

4 - 16MM Ø DEF. ROUND REINF.
VERTICAL BARS WITH 10MM Ø
BAR TIES SP. AS: 4 @ 50MM, 3
@ 100MM, 3 @ 150MM, REST @
250MM. ON CENTER

PERIMETER LIGHTS

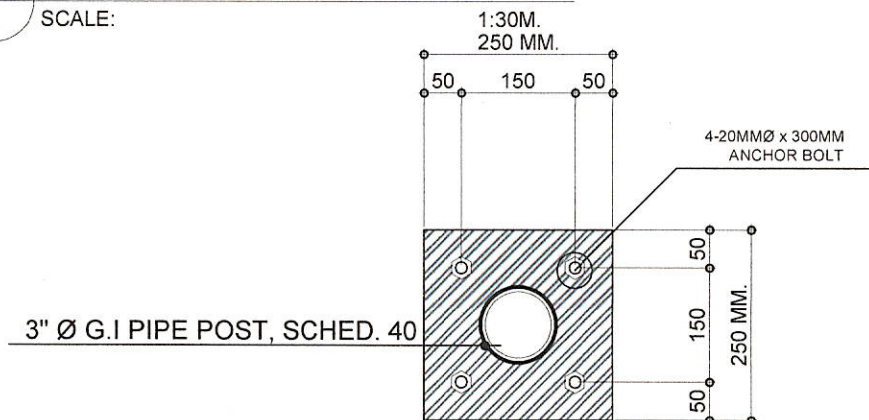
PEDESTAL DETAIL

SCALE:

1:20M.

CCTV POST ELEVATION

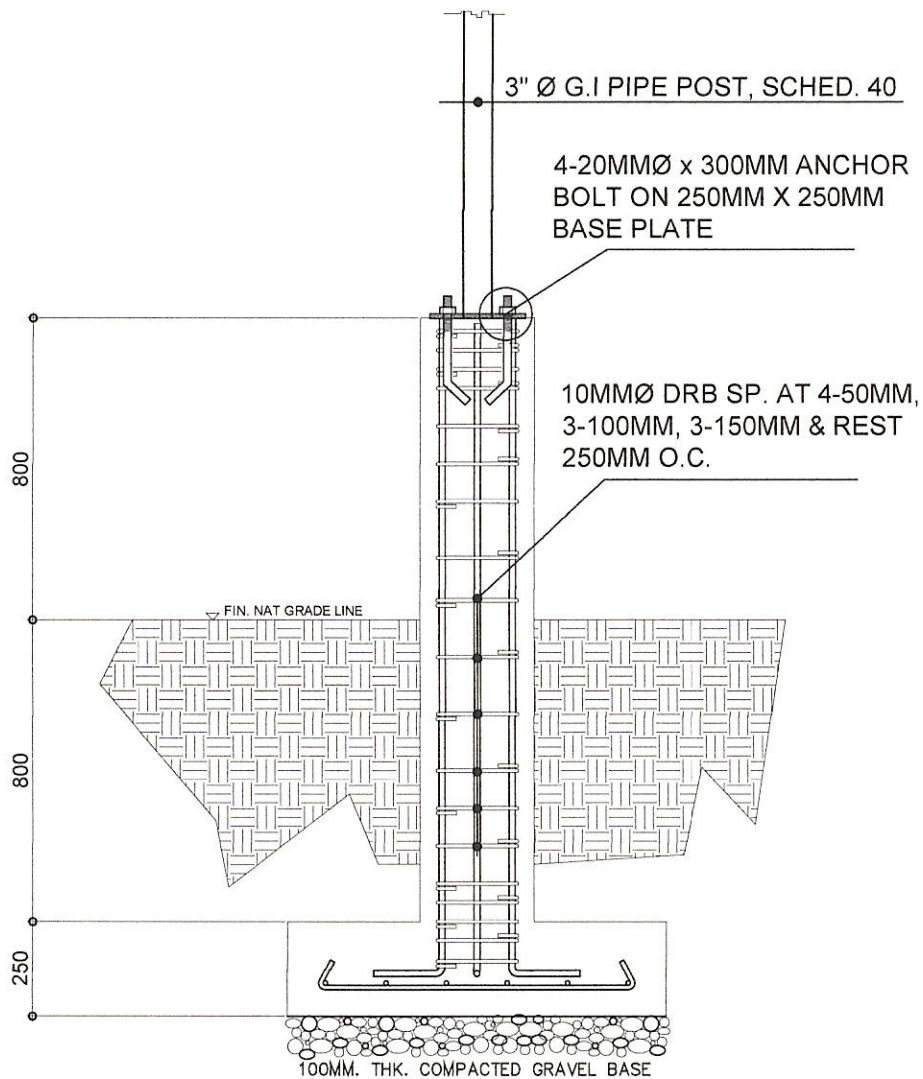
SCALE:



BASE PLATE DETAILS

SCALE:

1:10M.

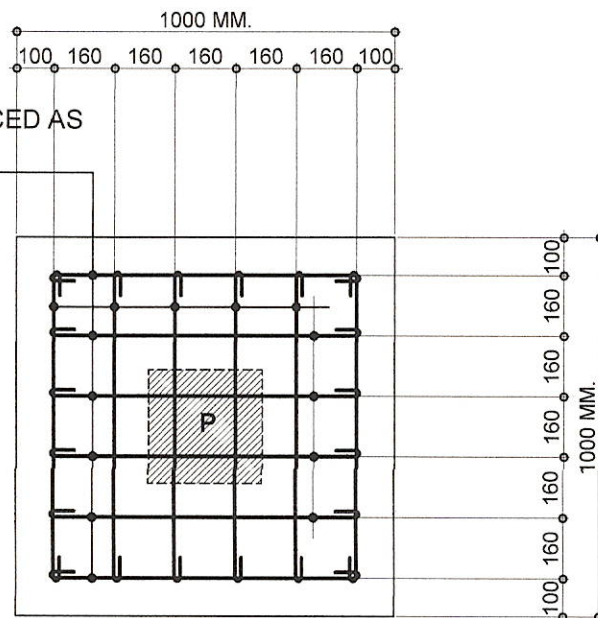


PEDESTAL - FOOTING DETAIL

SCALE:

1:20M.

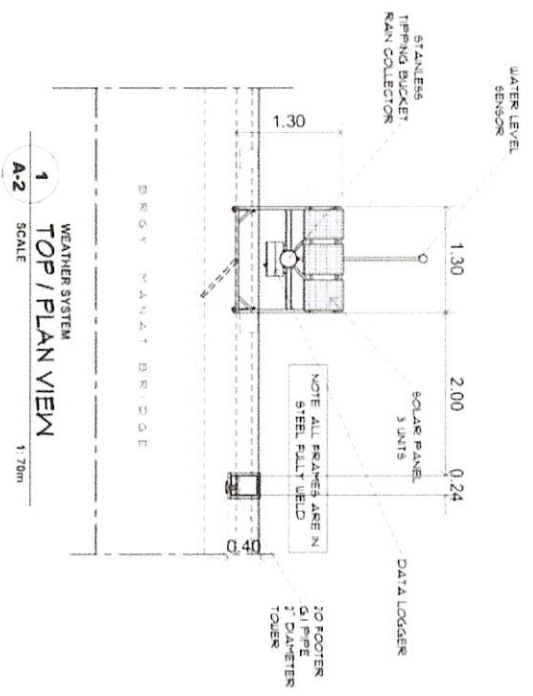
6 - 16MMØ DEFORMED REINFORCEMENT BARS SPACED AS SHOWN, O.C., B.W.



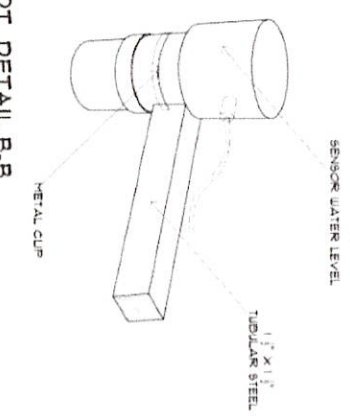
FOOTING DETAIL

SCALE:

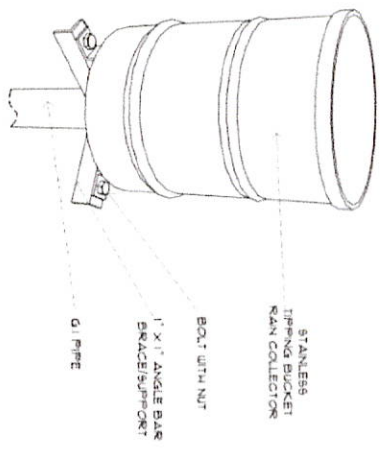
1:20M.



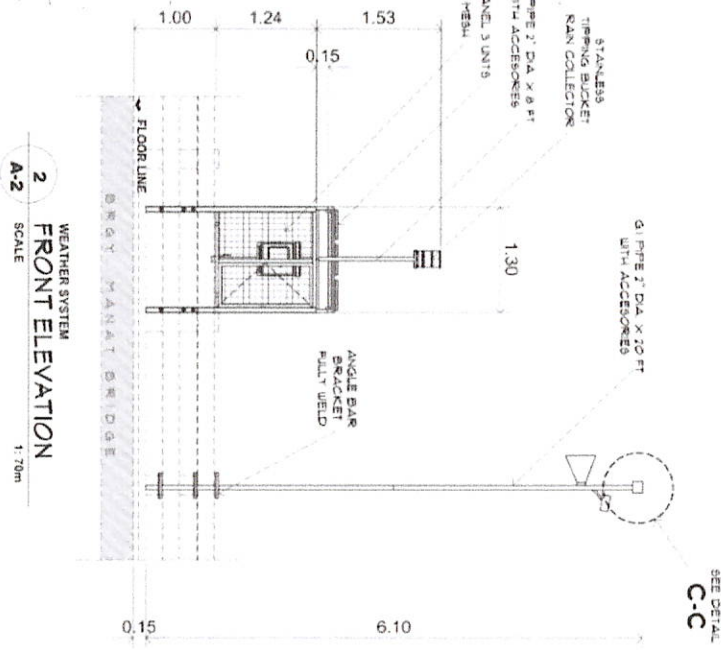
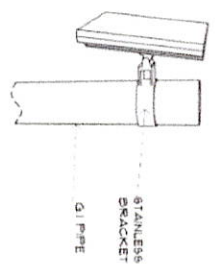
SPOT DETAIL B-B



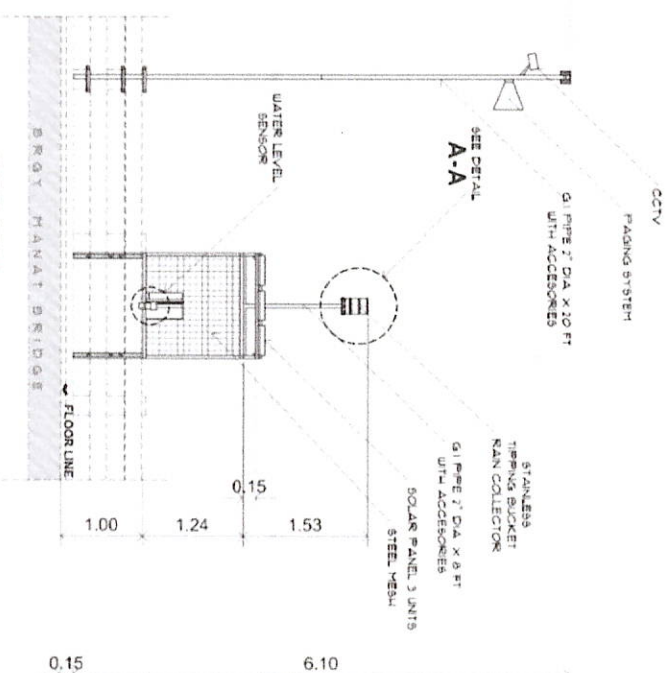
SPOT DETAIL A-A



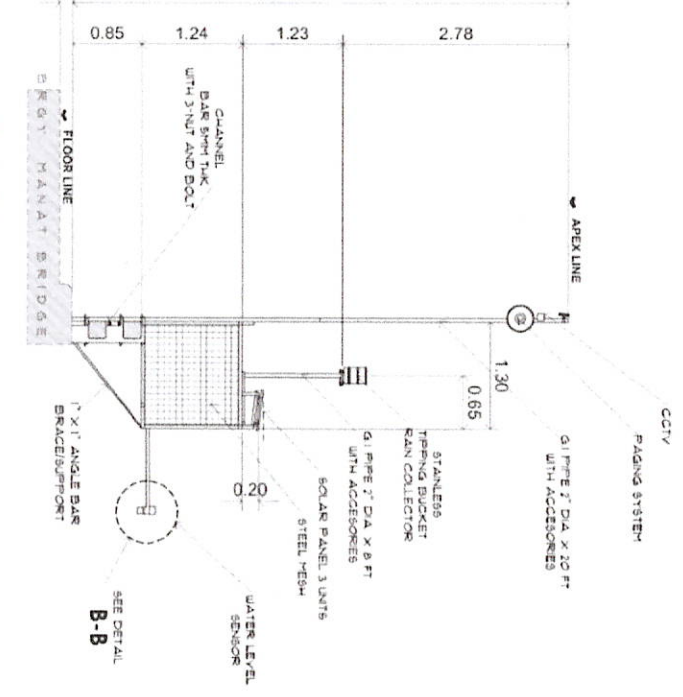
SPOT DETAIL C-C



3 WEATHER SYSTEM REAR ELEVATION



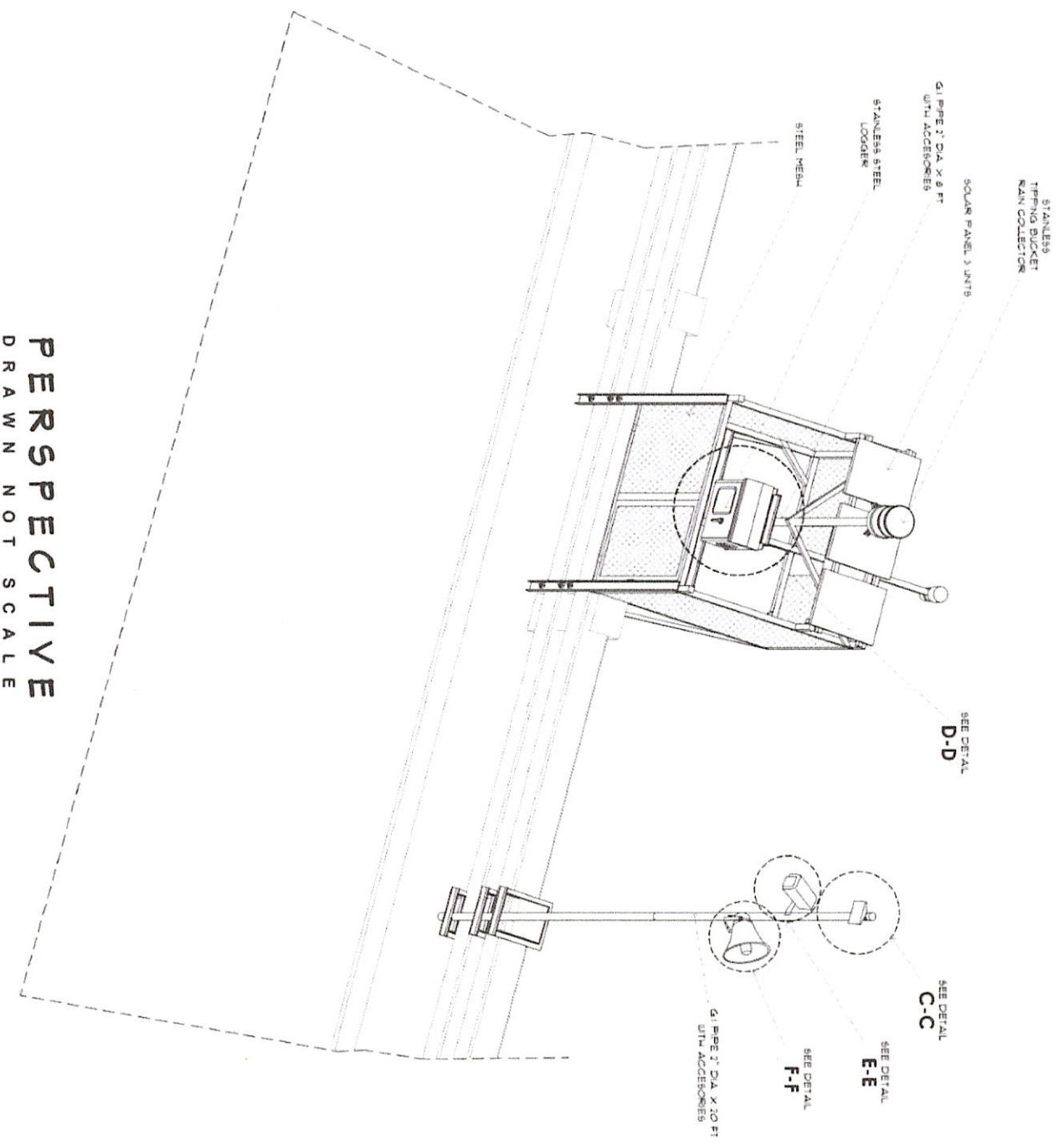
4 WEATHER SYSTEM TYPICAL SIDE ELEV.



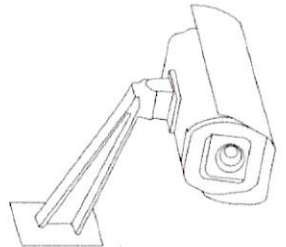
DESIGN BY	PROJECT TITLE	SHEET CONTENTS	REVISIONS	CAD BY	SHEET NO.
DATE OF PREP	POBLACION, COMPOSTELA	AS SHOWN	DATE	REVISIONS	A
FILE NO.	7-4033 747N 126 0522E		CHECKER		2
ISSUED ON			DATE		
DESIGNED AT					
TIN					

PROPOSED WEATHER MONITORING SYSTEM

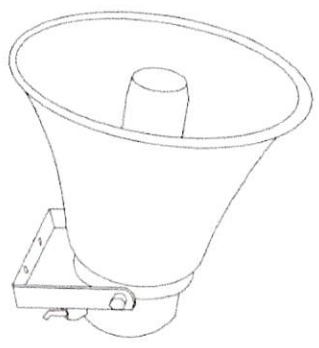
PDRMMO DAVAO DE ORO PROVINCE



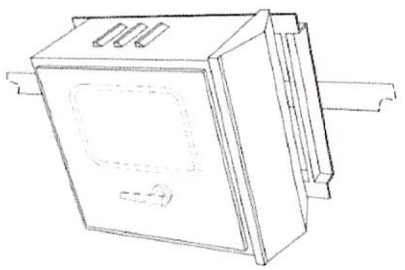
PERSPECTIVE
DRAWN NOT SCALE



SPOT DETAIL E-E



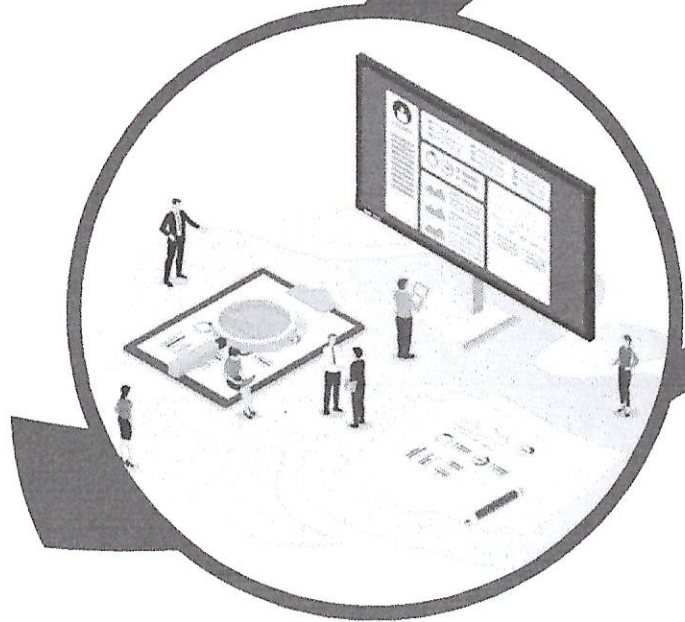
SPOT DETAIL F-F



SPOT DETAIL A-A

DESIGN BY	PER. REG. NO.	PROJECT TITLE	PROPOSED WEATHER MONITORING SYSTEM	SHEET COMMENTS	REVISIONS	CAD BY	SHEET NO.
DATE OF REG.	DATE OF REG.	LOCATION	POBLACION, COMPOSTELA	AS SHOWN	DATE	REMARKS	1
VALID UNTIL	VALID UNTIL	COORDINATES	7-40'33.74"N 126-05'22"E				
ISSUED ON	ISSUED ON	OWNER	PDRMMO DAVAO DE ORO PROVINCE				
ISSUED AT	ISSUED AT						
N	N						

Early Warning System Proposal for the Provincial Disaster Risk Reduction Management Office Province of Davao de Oro Phase II



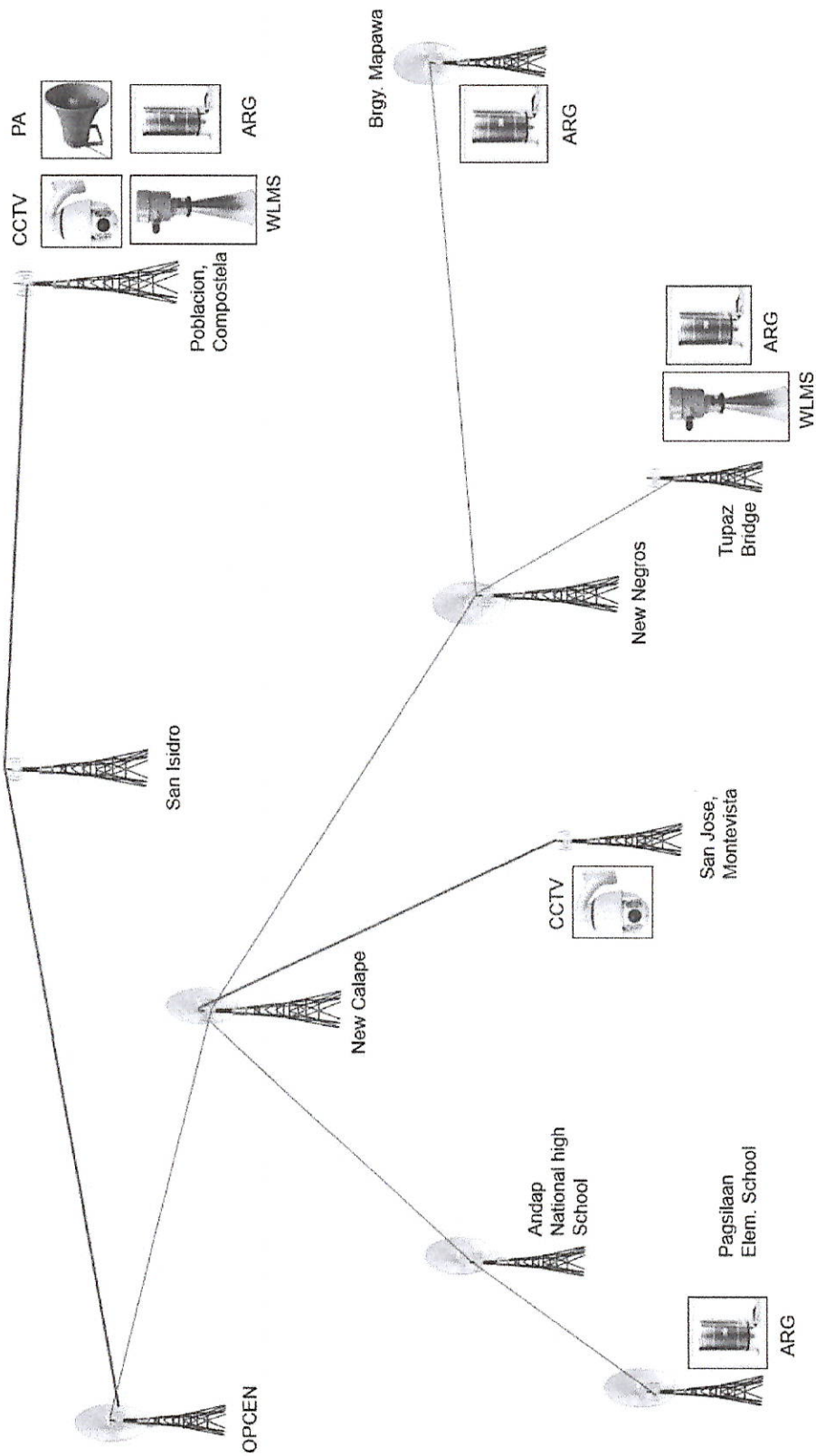
This proposal aims to provide secure and reliable early warning system for the Province of Davao de Oro allowing for a faster response time during emergencies and calamities. This proposal also aims to improve operational efficiency among the different agencies thereby increasing productivity.

INTRODUCTION

The objective of this proposal is to provide a detailed design for the continuity of the already implemented Early Warning System Phase I for the Province of Davao de Oro. The existing project provides rain and water level monitoring to different areas such as Tupaz Bridge (7.381917, 126.138633), Brgy. Mapawa, Maragusan, Davao de Oro (7.286517, 126.1477), Pagsilaan Elem. School, New Bataan (7.48085, 126.164383). For the second phase of the project, a water level monitoring and rain gauge sensor will be added together with a night capable camera and Public Address System to be located at Poblacion, Compostela and a CCTV monitoring station to be located at San Jose, Montevista. Additional Microwave PTP radios will also be added in order to connect the proposed sites to the existing network. For the weather sensors, RK400-01 Stainless tipping bucket rain gauge with a resolution of 0.2mm and a range of 300mm/h will be utilized, while RKL-03 ultrasonic liquid level transmitter will be used for the water level monitoring system. This will be connected to the RK600-07C Data logger which sends all data to the Operations Center via Microwave PTP.

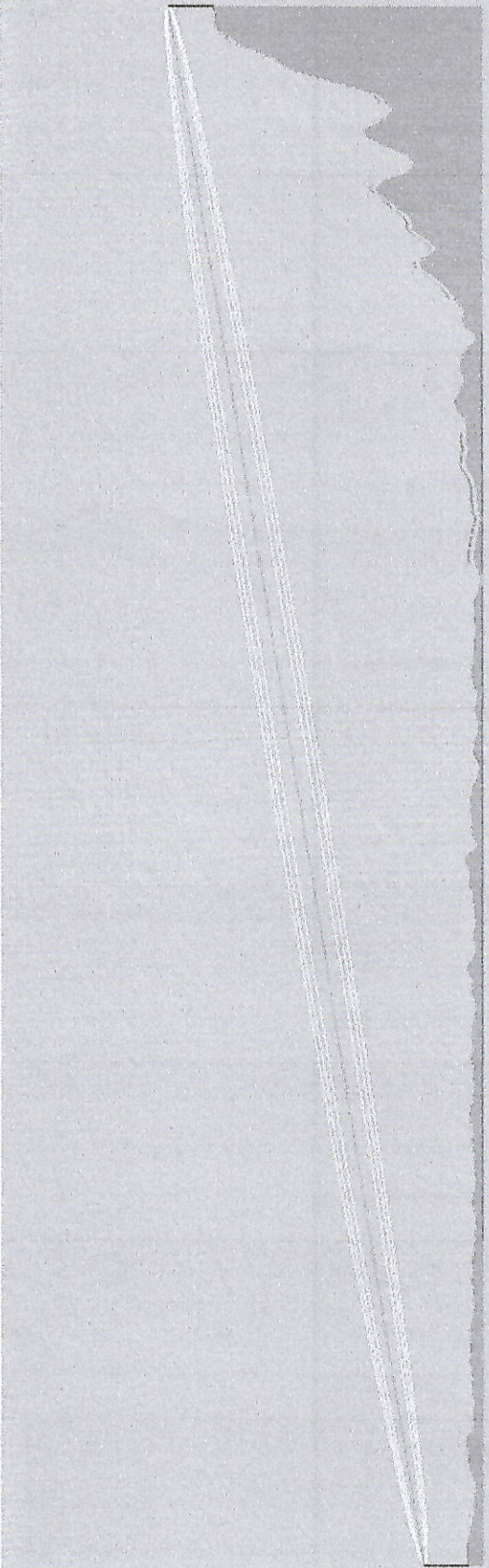
In addition, a night capable CCTV camera will be stationed in both locations to provide visual monitoring in the respective areas. On top of this, a Public Address System will also be installed on one of the sites to provide direct information to the public during emergency situations. All sites are engineered to withstand strong weather and will be protected by a fence with warning signs. As for the project management, standard tools will be used in order to determine the exact manpower and skills requirement for this particular project. Initial project timeline and scope of work will be provided for the overall project duration. The project will be supervised by a Licensed Electronics Engineer.

Overall Network Design



Blue Line- Phase I
Red Line- Phase II

PHASE II- SAN JOSE MONTEVISTA TO NEW CALAPE

			
San Jose Montevista (1)		(2) New Calape	
Latitude	7.684314 °	Latitude	7.749903 °
Longitude	126.006900 °	Longitude	125.991351 °
Ground elevation	68.1 m	Ground elevation	240.3 m
Antenna height	30.5 m	Antenna height	30.5 m
Azimuth	346.78 TN 347.41 MG °	Azimuth	166.78 TN 167.42 MG °
Tilt	1.28 °	Tilt	-1.35 °
Radio system		Propagation	
TX power	40.00 dBm	Free space loss	124.93 dB
TX line loss	3.00 dB	Obstruction loss	-3.98 dB
TX antenna gain	6.00 dBi	Forest loss	0.00 dB
RX antenna gain	2.00 dBi	Urban loss	0.00 dB
RX line loss	0.50 dB	Statistical loss	6.63 dB
RX sensitivity	-113.02 dBm	Total path loss	127.59 dB
Performance			
Distance			7.492 km
Precision			10.0 m
Frequency			5650.000 MHz
Equivalent Isotropically Radiated Power			19.933 W
System gain			157.52 dB
Required reliability			70.000 %
Received Signal			-83.09 dBm
Fade Margin			15.69 µV
			29.93 dB

SAN ISIDRO TO POBLACION COMPOSTELA

SAN ISIDRO (1)		(2) Poblacion Compostela	
Latitude	7 62.4133 °	Latitude	7 67.6039 °
Longitude	125 95.5500 °	Longitude	126 08.9600 °
Ground elevation	384.4 m	Ground elevation	75.6 m
Antenna height	30.5 m	Antenna height	6.0 m
Azimuth	68.66 TN 69.28 MG °	Azimuth	248.68 TN 249.30 MG °
Tilt	-1.27 °	Tilt	1.13 °
Radio system		Propagation	
TX power	40.00 dBm	Free space loss	131.45 dB
TX line loss	3.00 dB	Obstruction loss	1.09 dB
TX antenna gain	6.00 dBi	Forest loss	0.00 dB
RX antenna gain	2.00 dBi	Urban loss	0.00 dB
RX line loss	0.30 dB	Statistical loss	6.56 dB
RX sensitivity	-113.02 dBm	Total path loss	139.10 dB
Performance			
Distance			15.866 km
Precision			10.0 m
Frequency			5650.000 MHz
Equivalent Isotropically Radiated Power			19.953 W
System gain			157.52 dB
Required reliability			70.000 %
Received Signal			-94.60 dBm
Received Signal			4.17 µV
Fade Margin			18.42 dB

SAN ISIDRO TO OPCEN

SAN ISIDRO (1)		(2) OPCEN	
Latitude	7 624133 °	Latitude	7 574928 °
Longitude	125 955500 °	Longitude	125 993537 °
Ground elevation	384.4 m	Ground elevation	84.0 m
Antenna height	30.5 m	Antenna height	30.5 m
Azimuth	142.54 TN 143.16 MG °	Azimuth	322.54 TN 323.15 MG °
Tilt	-2.53 °	Tilt	2.46 °
Radio system		Propagation	
TX power	43.01 dBm	Free space loss	124.22 dB
TX line loss	3.00 dB	Obstruction loss	-3.66 dB
TX antenna gain	6.00 dBi	Forest loss	0.00 dB
RX antenna gain	2.00 dBi	Urban loss	0.00 dB
RX line loss	0.50 dB	Statistical loss	6.66 dB
RX sensitivity	-113.02 dBm	Total path loss	127.21 dB
Performance			
Distance			6.893 km
Precision			10.0 m
Frequency			5630.000 MHz
Equivalent Isotropically Radiated Power			39.905 W
System gain			160.33 dB
Required reliability			70.000 %
Received Signal			-79.70 dBm
Received Signal			23.17 µV
Fade Margin			33.32 dB



Republic of the Philippines
Province of Davao de Oro
**PROVINCIAL DISASTER RISK REDUCTION
AND MANAGEMENT OFFICE**



SAN ISIDRO LINK	
1	<ul style="list-style-type: none">2 Units 5 GHz 300 CSM Radio (ROW) (EU cord)2 Units High Performance 4.9-6 GHz, 2-FT (0.6M), DUAL-POL antenna with 2 x N-type Connector6 Pcs Gigabit Surge Suppressor (30V)4 Units 1000: 5 GHz Force 200AR5-25 High Gain Radio3 Rolls UTP CAT6 CABLE OUTDOOR PURE COPPER NETWORK LAN ETHERNET 300m1 Unit 8-port Ethernet POE switch (DS-3E0310HP-E)1 Unit Solar Charge Controller 40A, 1 Unit 500W Solar Panel1 Unit 100AH Gel-type Battery, 1 Unit 9U Server Wallmount1 Lot IT Room/ Doghouse, Miscellaneous
OPERATIONS CENTER LINK	
2	<ul style="list-style-type: none">1 Unit 32 Channel 1.5U NVR, 4 SATA Interfaces, 256Mbps Incoming Bandwidth, Channel-zero Function 32CH Network Video Recorder2 Units 10TB 5900RPM 64MB Hard Disk Drive1 Unit 55" Smart Flat Screen Full HD 4K 1080p, HDMI Cables
POBLACION, COMPOSTELA STATION	
3	<ul style="list-style-type: none">1 Unit Tipping Bucket Rain Gauge1 Unit Ultrasonic Liquid level Transmitter1 Unit Data Logger1 Unit Lora Module for Microwave Point to Point connection1 Lot 15-ft pole with water level sensor bracket, housing with fence1 Unit 8-port Ethernet POE switch unmanaged (DS-3E0310HP-E)1 unit 40A MPPT Solar Charge Controller2 Units 500W Solar Panel, 1 Unit 100AH Gel-type Battery1 Unit DS-2CD2T87G2-L 8MP Bullet Acusense ColorVu (24/7 Full Color Imaging) IP PoE Network Camera <p>1 Set Public Address system includes:</p> <ul style="list-style-type: none">2 Units 200W Horn Speaker with Driver, 1 Unit Audio Amplifier,1 Unit IP Network Audio Terminal1 Roll #12 AWG 2 Core Shielded Outdoor Heavy Duty Speaker Cable

SAN JOSE, MONTEVISTA STATION

- | | |
|---|---|
| 4 | <ul style="list-style-type: none">- 1 Unit 8-port POE switch unmanaged (DS-3E0310HP-E)- 1 Unit DS-2CD2T87G2-L 8MP Bullet Acusense ColorVu (24/7 Full Color Imaging) IP PoE Network Camera- 1 Unit 40A MPPT Solar Charge Controller- 1 Unit 500W Solar Panel- 1 unit 100AH Gel-type Battery- 1 Lot 60ft 20-ft pole with guy wires and other accessories |
|---|---|

NOTE: Existing tower for San Isidro Link to be utilized