

Fig.A.11 (1/86)

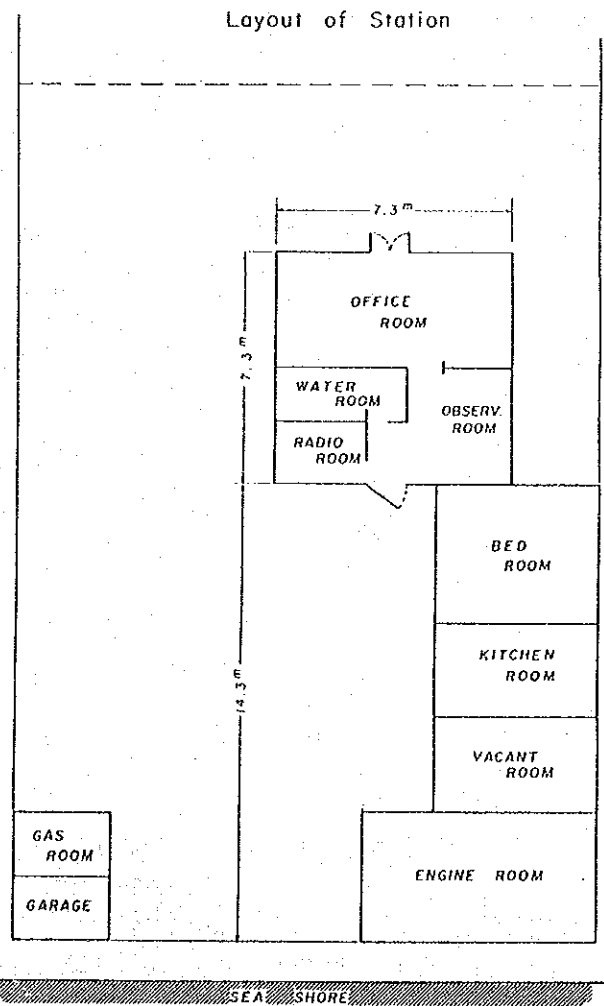


Fig.A.11 (2/86)

VIGAN WEATHER STATION

Layout of Site

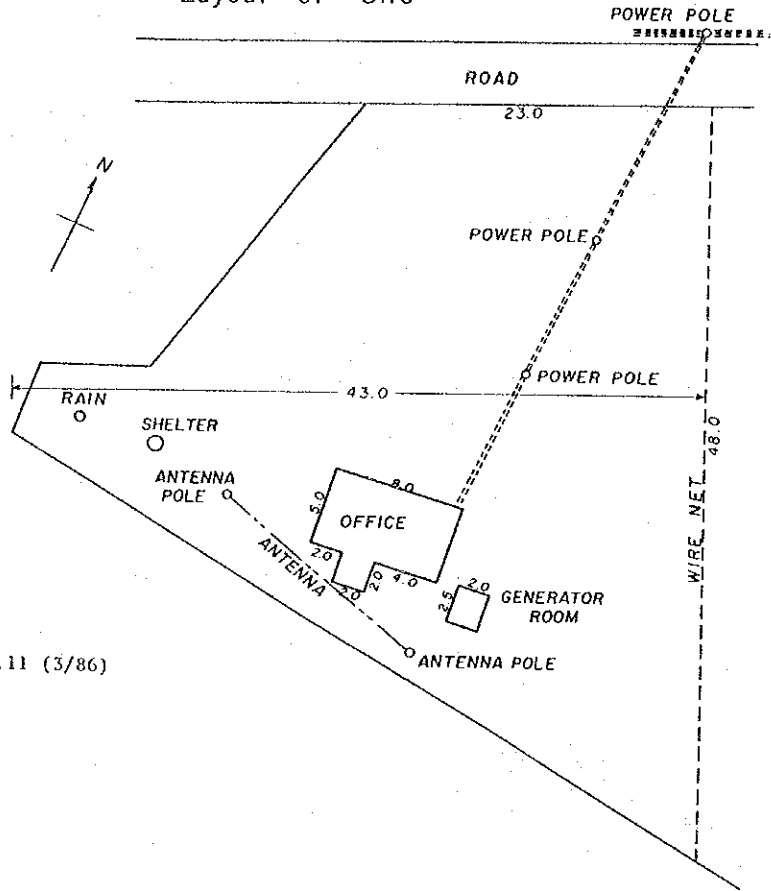


Fig.A.11 (3/86)

Layout of Station

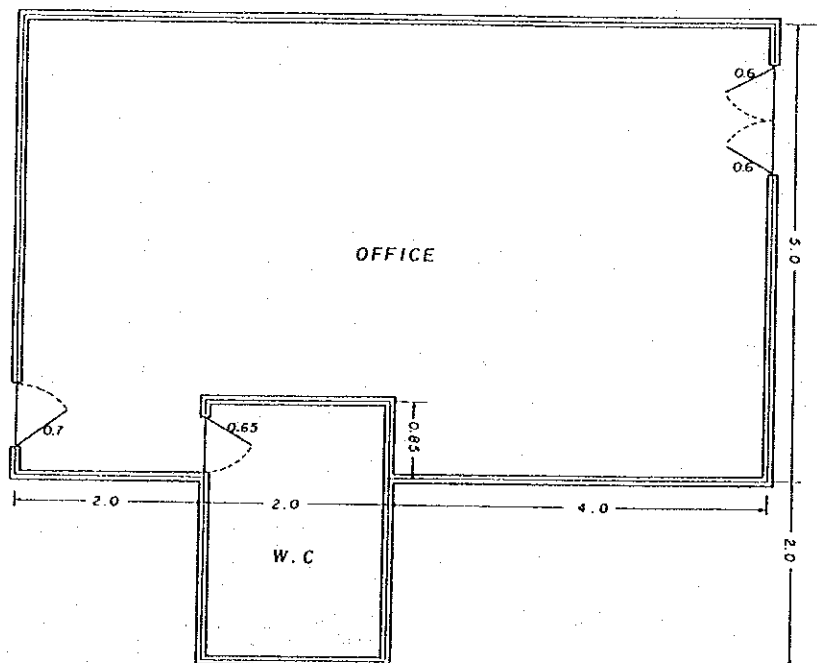


Fig.A.11 (4/86)

LAOAG WEATHER STATION

Layout of Site

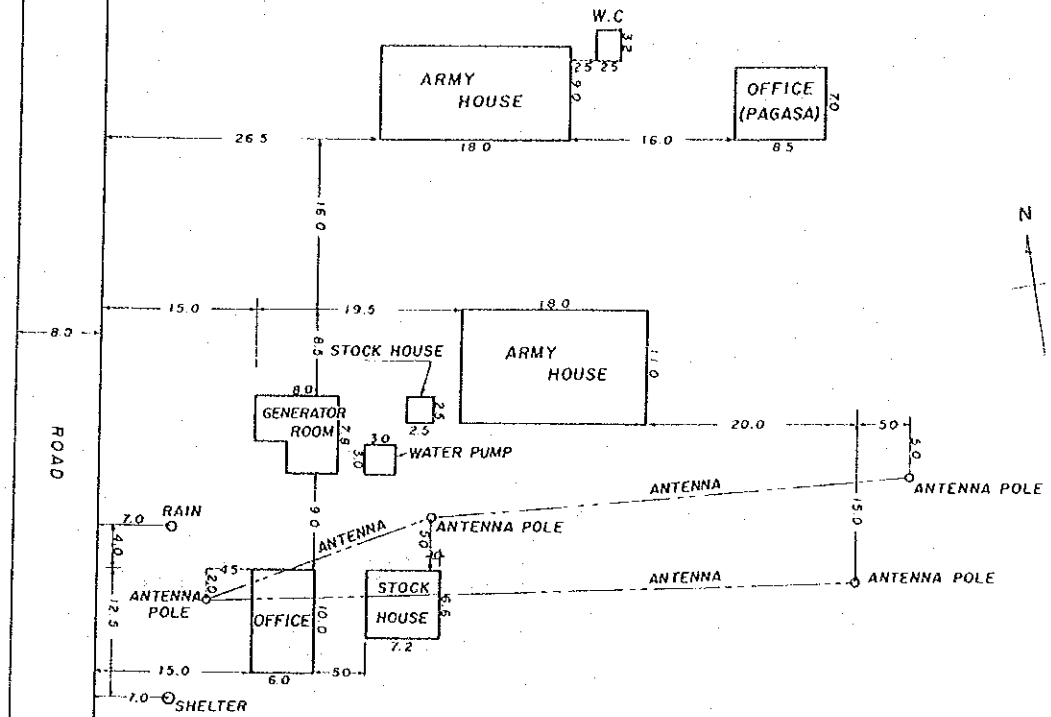


Fig.A.11 (5/86)

Layout of Station

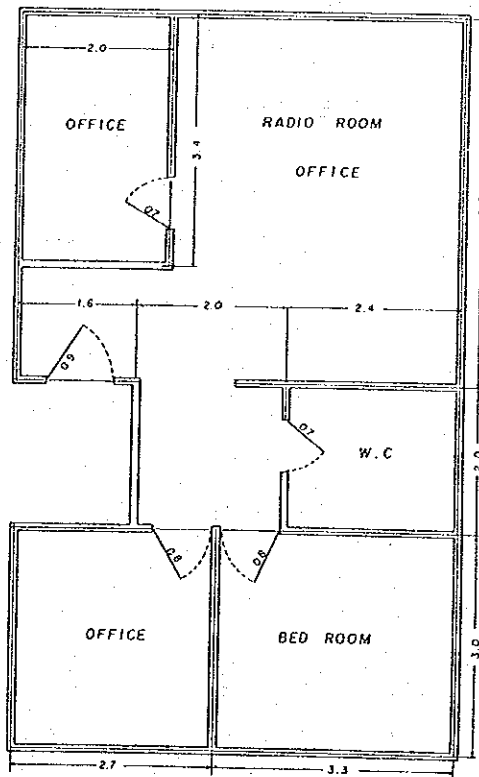


Fig.A.11 (6/86)

APARRI WEATHER STATION
Layout of Site

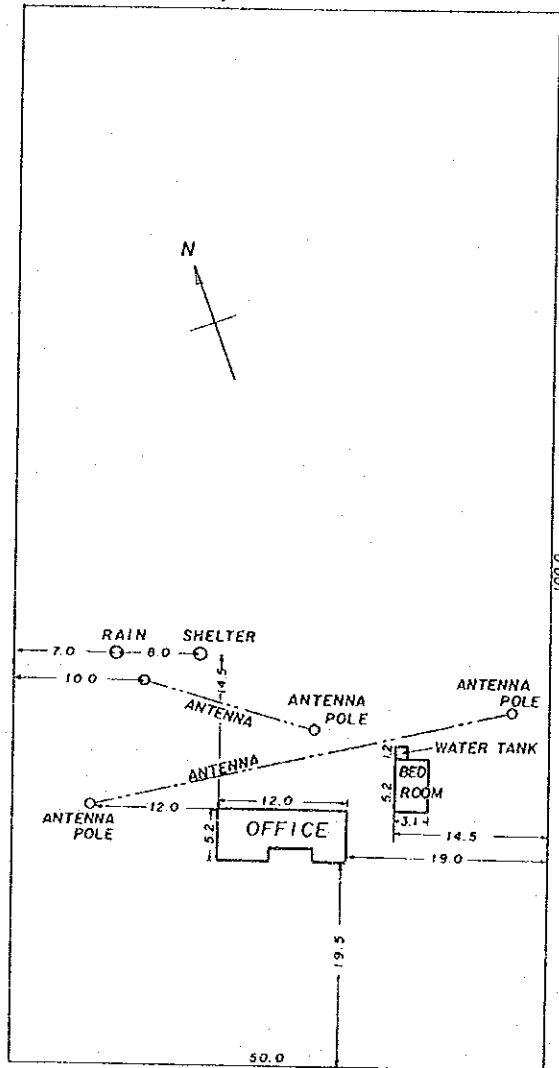


Fig.A.11 (7/86)

Layout of Station

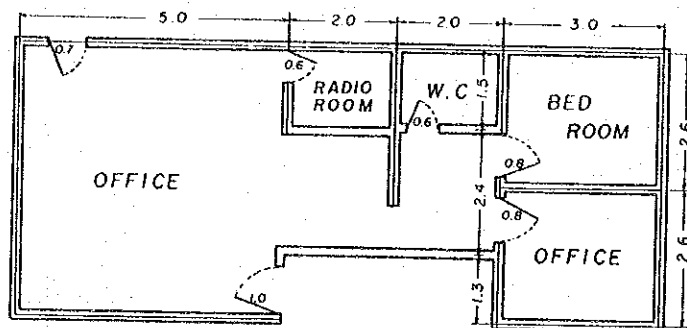


Fig.A.11 (8/86)

APARRI RADAR STATION

Layout of Site

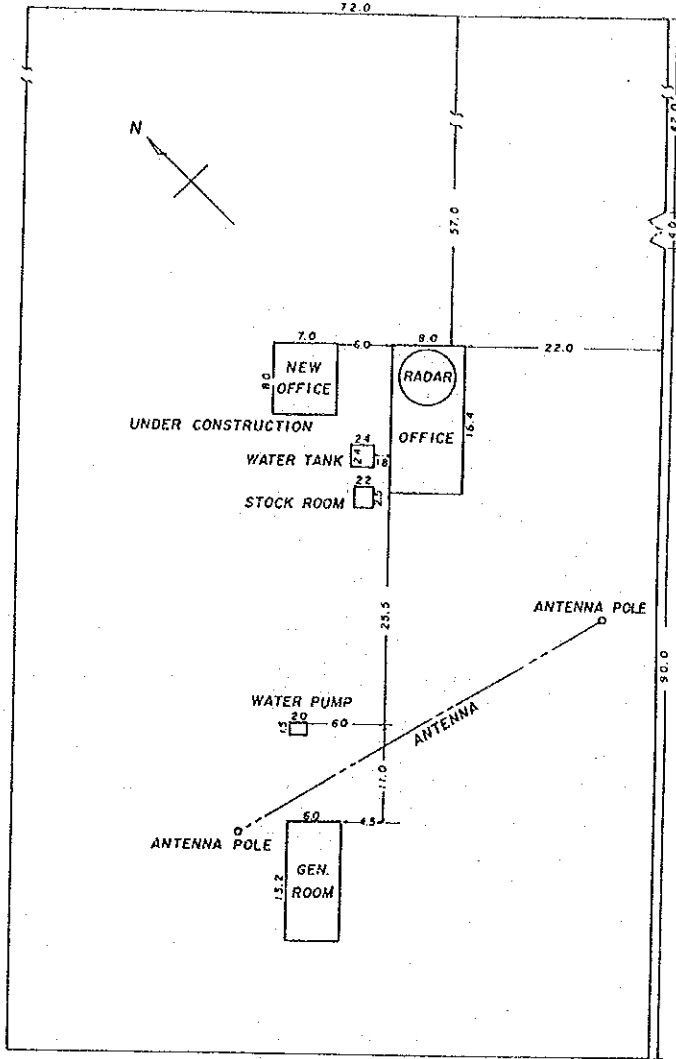


Fig.A.11 (9/86)

Layout of Station

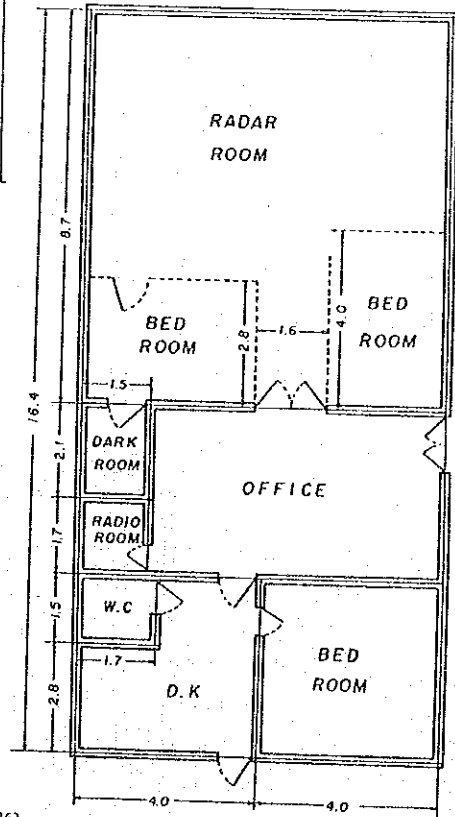


Fig.A.11 (10/86)

TUGUEGARAO WEATHER STATION

Layout of Site

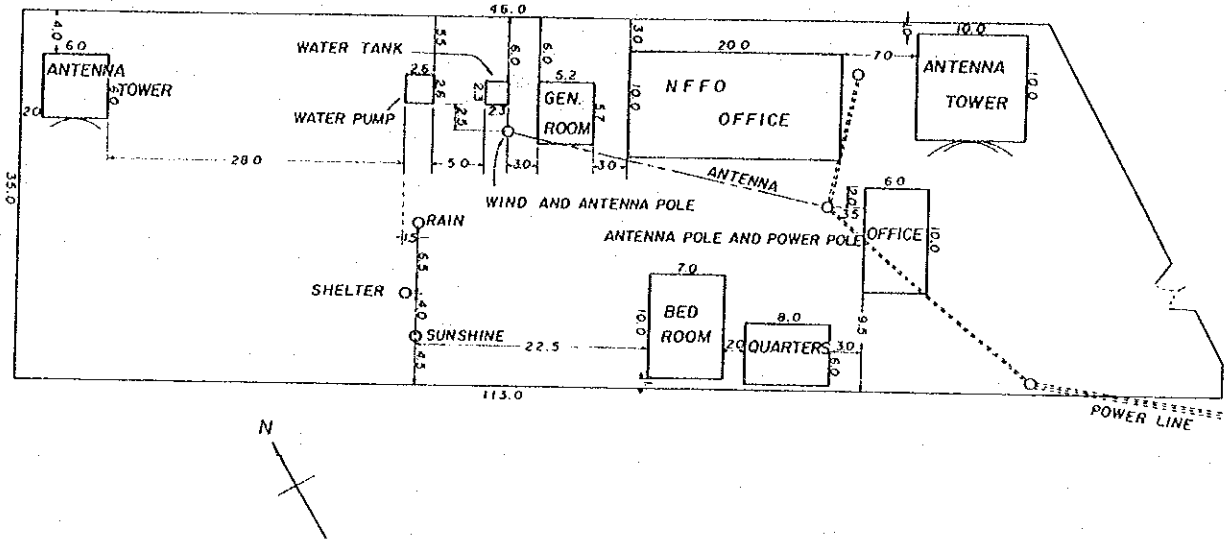


Fig.A.11 (11/86)

Layout of Station

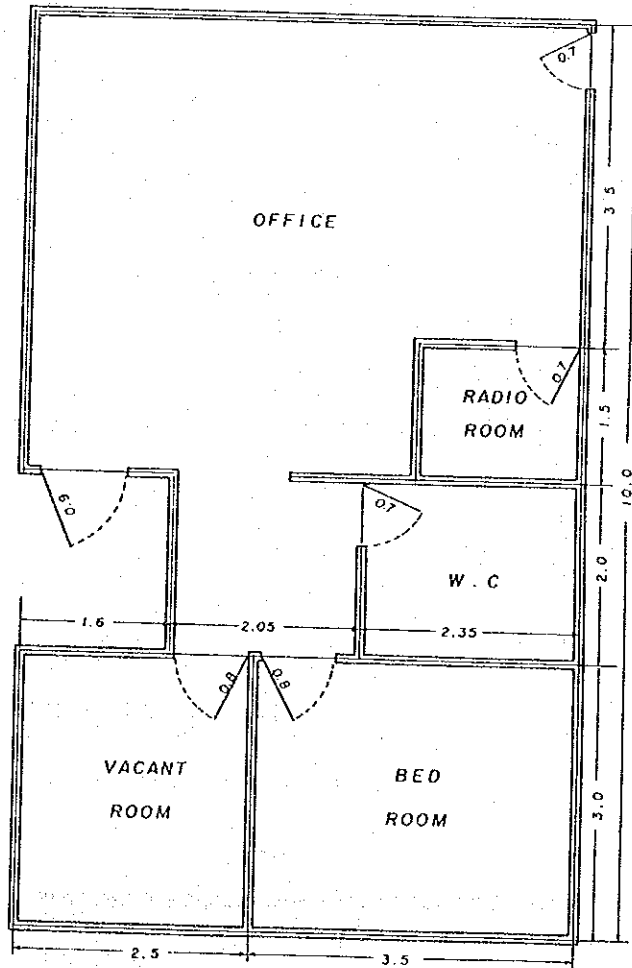


Fig.A.11 (12/86)

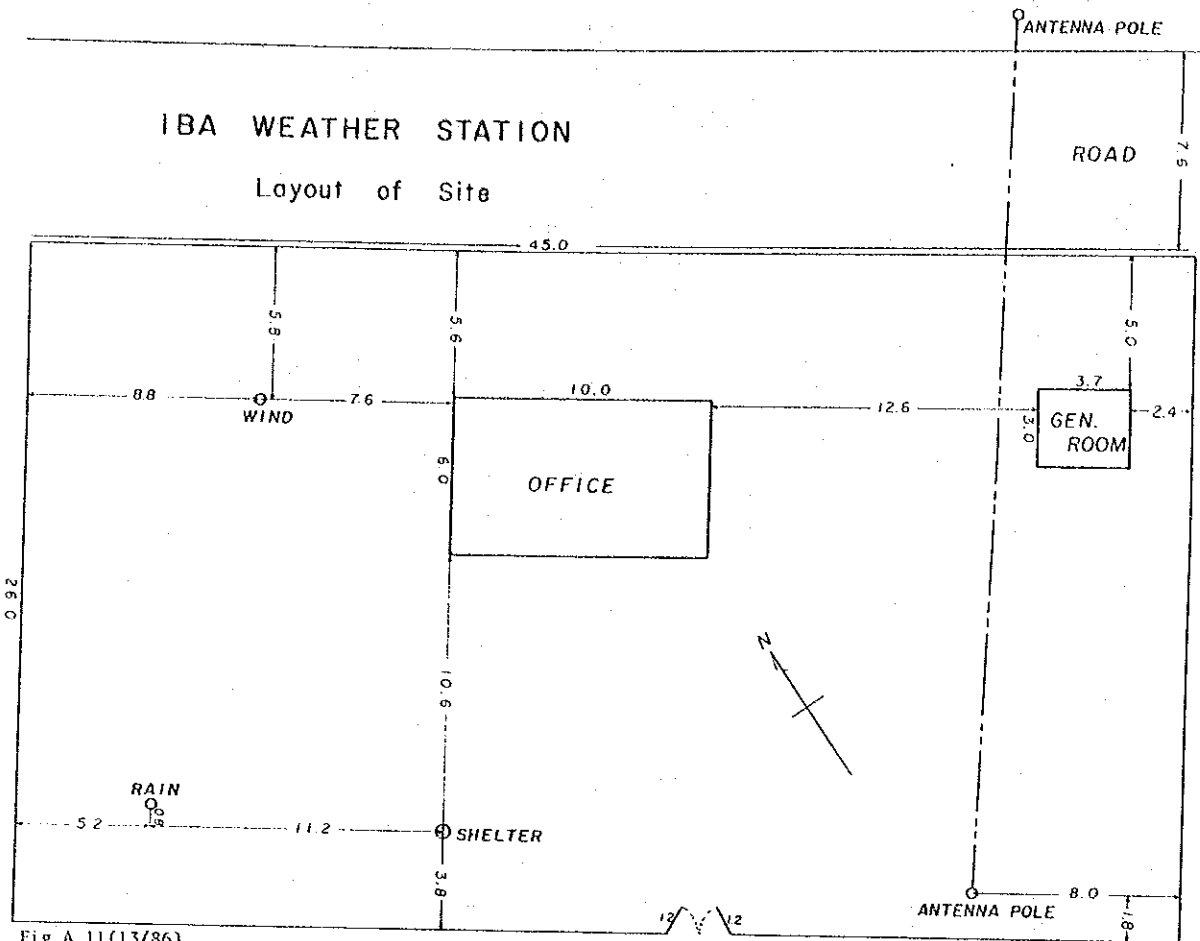


Fig.A.11(13/86)

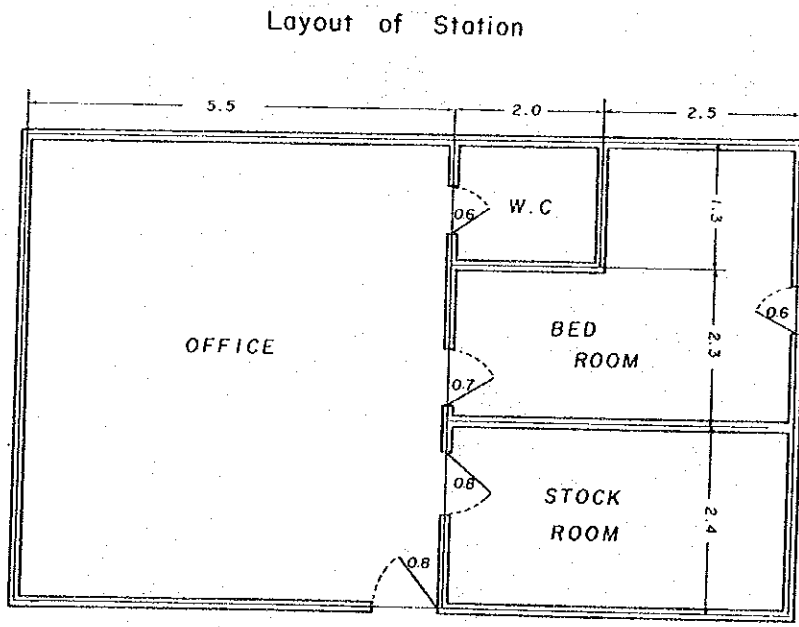


Fig.A.11 (14/86)

DAGUPAN WEATHER STATION

Layout of Site

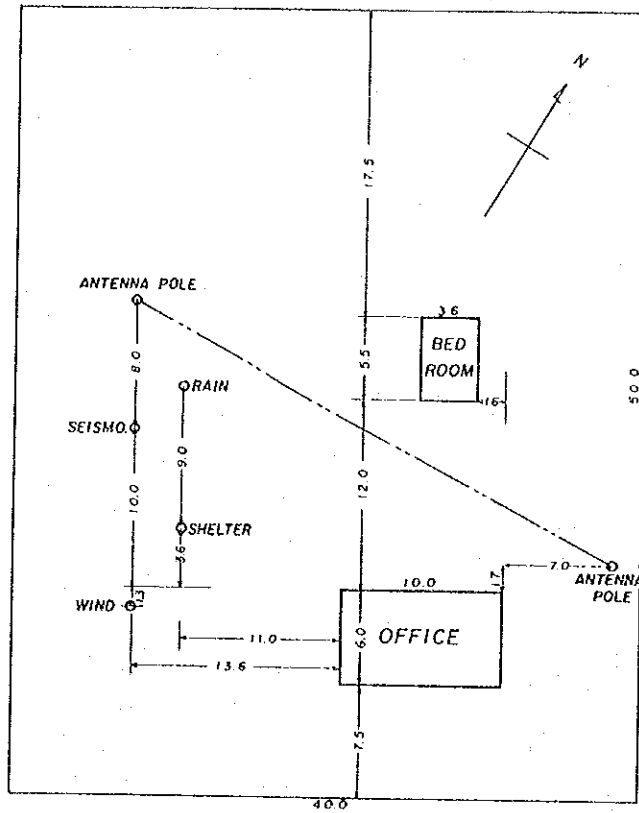


Fig.A.11 (15/86)

Layout of Station

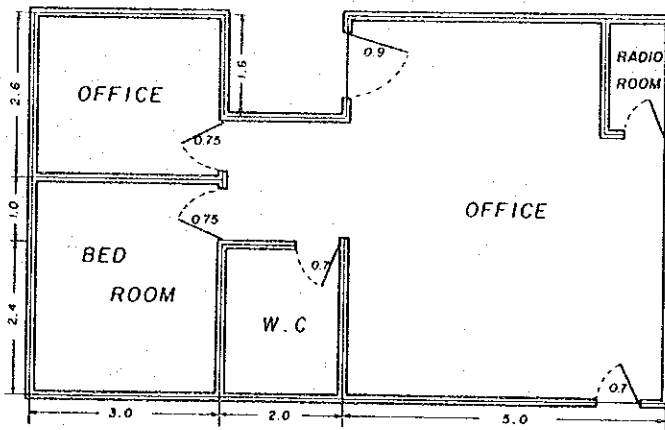


Fig.A.11 (16/86)

BAGUIO WEATHER STATION

Layout of Site

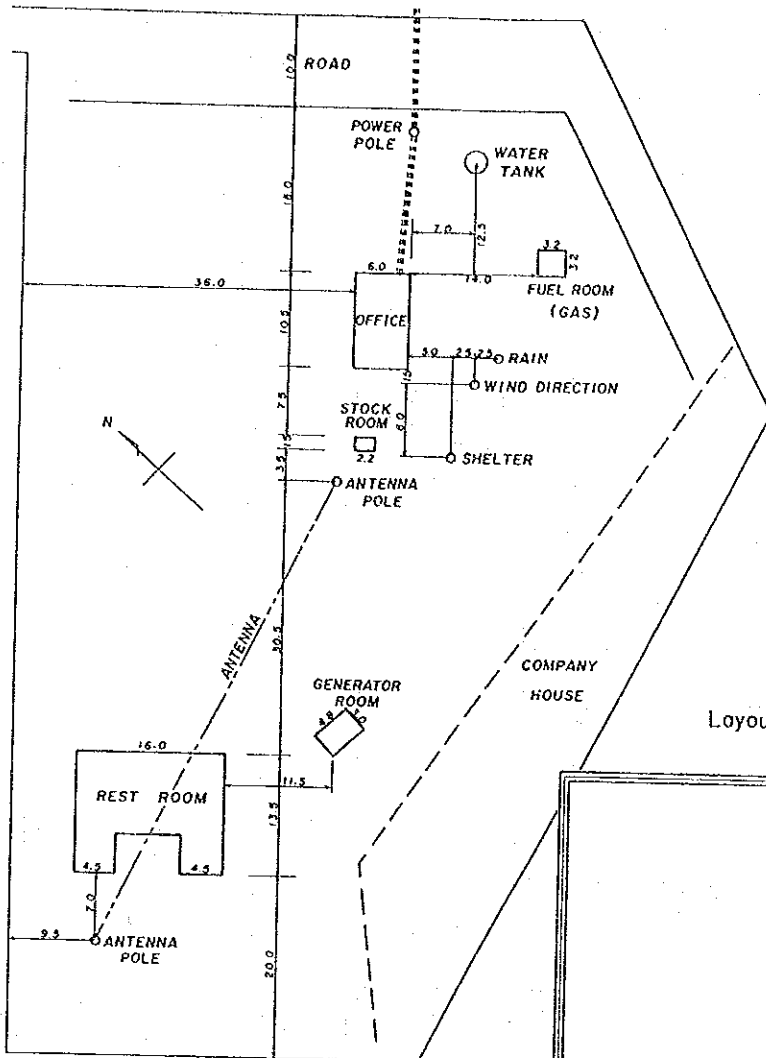


Fig.A.11 (17/86)

Layout of Station

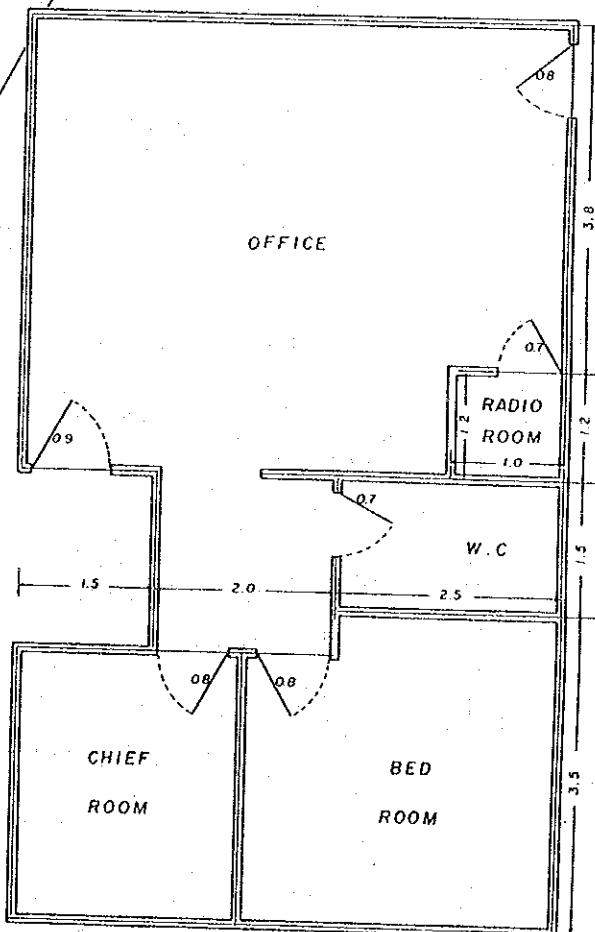


Fig.A.11 (18/86)

BAGUIO RADAR STATION

Layout of Site

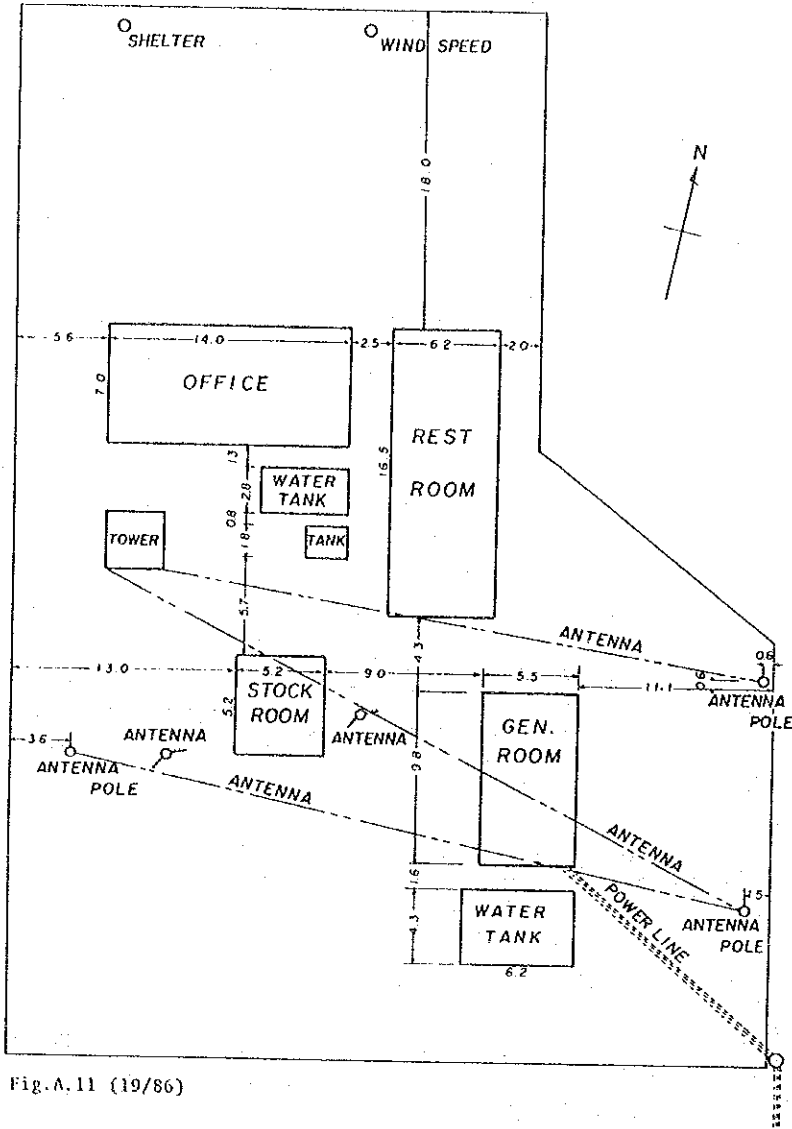


Fig.A.11 (19/86)

Layout of Station

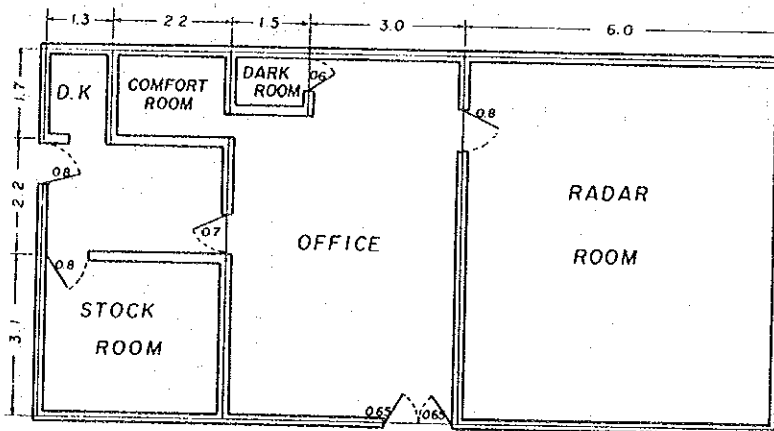


Fig.A.11 (20/86)

MUNOZ WEATHER STATION

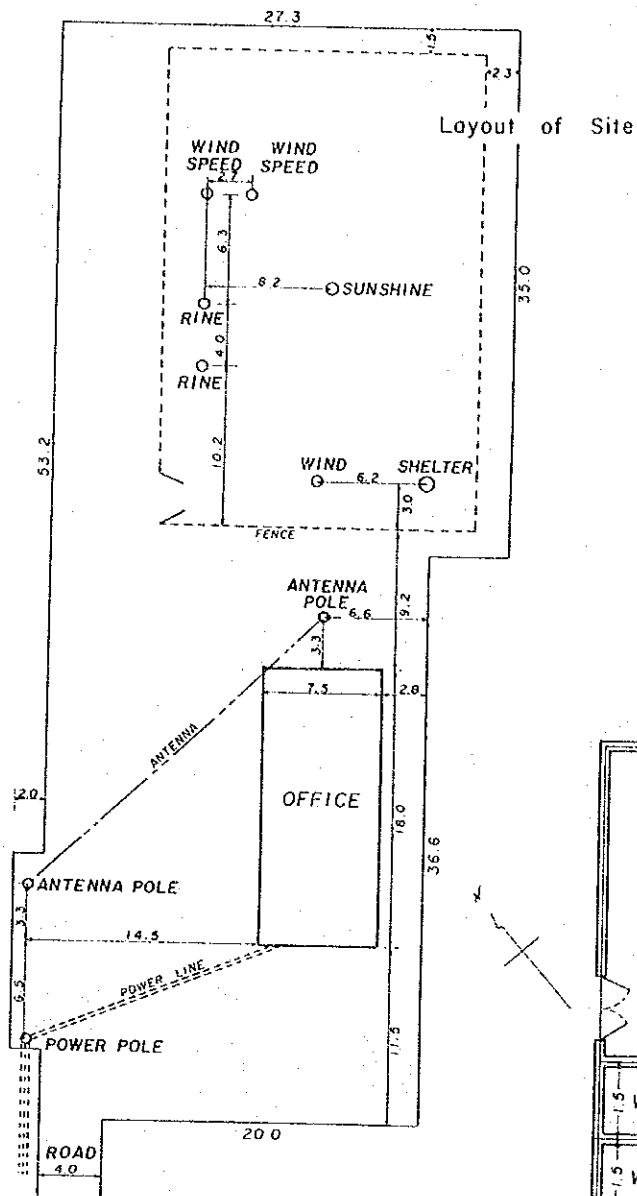


Fig.A.11 (21/86)

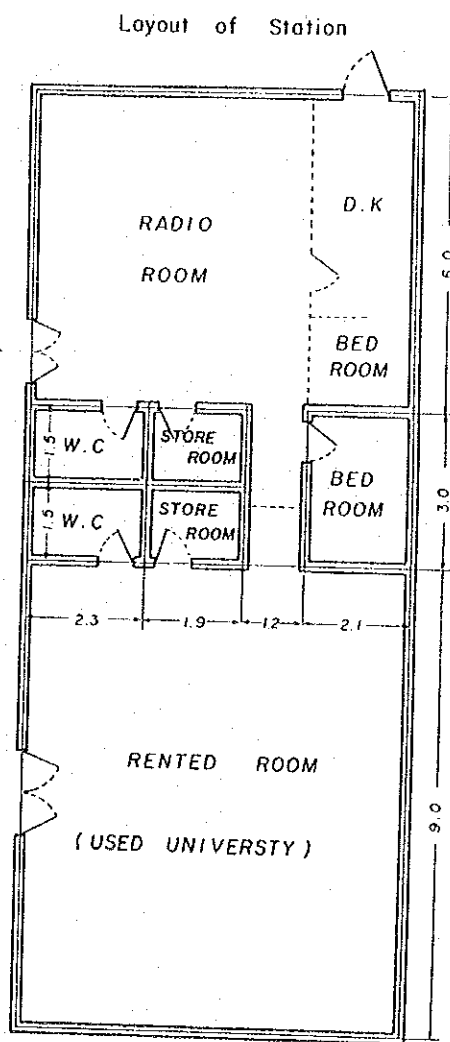


Fig.A.11 (22/86)

BALER WEATHER STATION

Layout of Site

36.0

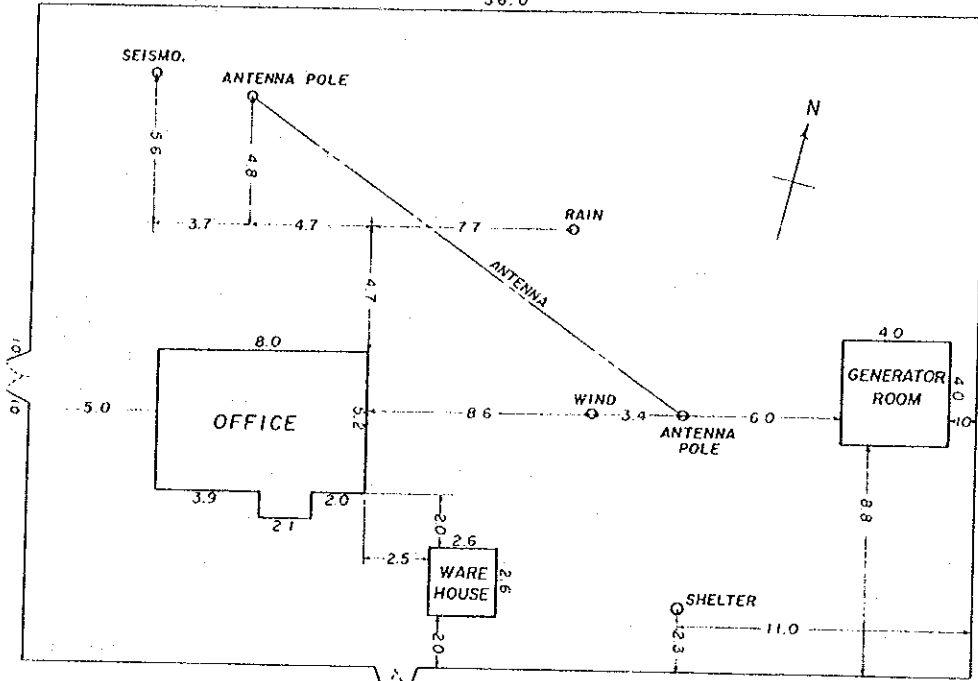


Fig.A.11 (23/86)

Layout of Station

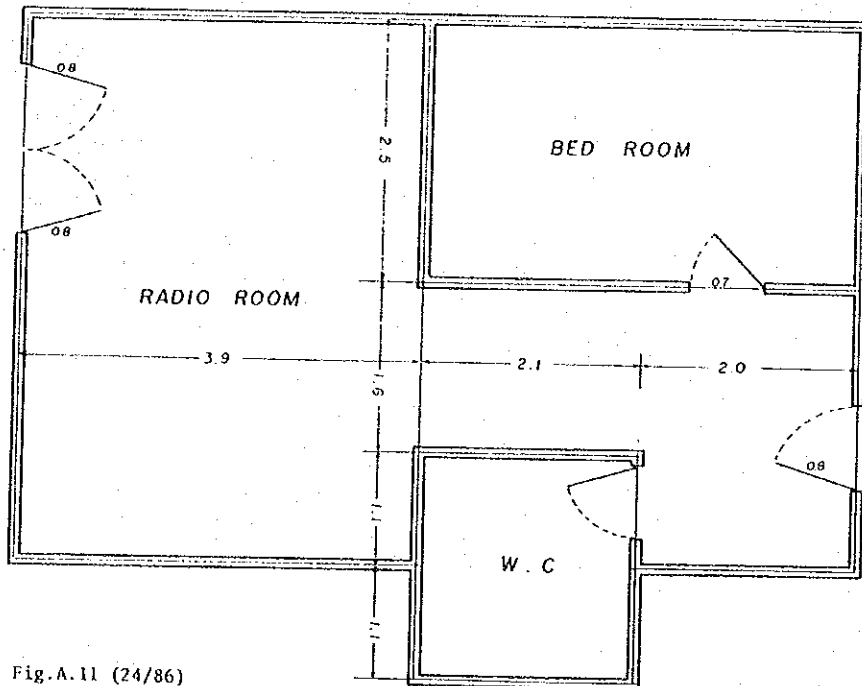


Fig.A.11 (24/86)

BALER RADAR STATION

Layout of Site

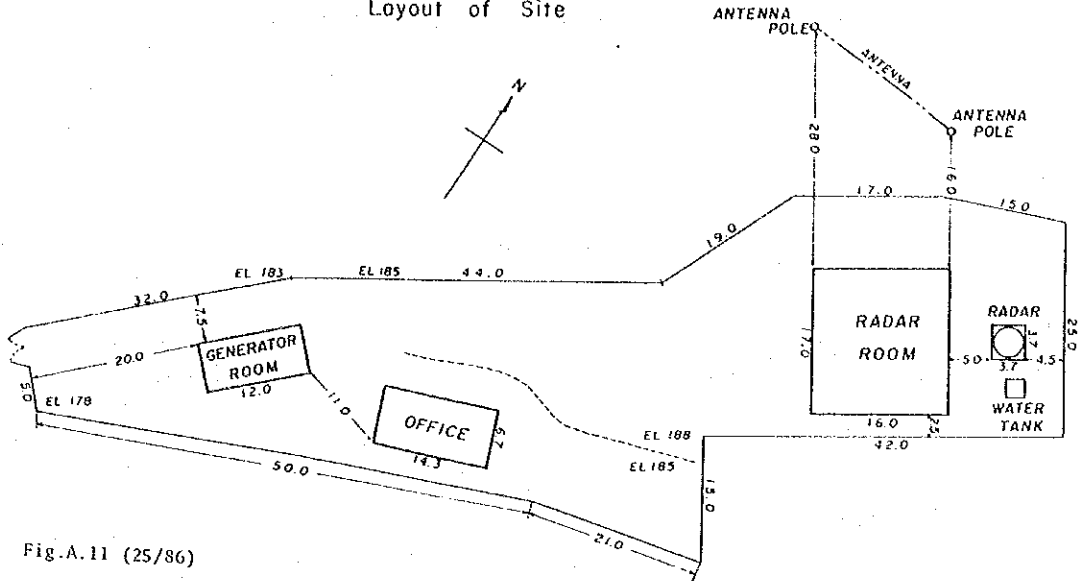


Fig.A.11 (25/86)

Layout of Station

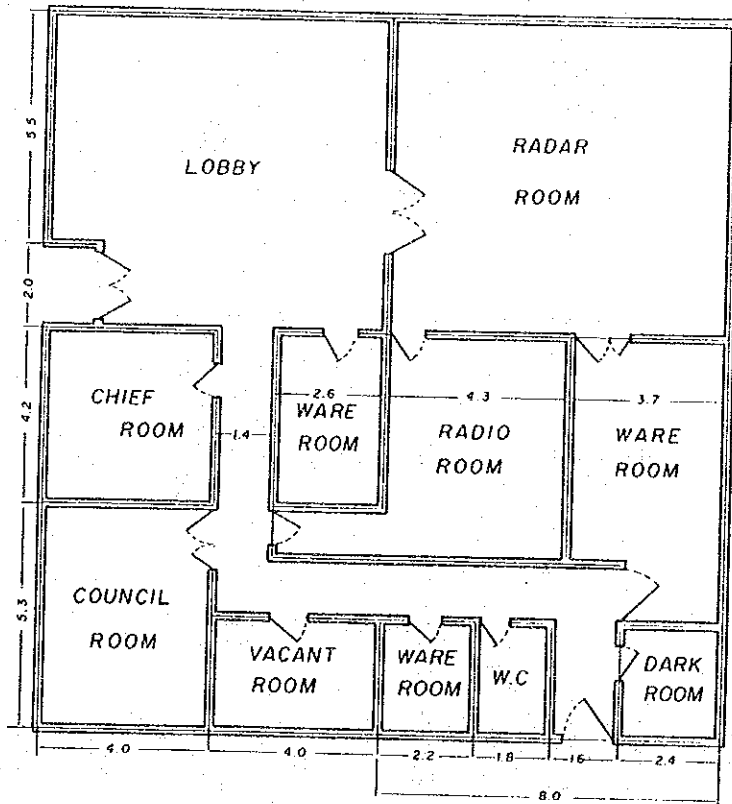


Fig.A.11 (26/86)

CASIGURAN WEATHER STATION

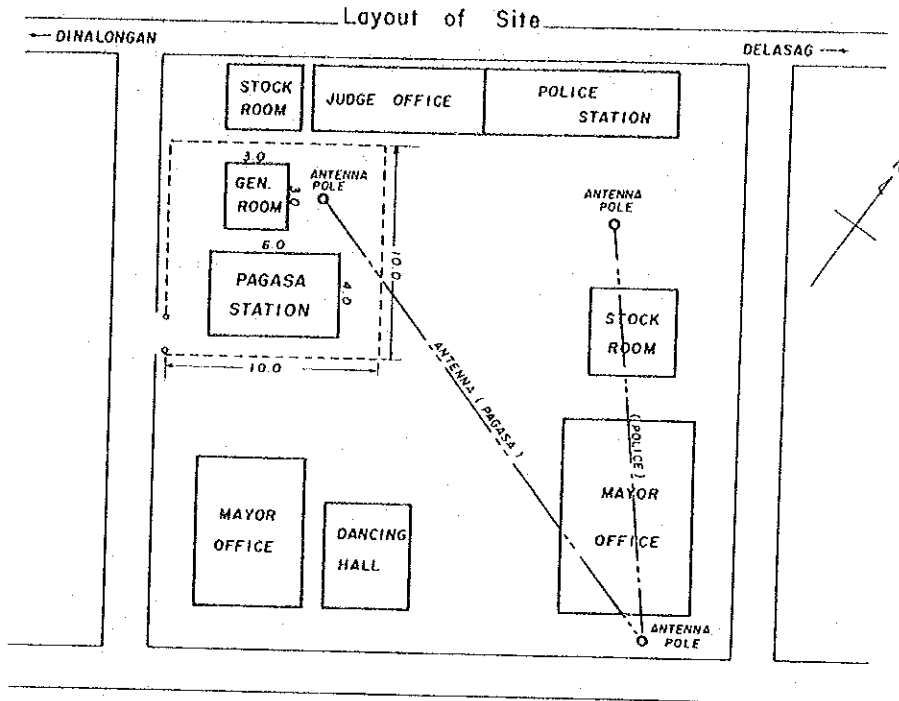


Fig.A. 11(27/86)

Layout of Station

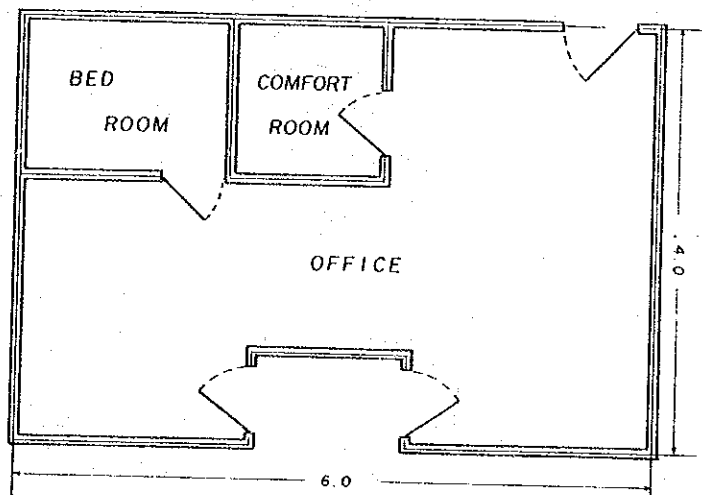


Fig.A.11 (28/86)

PORT AREA WEATHER STATION

Layout of Station

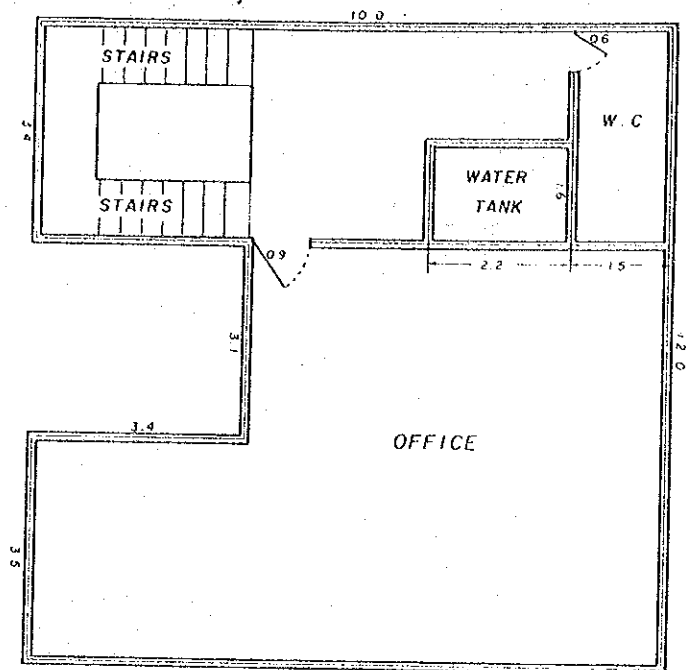


Fig.A.11 (29/86)

TAYABAS WEATHER STATION

Layout of Site

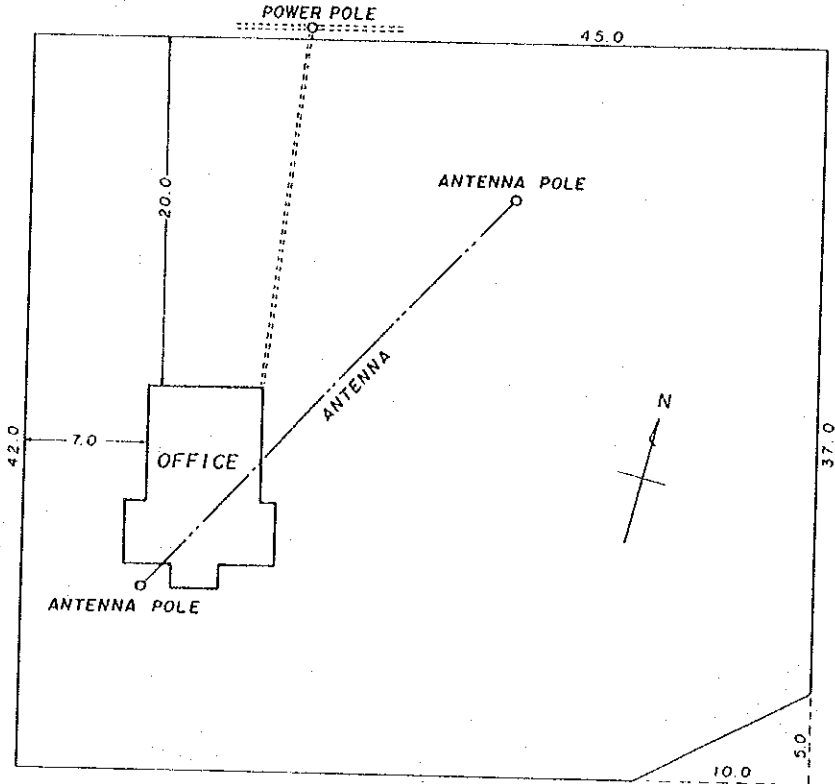


Fig.A.11 (30/86)

Layout of Station

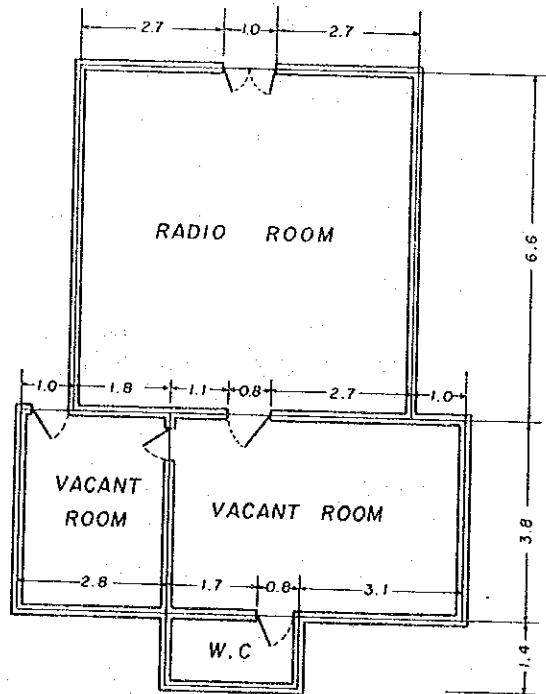


Fig.A.11 (31/86)

SCIENCE GARDEN

Layout of Site

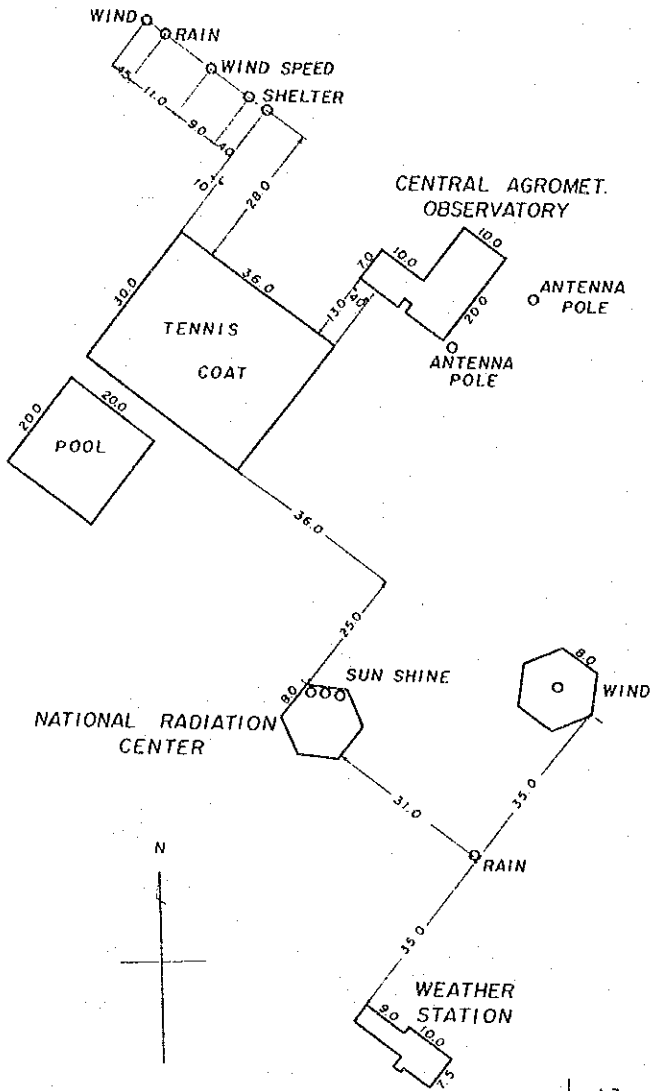


Fig.A.11 (32/86)

- 229 -

Layout of Station

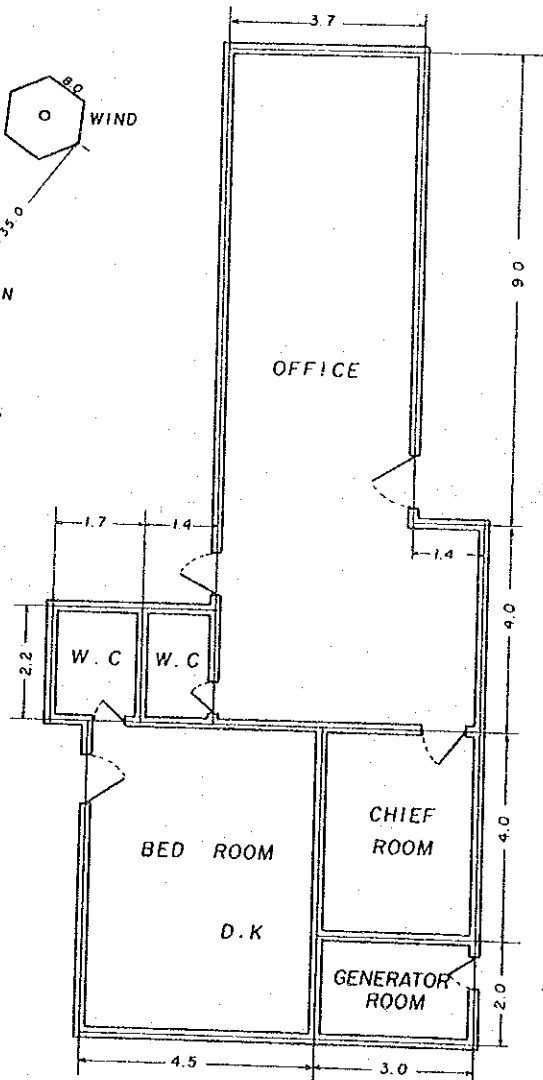


Fig.A.11 (33/86)

AMBULONG WEATHER STATION

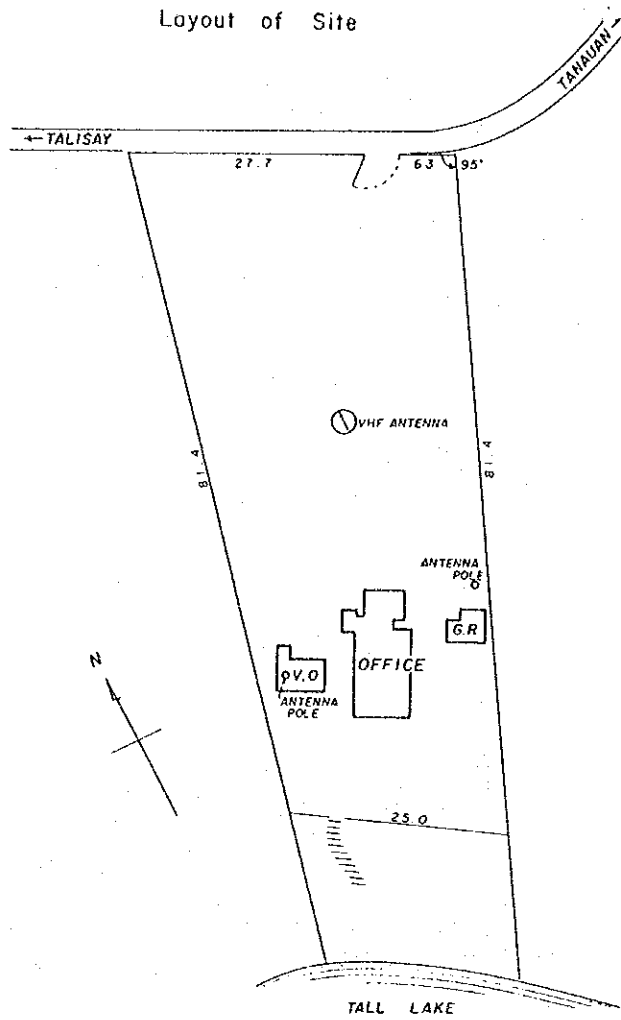


Fig.A.11 (34/86)

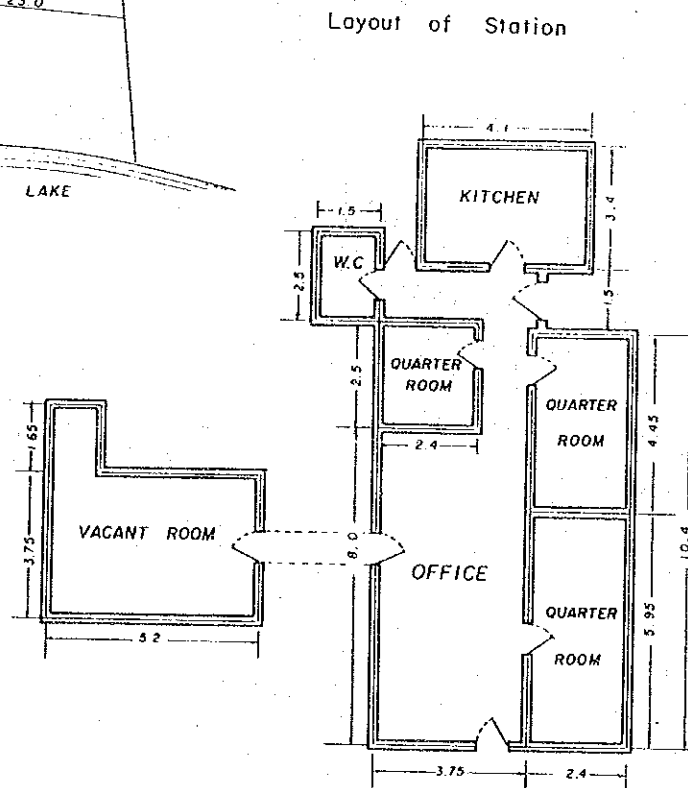


Fig.A.11 (35/86)

INFANTA WEATHER STATION

Layout of Site

INFANTA COLLEGE GROUND

VHF ANTENNA

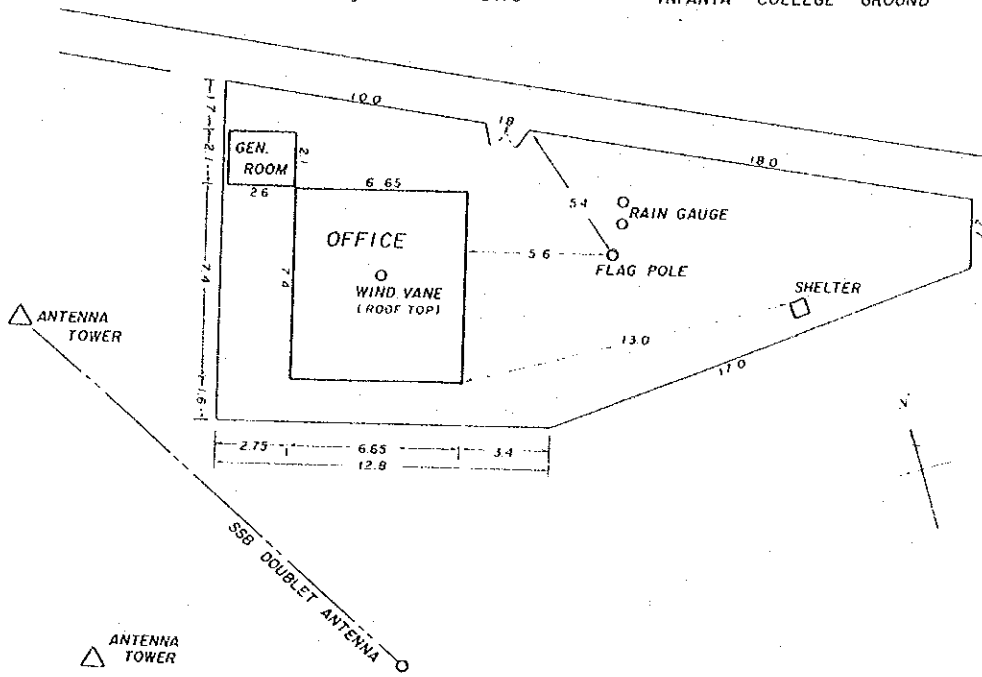


Fig.A.11 (36/86)

Layout of Station

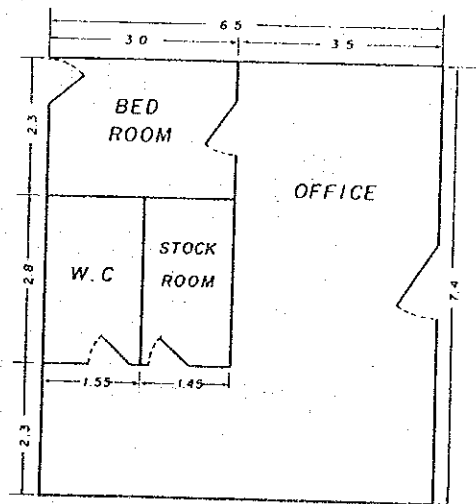
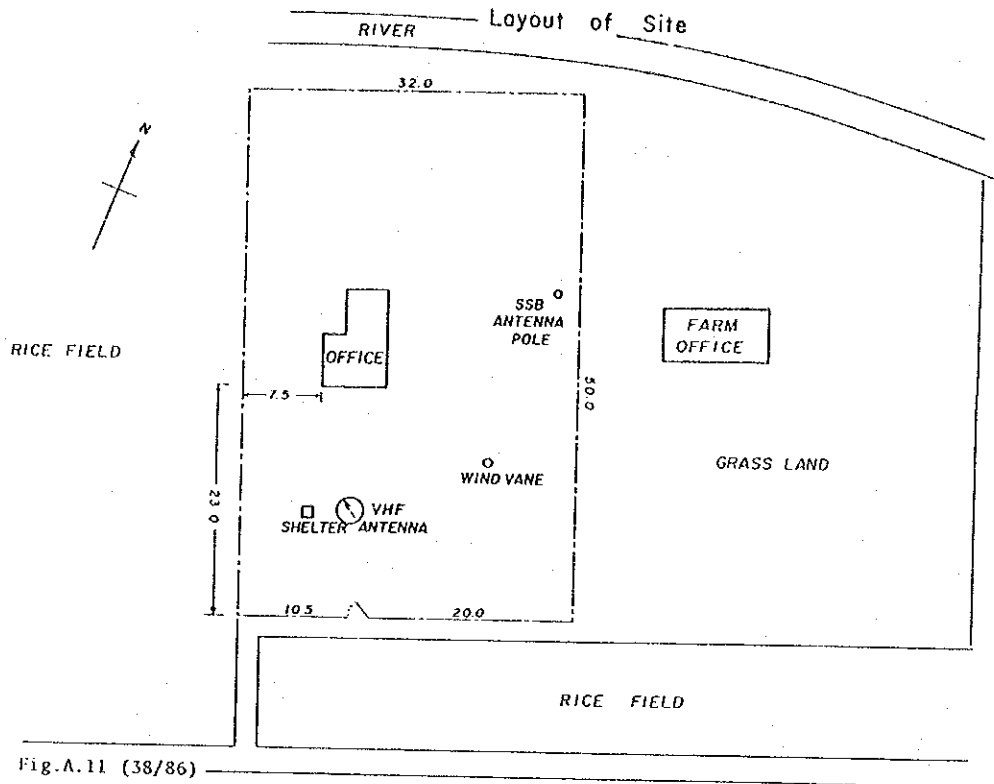
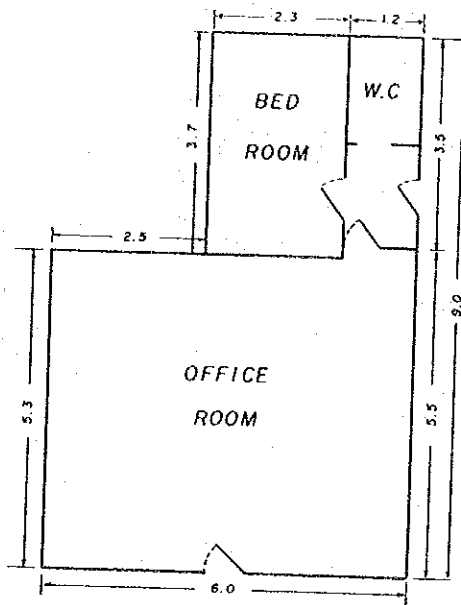


Fig.A.11 (37/86)

ALABAT WEATHER STATION



Layout of Station



SAN FRANCISCO WEATHER STATION

Layout of Site

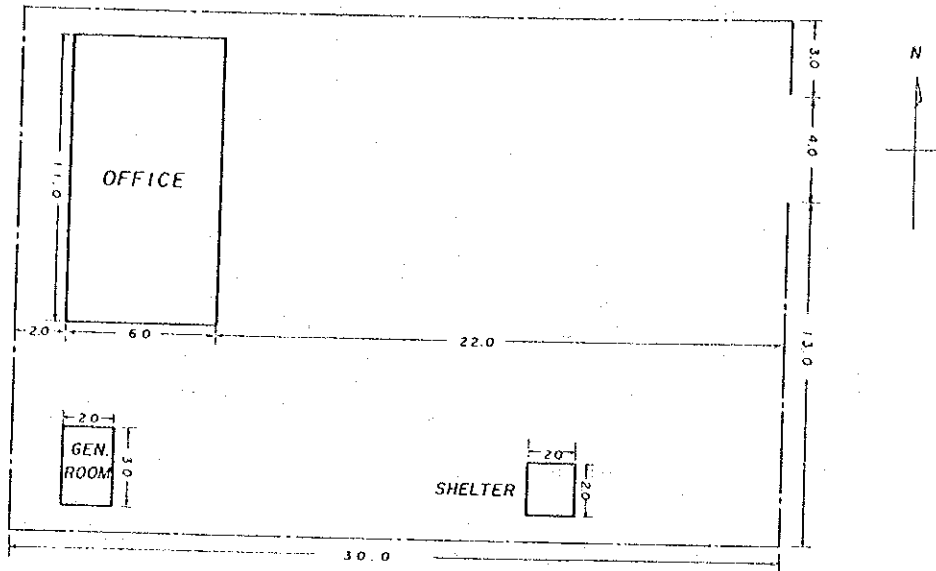


Fig.A.11 (40/86)

Layout of Station

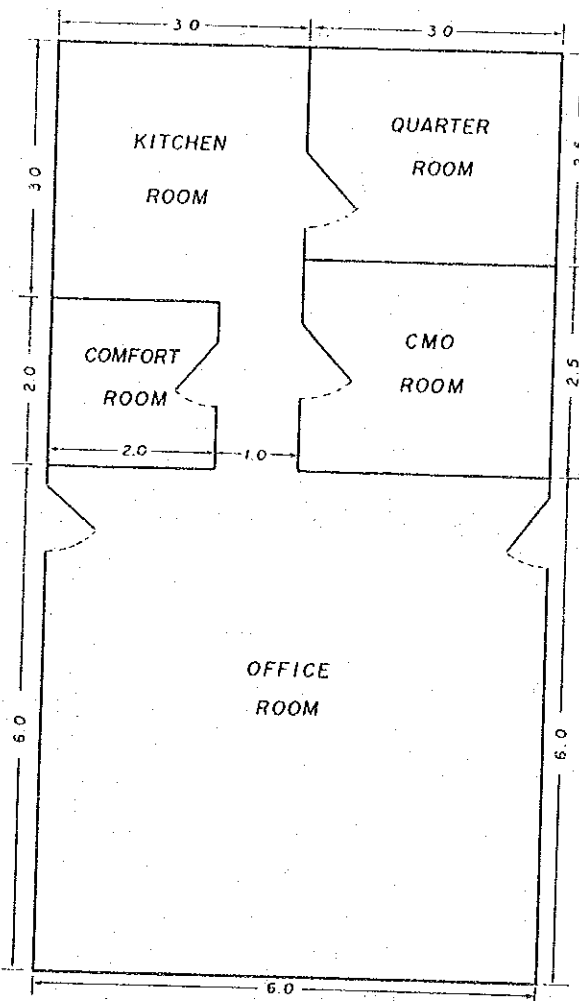
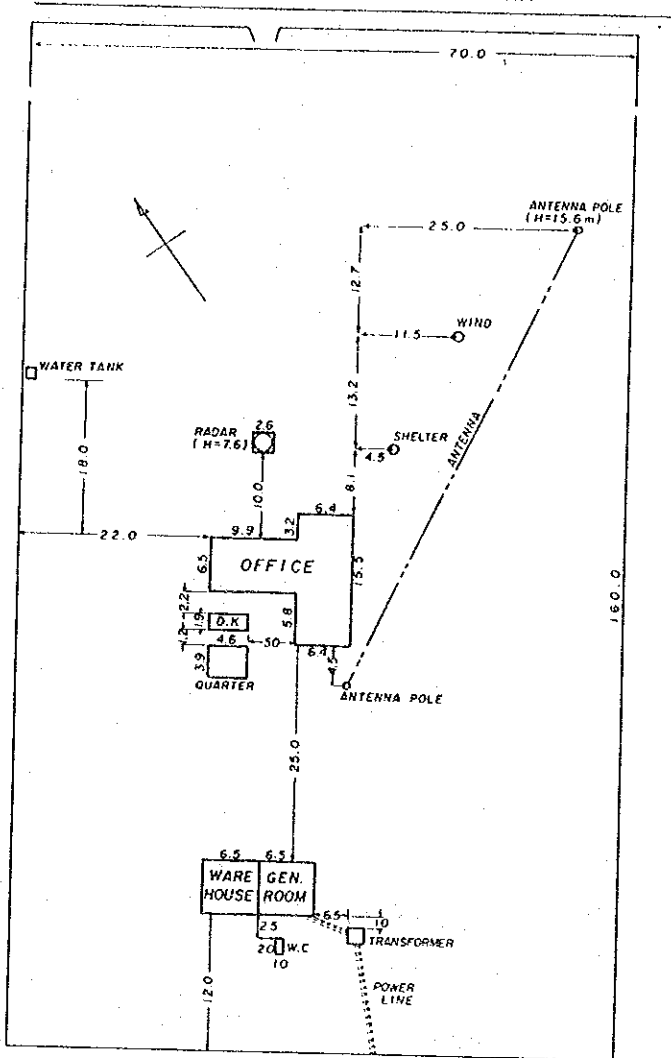


Fig.A.11 (41/86)

DAET RADAR STATION

Layout of Site

AIR PORT



Layout of Station

Fig.A.11 (42/86)

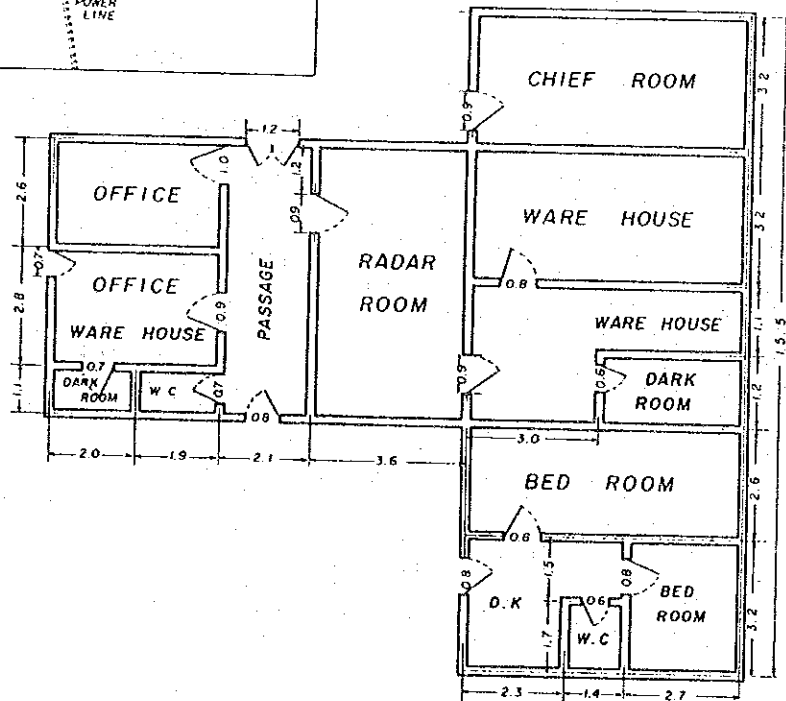


Fig.A.11 (43/86)

LEGASPI WEATHER STATION

Layout of Site

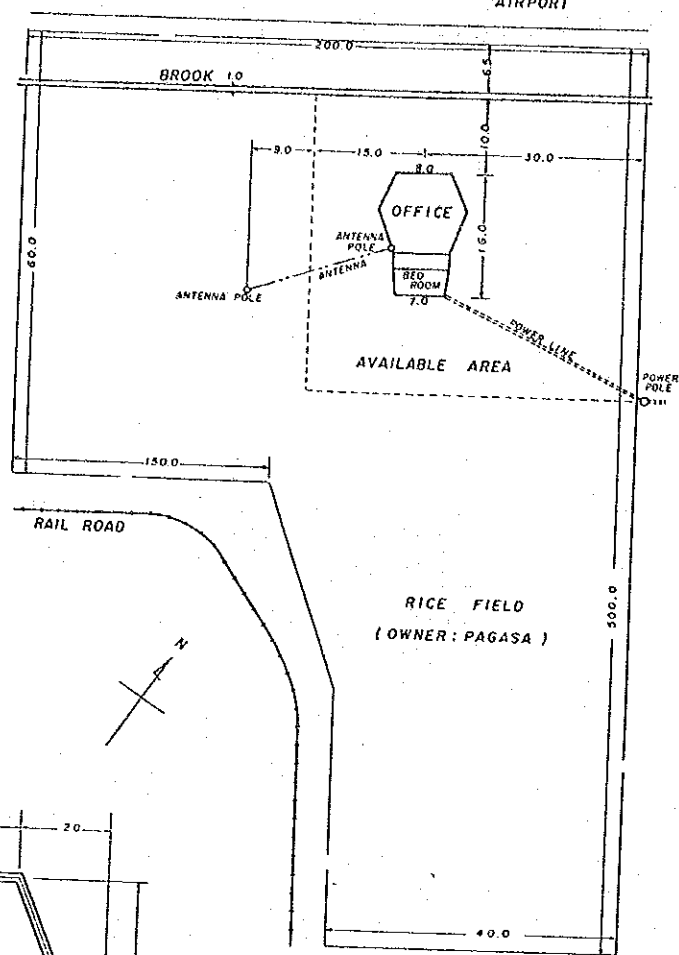


Fig.A.11 (44/86)

Layout of Station

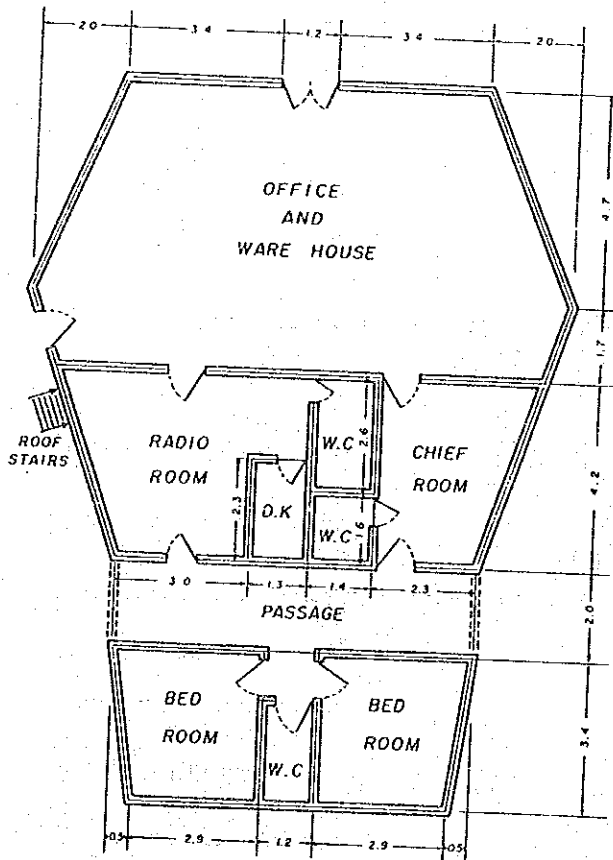


Fig.A.11 (45/86)

VIRAC WEATHER STATION

Layout of Site

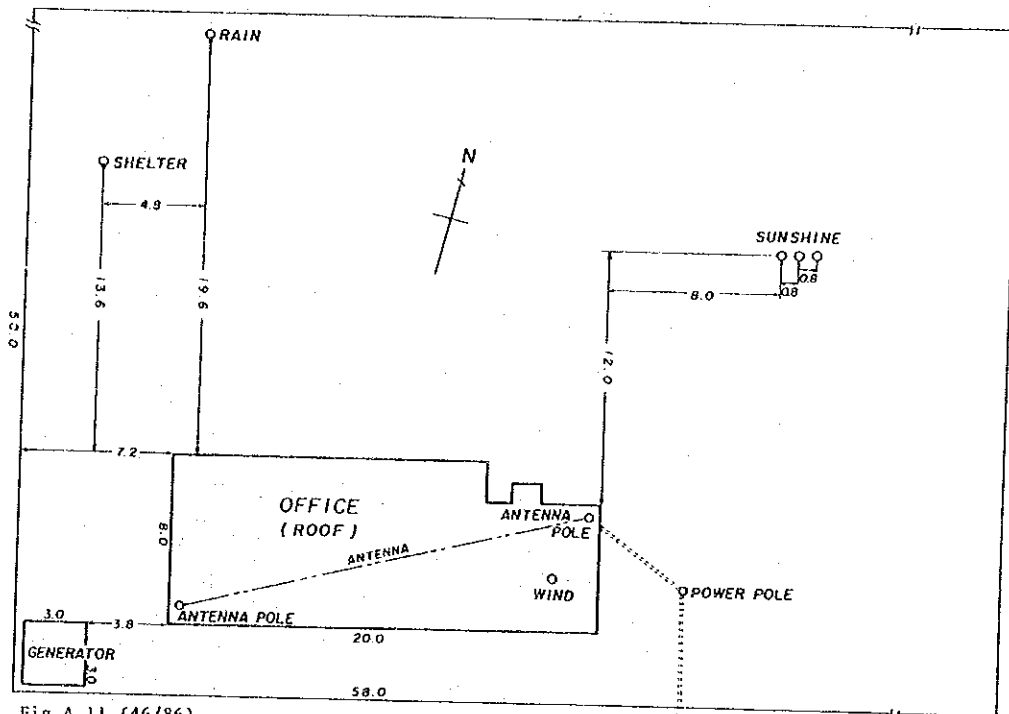


Fig.A.11 (46/86)

Layout of Station

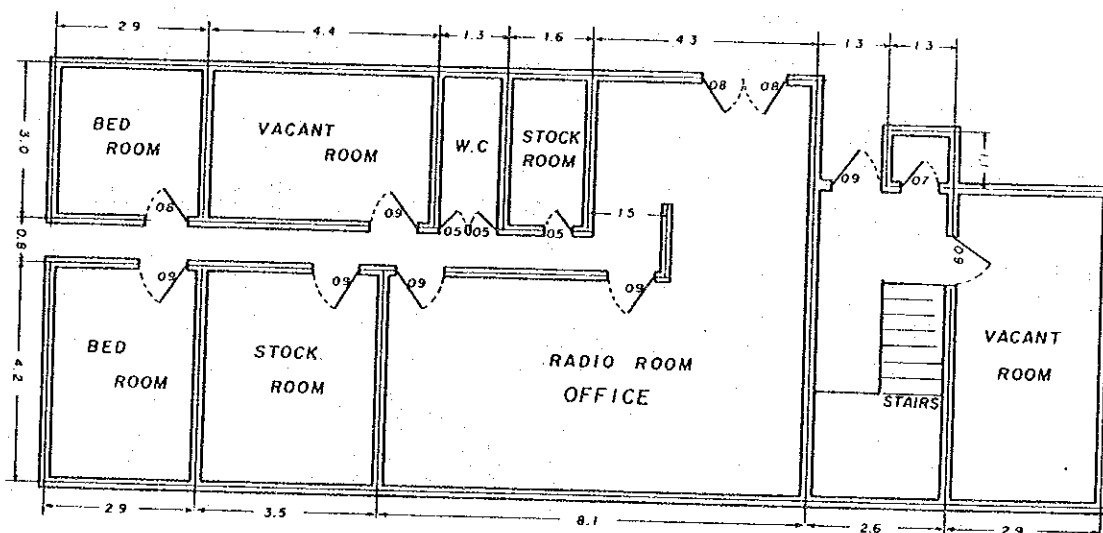


Fig.A.11 (47/86)

VIRAC RADAR STATION

Layout of Site

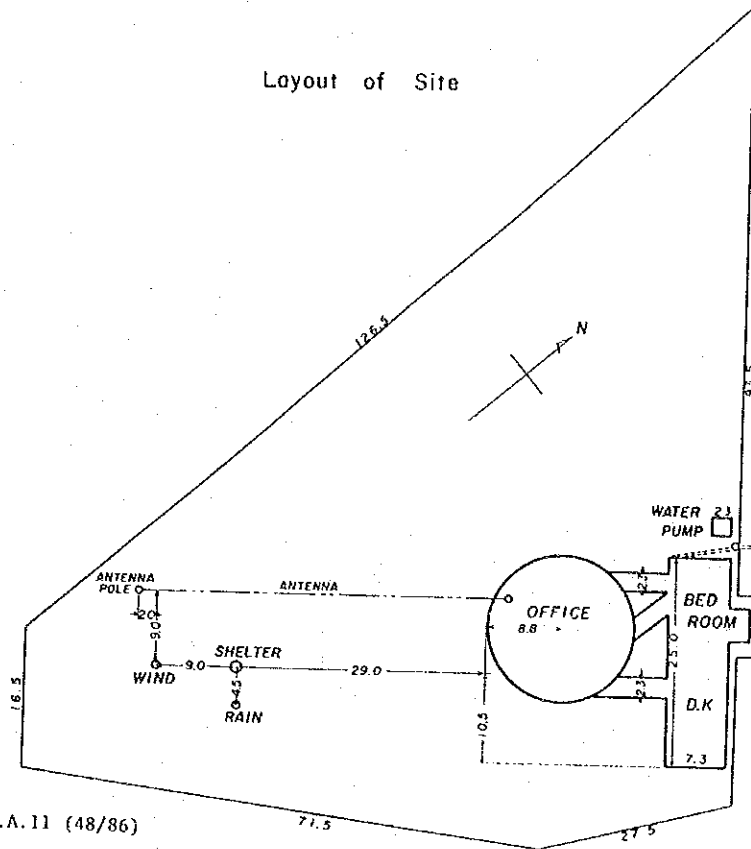


Fig.A.11 (48/86)

Layout of Station

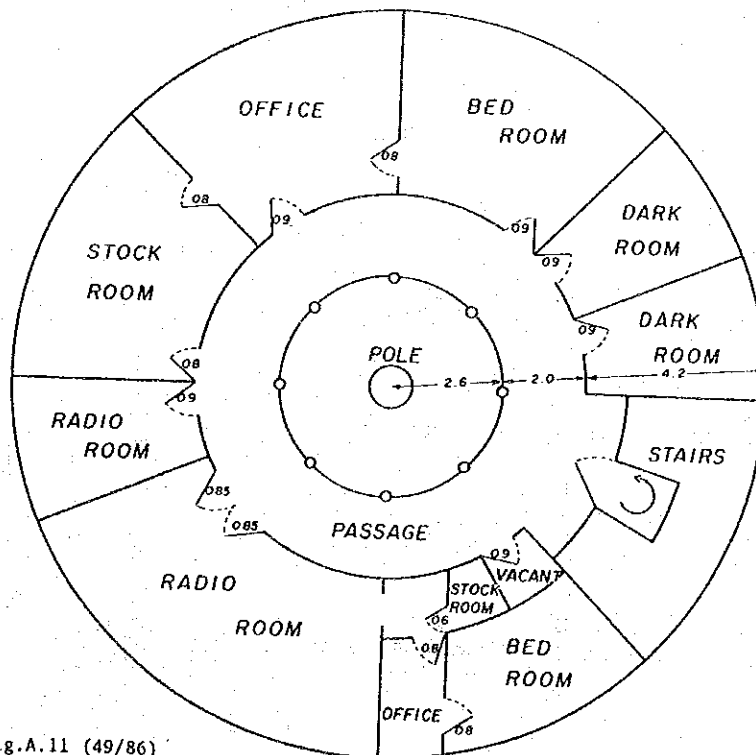


Fig.A.11 (49/86)

SAN JOSE MINDORO WEATHER STATION

Layout of Site

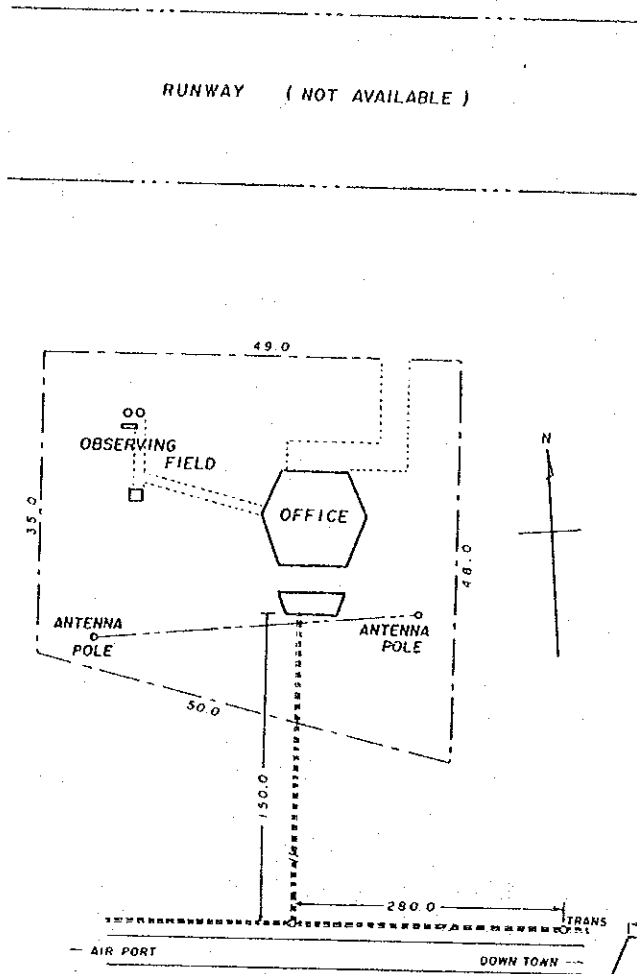


Fig.A.11 (50/86)

Layout of Station

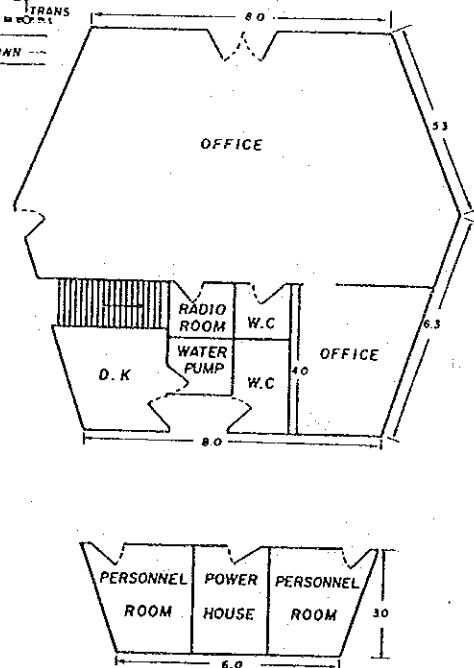


Fig.A.11 (51/86)

ROMBLON WEATHER STATION

Layout of Site

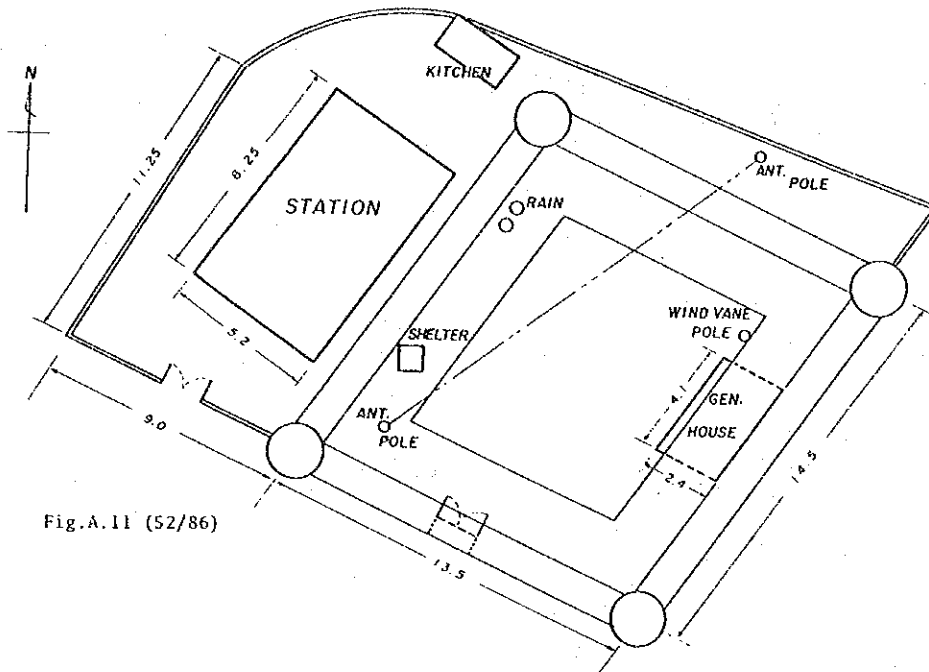


Fig.A.11 (52/86)

Layout of Station

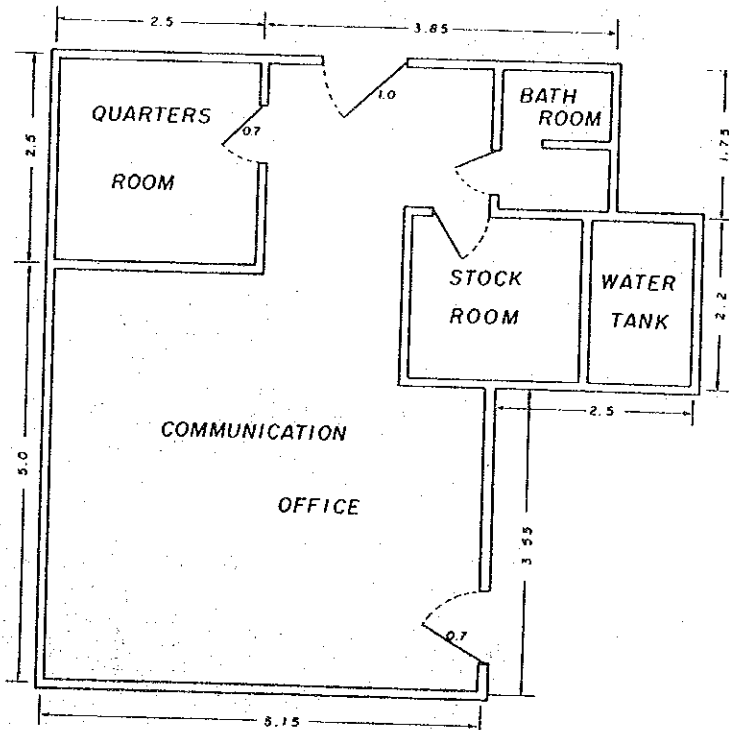


Fig.A.11 (53/86)

ROMBLON BOT

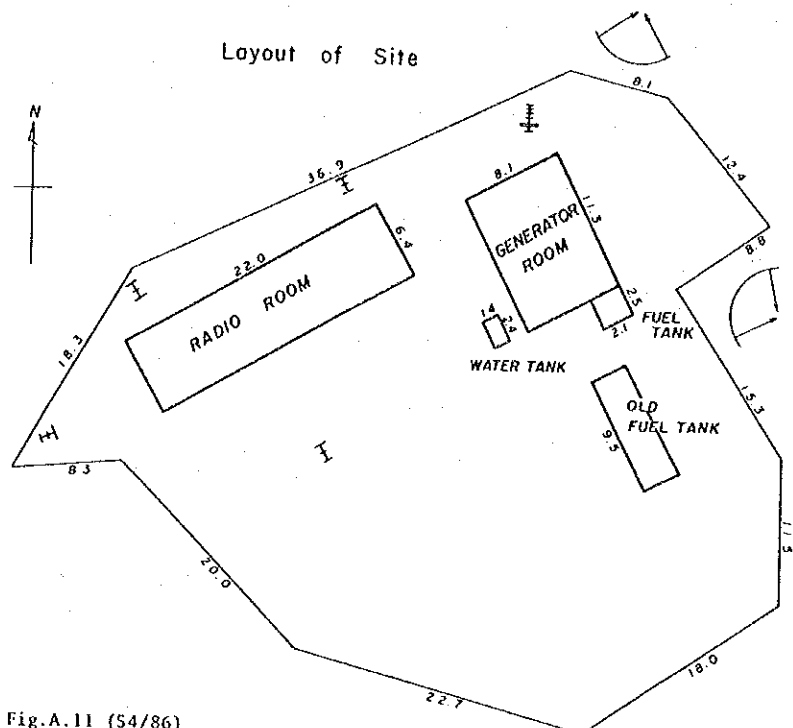


Fig.A.11 (54/86)

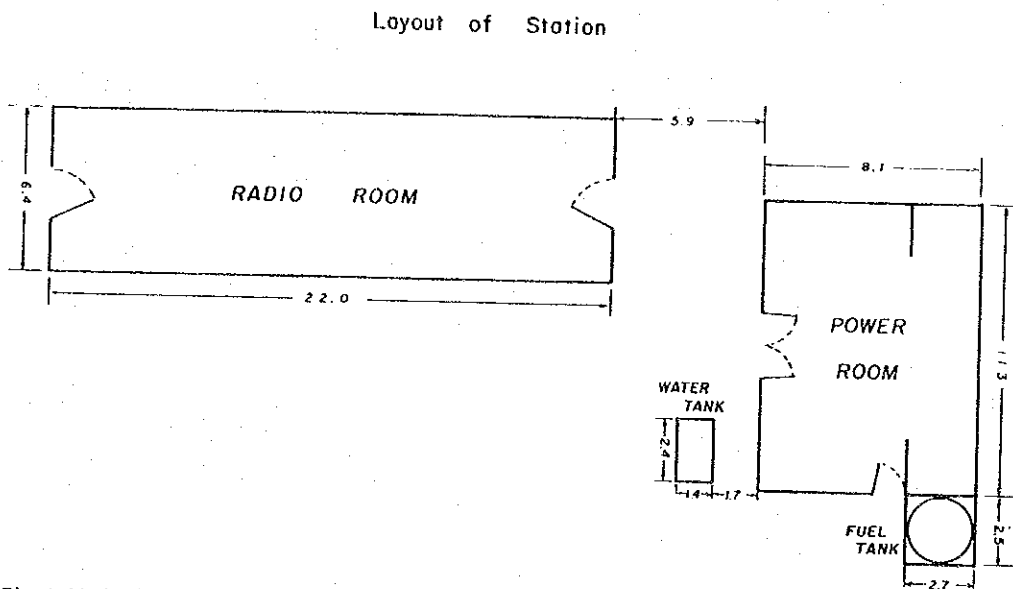


Fig.A.11 (55/86)

ROXAS WEATHER STATION

Layout of Site

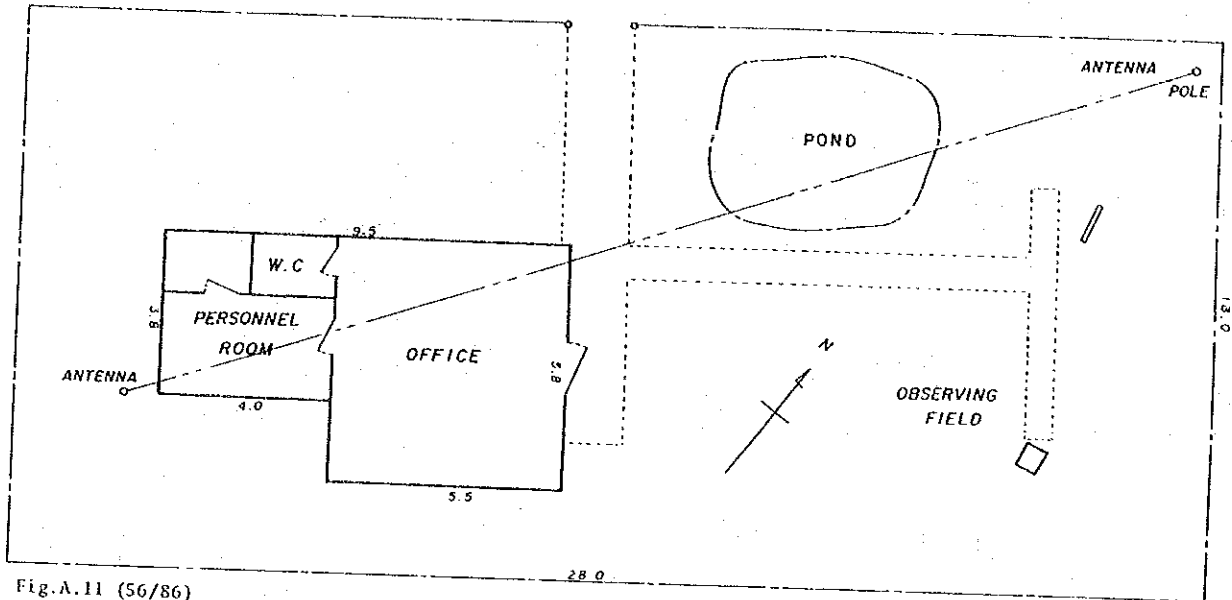


Fig.A.11 (56/86)

CATARMAN WEATHER STATION

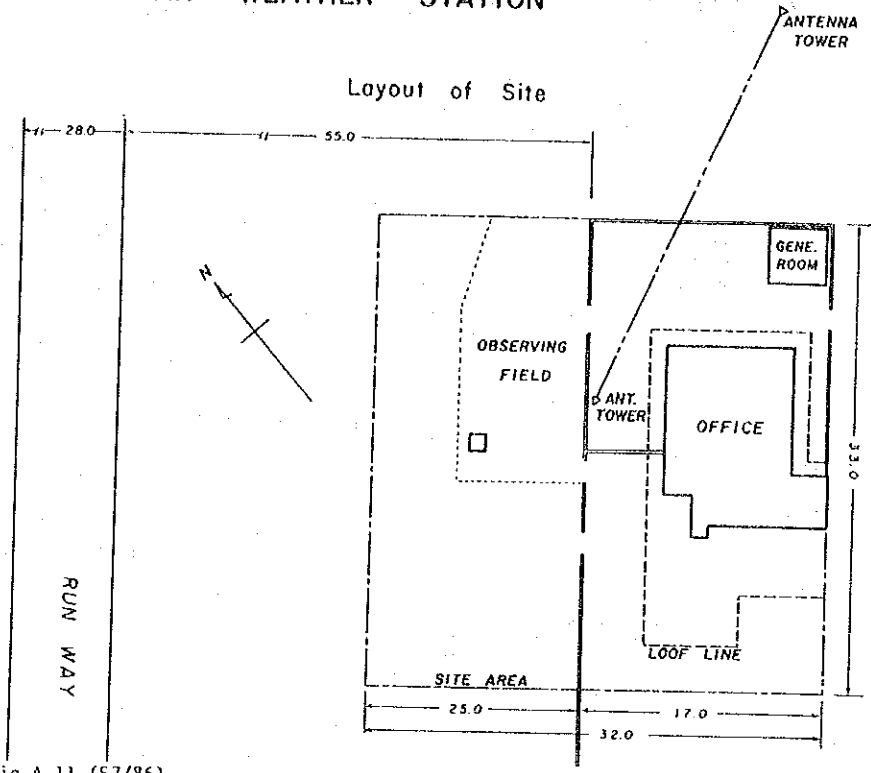


Fig.A.11 (57/86)

Layout of Station

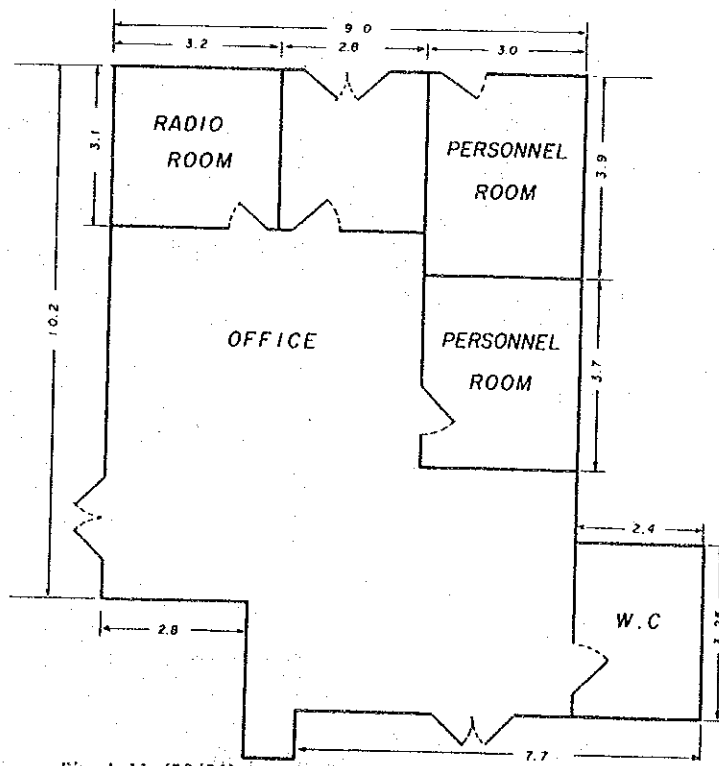


Fig.A.11 (58/86)

CATABALOGAN WEATHER STATION

Layout of Site

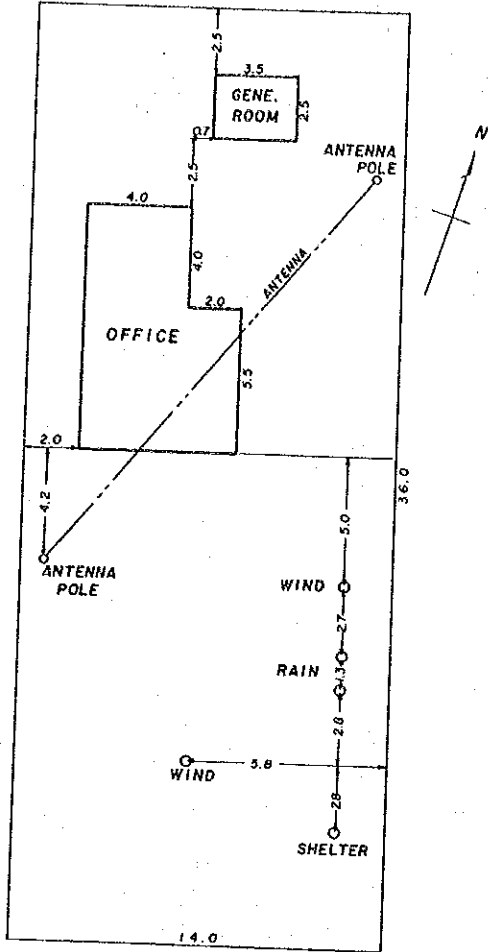


Fig.A.11 (59/86)

Layout of Station

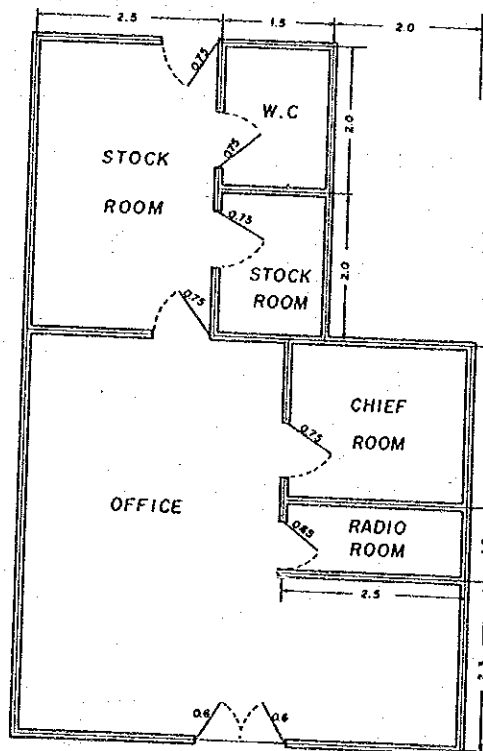


Fig.A.11(60/86)

TACLOBAN WEATHER STATION

Layout of Site

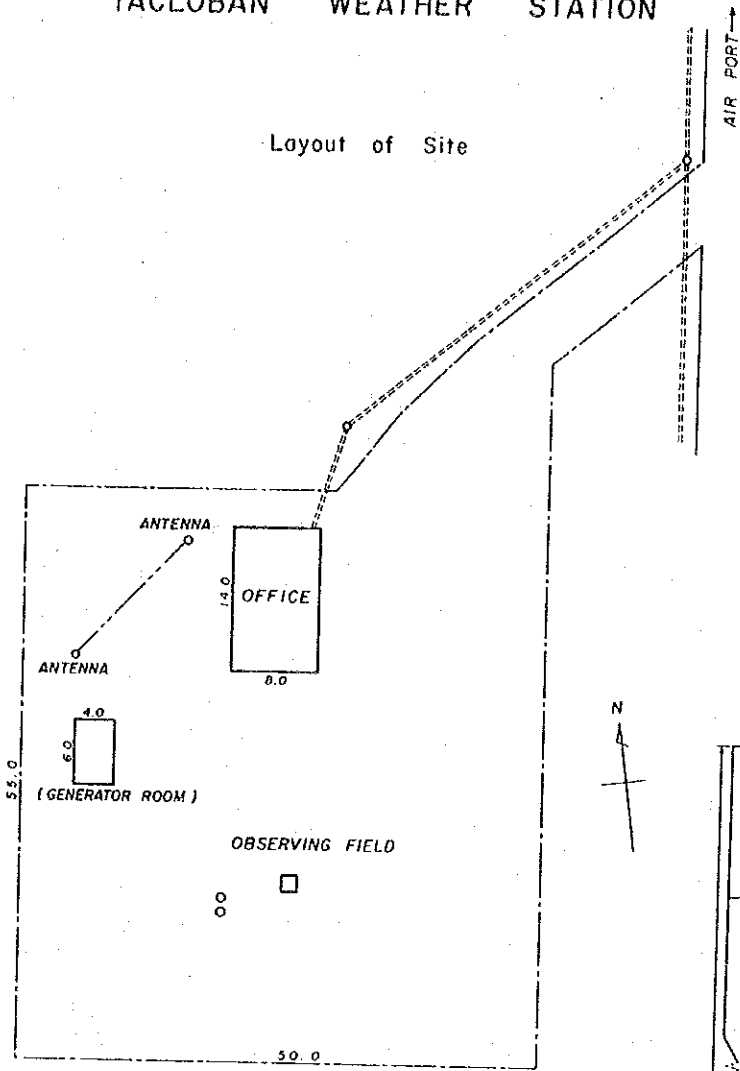


Fig.A.11 (61/86)

Layout of Station

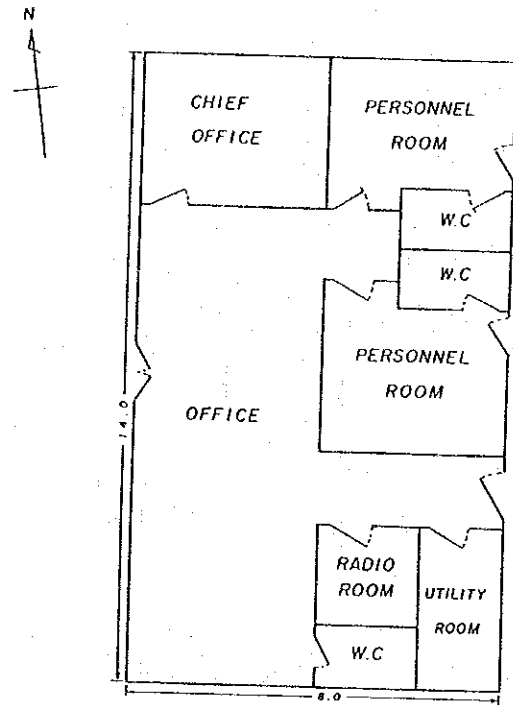
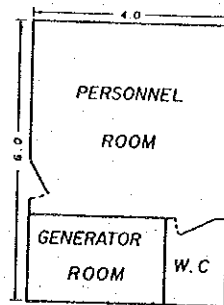


Fig.A.11 (62/86)



GUIUAN RADAR STATION

Layout of Site

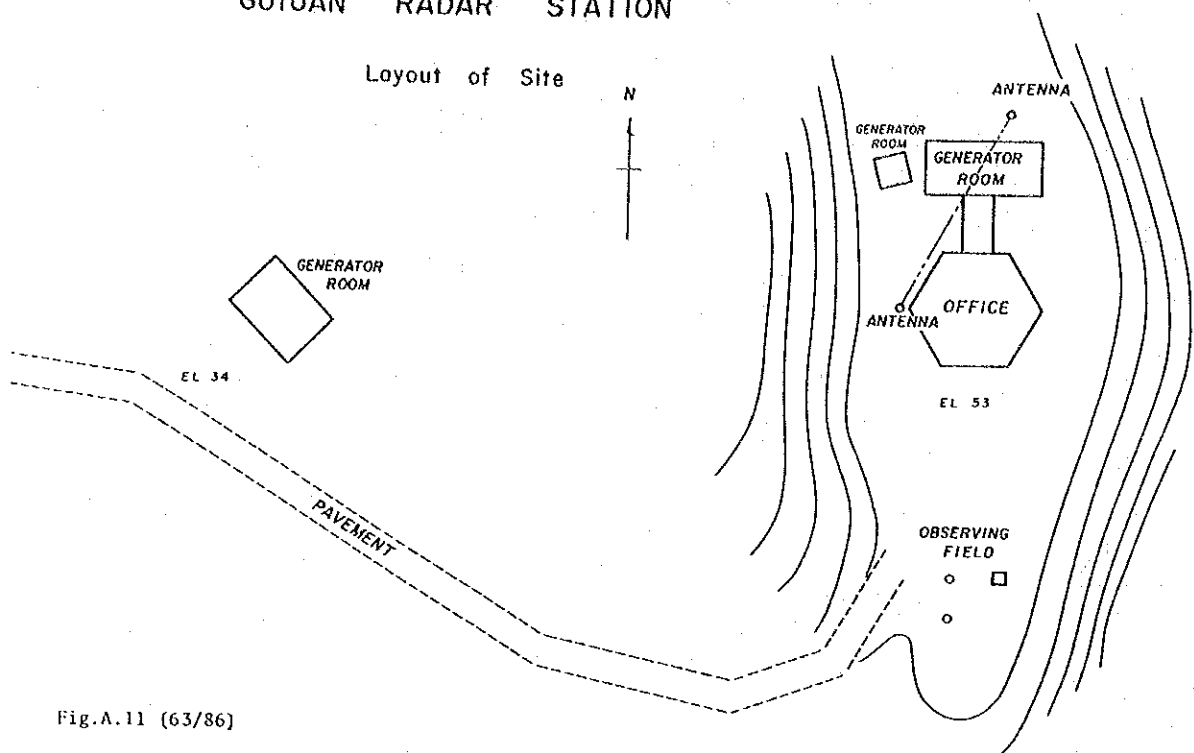


Fig.A.11 (63/86)

Layout of Station

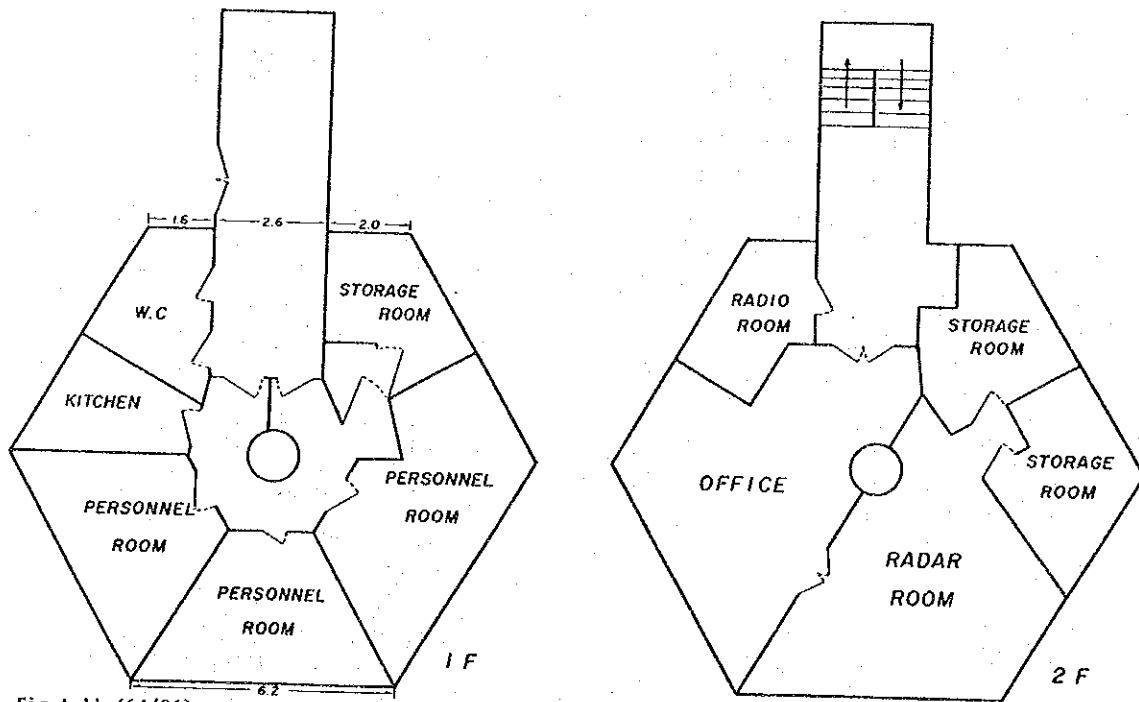


Fig.A.11 (64/86)

PTO PRINCESA WEATHER STATION

Layout of Site

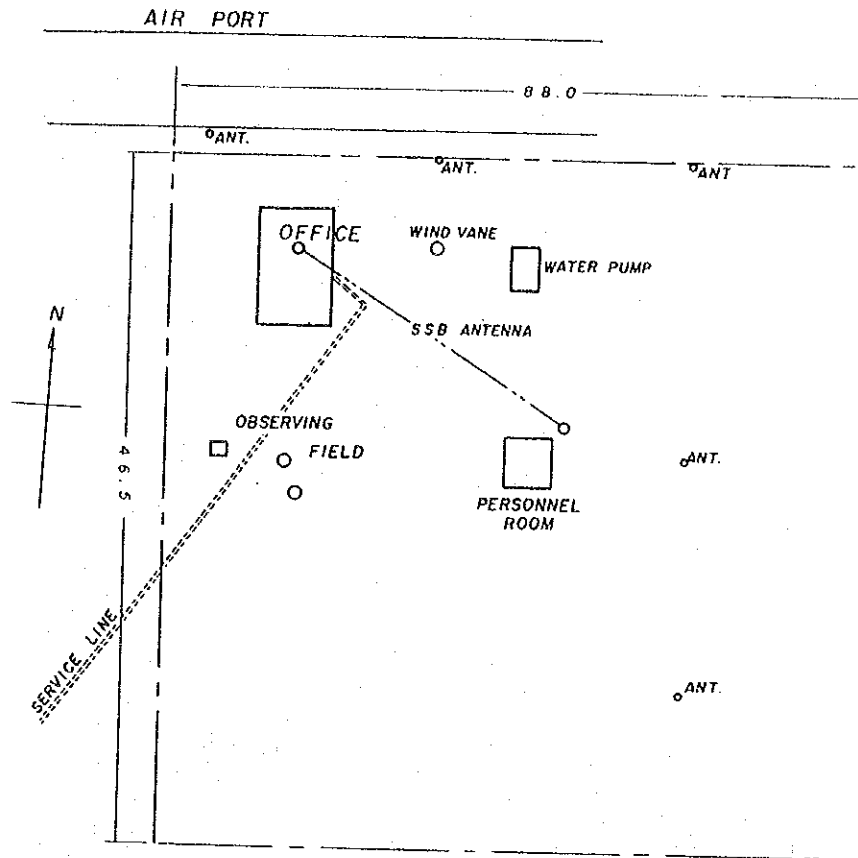


Fig.A.11 (65/86)

Layout of Station

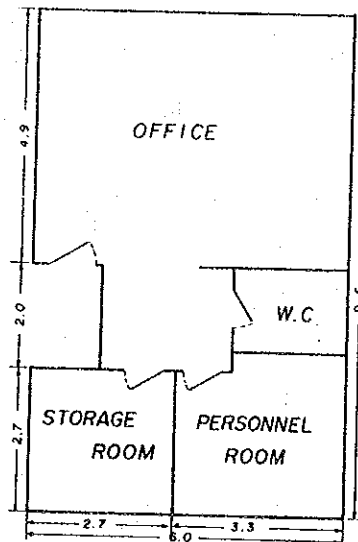


Fig.A.11 (66/86)

ILOILO WEATHER STATION

Layout of Site

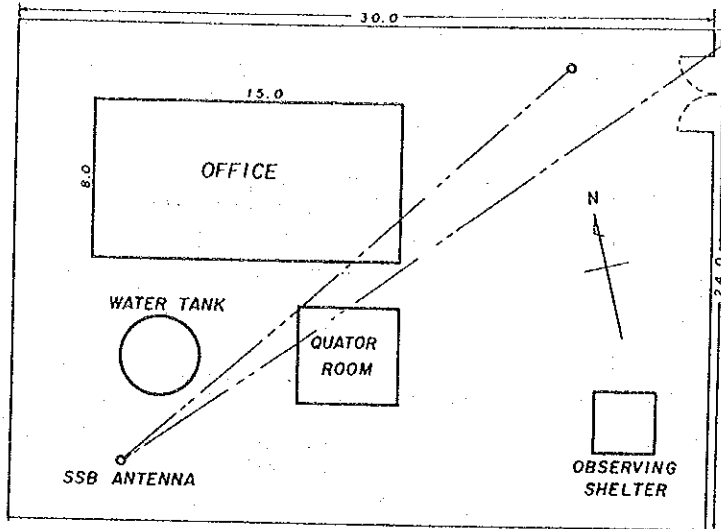


Fig.A.11 (67/86)

DUMAGUETE WEATHER STATION

Layout of Site

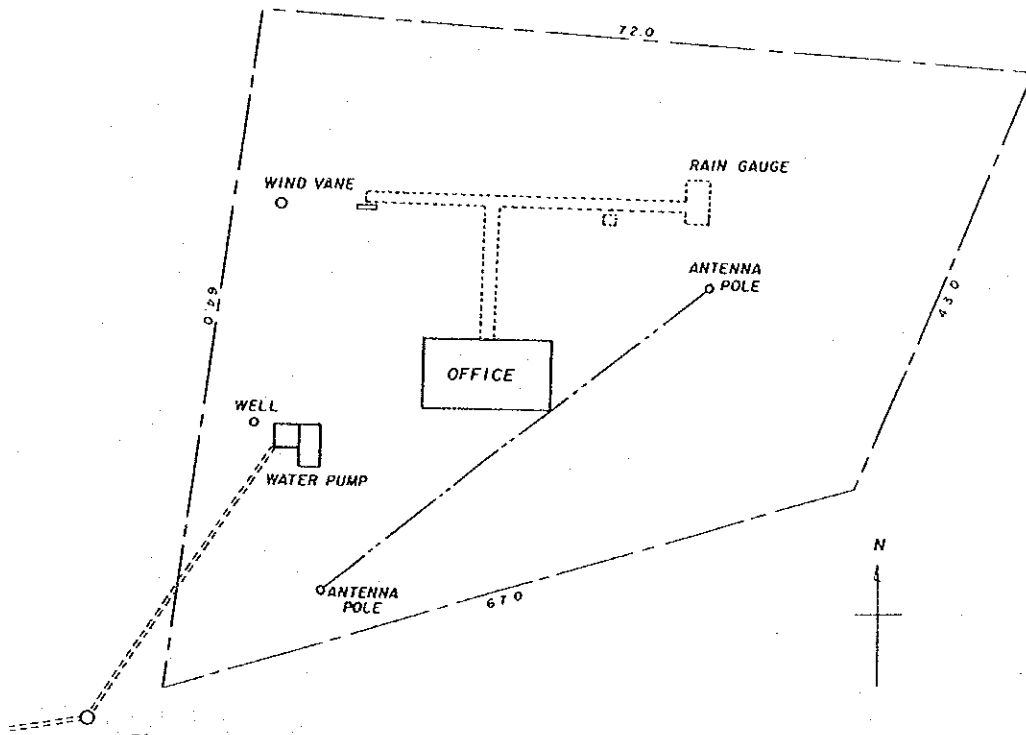


Fig.A.11 (68/86)

Layout of Station

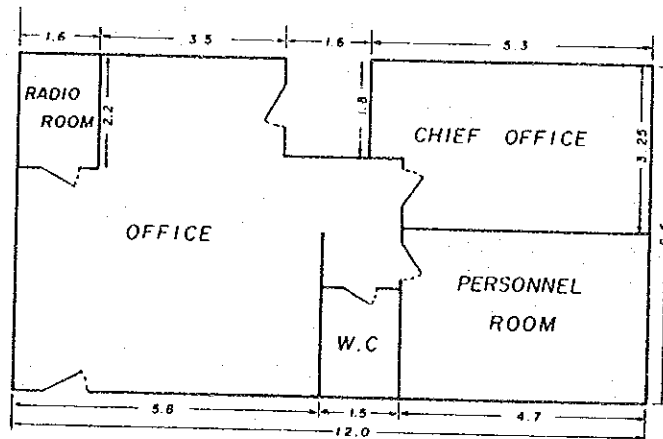


Fig.A.11 (69/86)

TAGBILARAN WEATHER STATION

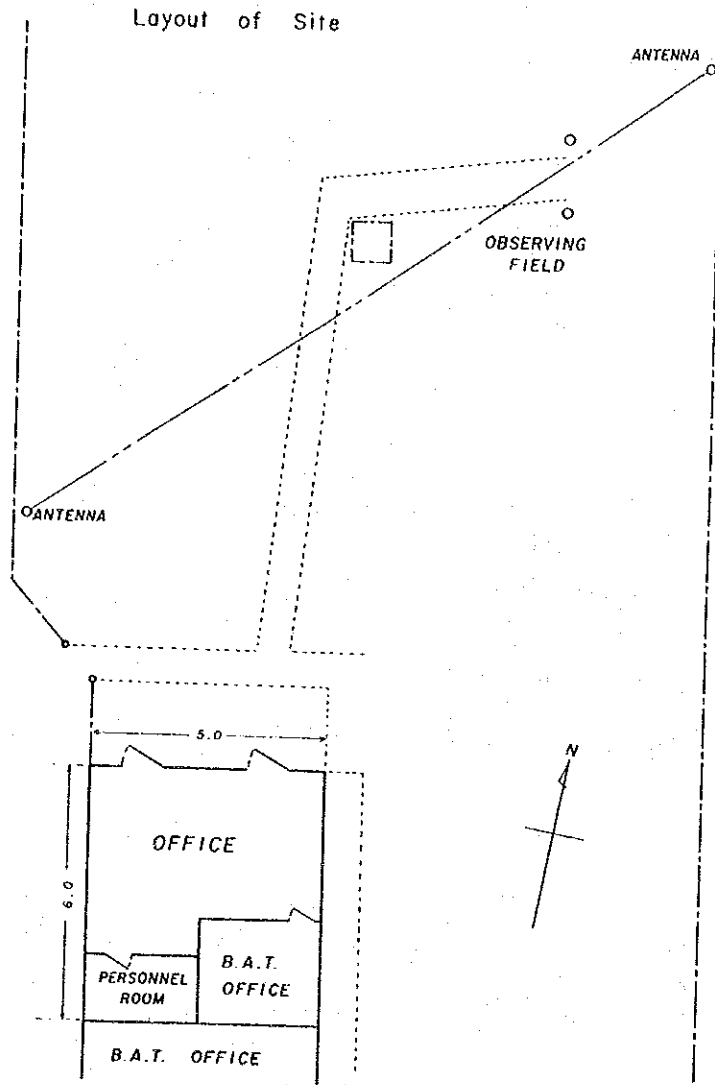


Fig.A.11 (70/86)

MACTAN WEATHER STATION

Layout of Station

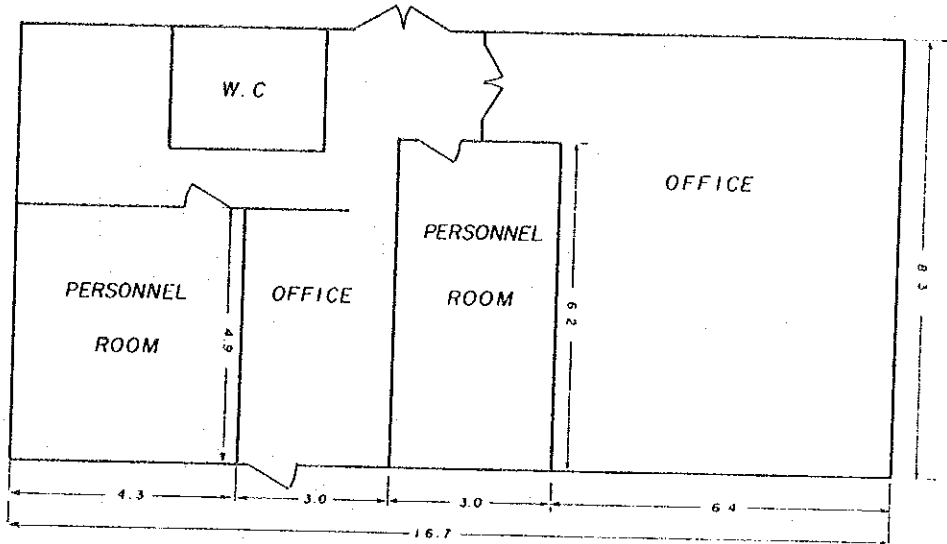


Fig.A.11 (71/86)

MACTAN RADAR STATION

Layout of Site

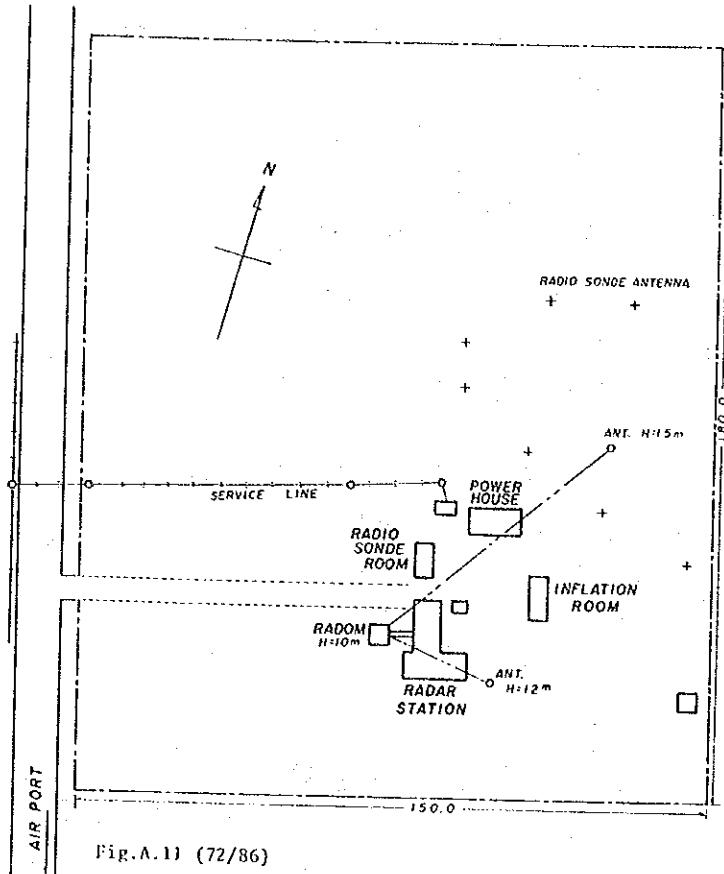


Fig.A.11 (72/86)

Layout of Station

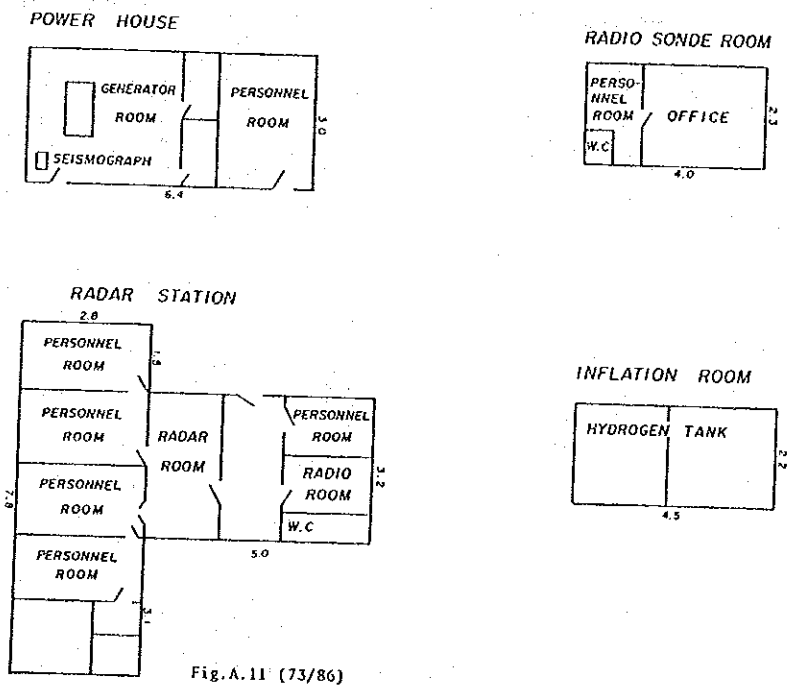
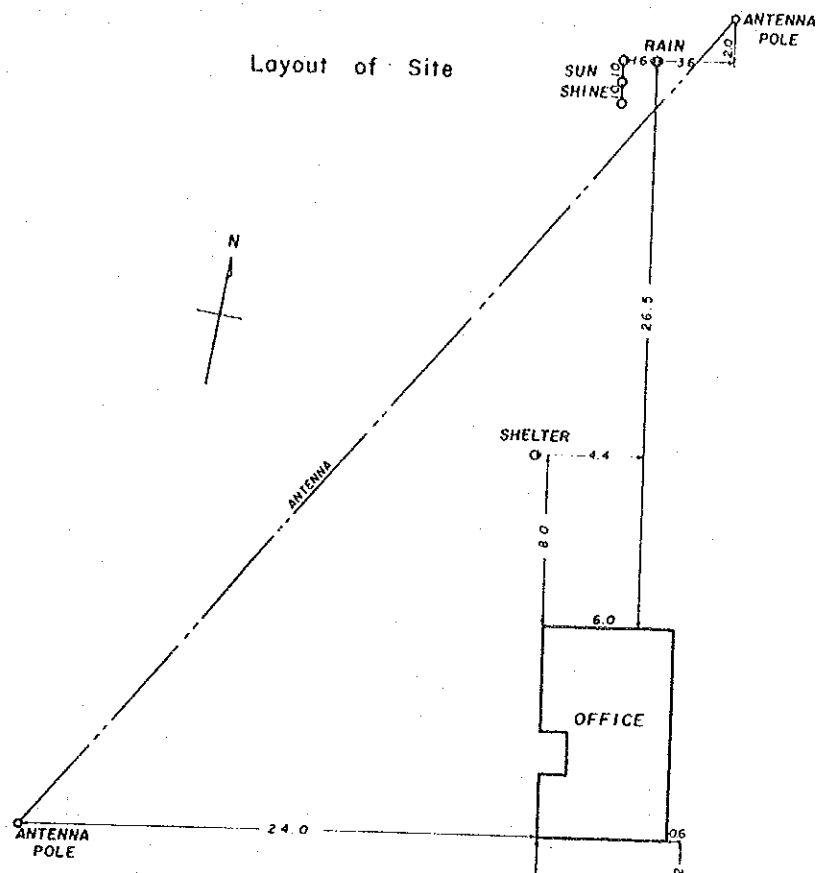


Fig.A.11 (73/86)

MAASIN WEATHER STATION

Layout of Site



Layout of Station

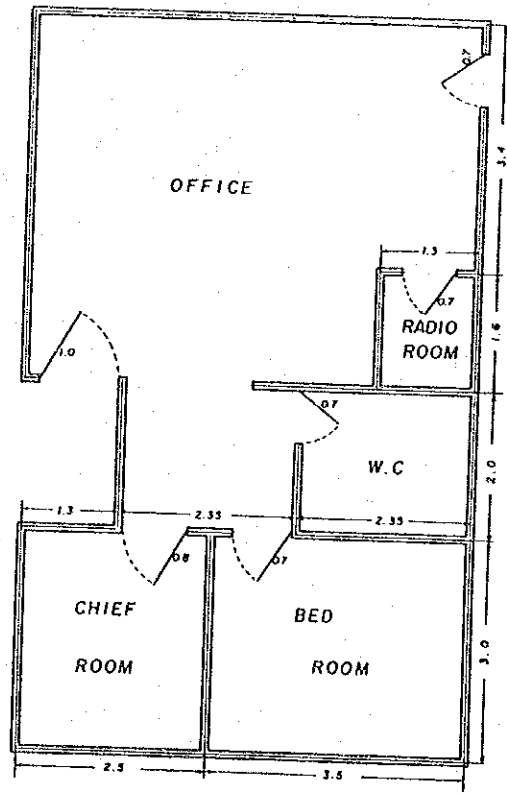
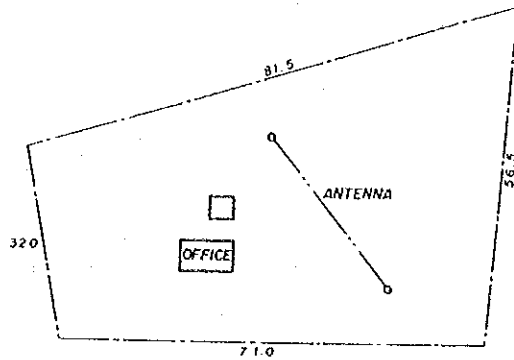


Fig.A.11 (74/86)

Fig.A.11 (75/86)

LUMBIA AIR PORT WEATHER STATION

Layout of Site



Layout of Station

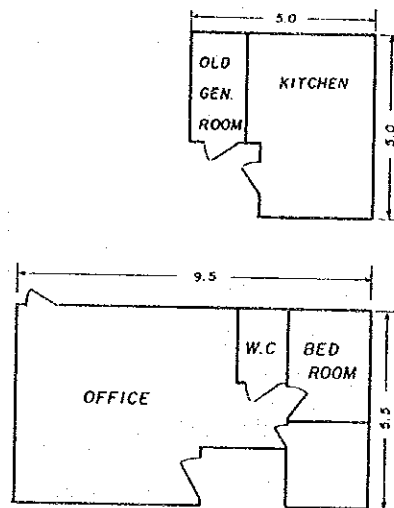


Fig.A.11 (76/86)

CAGAYAN DE ORO WEATHER STATION

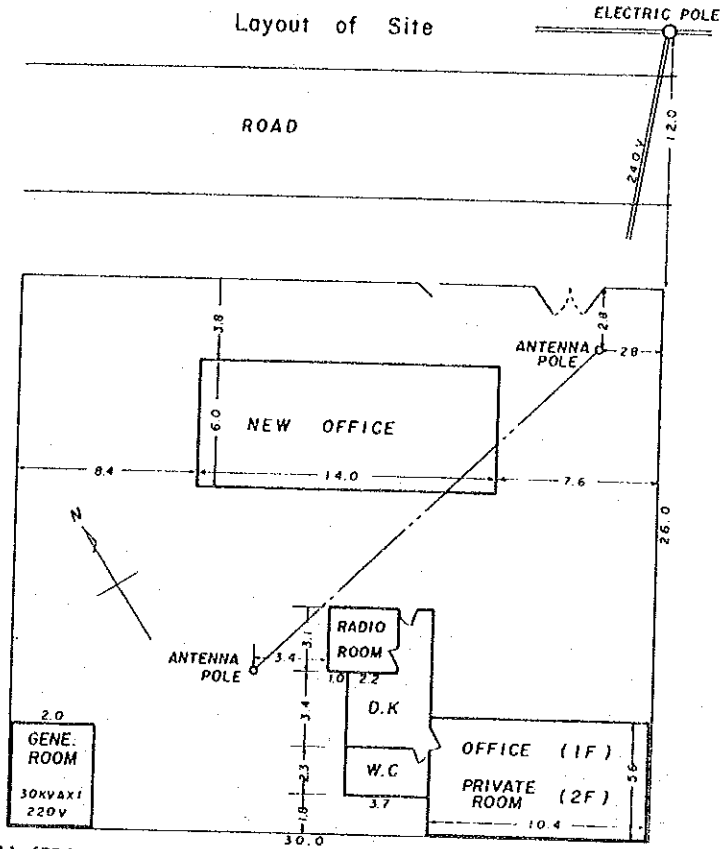


Fig.A.11 (77/86)

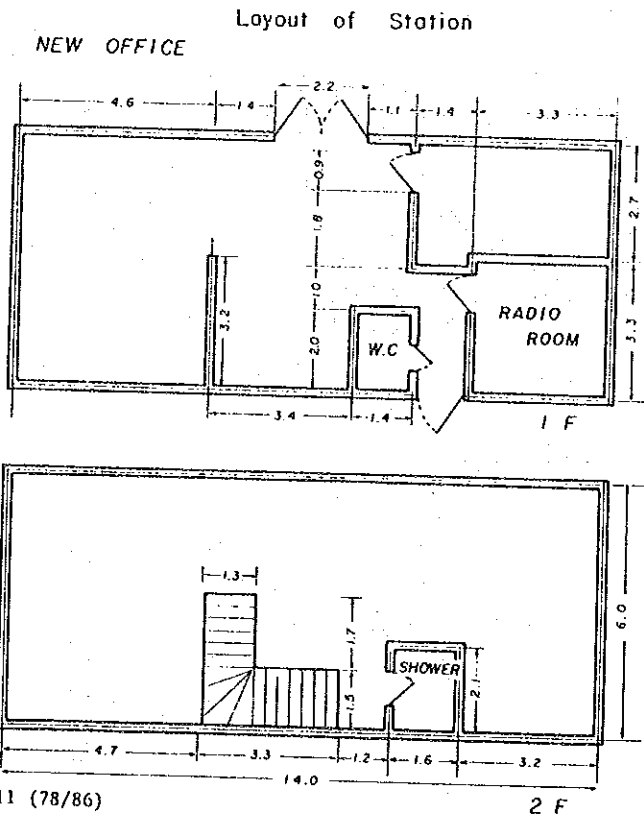


Fig.A.11 (78/86)

DAVAO AIR PORT WEATHER STATION

Layout of Site

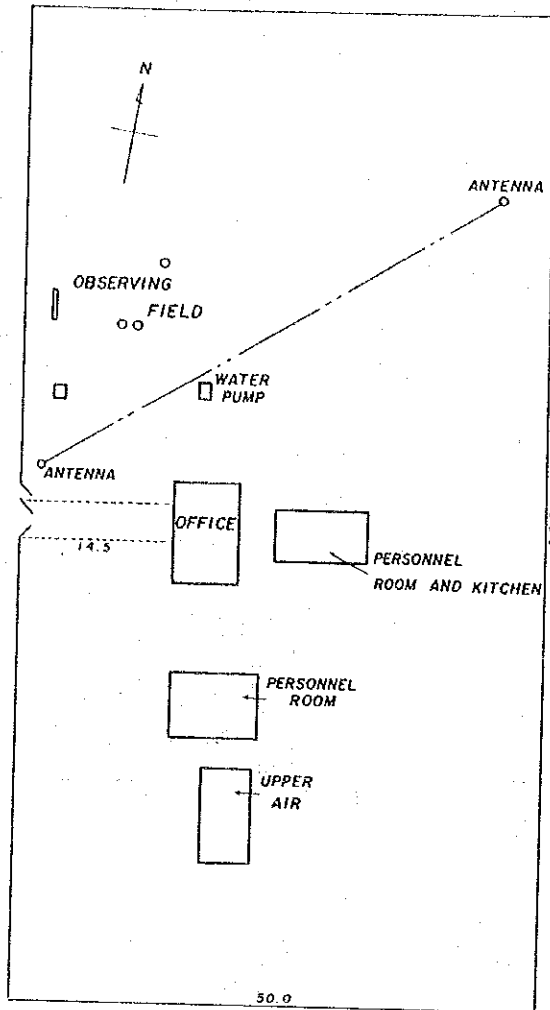


Fig.A.11 (79/86)

Layout of Station

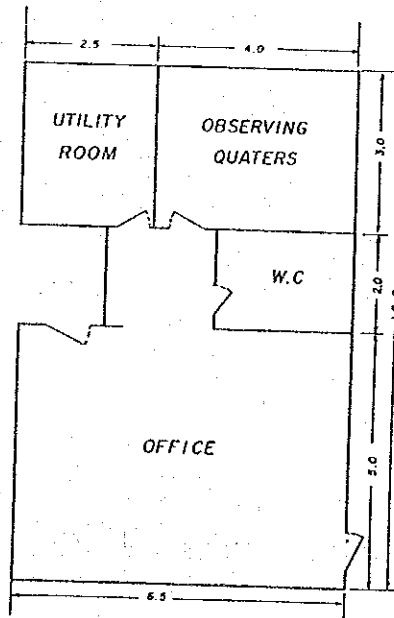


Fig.A.11 (80/86)

ZAMBOANGA WEATHER STATION

Layout of Site

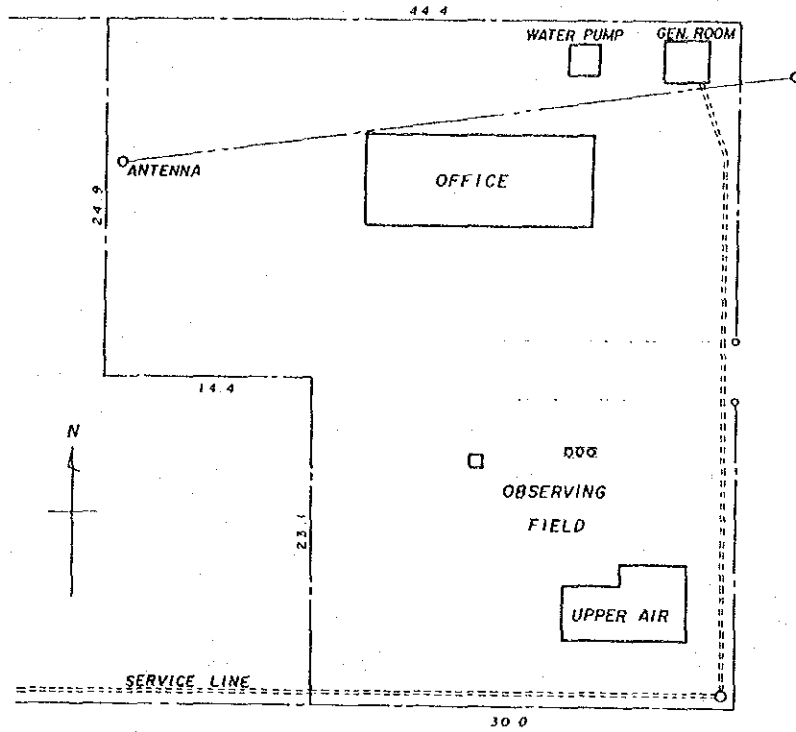


Fig.A.11 (81/86)

Layout of Station

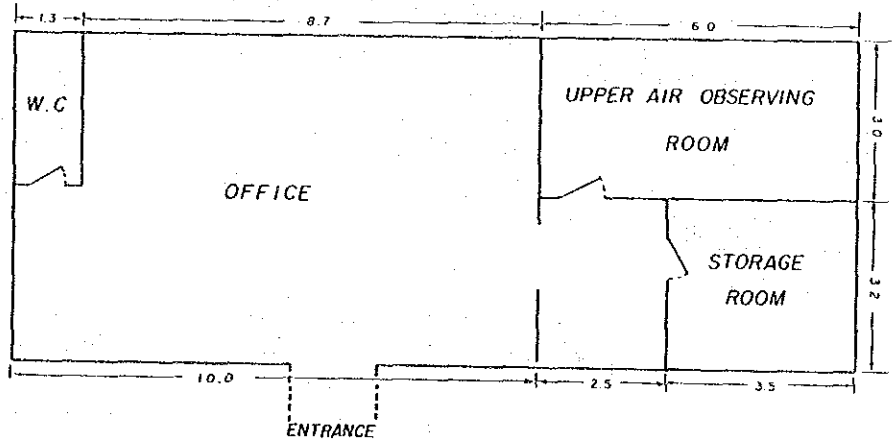


Fig.A.11 (82/86)

GENERAL SANTOS WEATHER STATION

Layout of Site

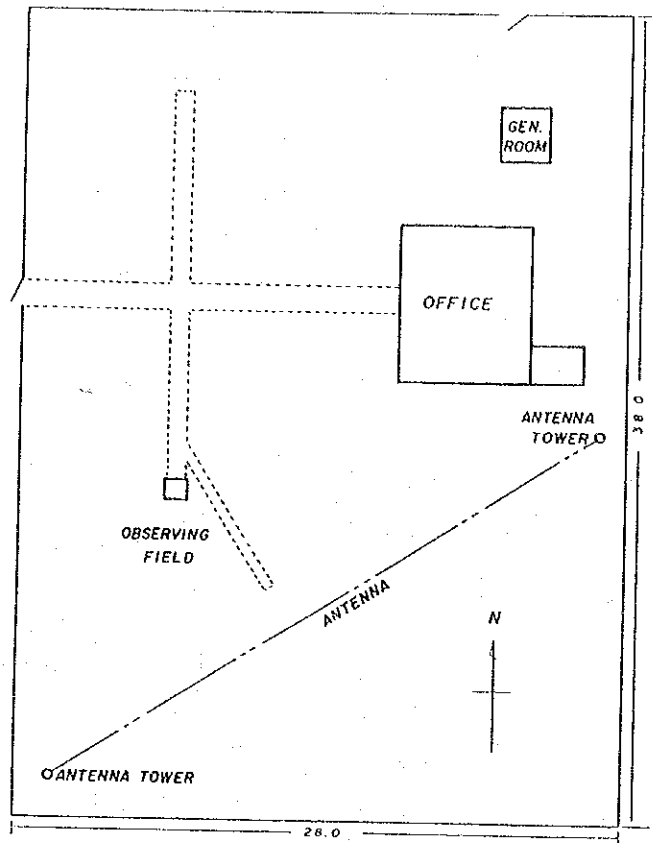


Fig.A.11 (83/86)

Layout of Station

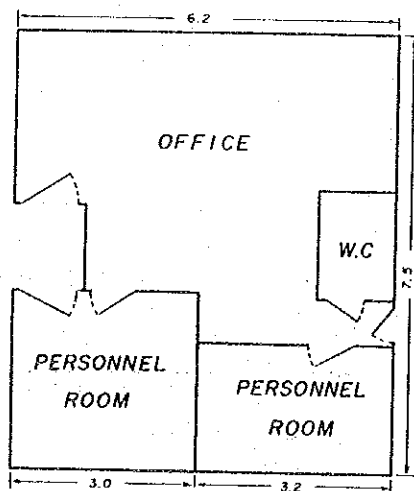


Fig.A.11 (84/86)

JOMALIG WEATHER STATION

Layout of Site

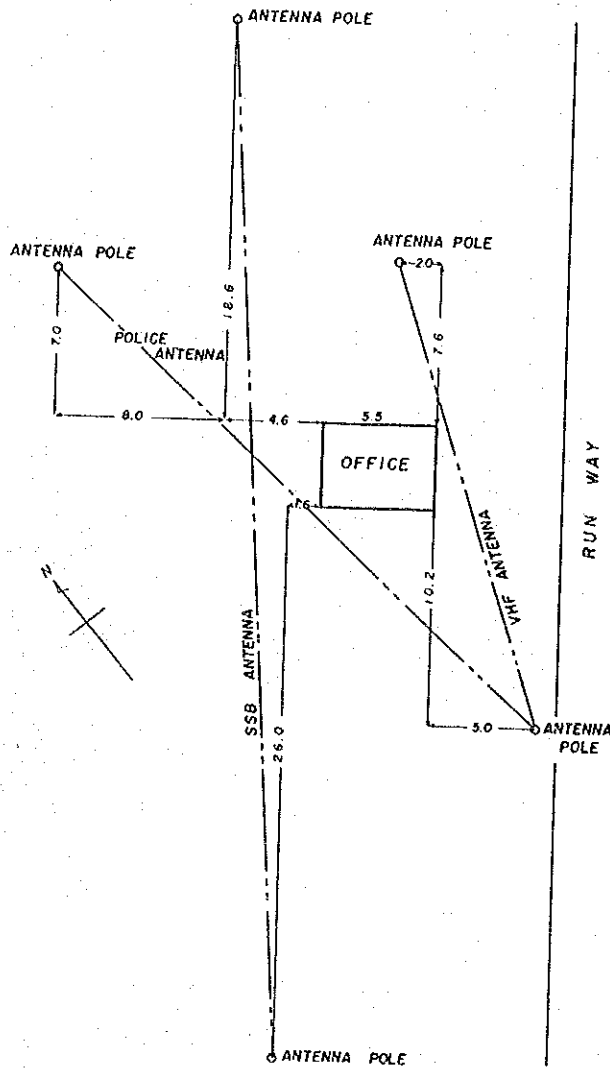


Fig.A.11 (85/86)

Layout of Station

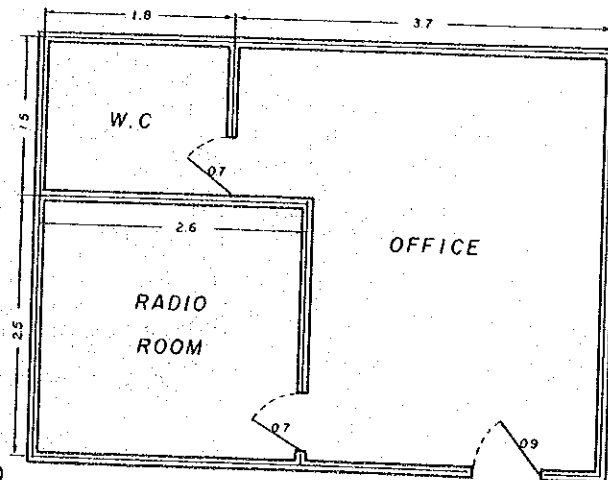
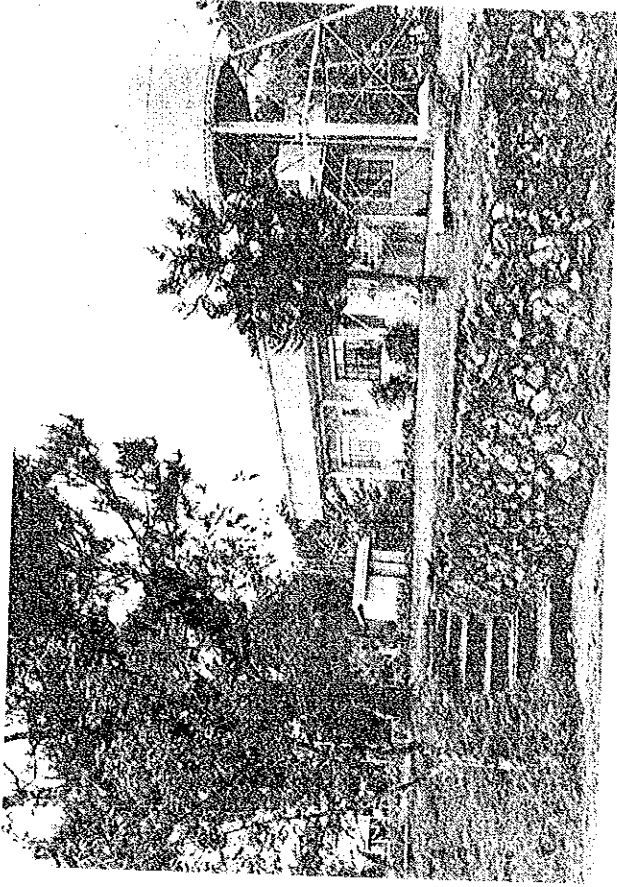
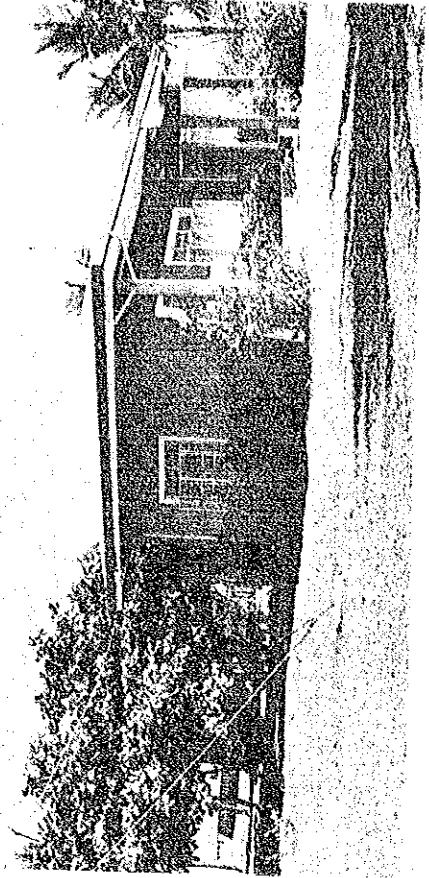


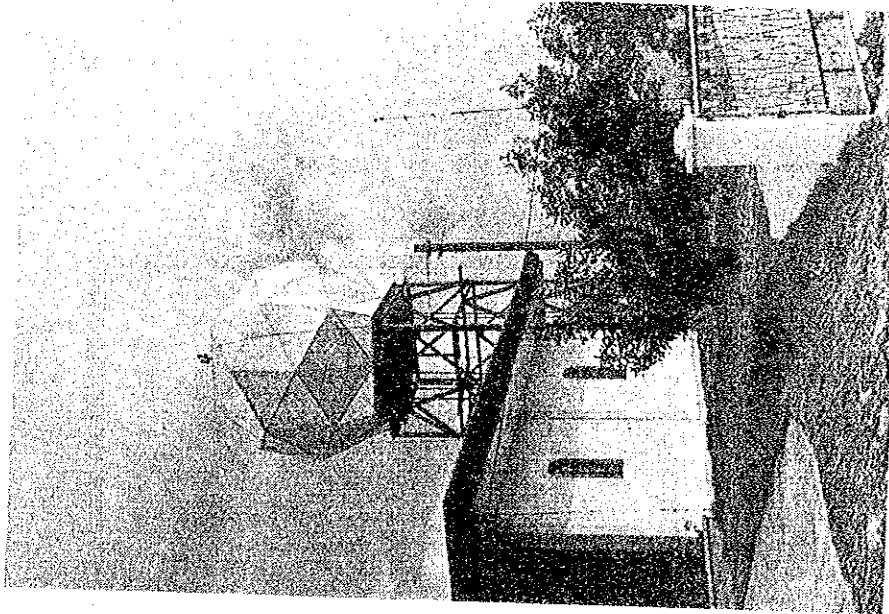
Fig.A.11 (86/86)



Raguo Station

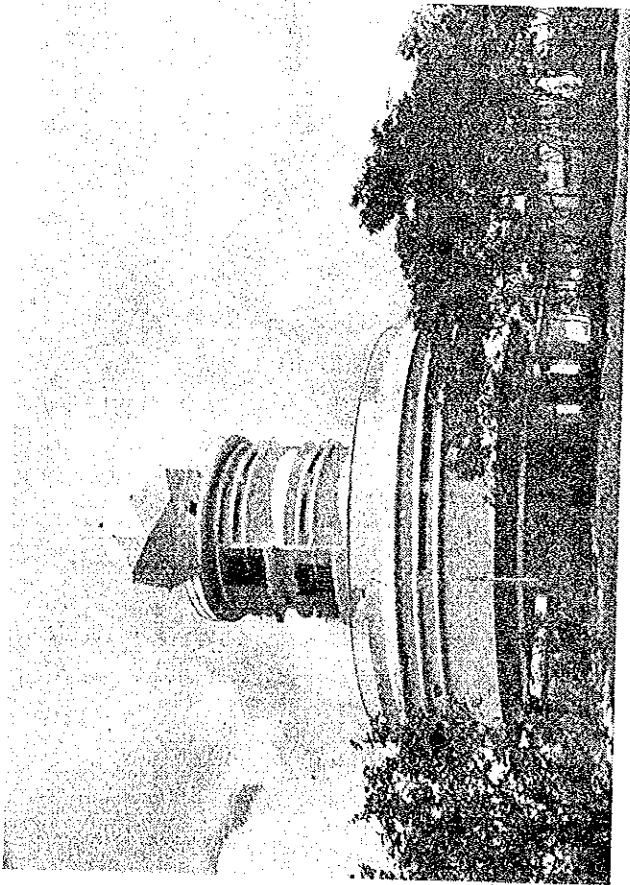


Dagupan Station

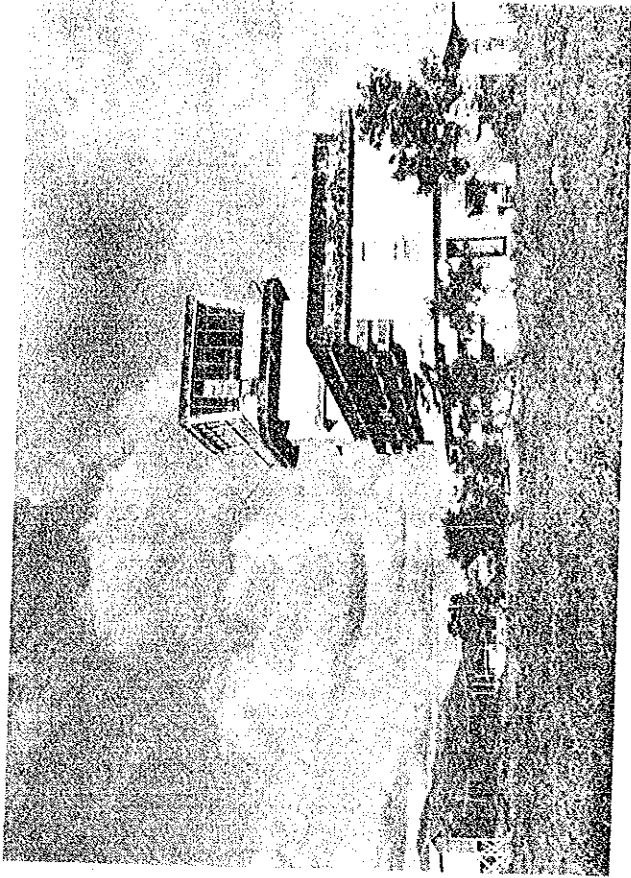


Raguo Radar Station

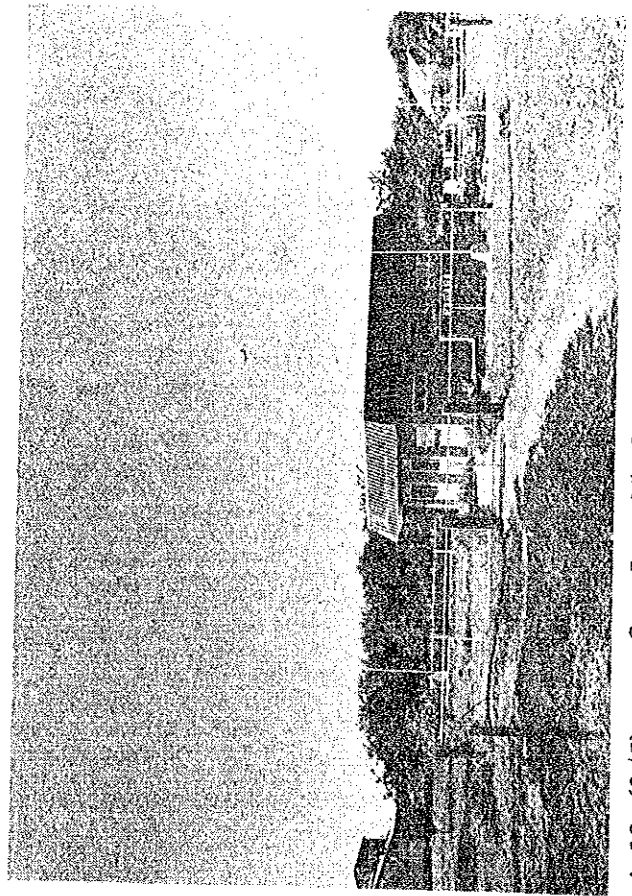
Fig.A.12 (1/3)



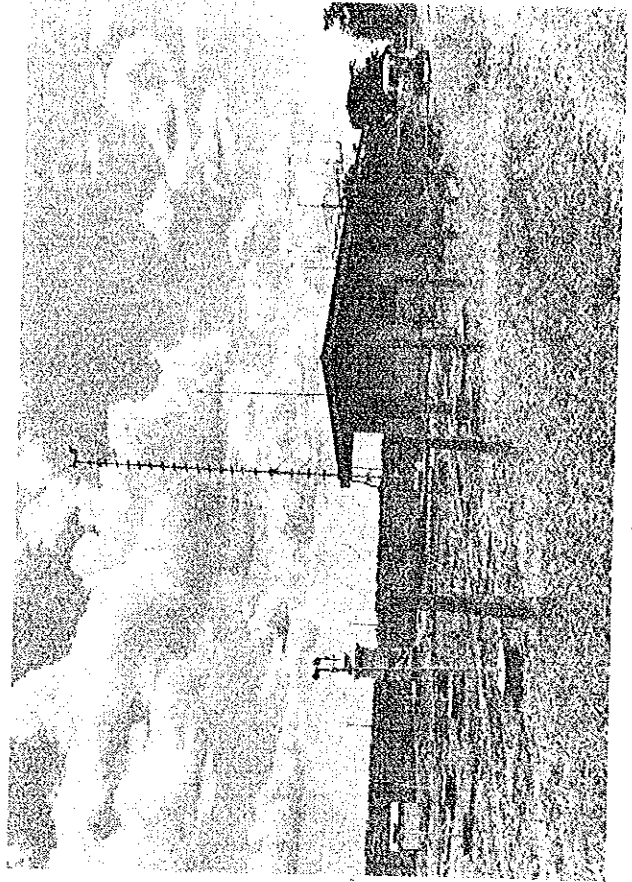
Virac Radar Station



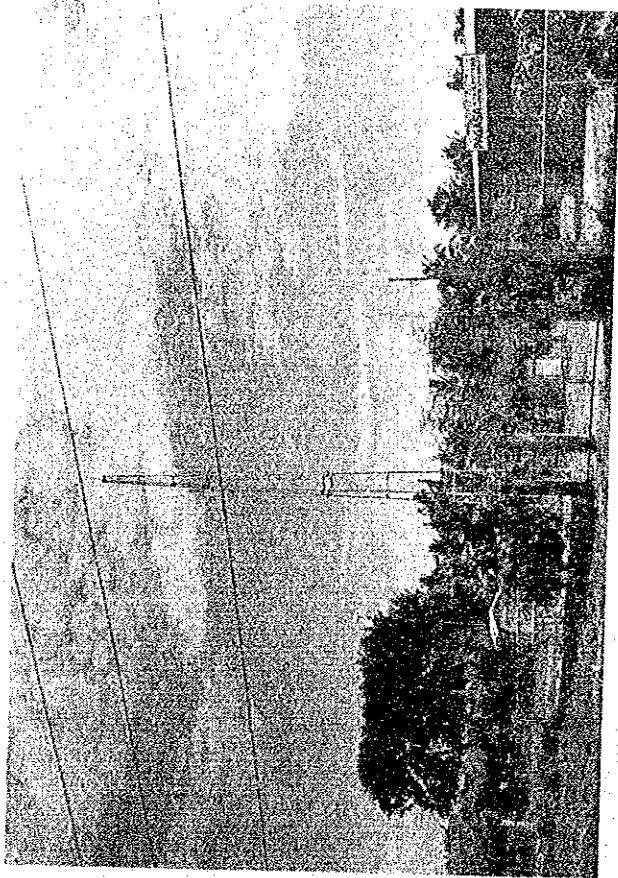
Virac Station



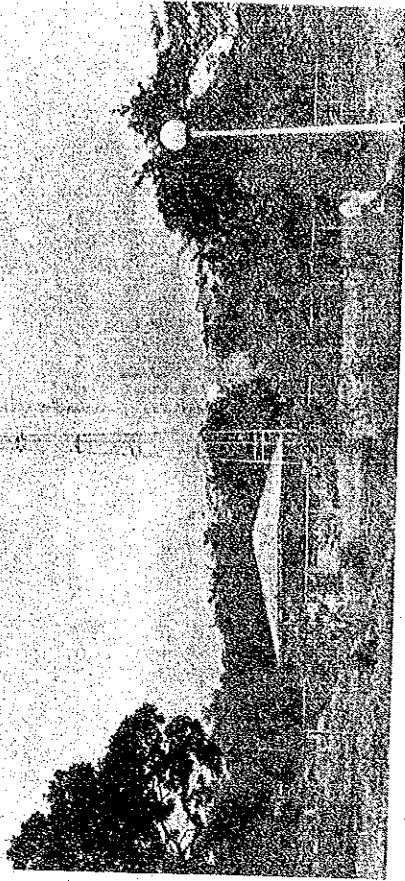
San Jose Mindoro Station



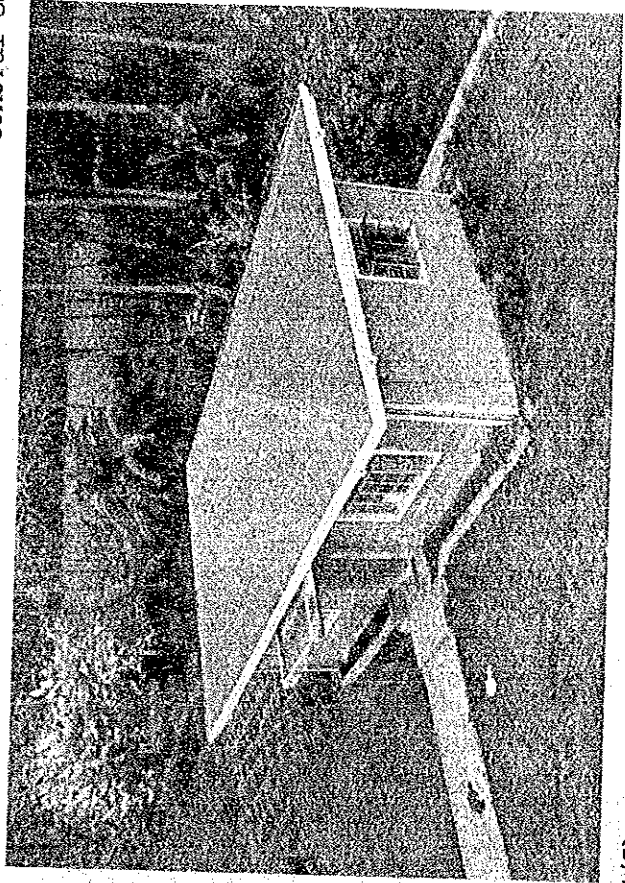
Munoz Station



Davao Station



General Santos Station



Dumaguete Station

Fig.A. 12 (3/3)

Table A.1 (1/11) Level Diagram of OH Test Link

		Estimated Value Before The Test		Estimated Value On The Test	
Span		TANAY - GAPAS		TANAY - GAPAS	
	Altitude	640 m	142 m	640 m	145 m
	Antenna Height	15 m	15 m	13.7 m	22 m
	Distance	131.9 km		132.4 km	
1	Combined Feeder Loss	-4.8 dB	RG17/u	-4.0 dB	RG17/u 40 m
				-0.3 dB	8D-2w 1 m
				-4.0 dB	RG17/u 40 m
		-4.8 dB	40m + 40m	-0.5 dB	8D-2w 1.5m
				-0.3 dB	COUPLER
2-1	Duplexer Loss	dB		dB	
2-2	RF HYB Loss	dB		dB	
3	Combined Antenna Gain	+13.0dB +13.0dB	12ele YAGI 12ele YAGI	+15.3dB +15.3dB	12ele YAGI 12ele YAGI
4	Free Space Loss	-132.9 dB	800 MHz 131.9 km	-133.5 dB	861 MHz 132.4 km
	Additional Loss	-21 dB	d:23.8km,108.1km H: 140 m	-21 dB	d:23.8km,108.6km H: 140 m
5	(1) Shadow Loss	- 6 dB	d:12.6km, 95.9km H: 0 m	- 6 dB	d:12.6km, 96 km H: 0 m
				0 dB	d: 0.5km,108.1km H: -20 m
	(2) Loss	dB		dB	
	(3) Corrective Value	dB		dB	
6	Span Loss	-143.5 dB	Total of (1-5)	-139.0 dB	Total of (1-5)
7	System Value (Unweighted)	- dB		- dB	
8	Transmitting Power	+49.0dBm	80 w	+47.2dBm	52 w
9	Receiving Power	-94.5dBm	(6+8)	-91.8dBm	(6+8)

Table A.1(2/11)

Level Diagram of OH Test Link

		Estimated Value Before The Test		Estimated Value On The Test	
Span		GAPAS - NAGA		GAPAS - NAGA	
	Altitude	<u>142 m</u>	<u>5 m</u>	<u>145 m</u>	<u>5 m</u>
	Antenna Height	<u>15 m</u>	<u>15 m</u>	<u>22 m</u>	<u>27.8 m</u>
	Distance	<u>91.0 km</u>		<u>90.5 km</u>	
1	Combined Feeder Loss	-4.8 dB	RG17/u	-4.0 dB	RG17/u 40 m
				-0.5 dB	10D-2v 2 m
				-0.3 dB	COUPLER
		-4.8 dB	40m + 40m	-8.0 dB	RG17/u 40 m
				-0.3 dB	8D-2w 1 m
2-1	Duplexer Loss	- dB		- dB	
2-2	RF HYB Loss	- dB		- dB	
3	Combined Antenna Gain	+13.0dB	12ele YAGI	+15.3dB	12ele YAGI
		+13.0dB	12ele YAGI	+15.3dB	12ele YAGI
4	Free Space Loss	-129.7 dB	800 MHz 91.0 km	-130.2 dB	860 MHz 90.5 km
5	Additional Loss	-18 dB	d: 63.5km, 2.5km H: 35 m	-18 dB	d: 63km, 2.5km H: 35 m
	(1) Shadow Loss	-15 dB	d: 66km, 25km H: 70 m	-13.5dB	d: 65.5km, 25km H: 60 m
	(2) Loss			0 dB	d: 1.5km, 23.5km H: -15 m
	(3) Corrective Value	- dB		- dB	
6	Span Loss	-146.3 dB	Total of (1-5)	-144.2 dB	Total of (1-5)
7	System Value (Unweighted)	- dB		- dB	
8	Transmitting Power	+49.0dBm	80 w	+47.2 dBm	52 w
9	Receiving Power	-97.3dBm	(6+8)	-97.0 dBm	(6+8)

Table A.1 (3/11) Level Diagram of OH Test Link

		Estimated Value Before The Test		Estimated Value On The Test	
Span		NAGA - MALABOG		NAGA - MALABOG	
	Altitude	<u>5 m</u>	<u>340 m</u>	<u>5 m</u>	<u>330 m</u>
	Antenna Height	<u>15 m</u>	<u>15 m</u>	<u>22.85m</u>	<u>22 m</u>
	Distance	<u>74.2 km</u>		<u>74.2 km</u>	
1	Combined Feeder Loss	-4.8 dB	RG17/u	-8.0 dB	RG17/u 40m+40m
		-4.8 dB	40m + 40m	-0.3 dB	8D-2w 1 m
				-8.0 dB	RG17/u 40m+40m
				-0.5 dB	10D-2v 2 m
² ₋₁	Duplexer Loss	- dB		- dB	
² ₋₂	RF HYB Loss	- dB		- dB	
3	Combined Antenna Gain	+13.0dB	12ele YAGI	+15.3dB	12ele YAGI
		+13.0dB	12ele YAGI	+15.3dB	12ele YAGI
4	Free Space Loss	-127.9 dB	800 MHz	-128.5 dB	860 MHz
			74.2 km		74.2 km
5	Additional Loss	- 6 dB	d: 10.5km, 41km H: 0 m	- 6 dB	d: 10.5km, 41km H: 0 m
	(1) Shadow Loss	-14.5dB	d: 41.5km, 32.7km H: 65 m	-14.5dB	d: 41.5km, 32.7km H: 65 m
	(2) Loss				
	(3) Corrective Value	- dB		- dB	
6	Span Loss	-132.0 dB	Total of (1-5)	-135.2 dB	Total of (1-5)
7	System Value (Unweighted)	- dB		- dB	
8	Transmitting Power	+49.0 dBm	80 w	+47.2 dBm	52 w
9	Receiving Power	-83.0dBm	(6+8)	-88.0 dBm	(6+8)

Table A.1 (4/11) Level Diagram of OH Test Link

		Estimated Value Before The Test		Estimated Value On The Test	
Span		MALABOG - BALOD		MALABOG - BALOD	
	Altitude	340 m	75 m	330 m	53 m
	Antenna Height	15 m	15 m	15 m	21.3 m
	Distance	130.5 km		130.5 km	
1	Combined Feeder Loss	-4.8 dB	RG17/u	-8.0 dB	RG17/u 40m+40m
				-0.5 dB	10D-2v 2 m
		-4.8 dB	40m + 40m	-4.0 dB	RG17/u 40m
				-0.3 dB	8D-2w 1m
2-1	Duplexer Loss	- dB		- dB	
2-2	RF HYB Loss	- dB		- dB	
3	Combined Antenna Gain	+31.5dB	6.0m ø G.P	+32.3dB	6.0m ø G.P
		+13.0dB	12ele YAGI	+15.3dB	12ele YAGI
4	Free Space Loss	-132.8 dB	800 MHz 130.5 km	-133.4 dB	861 MHz 130.5 km
5	Additional Loss	-33.5dB	d: 24.5km, 106.0km H: 600m	-33.5dB	d: 24.5km, 106.0km H: 600m
	(1) Shadow Loss	-3.5 dB	d: 70.5km, 35.5km H: -20 m	-3.5 dB	d: 70.5km, 35.5km H: -20 m
	(2) Loss				
	(3) Corrective Value	- dB		- dB	
6	Span Loss	-134.9 dB	Total of (1-5)	-135.6 dB	Total of (1-5)
7	System Value (Unweighted)	- dB		- dB	
8	Transmitting Power	+49.0dBm	80 w	+47.2dBm	52 w
9	Receiving Power	-85.9dBm	(6+8)	-88.4dBm	(6+8)

Table A.1 (5/11) Level Diagram of OH Test Link

		Estimated Value Before The Test		Estimated Value On The Test	
Span		BALOD — CAPACUAN		BALOD — CAPACUAN	
	Altitude	<u>60 m</u>	<u>360 m</u>	<u>53 m</u>	<u>310 m</u>
	Antenna Height	<u>25 m</u>	<u>15 m</u>	<u>21.3 m</u>	<u>4 m</u>
	Distance	<u>25.7 km</u>		<u>25.7 km</u>	
1	Combined Feeder Loss	-4.8 dB	RG17/u	-4.0dB	RG17/u 40m
		-4.8 dB	40 + 40m	-0.3dB	8D-2w 1m
				-4.0dB	RG17/u 40m
				-0.6dB	RG55A/u 0.7m
2 ₋₁	Duplexer Loss	— dB		— dB	
2 ₋₂	RF HYB Loss	— dB		— dB	
3	Combined Antenna Gain	+13.0 dB	12ele YAGI	+15.3dB	12ele YAGI
		+13.0 dB	12ele YAGI	+15.3dB	12ele YAGI
4	Free Space Loss		800 MHz		861 MHz
		-118.7dB	25.7 km	-119.3dB	25.7 km
5	Additional Loss	-8.5 dB	d:25km, d:23.2km H = 5 m	-7 dB	d:1.26km, 24.44km H = 2 m
	(1) Shadow Loss	-6.0 dB	d:17.5km,d:8.2km H = 0 m	-3.5 dB	d:16.24km,8.2km H = -10m
	(2) Loss				
	(3) Corrective Value	— dB		— dB	
6	Span Loss	-116.8dB	Total of (1-5)	-108.1dB	Total of (1-5)
7	System Value (Unweighted)	— dB		— dB	
8	Transmitting Power	+37.0dBm	5 w	+37.0dBm	5 w
9	Receiving Power	-79.8dBm	(6 + 8)	-71.1dBm	(6 + 8)

Table A.1 (6/11) Level Diagram of OH Test Link

		Estimated Value Before The Test		Estimated Value On The Test	
Span		TINAMBACAN - DANAQ		TINAMBACAN - DANAQ	
	Altitude	<u>140 m</u>	<u>67 m</u>	<u>145 m</u>	<u>67 m</u>
	Antenna Height	<u>15 m</u>	<u>15 m</u>	<u>5 m</u>	<u>15.3 m</u>
	Distance	<u>183.9 km</u>		<u>183.9 km</u>	
1	Combined Feeder Loss	-4.8 dB	RG17/u	-4.0 dB	RG17/u 40m
				-0.5 dB	10D-2v 2m
		-4.8 dB	40m + 40m	-4.0 dB	RG17/u 40m
				-0.3 dB	8D-2w 1m
² ₋₁	Duplexer Loss	- dB		- dB	
² ₋₂	RF HYB Loss	- dB		- dB	
3	Combined Antenna Gain	+13.0dB	12ele YAGI	+15.3dB	12ele YAGI
		+31.5dB	6.0m∅ G.P	+32.3dB	6.0m∅ G.P
4	Free Space Loss	-135.8 dB	800 MHz 183.9 km	-136.4 dB	861 MHz 183.9 km
5	Additional Loss				
	(1) Shadow Loss	-40 dB	d: 48.5km, 135.4km H: 1230 m	-40 dB	d: 48.5km, 135.4km H: 1230 m
	(2) Loss	dB		dB	
	(3) Corrective Value	- dB		- dB	
6	Span Loss	-140.9 dB	Total of (1-5)	-137.6 dB	Total of (1-5)
7	System Value (Unweighted)	- dB		- dB	
8	Transmitting Power	+49.0dBm	80 w	+47.0 dBm	50 w
9	Receiving Power	-91.9dBm	(6 + 8)	-90.6 dBm	(6 + 8)

Table A.1 (7/11) Level Diagram of OH Test Link

		Estimated Value Before The Test		Estimated Value On The Test	
Span		DANA O - MALASAG		DANA O - MALASAG	
	Altitude	<u>67 m</u>	<u>240 m</u>	<u>67 m</u>	<u>275 m</u>
	Antenna Height	<u>15 m</u>	<u>15 m</u>	<u>15.3 m</u>	<u>5 m</u>
	Distance	<u>239.3 km</u>		<u>239.3 km</u>	
1	Combined Feeder Loss	-4.8 dB	RG17/u	-4.0 dB	RG17/u 40m
		-4.8 dB	40m + 40m	-0.5 dB	10D-2v 2m
				-4.0 dB	RG17/u 40m
				-0.3 dB	8D-2w 1m
2-1	Duplexer Loss	- dB		- dB	
2-2	RF HYB Loss	- dB		- dB	
3	Combined Antenna Gain	+31.5dB	6.0m ø G.P	+32.3dB	6.0m ø G.P
		+13.0dB	12ele YAGI	+15.3dB	12ele YAGI
4	Free Space Loss	-138.1 dB	800 MHz 239.3 km	-138.7 dB	861 MHz 239.3 km
5	Additional Loss				
	(1) Shadow Loss	-36.5dB	d: 88.5km, 150.8km H: 1300 m	-36.5dB	d: 88.5km, 150.8km H: 1290 m
		-6 dB	d: 4km, 146.8km H: 0 m	-6 dB	d: 4km, 146.8km H: 0 m
	(2) Loss	dB		dB	
	(3) Corrective Value	- dB		- dB	
6	Span Loss	-145.7 dB	Total of (1-5)	-142.4 dB	Total of (1-5)
7	System Value (Unweighted)	- dB		- dB	
8	Transmitting Power	+49.0dBm	80 w	+47.0dBm	50 w
9	Receiving Power	-96.7dBm	(6 + 8)	-95.4dBm	(6 + 8)

Table A.1 (8/11)

Level Diagram of OH Test Link

		Estimated Value Before The Test		Estimated Value On The Test	
Span		MALABOG - MASBATE		MALABOG - MASBATE	
	Altitude	<u>340 m</u>	<u>5 m</u>	<u>360 m</u>	<u>6 m</u>
	Antenna Height	<u>15 m</u>	<u>15 m</u>	<u>4 m</u>	<u>10.5 m</u>
	Distance	<u>88.7 km</u>		<u>88.7 km</u>	
1	Combined Feeder Loss	-4.8 dB	RG17/u	-4.0 dB	RG17/u 40 m
				-0.5 dB	10D-2v 2 m
				-4.0 dB	RG17/u 40 m
		-4.8 dB	40m + 40m	-0.3 dB	8D-2w 1 m
2 ₋₁	Duplexer Loss	- dB		- dB	
2 ₋₂	RF HYB Loss	- dB		- dB	
3	Combined Antenna Gain	+13.0dB	12ele YAGI	+15.3dB	12ele YAGI
		+13.0dB	12ele YAGI	+15.3dB	12ele YAGI
4	Free Space Loss	-129.5 dB	800 MHz 88.7 km	-130.1 dB	861 MHz 88.7 km
5	Additional Loss	-9.5 dB	d: 3km, 23.7km H: 10 m	-8.5 dB	d: 0.08km, 25.92km H: 1.1 m
	(1) Shadow Loss	-26 dB	d: 62km, 26.7km H: 235 m	- 6 dB	d: 2.5km, 23.5km H: 0 m
				- 29 dB	d: 62.7km, 26km H: 330 m
	(2) Loss	dB		dB	
	(3) Corrective Value	- dB		- dB	
6	Span Loss	-148.6 dB	Total of (1-5)	-151.8 dB	Total of (1- 5)
7	System Value (Unweighted)	- dB		- dB	
8	Transmitting Power	+49.0dBm	80 w	+47.0dBm	50 w
9	Receiving Power	-99.6dBm	(6 + 8)	-104.8 dBm	(6 + 8)

Table A.1 (9/11) Level Diagram of OH Test Link

		Estimated Value Before The Test		Estimated Value On The Test	
Span		MASBATE - TINAMBACAN		MASBATE - TINAMBACAN	
	Altitude	<u>5 m</u>	<u>140 m</u>	<u>6 m</u>	<u>145 m</u>
	Antenna Height	<u>15 m</u>	<u>15 m</u>	<u>10.5 m</u>	<u>4.5 m</u>
	Distance	<u>102.9 km</u>		<u>102.9 km</u>	
1	Combined Feeder Loss	-4.8 dB	RG17/u	-4.0 dB	RG17/u 40 m
		-4.8 dB	40m + 40m	-0.5 dB	10D-2v 2 m
				-4.0 dB	RG17/u 40 m
				-0.3 dB	8D-2w 1 m
2 ₋₁	Duplexer Loss	- dB		- dB	
2 ₋₂	RF HYB Loss	- dB		- dB	
3	Combined Antenna Gain	+13.0dB	12ele YAGI	+15.3dB	12ele YAGI
		+13.0dB	12ele YAGI	+15.3dB	12ele YAGI
4	Free Space Loss	- dB		-131.4 dB	861 MHz 102.9 km
5	Additional Loss	- dB		-12 dB	d: 0.12km, 16.62km H: 3.9 m
	(1) Shadow Loss			-37.5dB	ae=6370x4/3km 861MHz Smooth Earth Loss
	(2) Transmission Loss	-158.4 dB	800 MHz CCIR and Smooth Earth	- dB	
	(3) Corrective Value	- dB		- dB	
6	Span Loss	-142.0 dB	Total of (1-5)	-159.1 dB	Total of (1-5)
7	System Value (Unweighted)	- dB		- dB	
8	Transmitting Power	+49.0dBm	80 w	+47.0dBm	50 w
9	Receiving Power	-93.0dBm	(6 + 8)	-112.1 dBm	(6 + 8)

Table A.1 (10/11) Level Diagram of OH Test Link

		Estimated Value Before The Test		Estimated Value On The Test		
Span		TINAMBACAN - MACTAN RADAR		TINAMBACAN	MACTAN RADAR	
	Altitude	<u>140 m</u>	<u>10 m</u>	<u>145 m</u>	<u>24.8 m</u>	
	Antenna Height	<u>15 m</u>	<u>15 m</u>	<u>5 m</u>	<u>7.9 m</u>	
	Distance	<u>204.6 km</u>		<u>204.6 km</u>		
1	Combined Feeder Loss	-4.8 dB	RG17/u	-4.0 dB	RG17/u	40 m
				-0.5 dB	100-2v	2 m
				-4.0 dB	RG17/u	40 m
		-4.8 dB	40m + 40m	-0.3 dB	8D-2w	1 m
2 -1	Duplexer Loss	- dB		- dB		
2 -2	RF HYB Loss	- dB		- dB		
3	Combined Antenna Gain	+13.0dB	12ele YAGI	+15.3dB	12ele	YAGI
		+13.0dB	12ele YAGI	+15.3dB	12ele	YAGI
4	Free Space Loss	-136.7 dB	800 MHz 204.6 km	-137.3 dB	861 MHz 204.6 km	
5	Additional Loss					
	(1) Shadow Loss	-39.5dB	d: 47.6km, 157km H: 1420 m	-39.5dB	d: 47.6km, 157km H: 1420 m	
	(2) Loss	dB		dB	d: 3km, 154km H: 25.1 m	
	(3) Corrective Value	- dB		- dB		
6	Span Loss	-159.8 dB	Total of (1-5)	-169.5 dB	Total of (1-5)	
7	System Value (Unweighted)	- dB		- dB		
8	Transmitting Power	+49.0dBm	80 w	+47.0dBm	50 w	
9	Receiving Power	-110.8 dBm	(6 + 8)	-122.5 dBm	(6 + 8)	

Table A.1 (11/11) Level Diagram of OH Test Link

		Estimated Value Before The Test		Estimated Value On The Test	
S p a n		MACTAN RADAR - MALASAG		MACTAN RADAR - MALASAG	
	Altitude	<u>10 m</u>	<u>240 m</u>	<u>24.8 m</u>	<u>275 m</u>
	Antenna Height	<u>15 m</u>	<u>15 m</u>	<u>7.9 m</u>	<u>5 m</u>
	Distance	<u>222.0 km</u>		<u>222.0 km</u>	
1	Combined Feeder Loss	-4.8 dB	RG17/u	-4.0 dB	RG17/u 40 m
				-0.5 dB	10D-2v 2 m
				-4.0 dB	RG17/u 40 m
		-4.8 dB	40m + 40m	-0.3 dB	8D-2w 1 m
2- 1	Duplexer Loss	- dB		- dB	
2- 2	RF HYB Loss	- dB		- dB	
3	Combined Antenna Gain	+13.0dB	12ele YAGI	+15.3dB	12ele YAGI
		+13.0dB	12ele YAGI	+15.3dB	12ele YAGI
4	Free Space Loss	-137.4 dB	800 MHz 222.0 km	-138.0 dB	861 MHz 222.0 km
5	Additional Loss	-13 dB	d: 68km, 11.5km H: 40 m	-13 dB	d: 68km, 11.5km H: 40 m
	(1) Shadow Loss	-34 dB	d: 79.5km, 142.5km H: 990 m	-34 dB	d: 79.5km, 142.5km H: 990 m
	(2) Loss	dB		dB	
	(3) Corrective Value	- dB		- dB	
6	Span Loss	-168.0 dB	Total of (1-5)	-163.2 dB	Total of (1-5)
7	System Value (Unweighted)	- dB		- dB	
8	Transmitting Power	+49.0dBm	80 w	+47.0dBm	50 w
9	Receiving Power	-119.0 dBm	(6 + 8)	-116.2 dBm	(6 + 8)

Table A.2 (1/20) Level Diagram of OH link

	SPAN	TANAY	-	GAPAS
	Altitude	640 m	145 m	
	Ant. Height	13.7 m	22 m	
	Distance	132.4 Km		
	Multiplex	SS-PM		
	MODEL of EQUIPMENT	PM24-800-70FD		
1	Combined Feeder Loss	-1.5 dB		$\left\{ \begin{array}{l} \text{SFZE 50-13W } 34\text{m } 42\text{m} \\ \text{8D-2W } 1.5\text{m} + 1.5\text{m} \end{array} \right\}$
		-1.8 dB		
2-1	Duplex Loss	-2.5 dB		
-2	RF HYB Loss	-		
3	Combined Ant. Gain	+31.5 dB		6.0 m \emptyset G.P
		+28.0 dB		4.2 m \emptyset G.P
4	free Span Loss	-132.9 dB		800MHz 132.4 Km
5	Additional Loss	-21 dB		d = 23.8 Km, 108.6 Km H = 140m
	shadow Loss	-6 dB		d = 12.6 km, 96 km H = 0 m
	Shadow Loss	0 dB		d = 0.5 m, 108.1 km H = 20 m
	Loss			
	Corrective Value	-1.5 dB		
6	Span Loss	-107.7 dB		Total of (1~5)
7	System Value	-		
8	Transmitting Power	+48.5 dBm		70 Watt
9	Receiving Power	-59.2 dBm		(6+8)
10	Threshold Level	-105.4 dBm		B= 460 kHz NF= 3 dB (with LNA)
11	Threshold Margin	46.2 dB		(9-10)
12	Safety Factor	3 dB		
13	Actual Threshold Margin	43.2 dB		(11+12)
14	Threshold S/N	16.7 dB		I+Cf= 7.7 + 9 m=0.2 rad/rms
15	Diversity Improvement	4 dB		
16	Combined gain	-		
17	Standard S/N	63.4 dB		
18	Fadig Value Presumed	23.5 dB		$\rho=0.6$ 99.95 %
19	S/N exceed 99.95 %	40.4 dB		(17-18)
20	Judgment of system			

Table A.2 (2/20) Level Diagram of OH link

	SPAN	GAPAS	NAGA
	Altitude	145 m	5 m
	Ant. Height	22 m	27.8 m
	Distance	90.5 Km	
	Multiplex	SS-PM	
	MODEL of EQUIPMENT	PM24-800-70FD	
1	Combined Feeder Loss	-1.8 dB	$\left\{ \begin{array}{l} \text{SFZE50 -13W 42m + 48m} \\ \text{8D - 2W 1.5m + 1.5m} \end{array} \right\}$
		-1.9 dB	
2-1	Duplex Loss	-2.5 dB	
-2	RF HYB Loss	- dB	
3	Combined Ant. Gain	+31.5 dB	6.0 m \emptyset G.P
		+31.5 dB	6.0 m \emptyset G.P
4	free Span Loss	-129.6 dB	800MHz 90.5 Km
5	Additional Loss	-18 dB	d = 63.5 Km 2.5 km H = 35 m
		-15 dB	d = 66 km 25 km H = 70m
	Shadow Loss	0 dB	d = 1.5 km 23.5 km H = 15m
	Corrective Value	-5.9 dB	
6	Span Loss	-111.7 dB	Total of (1~5)
7	System Value	- dB	
8	Transmitting Power	+ 48.5 dBm	70 Watt
9	Receiving Power	- 63.2 dBm	(6+8)
10	Threshold Level	-105.4 dBm	B= 460 kHz NF= 3 dB (with LNA)
11	Threshold Margin	42.2 dB	(9-10)
12	Safety Factor	3 dB	
13	Actual Threshold Margin	39.2 dB	(11+12)
14	Threshold S/N	16.7 dB	I+Cf= 7.7 + 9 m= 0.2rad/rms
15	Diversity Improvement	4 dB	
16	Combined gain	- dB	
17	Standard S/N	59.9 dB	
18	Fadig Value Presumed	23.5 dB	$\rho=0.6$ 99.95%
19	S/N exceed 99.95 %	36.4 dB	(17-18)
20	Judgment of system		

Table A.2 (3/20)

Level Diagram of OH link

	SPAN	NAGA	-	MALABOG	
	Altitude	5 m	330 m		
	Ant. Height	22.85m	22 m		
	Distance	74.2 Km			
	Multiplex x	SS-PM			
	MODEL of EQUIPMENT	PM24-800-70FD			
1	Combined Feeder Loss	-1.8 dB			{ SFZE50 - 13W 43m + 43m } { 8D - 2W 1.5m + 1.5m }
		-1.8 dB			
2-1	Duplex Loss	-2.5 dB			
-2	RF HYB Loss	- dB			
3	Combined Ant. Gain	+25.0 dB			3.0m ϕ G.P 3.0m ϕ G.P
4	free Span Loss	-127.9 dB			800MHz 74.2 Km
5	Additional Loss	-14.5 dB			d = 41.5km, 32.7km
	Shadow Loss	-6 dB			d = 10.5km, 41km
	Corrective Value	-2.6 dB			H = 0m
6	Span Loss	-107.1 dB			Total of (1~5)
7	System Value	- dB			
8	Transmitting Power	+ 48.5 dBm			70 Watt
9	Receiving Power	- 58.6 dBm			(6+8)
10	Threshold Level	- 105.4 dBm			B= 460 kHz NF= 3 dB (with LNA)
11	Threshold Margin	46.8 dB			(9-10)
12	Safety Factor	3 dB			
13	Actual Threshold Margin	43.8 dB			(11+12)
14	Threshold S/N	16.7 dB			I+Cf= 77 + 9 m=0.2 rad/rms
15	Diversity Improvement	4 dB			
16	Combined gain	- dB			
17	Standard S/N	64.5 dB			
18	Fadig Value Presumed	23.5 dB			$\rho=0.6$ 99.95 %
19	S/N exceed 99.95 %	41.0 dB			(17-18)
20	Judgment of system				

Table.A.2 (4/20) Level Diagram of OH link

		SPAN MALABOG - BALOD		
Altitude		330 m	53 m	
Ant. Height		15 m	21.3m	
Distance		130.5 Km		
Multiplex		SS-PM		
MODEL of EQUIPMENT		PM 12-800-70 S.D		
1	Combined Feeder Loss	- 1.6 dB		{ SFZE50 - 13W 35m + 41m } 8D - 2W 1.5m + 1.5m }
		- 1.7 dB		
2-1	Duplex Loss	- 2.5 dB		
-2	RF HYB Loss	- dB		
3	Combined Ant. Gain	+ 35.5 dB		10.0m Ø G.P
		+ 31.5 dB		6.0m Ø G.P
4	free Span Loss	-132.8 dB		800MHz 130.5 Km
5	Additional Loss	- 33.5 dB		d = 24.5km, 106.0 km H = 600m
	Shadow Loss Corrective Value	- 3.5 dB		d = 70.5 km, 35.5 km H = 20m
		- 5.1 dB		
6	Span Loss	-113.7 dB		Total of (1~5)
7	System Value	- dB		
8	Transmitting Power	+ 48.5 dBm		70 Watt
9	Receiving Power	- 65.2 dBm		(6+8)
10	Threshold Level	- 105.4 dBm		B= 460 kHz NF= 3 dB (with LNA)
11	Threshold Margin	40.2 dB		(9-10)
12	Safety Factor	3 dB		
13	Actual Threshold Margin	37.2 dB		(11+12)
14	Threshold S/N	22.8 dB		I+Cf= 13.8 + 9 m=0.4 rad/rms
15	Diversity Improvement (unequal)	1.5 dB		Sub ANT 6.0 m Ø G.P 4.2 m Ø G.P
16	Combined gain	- dB		
17	Standard S/N	61.5 dB		
18	Fadig Value Presumed	22.5 dB		$\rho=0.4$ 99.95 %
19	S/N exceed 99.95 %	39.0 dB		(17-18)
20	Judgment of system			

Table A.2 (5/20) Level Diagram of OH link

	SPAN	BALOD	TINAMBACAN
	Altitude Ant. Height Distance Multiplex MODEL of EQUIPMENT	53 m 40.4m 25.7+20.0Km SS- FM FM 60-6700 - 1	145 m 10 m Passive Relay by using back-to-back coupling parabolic Antennas at CAPACUAN CAPACUAN Altitude 310m Antenna Height 15m
1	Combined Feeder Loss	- 3.1 dB - 1.6 dB	{ FR - 6U 60m + 30m } { WRJ - 7 2m + 2m }
2-1 -2	Duplex Loss RF HYB Loss	- 2.0 dB - 4.5 dB	
3	Combined Ant. Gain	+46.0 + 46.0dB +46.0 + 46.0 dB	4.0m Ø G.P x 4
4	free Span Loss	- 137.1 dB - 134.9 dB	800MHz 6700 MHz 25.7+20 Km
5	Additional Loss Feeder Loss Corrective Value	- dB dB - 0.5 dB -3.0 dB	Presumed 10m Presumed
6	Span Loss	- 102.7dB	Total of (1~5)
7	System Value	- dB	
8	Transmitting Power	+ 30.0 dBm	1 Watt
9	Receiving Power	- 72.7 dBm	(6+8)
10	Threshold Level	-93.2 dBm	B= 6000 kHz NF= 4.0 dB
11	Threshold Margin	20.5 dB	(9-10)
12	Safety Factor	- dB	
13	Actual Thres- hold Margin	20.5 dB	(11+12)
14	Threshold S/N	38.3 dB dB	I+Cf= 29.3 + 9 fd = 200 KHz
15	Diversity Improvement	- dB	
16	Combined gain	3 dB	
17	Standard S/N	61.8 dB	
18	Fadig Value Presumed	15.6 dB	99.9975% (2.5x10 ⁻⁵ Time Rate)
19	S/N exceed 99.9975 %	46.2 dB	(17-18)
20	Judgment of system		

Table A.2 (6/20)

Level Diagram of OH link

SPAN		TINAMBACAN	DANA O
	Altitude	145 m	67 m
	Ant. Height	10m	15.3 m
	Distance	183.9 Km	
	Multiplex	SS-PM	
	MODEL of EQUIPMENT	PM 12-800-70 S.D	
1	Combined Feeder Loss	- 1.4dB	{ SFZE 50 - 13W 30m + 35m 8D - 2W 1.5m + 1.5m }
		- 1.6 dB	
2-1	Duplex Loss	- 2.5dB	
-2	RF HYB Loss	- dB	
3	Combined Ant. Gain	+ 35.5 dB	10.0m Ø G.P
		+ 35.5 dB	10.0m Ø G.P
4	free Span Loss	- 135.8 dB	800MHz 183.9 Km
5	Additional Loss	- 40dB	d = 48.5km 135.4km H = 1230m
		dB	
		dB	
	Loss	dB	
	Corrective Value	- 5.9dB	
6	Span Loss	- 116.2dB	Total of (1~5)
7	System Value	- dB	
8	Transmitting Power	+ 48.5 dBm	20 Watt
9	Receiving Power	- 67.7 dBm	(6+8)
10	Threshold Level	-105.4 dBm	B= 460 kHz NF= 3 dB (with LNA)
11	Threshold Margin	37.7 dB	(9-10)
12	Safety Factor	3 dB	
13	Actual Threshold Margin	34.7 dB	(11+12)
14	Threshold S/N	22.8 dB	I+Cf= 13.8 + 9 m=0.4 rad/rms
		dB	
15	Diversity Improvement (unequal)	1.5 dB	sub ANT 6.0m Ø G.P 6.0m Ø G.P
16	Combined gain	- dB	
17	Standard S/N	59.0 dB	
18	Fadig Value Presumed	22.5 dB	$\rho=0.4$ 99.95%
19	S/N exceed 99.95 %	36.5 dB	(17-18)
20	Judgment of system		

Table A.2 (7/20) Level Diagram of OH link

	SPAN	DANAO	MALASAG
	Altitude Ant. Height Distance Multiplex MODEL of EQUIPMENT	67 m 15.3 m 239.3 Km SS-PM PM 6-800-70 S.D	275 m 10 m
1	Combined Feeder Loss	- 1.6 dB - 1.4 dB	{ SFZE 50 - 13W 35m + 30m 8D - 2W 1.5m + 1.5m }
2-1 -2	Duplex Loss RF HYB Loss	- 2.5 dB - dB	
3	Combined Ant. Gain	+31.5 dB + 31.5 dB	6.0m Ø G.P 6.0m Ø G.P
4	free Span Loss	- 138.1 dB	800MHz 239.3 Km
5	Additional Loss Shadow Loss Corrective Value	- 36.5 dB dB - 6 dB -0.1 dB	d = 88.5 km, 150.8 km H = 1290m d = 4 km, 146.8 km H = 0m
6	Span Loss	-123.2 dB	Total of (1~5)
7	System Value	- dB	
8	Transmitting Power	+ 48.5 dBm	70 Watt
9	Receiving Power	- 74.7 dBm	(6+8)
10	Threshold Level	- 105.4 dBm	B= 460 kHz NF= 3 dB (with LNA)
11	Threshold Margin	30.7 dB	(9-10)
12	Safety Factor	3 dB	
13	Actual Threshold Margin	27.7 dB	(11+12)
14	Threshold S/N	28.8 dB dB	I+Cf= 19.8 + 9 m= 0.8rad/rms
15	Diversity Improvement (unequal)	1.5 dB	SUB ANT 4.2m Ø G.P 4.2m Ø G.P
16	Combined gain	- dB	
17	Standard S/N	58.0 dB	
18	Fadig Value Presumed (unequal)	22.5 dB	$\rho=0.4$ 99.95 %
19	S/N exceed 99.95 %	35.5 dB	(17-18)
20	Judgment of system		

Table A.2 (8/20) Level Diagram of OH link

	SPAN	MALABOG	-	LEGASPI
	Altitude	330 m	5 m	
	Ant. Height	20 m	20 m	
	Distance	7.0 Km		
	Multiplex	SS-PM		
	MODEL of EQUIPMENT	PM12-800-5		
1	Combined Feeder Loss	- 2.9 dB		$\left\{ \begin{array}{l} \text{AFZE 50-7} \quad 40\text{m} + 40\text{m} \\ \text{8D} - 2\text{W} \quad 1.5\text{m} + 1.5\text{m} \end{array} \right\}$
		- 2.9 dB		
2-1	Duplex Loss	- 4.5 dB		
-2	RF HYB Loss	- 3.5 dB		
3	Combined Ant. Gain	+ 13.0 dB		12 EL. YAGI
		+ 13.0 dB		12 EL YAGI
4	free Span Loss	- 107.4 dB		800MHz 7.0 Km
5	Additional Loss			
	Shadow Loss	-0.5 dB		d = 6.5 km, 0.5 km
	Corrective Value	- 6 dB		H = 20m (presumed)
6	Span Loss	-101.7 dB		Total of (1~5)
7	System Value	- dB		
8	Transmitting Power	+ 37.0 dBm		5 Watt
9	Receiving Power	- 64.7 dBm		(6+8)
10	Threshold Level	- 101.4 dBm		B= 460 kHz NF= 7.0 dB
11	Threshold Margin	36.7 dB		(9-10)
12	Safety Factor	- dB		
13	Actual Threshold Margin	36.7 dB		(11+12)
14	Threshold S/N	22.8 dB		I+Cf= 13.8 + 9 m= 0.4rad/rms
15	Diversity Improvement	- dB		
16	Combined gain	3 dB		
17	Standard S/N	62.5 dB		
18	Fadig Value Presumed	7.4 dB		0.2 dB/km + 6 dB
19	S/N exceed 99.9 %	55.1 dB		(17-18)
20	Judgment of system			

Table A. 2 (9/20) Level Diagram of OH link

	SPAN	BALOD	CATARMAN
	Altitude	53 m	5 m
	Ant. Height	30 m	20 m
	Distance	2.9Km	
	Multiplex	SS-PM	
	MODEL of EQUIPMENT	PM 6-800-5	
1	Combined Feeder Loss	- 3.5 dB	{ AFZE 50-7 50m + 40m 8D - 2W 1.5m + 1.5m }
		- 2.9 dB	
2-1	Duplex Loss	- 4.5 dB	
-2	RF HYB Loss	- 3.5 dB	
3	Combined Ant. Gain	+ 13.0 dB	12 EL. YAGI
		+ 13.0 dB	12 EL. YAGI
4	free Span Loss	- 99.8 dB	800MHz 2.9 Km
5	Additional Loss		
	Shadow Loss Corrective Value	- 0.5 dB	d = 0.2 km, 2.7 km H = 12m (presumed)
6	Span Loss	-94.7 dB	Total of (1~5)
7	System Value	- dB	
8	Transmitting Power	+ 37.0 dBm	5 Watt
9	Receiving Power	- 57.7 dBm	(6+8)
10	Threshold Level	-101.4 dBm	B= 460 kHz NF= 7.0 dB
11	Threshold Margin	43.7 dB	(9-10)
12	Safety Factor	- dB	
13	Actual Threshold Margin	43.7 dB	(11+12)
14	Threshold S/N	28.8 dB	I+Cf= 19.8 + 9 m=0.8rad/rms
15	Diversity Improvement	- dB	
16	Combined gain	3 dB	
17	Standard S/N	75.5 dB	
18	Fadig Value Presumed	6.6 dB	0.2dB/km + 6dB
19	S/N exceed 99.9 %	68.9 dB	(17-18)
20	Judgment of system		

Table A.2 (10/20) Level Diagram of OH link

	SPAN	DANAQ	MACTAN	RADAR
	Altitude	67 m	24.8 m	
	Ant. Height	20 m	20 m	
	Distance	20.5 Km		
	Multiplex	SS-PM		
	MODEL of EQUIPMENT	PM 12 - 800 - 5		
1	Combined Feeder Loss	- 2.9 dB		{ AFZE 50 - 7 40m + 40m } 8 D - 2W 1.5m + 1.5m }
		- 2.9 dB		
2-1	Duplex Loss	-4.5 dB		
-2	RF HYB Loss	-3.5 dB		
3	Combined Ant. Gain	+20.0 dB		1.8m Ø G.P
		+25.0 dB		3.0m Ø G.P
4	free Span Loss	- 116.7 dB		800MHz 20.5 Km
5	Additional Loss	-9 dB		d = 17.5 km, 3 km H = 7m
	Loss			
	Corrective Value	-6 dB		(presumed)
6	Span Loss	-100.5 dB		Total of (1~5)
7	System Value	- dB		
8	Transmitting Power	+ 37.0 dBm		5 Watt
9	Receiving Power	- 63.5 dBm		(6+8)
10	Threshold Level	- 101.4 dBm		B= 460 kHz NF= 7.0 dB
11	Threshold Margin	37.9 dB		(9-10)
12	Safety Factor	- dB		
13	Actual Threshold Margin	37.9 dB		(11+12)
14	Threshold S/N	22.8 dB		I+Cf= 13.8 + 9 m= 0.4rad/rms
15	Diversity Improvement	- dB		
16	Combined gain	3 dB		
17	Standard S/N	63.7 dB		
18	Fadig Value Presumed	10.1 dB		0.2 dB/km + 6 dB
19	S/N exceed 99.9 %	53.6 dB		(17-18)
20	Judgment of system			

Table A.2 (11/20) Level Diagram of OH link

SPAN		MALASAG	-	CAGAYAN DE ORO
	Altitude	275 m	5 m	Line of sight presumed
	Ant. Height	20 m	10 m	
	Distance	Approx 10 Km		
	Multiplex	SS-PM		
	MODEL of EQUIPMENT	PM 6 - 800 - 5		
1	Combined Feeder Loss	- 2.9 dB		{ AFZE 50 - 7 40m + 30m } { 8D - 2W 1.5m + 1.5m }
		- 2.3 dB		
2-1	Duplex Loss	- 4.5 dB		
-2	RF HYB Loss	- 3.5 dB		
3	Combined Ant. Gain	+ 13.0 dB		12 EL YAGI
		+ 13.0 dB		12 EL YAGI
4	free Span Loss	-110.5 dB		800MHz approx. 10 Km (presumed)
5	Additional Loss	- dB		
		- dB		
		- dB		
	Loss	- dB		
	Corrective Value	- 6 dB		(presumed)
6	Span Loss	- 103.7 dB		Total of (1~5)
7	System Value	- dB		
8	Transmitting Power	+ 37.0 dBm		5 Watt
9	Receiving Power	- 66.7 dBm		(6+8)
10	Threshold Level	- 101.4 dBm		B= 460 kHz NF= 7.0 dB (with LNA)
11	Threshold Margin	34.7 dB		(9-10)
12	Safety Factor	- dB		
13	Actual Threshold Margin	34.7 dB		(11+12)
14	Threshold S/N	28.8 dB		I+Cf= 19.8 + 9 m=0.8 rad/rms
15	Diversity Improvement	- dB		
16	Combined gain	3 dB		
17	Standard S/N	66.5 dB		
18	Fadig Value Presumed	8 dB		0.2 dB/km + 6 dB
19	S/N exceed 99.9 %	58.5 dB		(17-18)
20	Judgment of system			

Table A.2 (12/20) Level Diagram of OH link

SPAN		MALABOG	-	MASBATE
	Altitude	360 m	6 m	
	Ant. Height	10 m	25 m	
	Distance	88.7 Km		
	Multiplex	SS-PM		
	MODEL of EQUIPMENT	PM 12-800-70 S.D		
1	Combined Feeder Loss	- 1.4 dB		} SFZE 50 - 13W 30m + 30m 8D - 2W 1.5m + 1.5m }
		- 1.4 dB		
2-1	Duplex Loss	- 2.5 dB		
-2	RF HYB Loss	- dB		
3	Combined Ant. Gain	+ 35.5 dB		10.0 m Ø G.P
		+ 31.5 dB		6.0 m Ø G.P
4	free Span Loss	- 129.5 dB		800MHz 88.7 Km
5	Additional Loss	- 29 dB		d = 62.7 km, 26 km H = 330m
		- 8.5 dB		d = 0.08 km, 25.92km H = 1.1m
	Shadow Loss	- 6 dB		d = 2.5 km, 23.5 km H = 0m
	Corrective Value	- 1.5dB		
6	Span Loss	- 112.8 dB		Total of (1~5)
7	System Value	- dB		
8	Transmitting Power	+ 48.5 dBm		70 Watt
9	Receiving Power	- 64.3 dBm		(6+8)
10	Threshold Level	- 105.4 dBm		B= 460 kHz NF= 3 dB (with LNA)
11	Threshold Margin	41.1 dB		(9-10)
12	Safety Factor	3 dB		
13	Actual Threshold Margin	38.1 dB		(11+12)
14	Threshold S/N	22.8 dB		I+Cf= 13.8 + 9 m= 0.4 rad/rms
15	Diversity Improvement (unequal)	1.5 dB		SUB ANT 4.20 m Ø G.P 6.0 m Ø G.P
16	Combined gain	- dB		
17	Standard S/N	62.4 dB		
18	Fadig Value Presumed	22.5 dB		$\rho=0.4$ 99.95 %
19	S/N exceed 99.95 %	39.9 dB		(17-18)
20	Judgment of system			

Table A.2 (13/20)

Level Diagram of OH link

		SPAN		MASBATE - TINAMBAGAN	
	Altitude	6 m	145 m		
	Ant. Height	10.5 m	10 m		
	Distance	102.9 Km			
	Multiplex	SS-PM			
	MODEL of EQUIPMENT	PM 12-800-70 SD			
1	Combined Feeder Loss	- 1.4 dB		$\left\{ \begin{array}{l} \text{SFZE 50 - 13W} \quad 30\text{m} + 30\text{m} \\ \text{8D - 2W} \quad 1.5\text{m} + 1.5\text{m} \end{array} \right\}$	
		- 1.4 dB			
2-1	Duplex Loss	- 2.5 dB			
-2	RF HYB Loss	-			
3	Combined Ant. Gain	+ 35.5 dB		10.0 m \emptyset G.P	
		+ 35.5 dB		10.0 m \emptyset G.P	
4	free Span Loss	- 130.8 dB		800MHz 102.9 Km	
5	Additional Loss	- 12 dB		$d = 0.12 \text{ km}, 16.62\text{km}$ $H = 3.9 \text{ m}$	
	smooth earth loss	- 37.5 dB			
	Loss				
	Corrective Value	- 1.3 dB			
6	Span Loss	- 115.9 dB		Total of (1~5)	
7	System Value	-			
8	Transmitting Power	+ 48.5 dBm		70 Watt	
9	Receiving Power	- 67.4 dBm		(6+8)	
10	Threshold Level	- 105.4 dBm		B= 460 kHz NF= 3 dB (with LNA)	
11	Threshold Margin	38.0 dB		(9-10)	
12	Safety Factor	3 dB			
13	Actual Threshold Margin	35.0 dB		(11+12)	
14	Threshold S/N	22.8 dB		$I+C_f = 13.8 + 9$ $m=0.4 \text{ rad/rms}$	
15	Diversity Improvement (unequal)	1.5 dB		SUB ANT 6.0 m \emptyset G.P 6.0 m \emptyset G.P	
16	Combined gain	-			
17	Standard S/N	59.3 dB			
18	Fadig Value Presumed	22.5 dB		$\rho=0.4$ 99.95 %	
19	S/N exceed 99.95%	36.8 dB		(17-18)	
20	Judgment of system				

Table A.2 (14/20) Level Diagram of OH link

SPAN TINAMBACAN - MACTAN RADAR			
	Altitude Ant. Height Distance Multiplex MODEL of EQUIPMENT	145 m 24.8 m 10m 7.9 m 204.6 Km SS-PM PM 12-800-70 S.D	
1	Combined Feeder Loss	- 1.4 dB	{ SFZE 50 - 13W 30m + 30m 8D - 2W 1.5m + 1.5m }
		- 1.4 dB	
2-1	Duplex Loss	- 2.5 dB	
-2	RF HYB Loss	- dB	
3	Combined Ant. Gain	+ 35.5 dB + 35.5 dB	10.0 m Ø G.P 10.0 m Ø G.P
4	free Span Loss	- 136.7 dB	800MHz 204.6 Km
5	Additional Loss	- 39.5 dB - 14.5 dB	d = 47.6 km, 157 km H = 1420m d = 3 km, 154 km H = 25.1m
	Reflection loss Loss Corrective Value	- 8.4 dB dB - 5.5 dB	
6	Span Loss	- 130.5 dB	Total of (1~5)
7	System Value	- dB	
8	Transmitting Power	+ 48.5 dBm	70 Watt
9	Receiving Power	- 82.0 dBm	(6+8)
10	Threshold Level	-105.4 dBm	B= 460 kHz NF= 3 dB (with LNA)
11	Threshold Margin	23.4 dB	(9-10)
12	Safety Factor	3 dB	
13	Actual Threshold Margin	20.4 dB	(11+12)
14	Threshold S/N	22.8 dB dB	I+Cf= 13.8+9 m=0.4 rad/rms
15	Diversity Improvement (unequal)	1.5 dB	SUB ANT 6.0 m Ø G.P 6.0 m Ø G.P
16	Combined gain	- dB	
17	Standard S/N	44.7 dB	
18	Fadig Value Presumed	17 dB	$\rho=0.4$ 99.95 %
19	S/N exceed 99.95%	27.7 dB	(17-18)
20	Judgment of system		

Table A.2 (15/20) Level Diagram of OH link

SPAN MACTAN RADAR - MALASAG			
	Altitude	24.8 m	275 m
	Ant. Height	10 m	10 m
	Distance	222.0 Km	
	Multiplex	SS-PM	
	MODEL of EQUIPMENT	PM6 - 800 - 70 SD	
1	Combined Feeder Loss	- 1.4 dB	$\left\{ \begin{array}{l} \text{SFZE 50 - 13W } 30\text{m} + 30\text{m} \\ \text{8D - 2W } 1.5\text{m} + 1.5\text{m} \end{array} \right\}$
		- 1.4 dB	
2-1	Duplex Loss	- 2.5 dB	
-2	RF HYB Loss	- dB	
3	Combined Ant. Gain	- 35.5 dB	10.0 m \emptyset G.P
		+ 35.5 dB	10.0 m \emptyset G.P
4	free Span Loss	-137.4 dB	800MHz 222.0 Km
5	Additional Loss	- 13 dB	d = 68 km, 11.5 km H = 40m
		- 34 dB	d = 79.5 km, 142.5 km H = 990m
	Loss		
	Corrective Value	- 3.3 dB	
6	Span Loss	- 122.0 dB	Total of (1~5)
7	System Value		
8	Transmitting Power	+ 48.5 dBm	70 Watt
9	Receiving Power	- 73.5 dBm	(6+8)
10	Threshold Level	- 105.4 dBm	B= 460 kHz NF= 3 dB (with LNA)
11	Threshold Margin	31.9 dB	(9-10)
12	Safety Factor	3 dB	
13	Actual Threshold Margin	28.9 dB	(11+12)
14	Threshold S/N	28.8 dB	I+Cf= 19.8 + 9 m=0.8 rad/rms
15	Diversity Improvement (unequal)	1.5 dB	SUB ANT 6.0 m \emptyset G.P 6.0 m \emptyset G.P
16	Combined gain	- dB	
17	Standard S/N	59.2 dB	
18	Fadig Value Presumed	22.5 dB	$\rho=0.4$ 99.95 %
19	S/N exceed 99.95 %	36.7 dB	(17-18)
20	Judgment of system		

Table A.2 (16/20) Level Diagram of OH link

	SPAN	BALOD	-	CAPACUAN
	Altitude	53 m	310 m	
	Ant. Height	23 m	15 m	
	Distance	25.7 Km		
	Multiplex	SS-PM		
	MODEL of EQUIPMENT	PM12 - 800- 0.5		
1	Combined Feeder Loss	- 3.1 dB		$\left\{ \begin{array}{ll} \text{AFZE 50-7} & 43\text{m} + 35\text{m} \\ \text{8D - 2W} & 1.5\text{m} + 1.5\text{m} \end{array} \right\}$
		- 2.6 dB		
2-1	Duplex Loss	- 4.5 dB		
-2	RF HYB Loss	- 3.5 dB		
3	Combined Ant. Gain	+25.0 dB		3.0 m \emptyset G.P
		+ 25.0 dB		3.0 m \emptyset G.P
4	free Span Loss	- 118.7 dB		800MHz 25.7 Km
5	Additional Loss	- 7 dB		d = 1.26 km, 24.4 km H = 2m
	Shadow Loss's Corrective Value	- 3.5 dB		d = 16.2 km, 8.2 km H = 10 m
		- 2.9 dB		
6	Span Loss	- 95.8 dB		Total of (1~5)
7	System Value	- dB		
8	Transmitting Power	+ 27.0 dBm		0.5 Watt
9	Receiving Power	- 68.8 dBm		(6+8)
10	Threshold Level	- 105.4 dBm		B= 460 kHz NF= 3 dB (with LNA)
11	Threshold Margin	36.6 dB		(9-10)
12	Safety Factor	- dB		
13	Actual Threshold Margin	36.6 dB		(11+12)
14	Threshold S/N	22.8 dB		I+Cf= 13.8 + 9 m=0.4 rad/rms
15	Diversity Improvement	- dB		
16	Combined gain	3 dB		
17	Standard S/N	62.4 dB		
18	Fadig Value Presumed	11.1 dB		0.2 dB/km + 6 dB
19	S/N exceed 99.9 %	51.3 dB		(17-18)
20	Judgment of system			

Table A.2 (17/20) Level Diagram of OH link

	SPAN	CAPACUAN	TINAMBACAN
	Altitude	310 m	145 m
	Ant. Height	15 m	10 m
	Distance	20.0 Km	
	Multiplex	SS-PM	
	MODEL of EQUIPMENT	PM 12-800-0.5	
1	Combined Feeder Loss	-2.6 dB	$\left\{ \begin{array}{ll} \text{AFZE 50-7} & 35\text{m} + 30\text{m} \\ \text{8D - 2W} & 1.5\text{m} + 1.5\text{m} \end{array} \right\}$
		-2.3 dB	
2-1	Duplex Loss	-4.5 dB	
-2	RF HYB Loss	-3.5 dB	
3	Combined Ant. Gain	+ 20.0 dB	1.8 m Ø G.P
		+ 20.0 dB	1.8 m Ø G.P
4	free Span Loss	-116.5 dB	800MHz 20.0Km
5	Additional Loss	- dB	
		- dB	
		- dB	
	Loss	- dB	
	Corrective Value	- 6 dB	(presumed)
6	Span Loss	-95.4 dB	Total of (1~5)
7	System Value	- dB	
8	Transmitting Power	+ 27.0 dBm	0.5 Watt
9	Receiving Power	- 68.4 dBm	(6+8)
10	Threshold Level	-105.4 dBm	B= 460 kHz NF= 3 dB (with LNA)
11	Threshold Margin	37.0 dB	(9-10)
12	Safety Factor	- dB	
13	Actual Threshold Margin	37.0 dB	(11+12)
14	Threshold S/N	22.8 dB	I+Cf= 13.8 + 9 m= 0.4rad/rms
		dB	
15	Diversity Improvement	- dB	
16	Combined gain	3 dB	
17	Standard S/N	62.8 dB	
18	Fadig Value Presumed	10.0 dB	0.2 dB/km + 6dB
19	S/N exceed %	52.8 dB	(17+18)
20	Judgment of system		

Table A.2 (18/20) Level Diagram of OH link

SPAN BALOD - TINAMBACAN			
	Altitude Ant. Height Distance Multiplex MODEL of EQUIPMENT	53 m 145 m 60.6 m 10 m 25.7 + 20.0 Km SS-PM FM 60-6700 - 1	Reflector at CAPACUAN CAPACUAN ALT: 310m
1	Combined Feeder Loss	-4.2 dB - 1.6 dB	{ FR - 6U 81m + 30m } WRJ 2m + 2m }
2-1 -2	Duplex Loss RF HYB Loss	- 2.0 dB - 4.5 dB	
3	Combined Ant. Gain	+43.5 dB +43.5 dB	3.0m Ø G.P 3.0m Ø G.P
4	free Span Loss	- 137.1 dB - 134.9 dB	6700 MHz 25.7 Km 20.0 km
5	Additional Loss Reflector Gain Angle Loss Corrective Value	 + 99.5 dB dB - 0.5 dB - 3.0 dB	4m x 6m x 2 MAX 20° (presumed)
6	Span Loss	-101.3 dB	Total of (1~5)
7	System Value	- dB	
8	Transmitting Power	+ 30.0 dBm	1 Watt
9	Receiving Power	- 71.3 dBm	(6+8)
10	Threshold Level	- 93.2 dBm	B= 6000 kHz NF= 4.0dB (with LNA)
11	Threshold Margin	21.9 dB	(9-10)
12	Safety Factor	- dB	
13	Actual Thres- hold Margin	21.9 dB	(11+12)
14	Threshold S/N	38.3 dB dB	I+Cf= 29.3 + 9 m= rad/rms fd = 200 KHz
15	Diversity Improvement	- dB	
16	Combined gain	3 dB	
17	Standard S/N	63.2 dB	
18	Fadig Value Presumed	15.6 dB	2.5 x 10 ⁻⁵ 99.9975% Time rate
19	S/N exceed 99.9975 %	47.6 dB	(17-18)
20	Judgment of system		

Table A.2 (19/20) Level Diagram of OH link

SPAN		BALOD - TINAMBACAN	
	Altitude	53 m	145 m
	Ant. Height	31.3 m	33.8 m
	Distance	24.5 + 21.0 Km	
	Multiplex	SS-FM	
	MODEL of EQUIPMENT	FM 60-6700 - 1	
1	Combined Feeder Loss	- 2.7 dB	$\left\{ \begin{array}{l} \text{FR - U} \quad 51\text{m} + 54\text{m} \\ \text{WRJ - 7} \quad 2\text{m} + 2\text{m} \end{array} \right\}$
		- 2.8 dB	
2-1	Duplex Loss	- 2.0 dB	
-2	RF HYB Loss	- 4.5 dB	
3	Combined Ant. Gain	+46.0 + 46.0 dB	4.0 m Ø P.P x 4
		+46.0 + 46.0 dB	
4	free Span Loss	- 137.7 dB	6700 MHz
		- 135.3 dB	24.5 Km 21.0 km
5	Additional Loss	- dB	
		- dB	
	Loss	- 0.3 dB	(presumed 5m)
	Corrective Value	- 0.3 dB	
		- 3 dB	(presumed)
6	Span Loss	- 104.3 dB	Total of (1~5)
7	System Value	- dB	
8	Transmitting Power	+ 30 dBm	1 Watt
9	Receiving Power	- 74.3 dBm	(6+8)
10	Threshold Level	- 93.2 dBm	B= 6000 kHz NF= 4.0 dB
11	Threshold Margin	18.9 dB	(9-10)
12	Safety Factor	- dB	
13	Actual Threshold Margin	18.9 dB	(11+12)
14	Threshold S/N	38.3 dB	I+Cf= 29.3 + 9
		dB	fd = 200 KHz
15	Diversity Improvement	- dB	
16	Combined gain	3 dB	
17	Standard S/N	60.2 dB	
18	Fadig Value Presumed	15.4 dB	2.5 x 10 ⁻⁵ 99.9975 % Time rate
19	S/N exceed 99.9975 %	44.8 dB	(17-18)
20	Judgment of system		

Table A.2 (20/20) Level Diagram of OH link

	SPAN		BALOD	TINAMBACAN
		Altitude	53 m	145 m
	Ant. Height	59.2 m	43.8 m	
	Distance	24.5+ 21.0Km		
	Multiplex	SS- FM		
	MODEL of EQUIPMENT	FM 60 - 6700 - 1		
1	Combined Feeder Loss	- 4.1 dB		$\left\{ \begin{array}{l} \text{FR-U} \quad 79\text{m} + 64\text{m} \\ \text{WRJ} - 7 \quad 2\text{m} + 2\text{m} \end{array} \right\}$
		- 3.3 dB		
2-1	Duplex Loss	- 2.0 dB		
-2	RF HYB Loss	- 4.5 dB		
3	Combined Ant. Gain	+ 43.5 dB		3.0 m ϕ P.P
		+ 43.5 dB		3.0 m ϕ P.P
4	free Span Loss	- 137.7 dB		6700 MHz
		- 135.3 dB		245 Km , 21.0 km
5	Additional Loss			
	Reflector gain	+ 99.5 dB		4m x 6m x 2
	Angle Loss Corrective Value	- 0.5 dB		MAX 20°
		- 3.0 dB		(presumed)
6	Span Loss	- 103.9 dB		Total of (1~5)
7	System Value	- dB		
8	Transmitting Power	+30 dBm		1 Watt
9	Receiving Power	- 73.9 dBm		(6+8)
10	Threshold Level	- 93.2 dBm		B= 6000 kHz NF= 4.0 dB
11	Threshold Margin	19.3 dB		(9-10)
12	Safety Factor	- dB		
13	Actual Threshold Margin	19.3 dB		(11+12)
14	Threshold S/N	38.3 dB		I+Cf= 29.3 + 9
				fd = 200 KHz
15	Diversity Improvement	- dB		
16	Combined gain	3 dB		
17	Standard S/N	60.6 dB		
18	Fadig Value Presumed	15.4 dB		2.5 x 10 ⁻⁵ 99.9975% Time Rate
19	S/N exceed 99.9975 %	45.2 dB		(17-18)
20	Judgment of system			