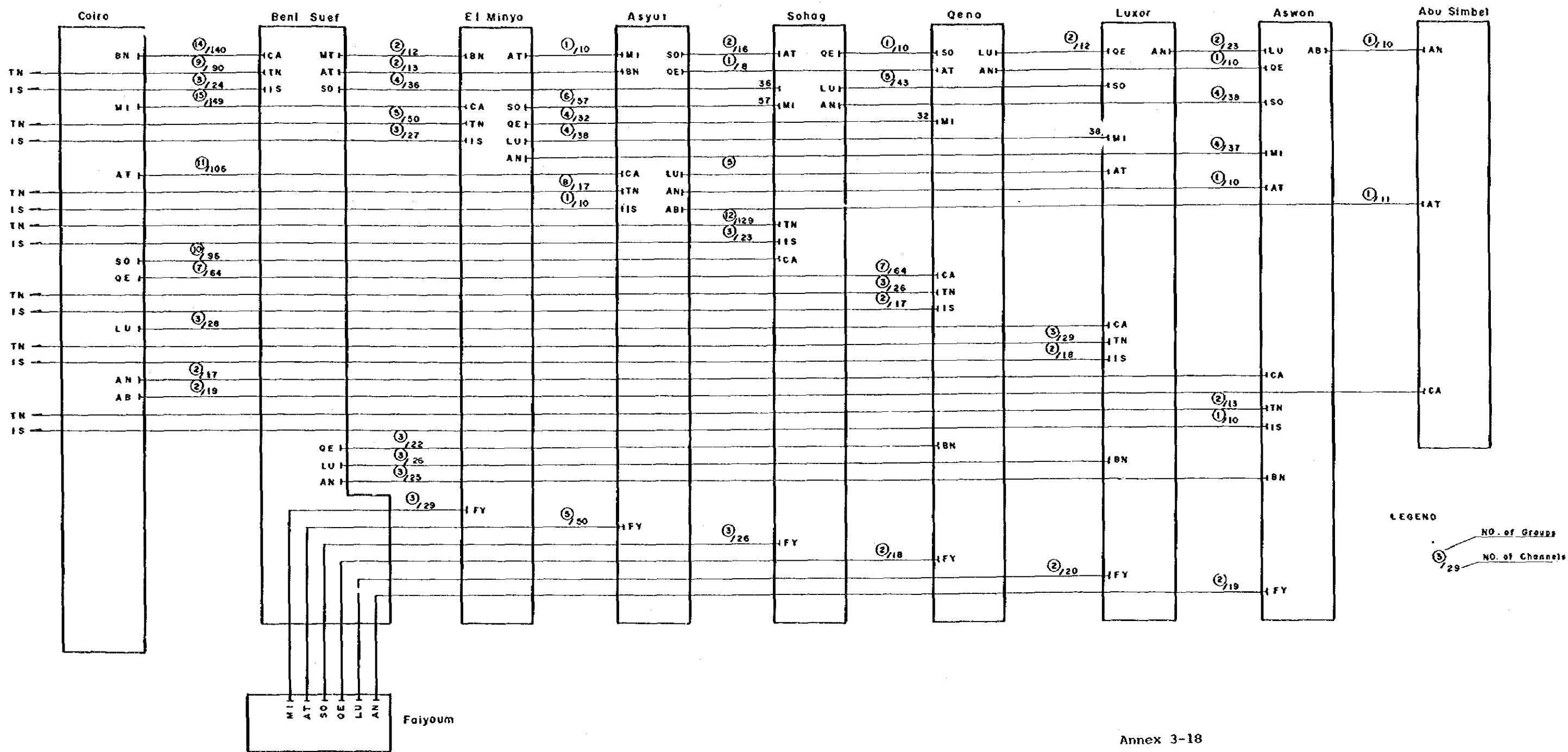




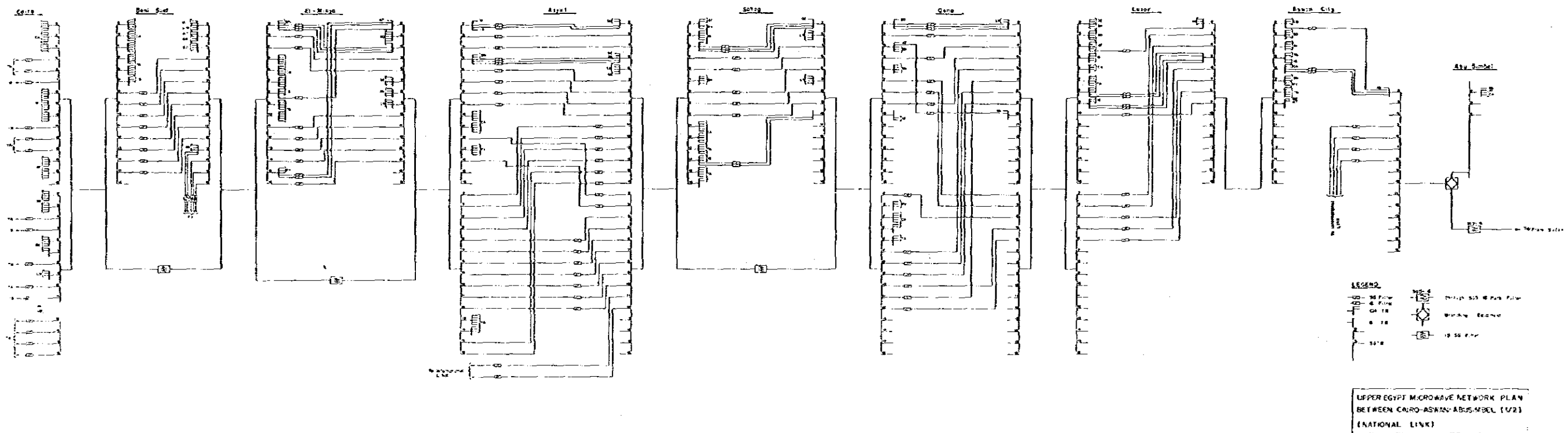
Annex 3-17  
 Channel Accommodation of  
 Upper Egypt Coaxial System (1/2)



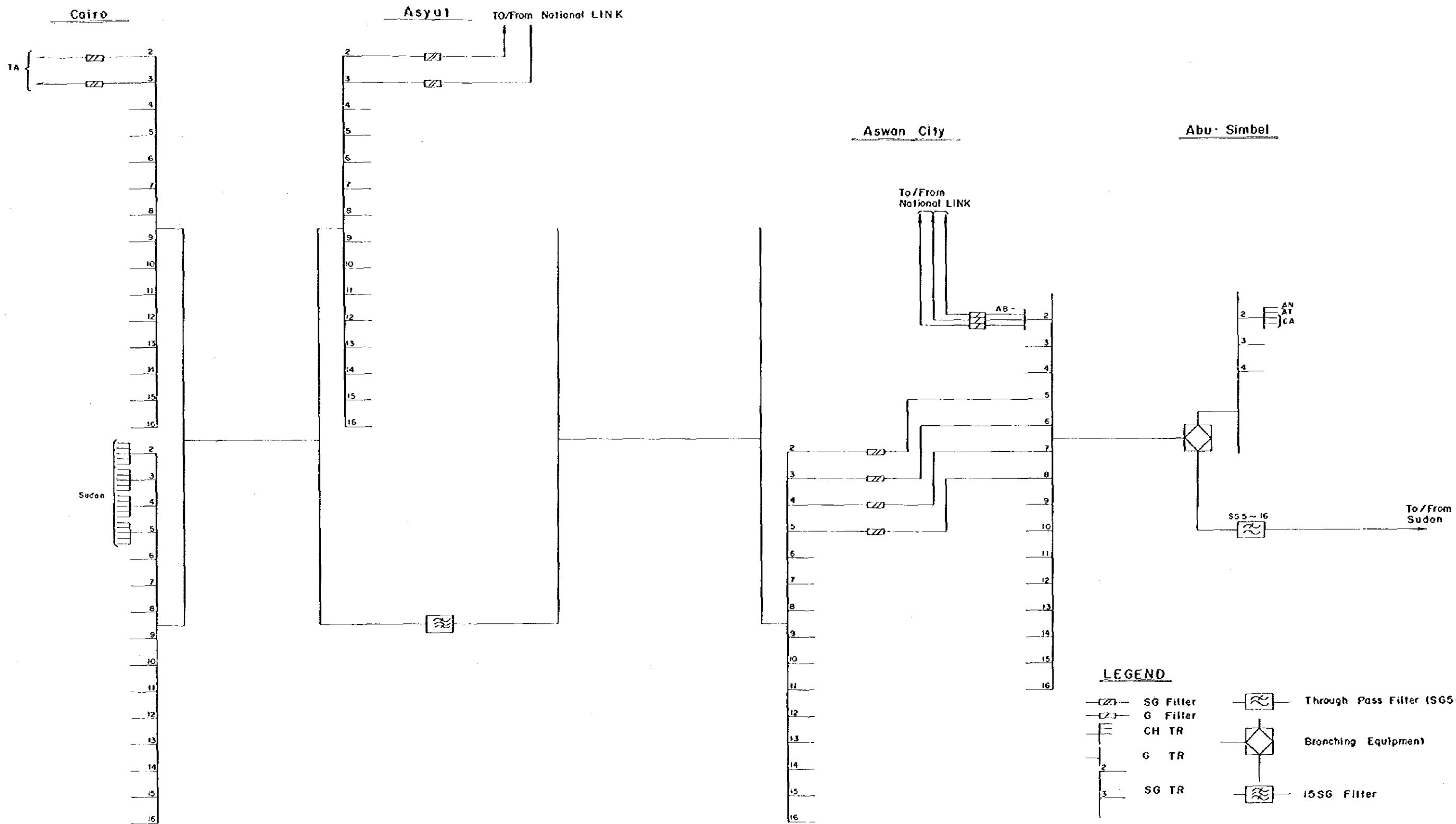
Annex 3-17  
 Channel Accommodation of  
 Upper Egypt Coaxial System (2/2)



Annex 3-18  
 Channel Requirements for Upper Egypt  
 Microwave Network (Year of 1991)



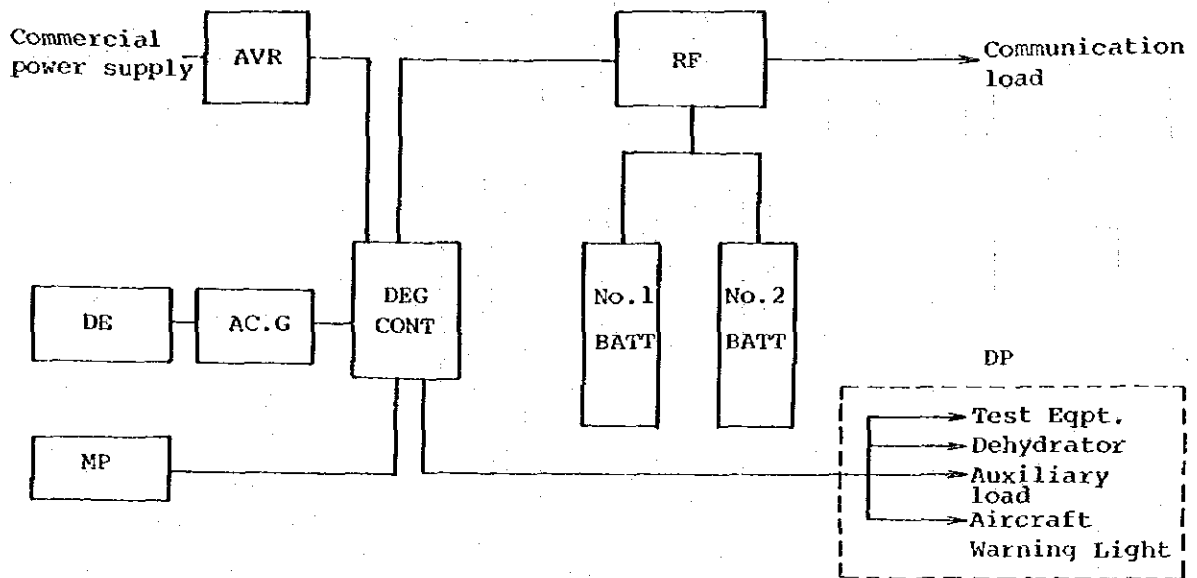
Annex 3-19  
Channel Accommodation Plan on  
Upper Egypt Microwave Network



Annex 3-19  
 Channel Accommodation Plan on  
 Upper Egypt Microwave Network

UPPER EGYPT MICROWAVE NETWORK PLAN  
 BETWEEN CAIRO - ASWAN - ABU SHIMBEL  
 SUDAN (2/2)  
 (International)

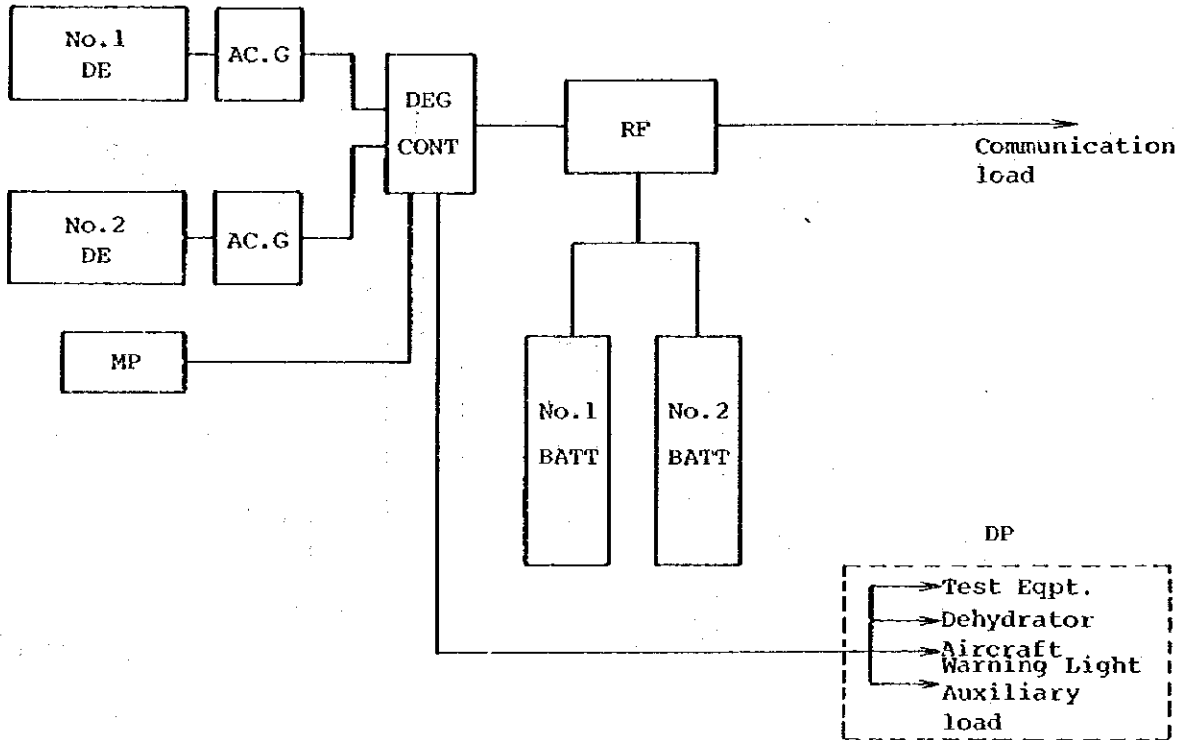




Legend

- AVR: Automatic Voltage Regulator  
 RF: Rectifier  
 RG: Ringer  
 BATT: Battery  
 DE: Diesel Engine  
 AC.G: AC Generator  
 DEG: Diesel Engine Generator  
 CONT: Control Panel  
 MP: Mobile Power Plant  
 DP: Distribution Panel

ANNEX 3-20  
 Power Plant Diagram for Mains-  
 powered Station

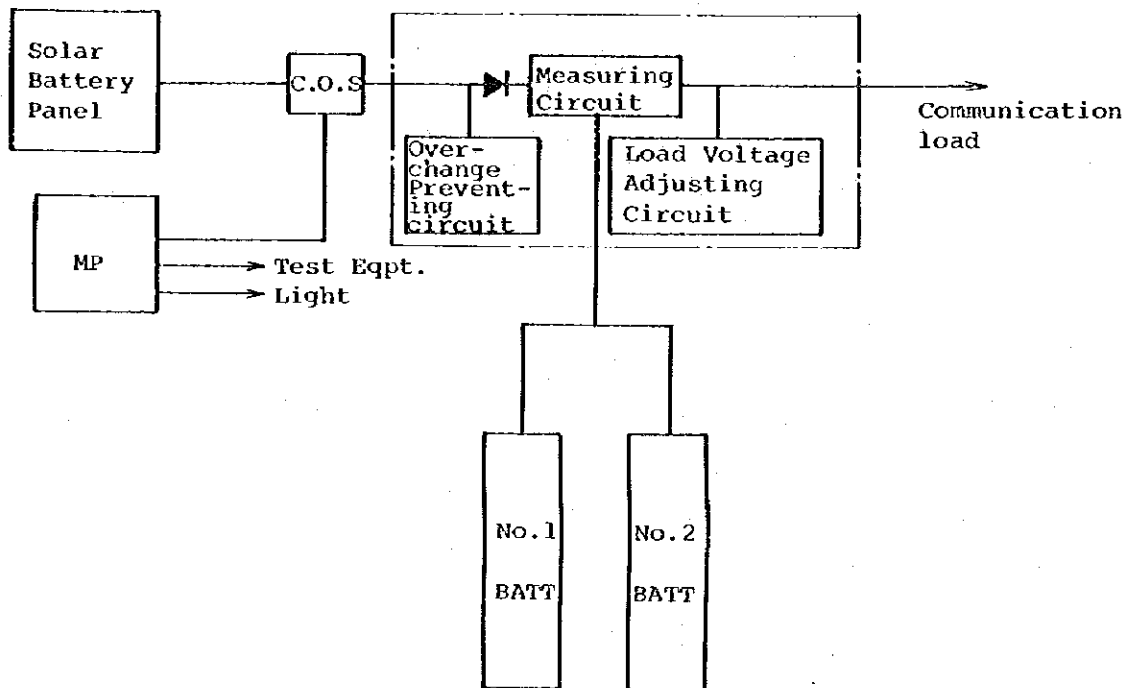


Legend

- DE: Diesel Engine
- AC.G: AC Generator
- DEG: Diesel Engine Generator
- CONT: Control Panel
- RF: Rectifier
- RG: Ringer
- BATT: Battery
- MP: Mobile Power Plant
- DP: Distribution Panel

ANNEX 3-21  
Power Plant Diagram for Self-powered Station (1)





Legend

- C.O.S: Change-over Switch
- MP: Mobile Power Plant (DC Generator)
- D: Reverse Current Preventing Diode
- BATT: Battery

ANNEX 3-22  
 Power Plant Diagram for Self-  
 powered Station (2)

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