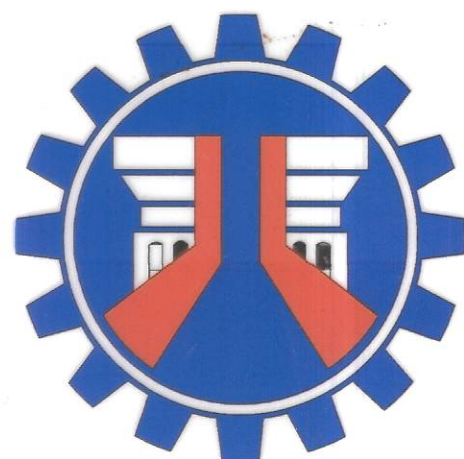




REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION IV-B, MIMAROPA
OFFICE OF THE DISTRICT ENGINEER
BOAC, MARINDUQUE

C.Y. 2023 PROJECT

DETAILED ENGINEERING DESIGN PLAN FOR
REHABILITATION OF STA. CRUZ WATERWORKS SYSTEM,
STA. CRUZ, MARINDUQUE

STA. CRUZ, MARINDUQUE

SUBMITTED:


FERNAN S. DIAZ
CHIEF, PLANNING AND DESIGN SECTION

DATE:

RECOMMENDED:


VACANT

DATE:

APPROVED:


EVELYN R. PUERTOLLANO
DISTRICT ENGINEER

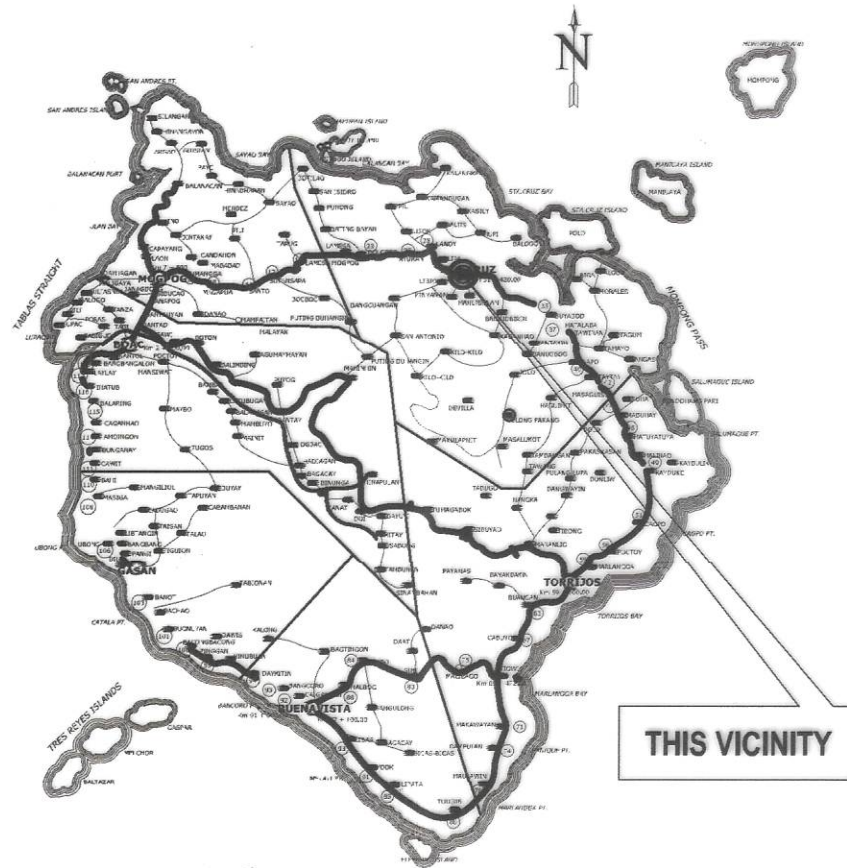
DATE:

INDEX OF SHEET		
CATEGORY	DESCRIPTION	SHEET NO.
GENERAL	FRONT PAGE	1
	INDEX OF SHEET & SUMMARY OF QUANTITIES	2
	KEY MAP & LOCATION MAP	
	LOCATION PLAN	3 - 8
	TYPICAL DRAWINGS	9 - 24

SUMMARY OF QUANTITIES				
ITEM NO.	DESCRIPTION	ORIGINAL QUANTITY	UNIT	REMARKS
PART I:	FACILITIES FOR THE ENGINEER			
A.1.1(8)	PROVISION OF FIELD OFFICE FOR THE ENGINEER (RENTAL BASIS)	5.00	mos.	
PART II:	OTHER GENERAL REQUIREMENTS			
A.1.2(4)	PROVISION OF FIELD 4x2 PICK UP TYPE SERVICE VEHICLE FOR THE ENGINEER ON BARE RENTAL BASIS	5.00	mos.	
B.5	PROJECT BILLBOARD / SIGNBOARD	1.00	each	DPWH Standard Billboard
B.7(2)	OCCUPATIONAL SAFETY AND HEALTH PROGRAM	1.00	LS	Includes Personal Protective Equipment (PPE), Safety Signages and Health Program
B.4(10)	MISCELLANEOUS SURVEY AND STAKING	1.00	LS	Staked Plan To be submitted by the contractor
B.9	MOBILIZATION / DEMOBILIZATION	1.00	LS	
PART A:	EARTHWORKS			
803(1)a	STRUCTURE EXCAVATION (COMMON SOIL)	657.47	m³	For Foundation and Pipelines
804(4)	GRAVEL FILL	25.78	m³	For Concrete Foundation
PART B:	PLAIN AND REINFORCED CONCRETE WORKS			
900(1)c2	STRUCTURAL CONCRETE FOR FOOTING AND SLAB ON FILL (CLASS A, 28 DAYS)	369.50	m³	For Filtration Tank & Guard House
902(1)a	REINFORCING STEEL (DEFORMED), GRADE 40	24,999.95	kgs	For Filtration Tank & Guard House
903(2)	FORMWORKS AND FALSEWORKS	660.87	m²	For Filtration Tank & Guard House
PART C:	FINISHING WORKS			
1027(1)	CEMENT PLASTER FINISH	410.46	m²	For Filtration Tank & Guard House
1046(2)a1	100MM CHB NON-LOAD BEARING (INCLUDING REINFORCING STEEL)	107.91	m²	For Filtration Tank & Guard House
1032(1)a	PAINTING WORKS (MASONRY CONCRETE)	359.60	m²	For Filtration Tank & Guard House
1032(1)c	PAINTING WORKS (STEEL)	383.22	m²	For Filtration Tank & Guard House
1018(1)	GLAZED TILES AND TRIMS	388.69	m²	For Filtration Tank & Guard House
1047(1)	STRUCTURAL STEEL	1.00	LS	For Filtration Tank & Guard House
PART D:	PLUMBING WORKS			
1001(10)	PIPES WITH FITTINGS CONNECTION	1.00	LS	For Distribution Line & Filtration Tank
1603(1)	VALVE	1.00	LS	For Distribution Line & Filtration Tank
1002(27)	PLUMBING WORKS	1.00	LS	For Distribution Line & Filtration Tank
PART E:	ELECTRICAL WORKS			
1100(10)	CONDUIT, BOXES, AND FITTINGS (CONDUIT WORKS/CONDUIT ROUGH-IN)	1.00	LS	For Guard House
1101(33)	WIRES AND WIRING DEVICES	1.00	LS	For Guard House
1102(1)	PANEL BOARD WITH MAIN & BRANCHES BREAKERS	1.00	LS	For Guard House
1103(1)	LIGHTING FIXTURES AND LAMPS	1.00	LS	For Guard House
624(8)	SOLAR LED STREET LIGHT	1.00	each	



KEY MAP



LOCATION MAP

 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGION IV - B, MIMAROPA OFFICE OF THE DISTRICT ENGINEER BOAC, MARINDUQUE	PROJECT NAME AND LOCATION :	SHEET CONTENTS :	DRAFTED :	REVIEWED :	SUBMITTED :	RECOMMENDED :	APPROVED :	SET NO.	SHEET NO.
	REHABILITATION OF STA. CRUZ WATERWORKS SYSTEM, STA. CRUZ, MARINDUQUE	INDEX OF SHEETS SUMMARY OF QUANTITIES KEY MAP LOCATION MAP	ARTURO S. DEBELEZA ENGINEERING ASSISTANT PREPARED : MICHAEL C. MALITO ENGINEER II	JERSON O. MONTERA ENGINEER II DATE :	FERNAN S. DIAZ CHIEF, PLANNING AND DESIGN SECTION DATE :	VACANT	EVELYN R. PUERTOLLANO DISTRICT ENGINEER DATE :	DPWH REGION IV-B CT-2025 MQ	2 24

BAGONG SILANG 2ND ZONE

MAHARLIKA 1ST ZONE

PAGASA 4TH ZONE

STA. CRUZ
PUBLIC MARKET

CEMETERY

4" PVC BLUE PIPE
SDR II

ABC
HALL

NATIONAL ROAD
TO STA. CRUZ

NATIONAL ROAD
TO TORRIJOS

MANLIBUNAN

SOURCE
DEEPWELL
PUMPING STATION

WATER TANK

REHABILITATION OF 6" PVC PIPE

WATER TANK

MUNICIPALITY OF STA. CRUZ

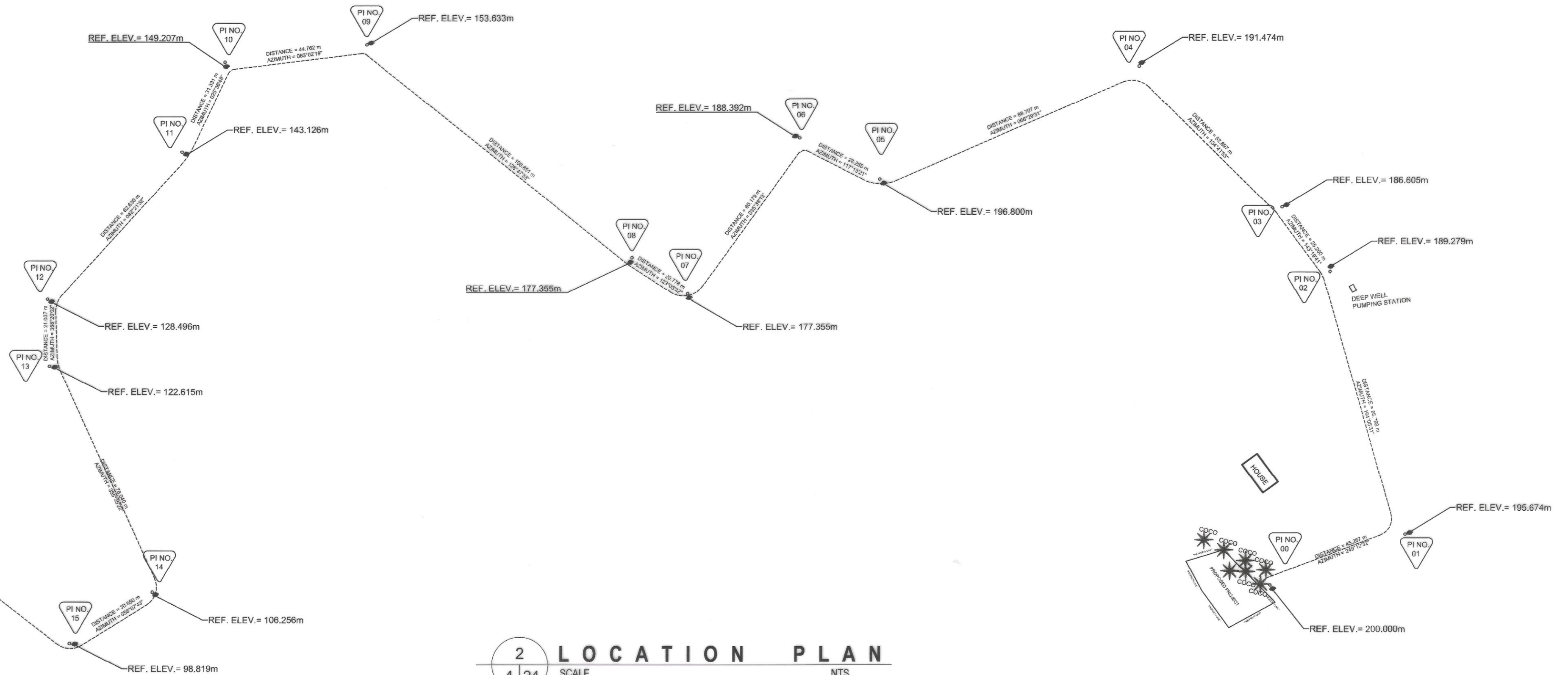
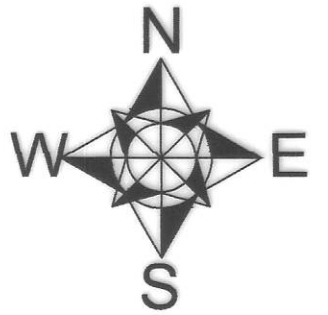


1 LOCATION PLAN
3 24 SCALE NTS.

LEGEND: (S) WATER SOURCE
TANK

COORDINATES
13° 28' 22.30" N 122° 02' 32.11" E

	PROJECT NAME AND LOCATION :	SHEET CONTENTS :	DRAFTED :	REVIEWED :	SUBMITTED :	RECOMMENDED :	APPROVED :	SET NO.	SHEET NO.
	REHABILITATION OF STA. CRUZ WATERWORKS SYSTEM, STA. CRUZ, MARINDUQUE STA. CRUZ, MARINDUQUE	LOCATION PLAN	ARTHUR M. TARDELEZA ENGINEER'S ASSISTANT	JERSON O. MONTERA ENGINEER II	FERNAN S. DIAZ CHIEF, PLANNING AND DESIGN SECTION	VACANT	EVELYN R. PUERTOLLANO DISTRICT ENGINEER	3	24

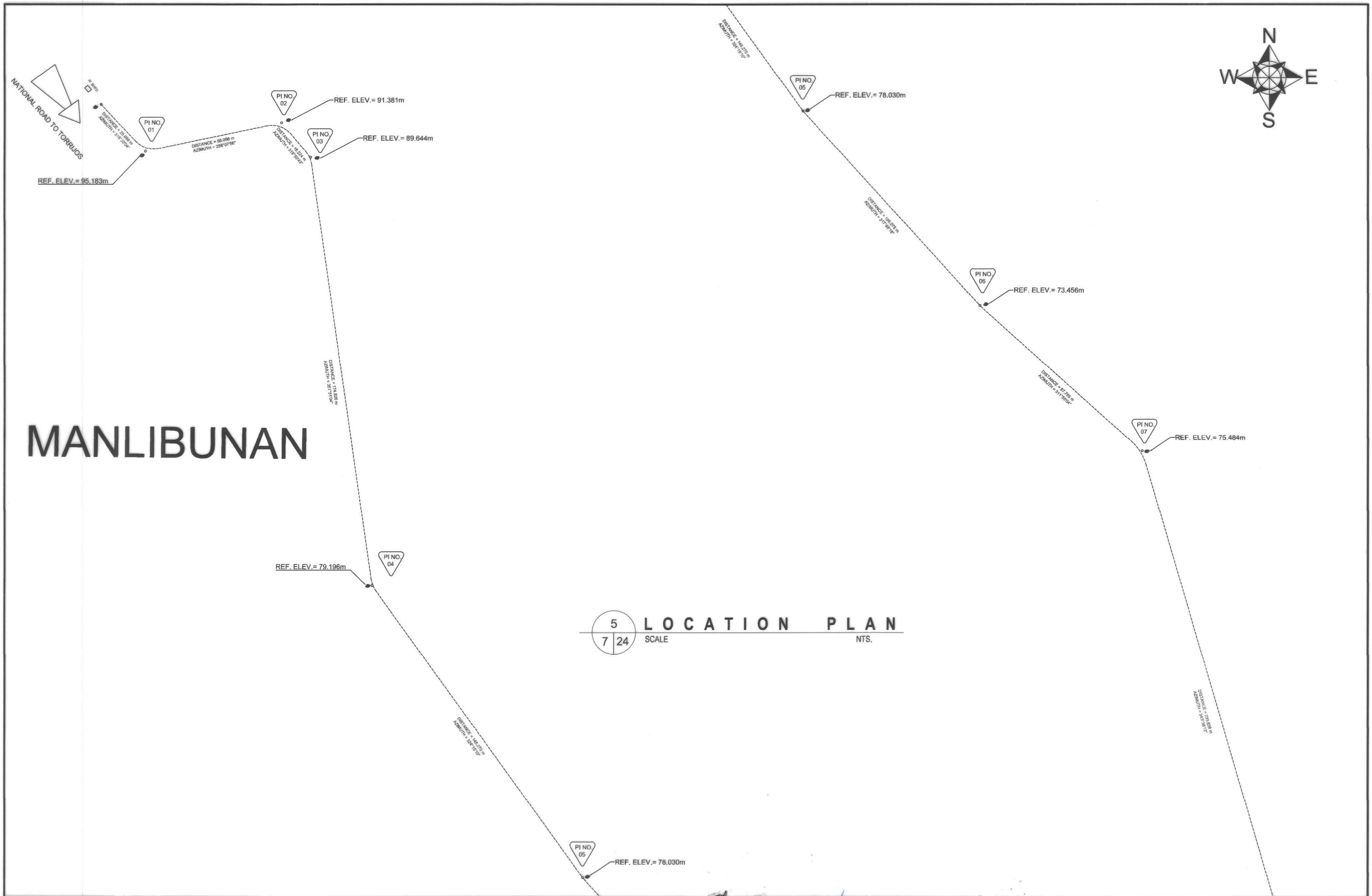


2 LOCATION PLAN
4 24 SCALE NTS.

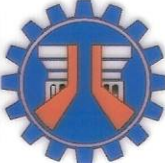


REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION IV - B, MIMAROPA
OFFICE OF THE DISTRICT ENGINEER
BOAC, MARINDUQUE

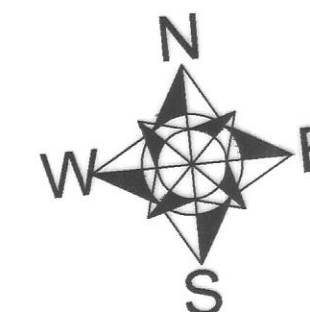
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STA. CRUZ, MARINDUQUE		PREPARED : MICHAEL P. MALITA ENGINEER II	DATE :	DATE :	DATE :	DATE :		



5 LOCATION PLAN
7 24 SCALE NTS.

 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGION IV - B, MIMAROPA OFFICE OF THE DISTRICT ENGINEER BOAC, MARINDUQUE	PROJECT NAME AND LOCATION :	SHEET CONTENTS :	DRAFTED :	REVIEWED :	SUBMITTED :	RECOMMENDED :	APPROVED :	SET NO.	SHEET NO.
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	STA. CRUZ, MARINDUQUE		PREPARED : MICHAEL P. MALAYAN ENGINEER II	DATE :	DATE :	DATE :	DATE :		

PI NO.
08
REF. ELEV. = 72.231m



DISTANCE = 330.050 m
AZIMUTH = 497.9493°

PI NO.
09
REF. ELEV. = 69.616m

PI NO.
10
REF. ELEV. = 67.186m

DISTANCE = 36.620 m
AZIMUTH = 285.9699°

DISTANCE = 256.080 m
AZIMUTH = 317.4515°

PI NO.
11
REF. ELEV. = 54.909m

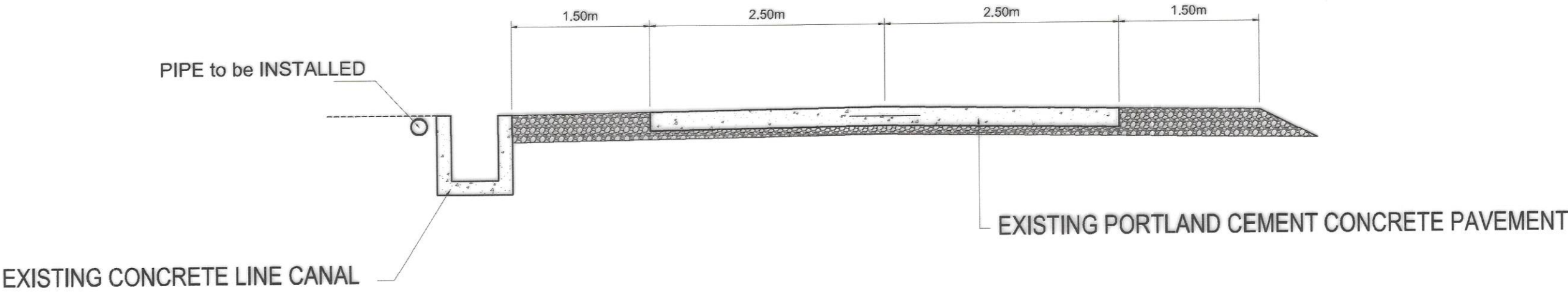
6
8 24
LOCATION PLAN
SCALE NTS.



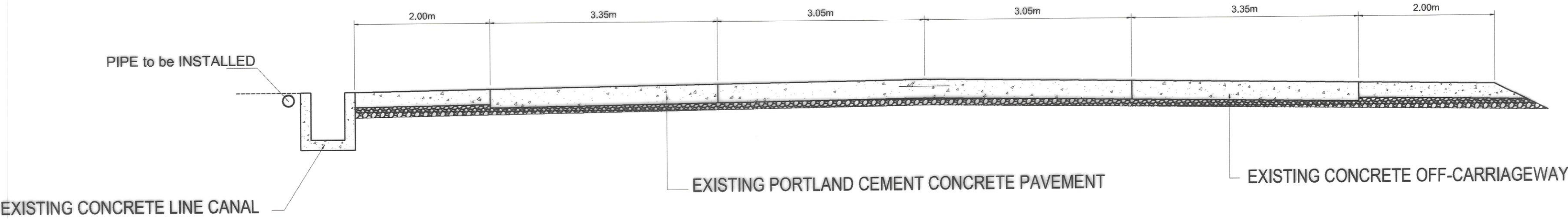
REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION IV - B, MIMAROPA
OFFICE OF THE DISTRICT ENGINEER
BOAC, MARINDUQUE

PROJECT NAME AND LOCATION :	SHEET CONTENTS :	DRAFTED :	REVIEWED :	SUBMITTED :	RECOMMENDED :	APPROVED :	SET NO.	SHEET NO.
REHABILITATION OF STA. CRUZ WATERWORKS SYSTEM, STA. CRUZ, MARINDUQUE	LOCATION PLAN	ARTHUR M. JARVELEZA ENGINEERING ASSISTANT	JERSON O. MONTERA ENGINEER II	FERNAN S. DIAZ CHIEF, PLANNING AND DESIGN SECTION	VACANT	EVELYN R. PUERTOLLANO DISTRICT ENGINEER	MQ	8 24
STA. CRUZ, MARINDUQUE		PREPARED : MICHAEL P. WILKINS ENGINEER II	DATE :	DATE :	DATE :	DATE :		

TYPICAL ROADWAY SECTION

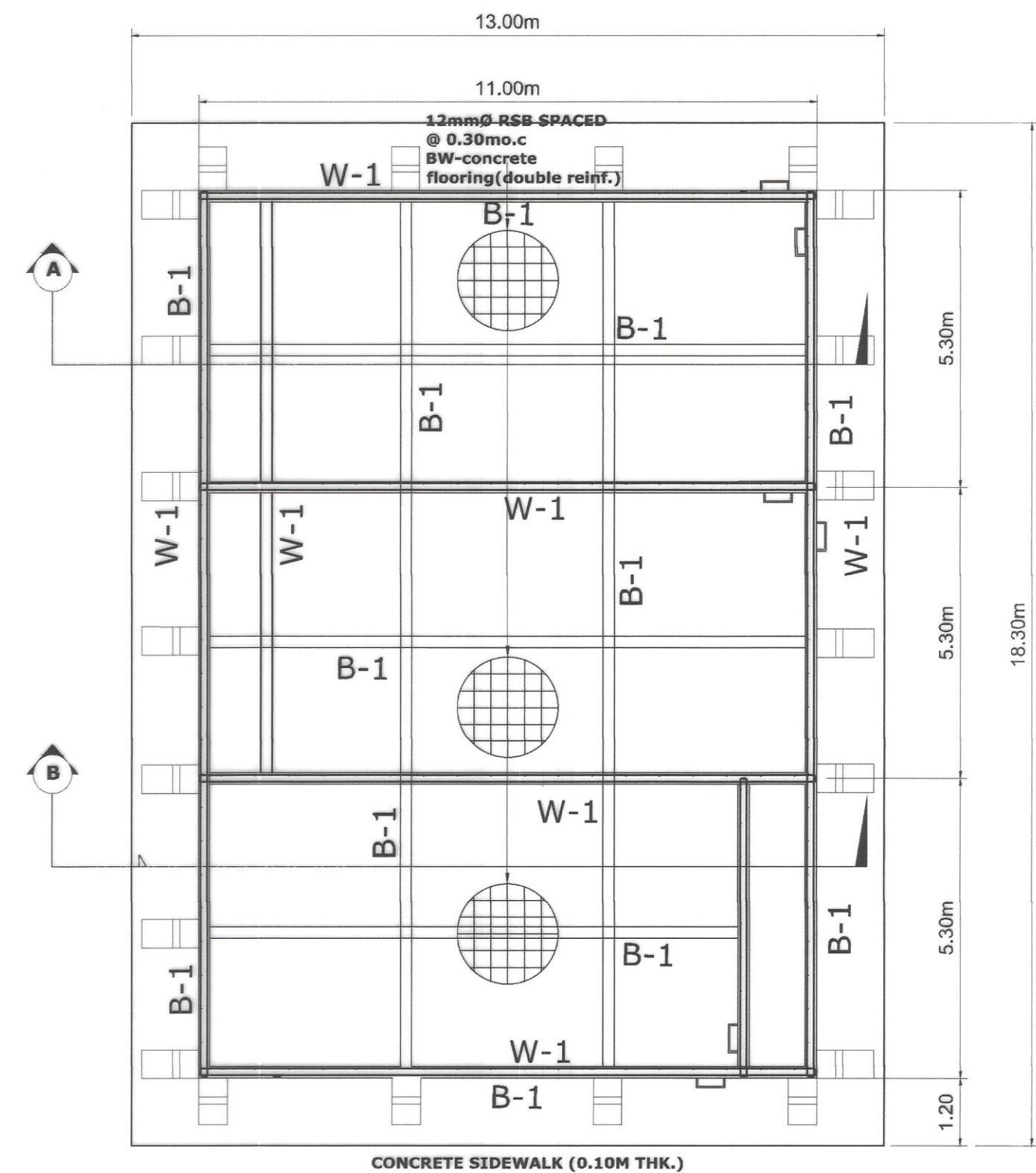
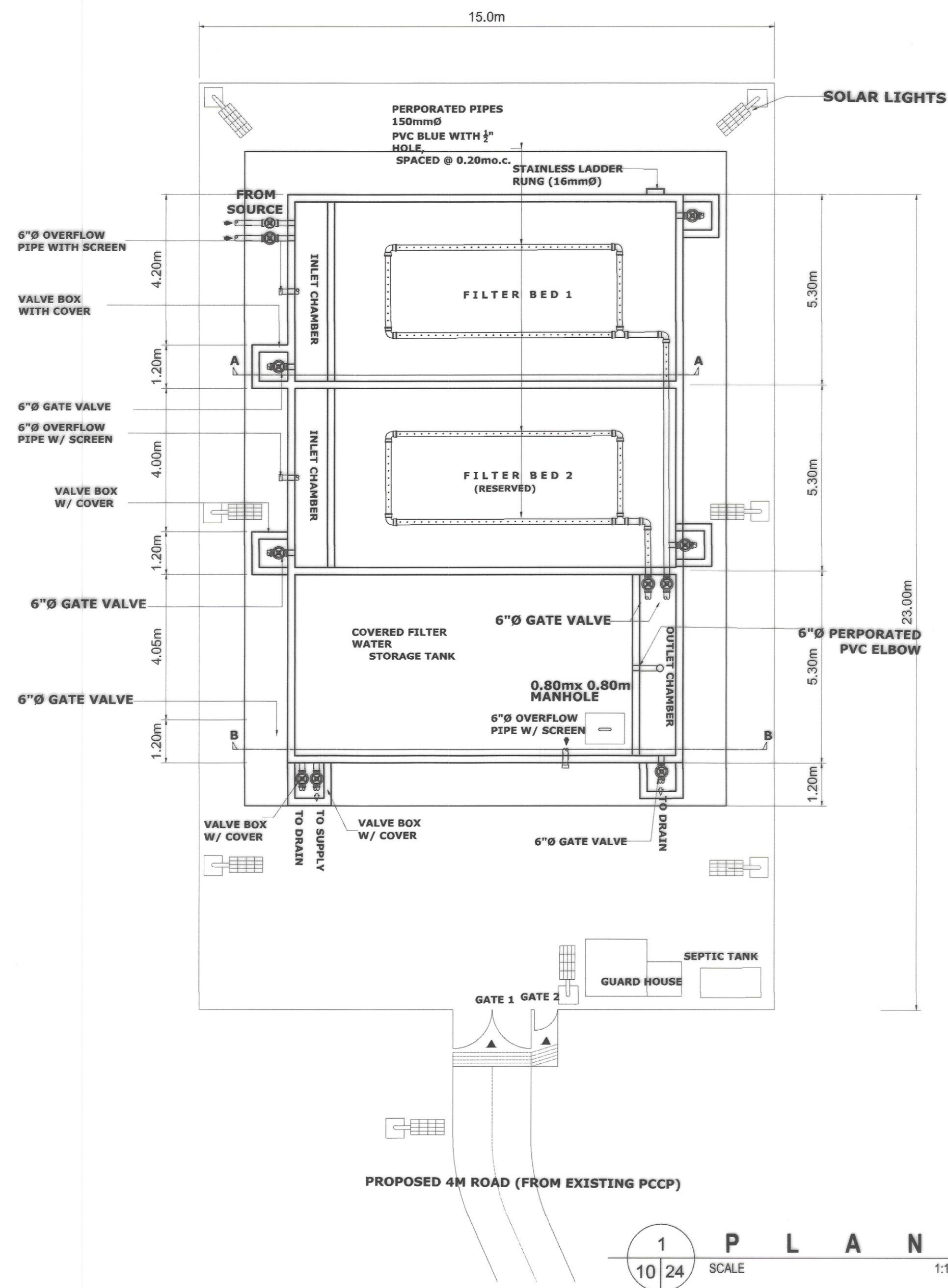


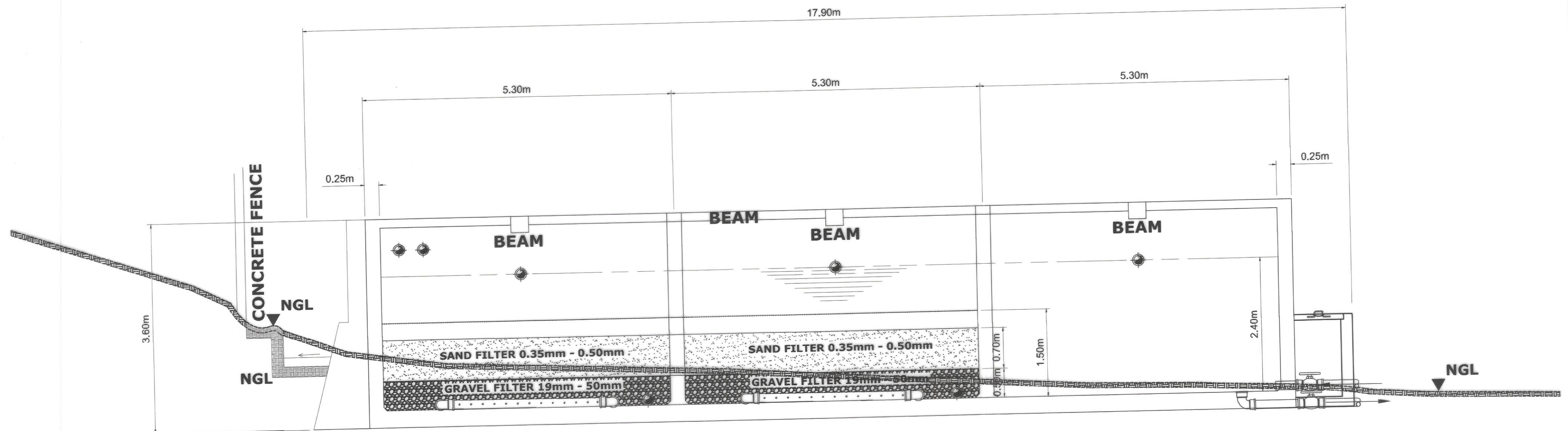
1 SECTION THRU FARM TO MARKET ROAD
9 24 SCALE 1: 50m



2 SECTION THRU NATIONAL ROAD
9 24 SCALE 1: 50m

 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGION IV - B, MIMAROPA OFFICE OF THE DISTRICT ENGINEER BOAC, MARINDUQUE	PROJECT NAME AND LOCATION :	SHEET CONTENTS :	DRAFTED :	REVIEWED :	SUBMITTED :	RECOMMENDED :	APPROVED :	SET NO.	SHEET NO.
	REHABILITATION OF STA. CRUZ WATERWORKS SYSTEM, STA. CRUZ, MARINDUQUE	TYPICAL DRAWINGS	PREPARED : ARTURO M. ARDILEZA ENGINEERING ASSISTANT DATE : JERSON O. MONTERA ENGINEER II	DATE : FERNAN S. DIAZ CHIEF, PLANNING AND DESIGN SECTION DATE :	DATE :	DATE :	DATE : EVELYN R. PUERTOLLANO DISTRICT ENGINEER	9 24	9 24

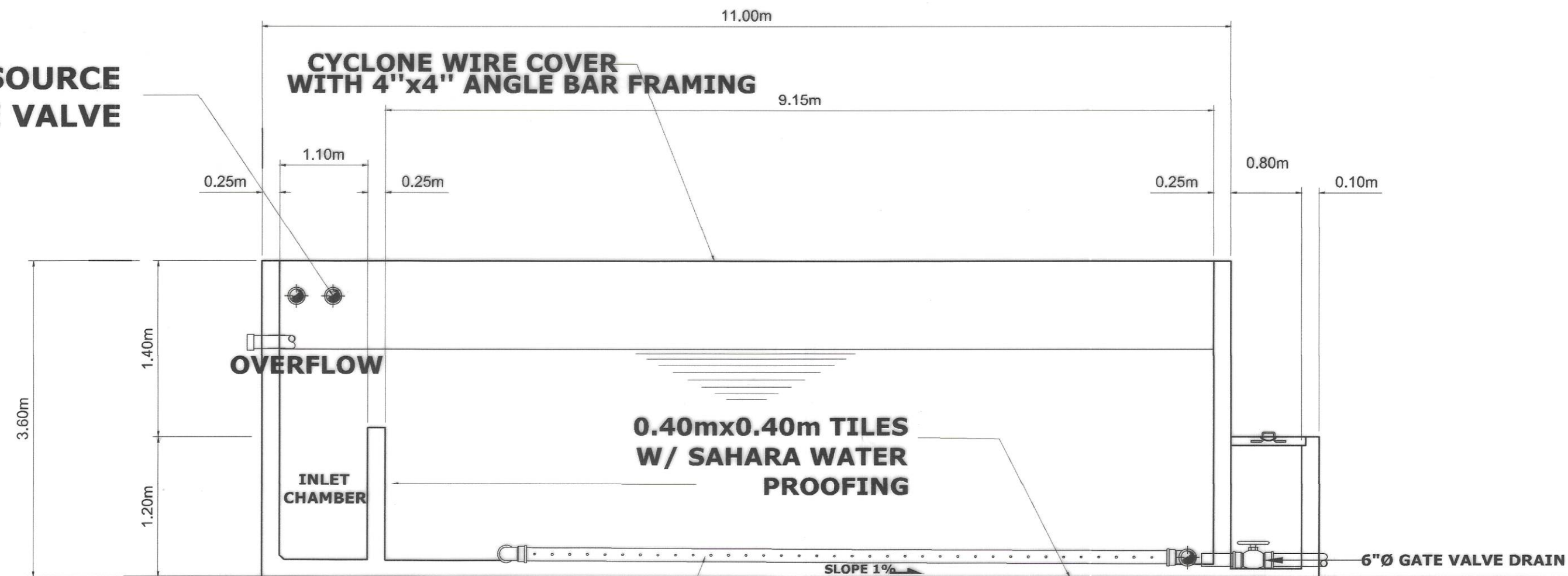




1
11 24
TYPICAL CROSS SECTION
SCALE 1:50m

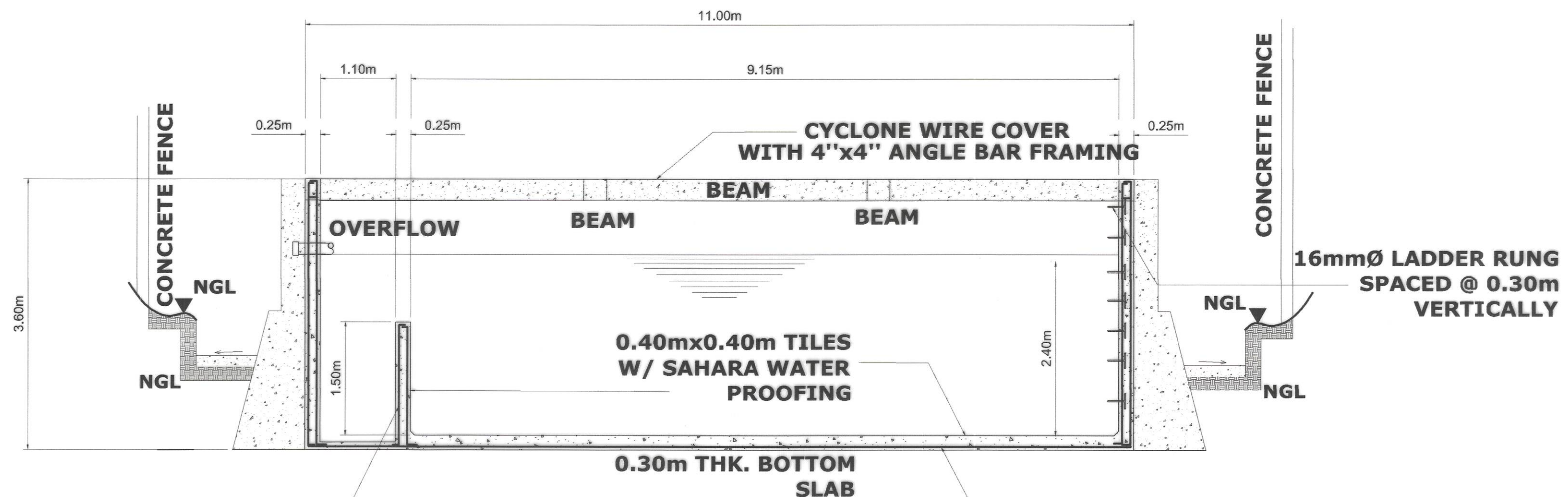
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	REHABILITATION OF STA. CRUZ WATERWORKS SYSTEM, STA. CRUZ, MARINDUQUE STA. CRUZ, MARINDUQUE	FILTRATION TANK TYPICAL DRAWINGS	ARTHUR M. JARDELEZA ENGINEERING ASSISTANT PREPARED : MICHAEL P. MALITAG ENGINEER II	JERSON O. MONTERA ENGINEER II DATE :	FERNAN S. DIAZ CHIEF, PLANNING AND DESIGN SECTION DATE :	VACANT DATE :	EVELYN R. PUERTOLLANO DISTRICT ENGINEER DATE :	11 24	

FROM SOURCE
6"Ø GATE VALVE



PERFORATED PIPES 150mmØ PVC BLUE
WITH 1/2" HOLE, SPACED @ 0.20m o.c.

1 SECTION A - A
SCALE 1:50m



12mmØ RSB SPACED @
0.30m o.c.
vertical&horizontal
(double reinf.)

2 SECTION A - A
SCALE 1:50m

12mmØ RSB SPACED @
0.30m o.c. BW (double
reinf.)



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION IV - B, MIMAROPA
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BOAC, MARINDUQUE

PROJECT NAME AND LOCATION :
REHABILITATION OF STA. CRUZ WATERWORKS SYSTEM,
STA. CRUZ, MARINDUQUE
STA. CRUZ, MARINDUQUE

SHEET CONTENTS :
FILTRATION TANK
TYPICAL DRAWINGS

DRAFTED :
ARTHUR M. MANDELEZA
ENGINEERING ASSISTANT
PREPARED :
MICHAEL P. MANMAY
ENGINEER II

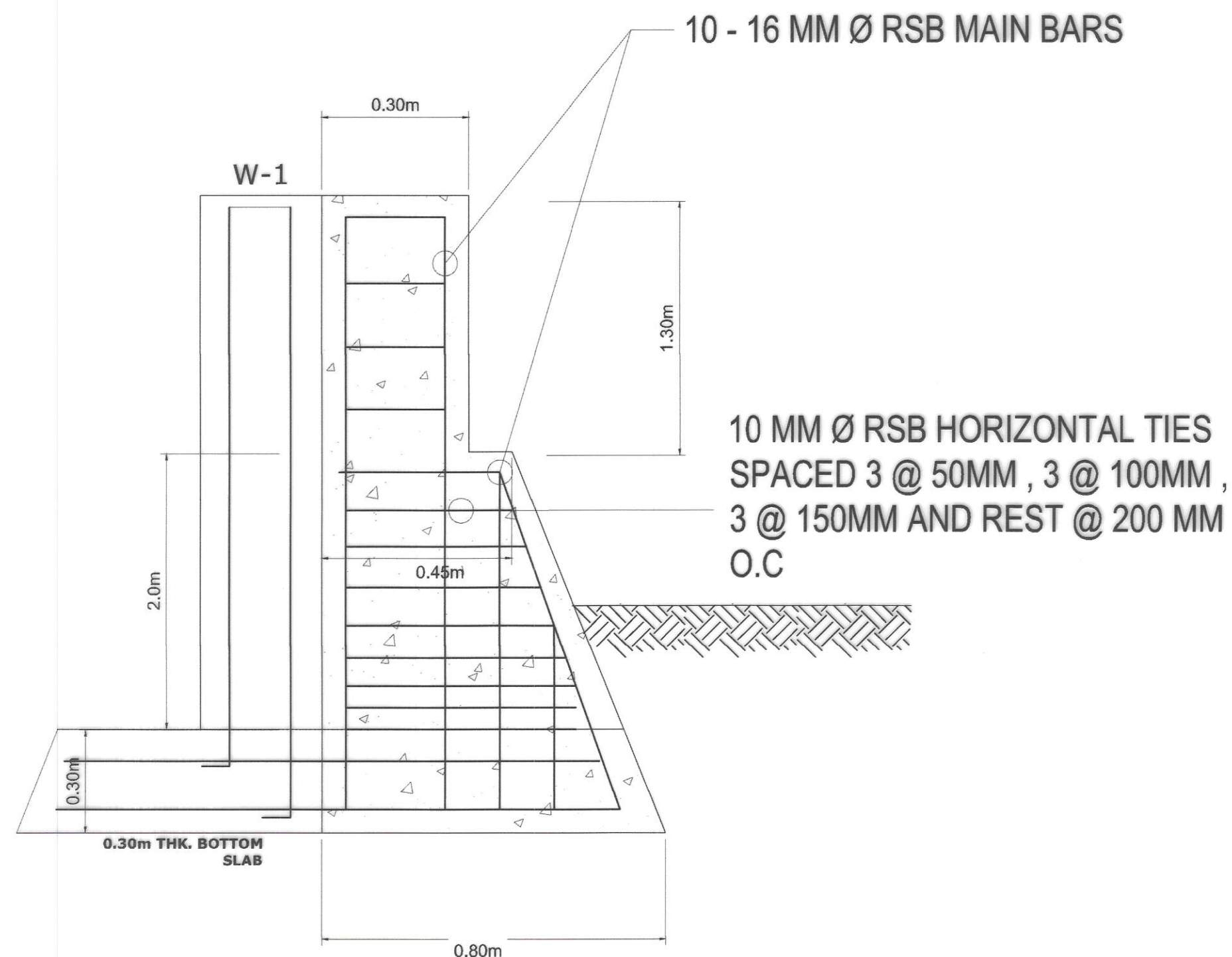
REVIEWED :
JERSON O. MONTERA
ENGINEER II
DATE :

SUBMITTED :
FERNAN S. DIAZ
CHIEF, PLANNING AND DESIGN SECTION
DATE :

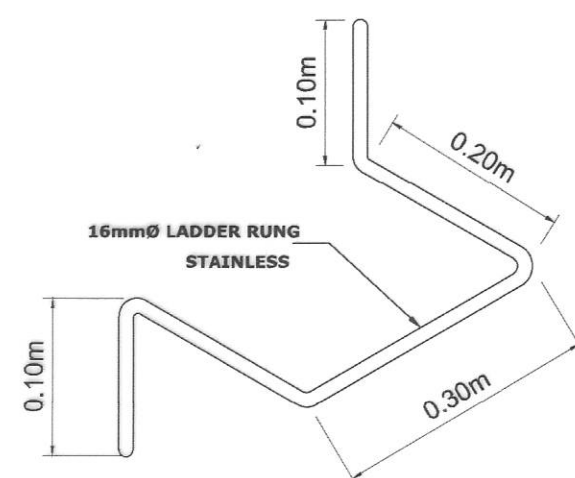
RECOMMENDED :
VACANT
DATE :

APPROVED :
EVELYN R. PUERTOLLANO
DISTRICT ENGINEER
DATE :

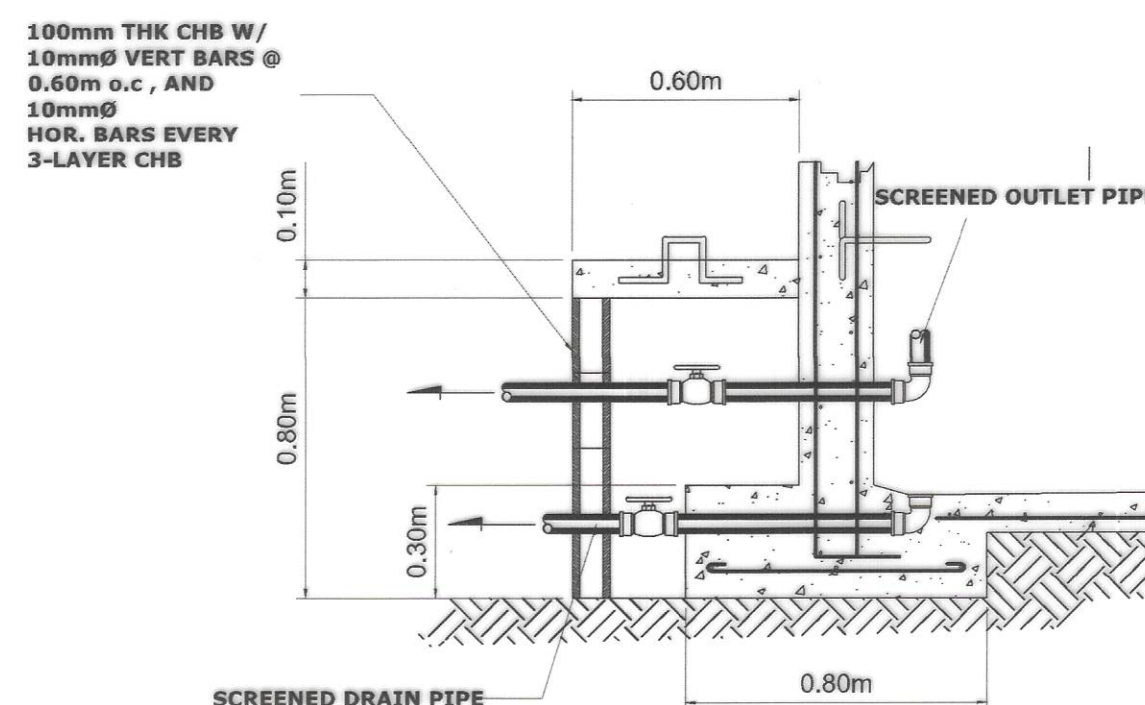
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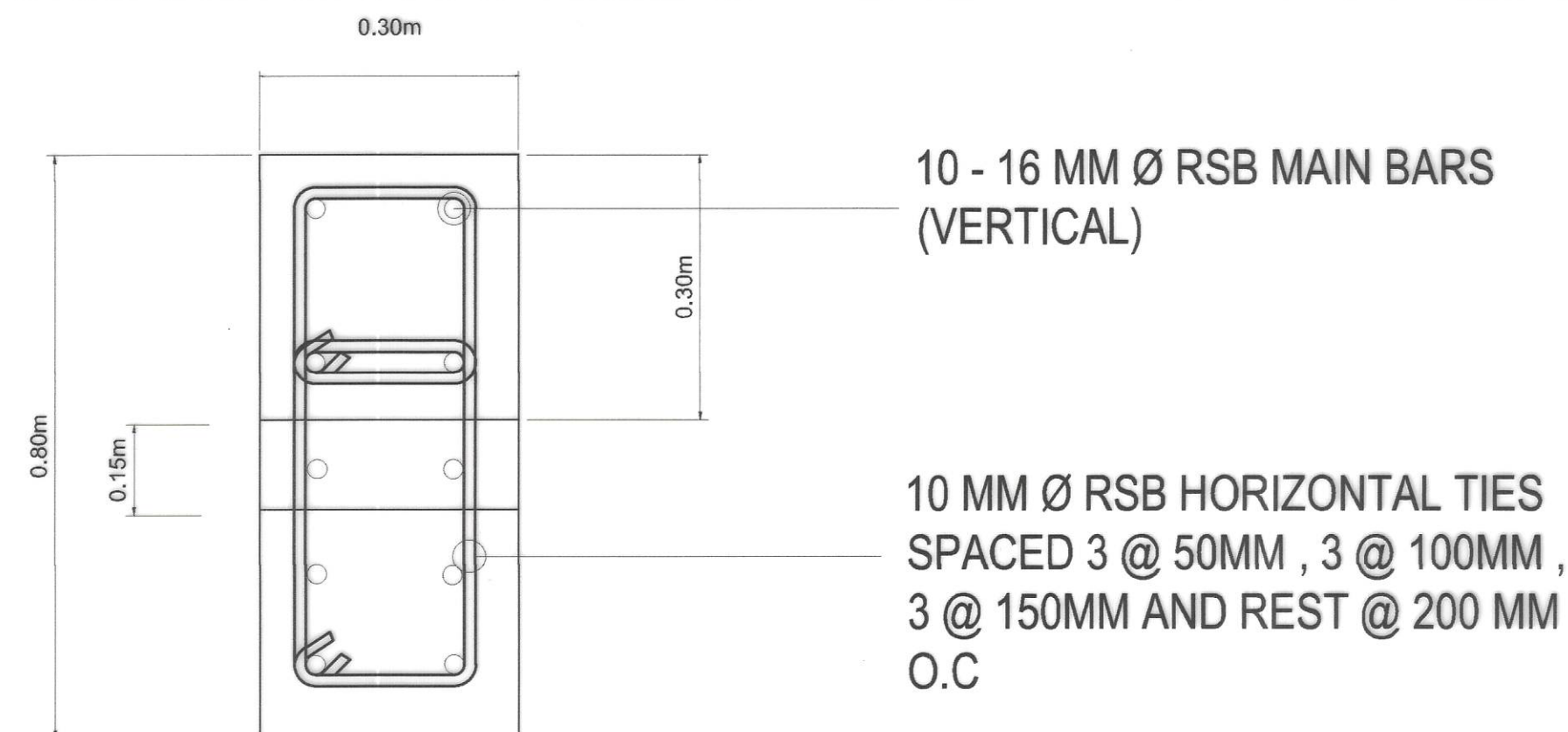
1
14 24 SCALE NTS
DETAIL OF COLUMN



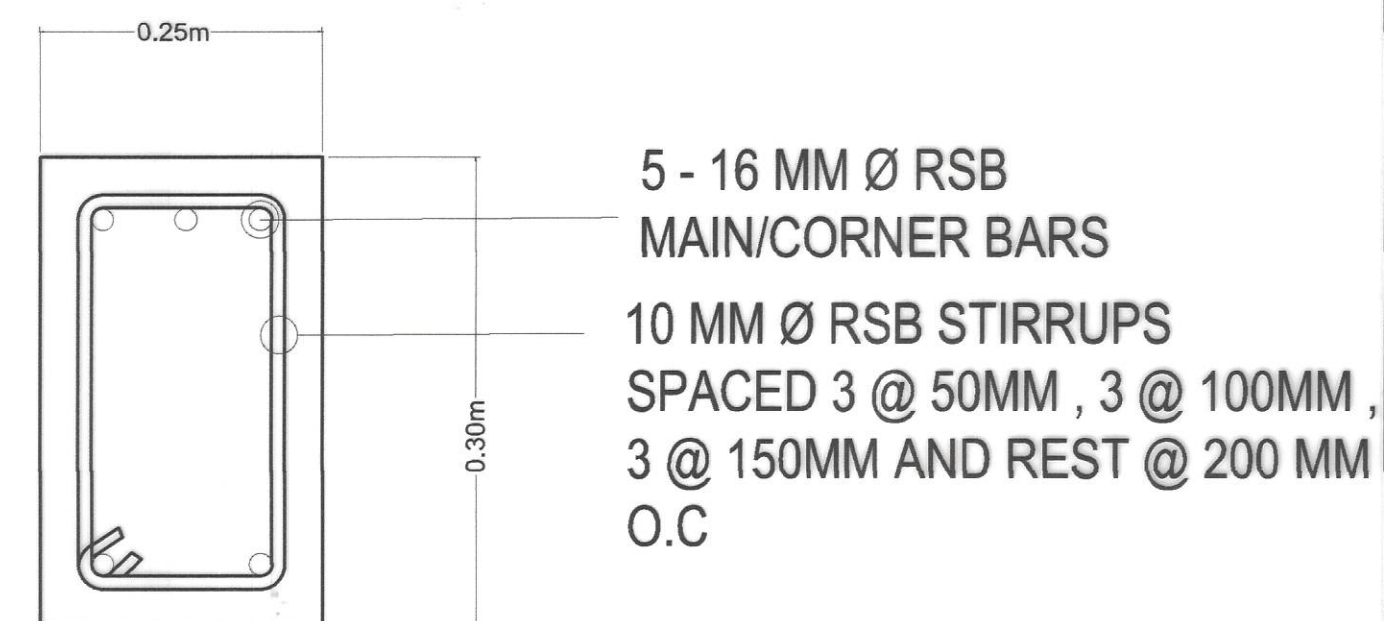
2
14 24 SCALE NTS
DETAIL OF LADDER RUNG



3
14 24 SCALE NTS
DETAIL OF VALVE BOX



DETAIL OF COLUMN



DETAIL OF BEAM-B1



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION IV - B, MIMAROPA
OFFICE OF THE DISTRICT ENGINEER
BOAC, MARINDUQUE

PROJECT NAME AND LOCATION :
REHABILITATION OF STA. CRUZ WATERWORKS SYSTEM,
STA. CRUZ, MARINDUQUE

SHEET CONTENTS :
FILTRATION TANK
TYPICAL DRAWINGS

DRAFTED :
ARTURO M. ARDUELEZA
ENGINEERING ASSISTANT
PREPARED :
MICHAEL P. MALTAG
ENGINEER II

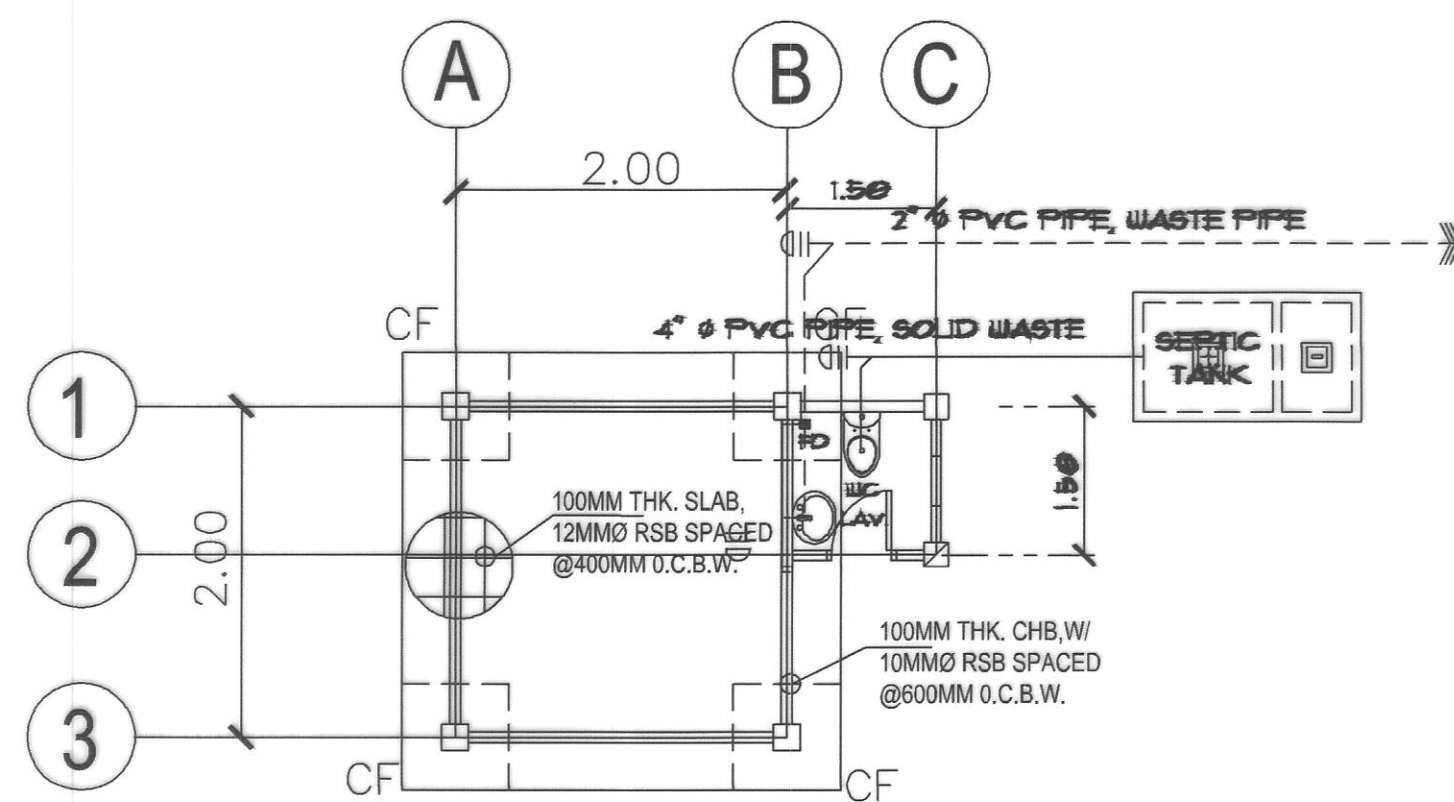
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JERSON O. MONTERA
ENGINEER II
DATE :

SUBMITTED :
FERNAN S. DIAZ
CHIEF, PLANNING AND DESIGN SECTION
DATE :

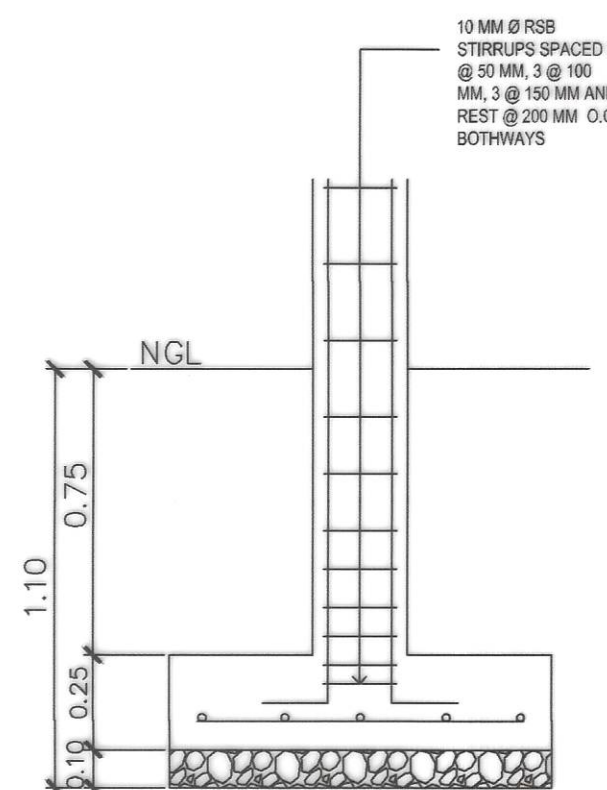
RECOMMENDED :
VACANT
DATE :

APPROVED :
EVELYN R. PUERTOLLANO
DISTRICT ENGINEER
DATE :

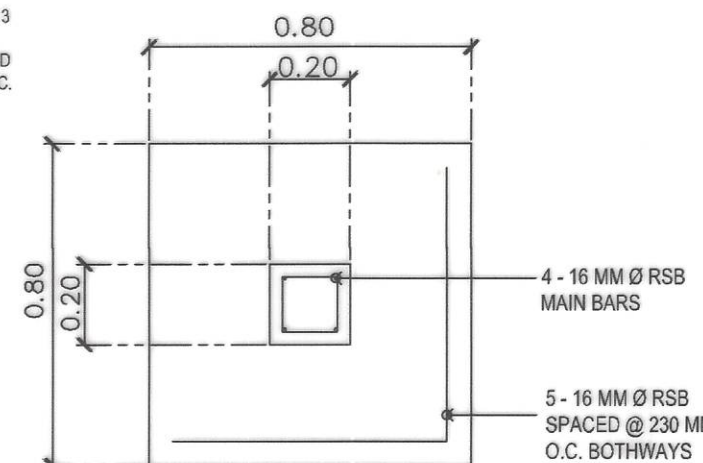
SET NO. SHEET NO.
14 24



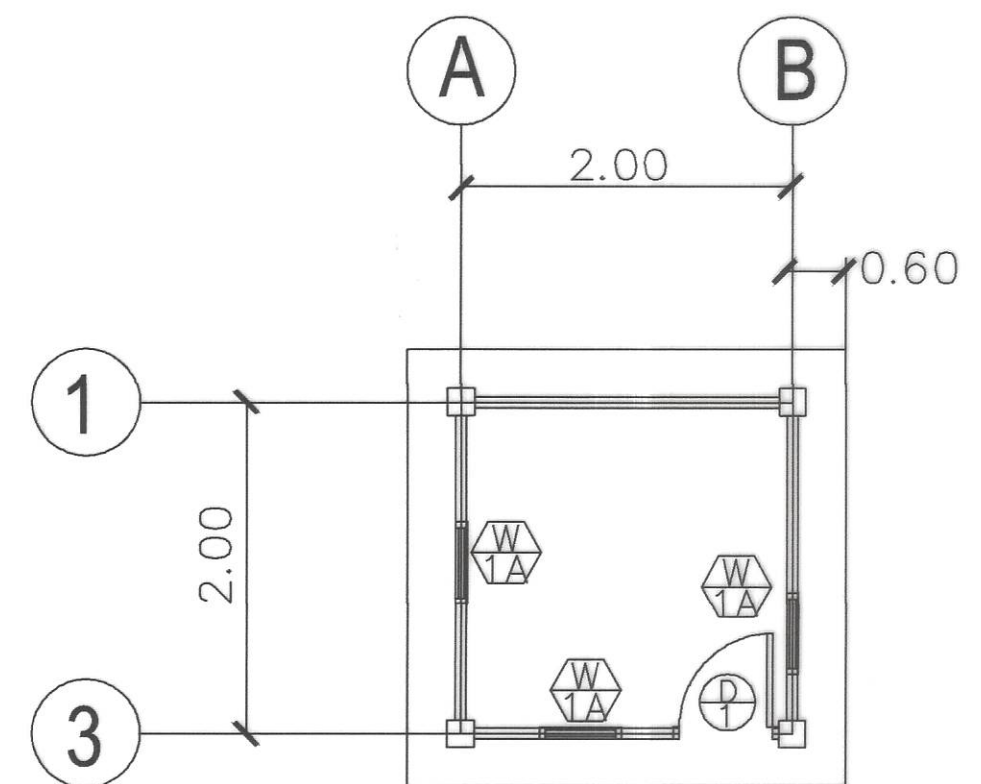
1 FOUNDATION PLAN
15 24 SCALE NTS



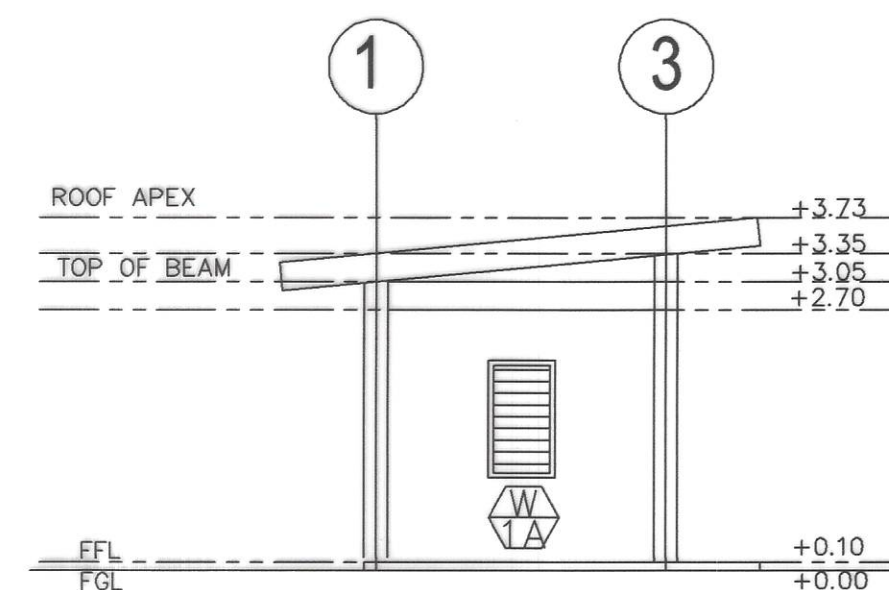
SECTION



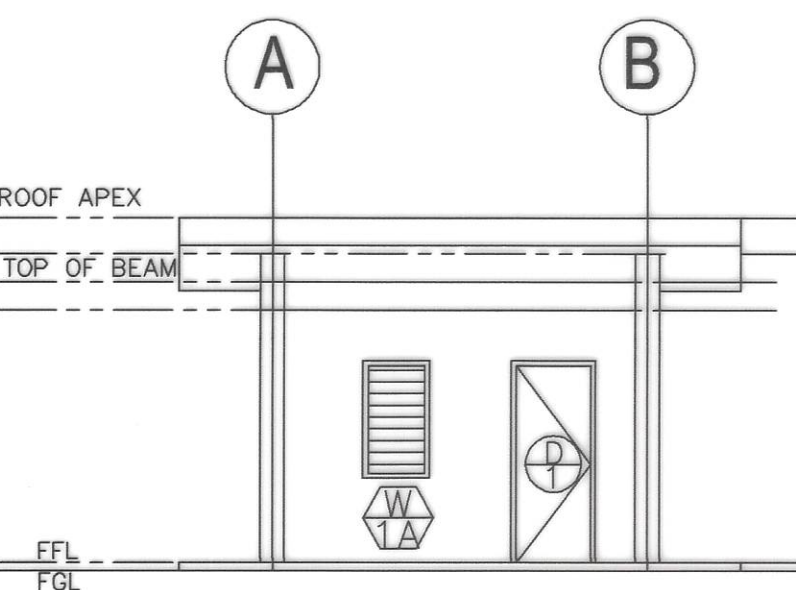
2 CF DETAIL
15 24



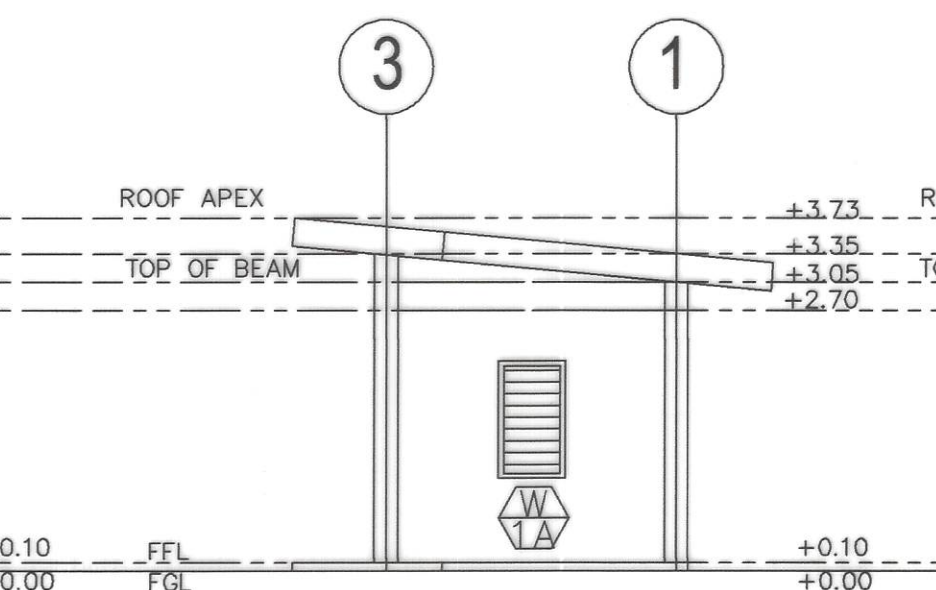
3 FOUNDATION PLAN
15 24 SCALE NTS



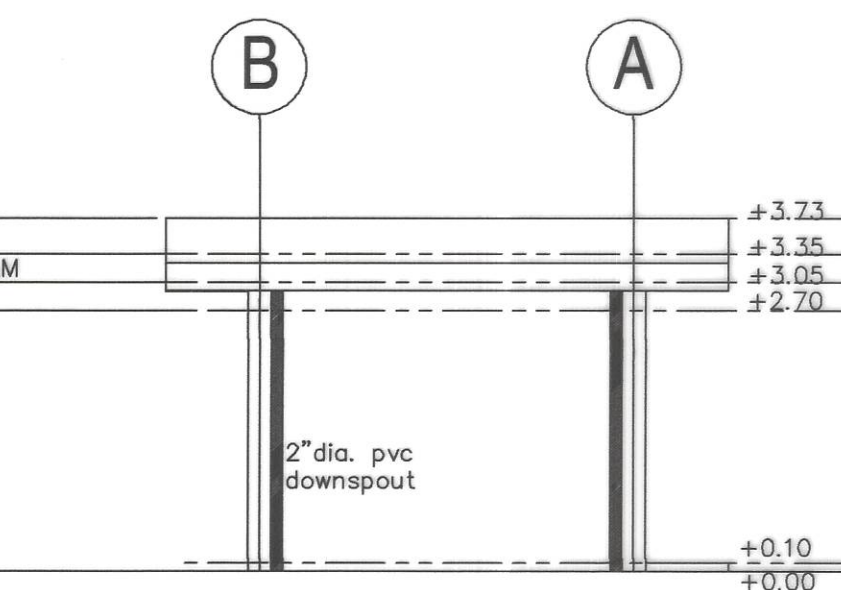
4 LEFT SIDE ELEVATION
15 24 SCALE NTS



5 FRONT ELEVATION
15 24 SCALE NTS



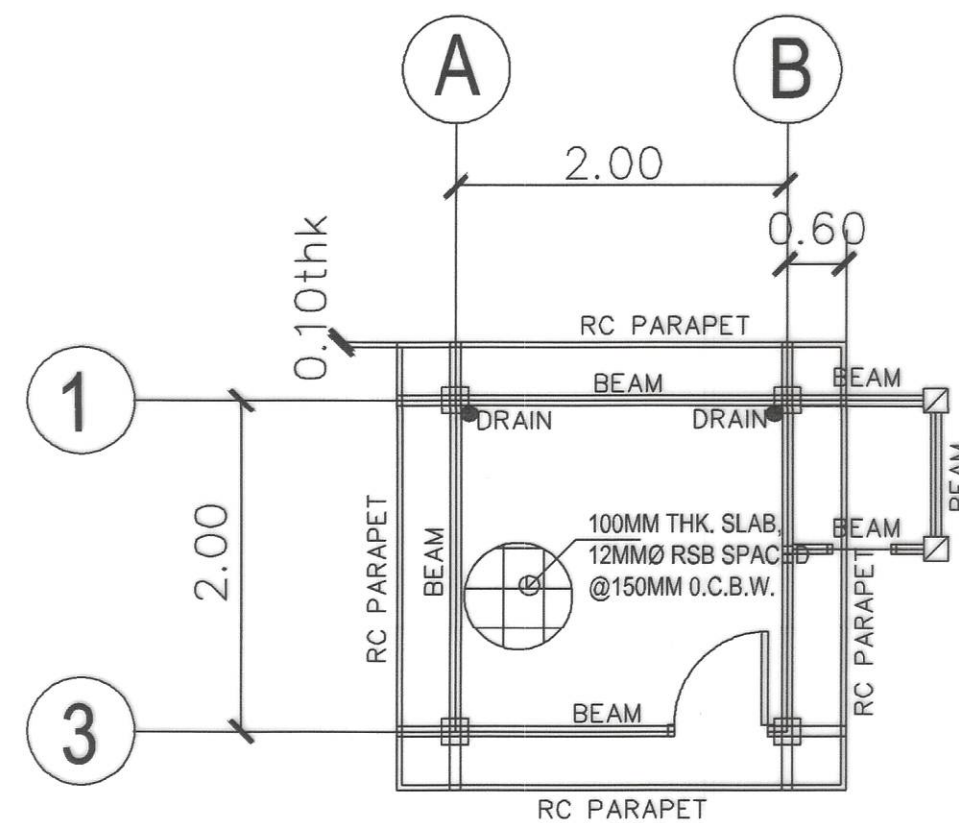
6 RIGHT SIDE ELEVATION
15 24 SCALE NTS



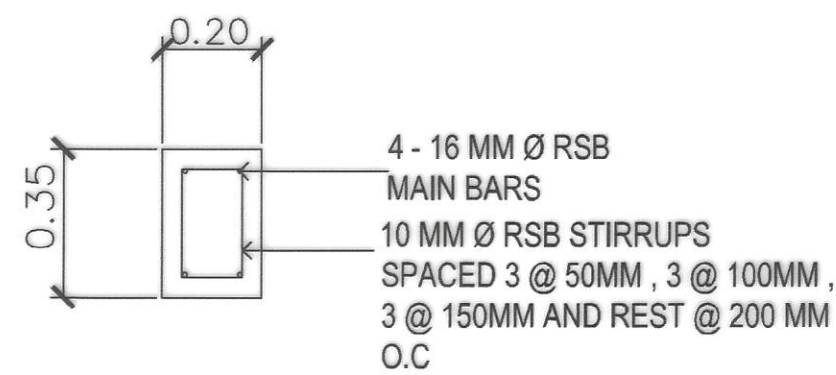
7 REAR ELEVATION
15 24 SCALE NTS

GUARD HOUSE (SINGLE STOREY)

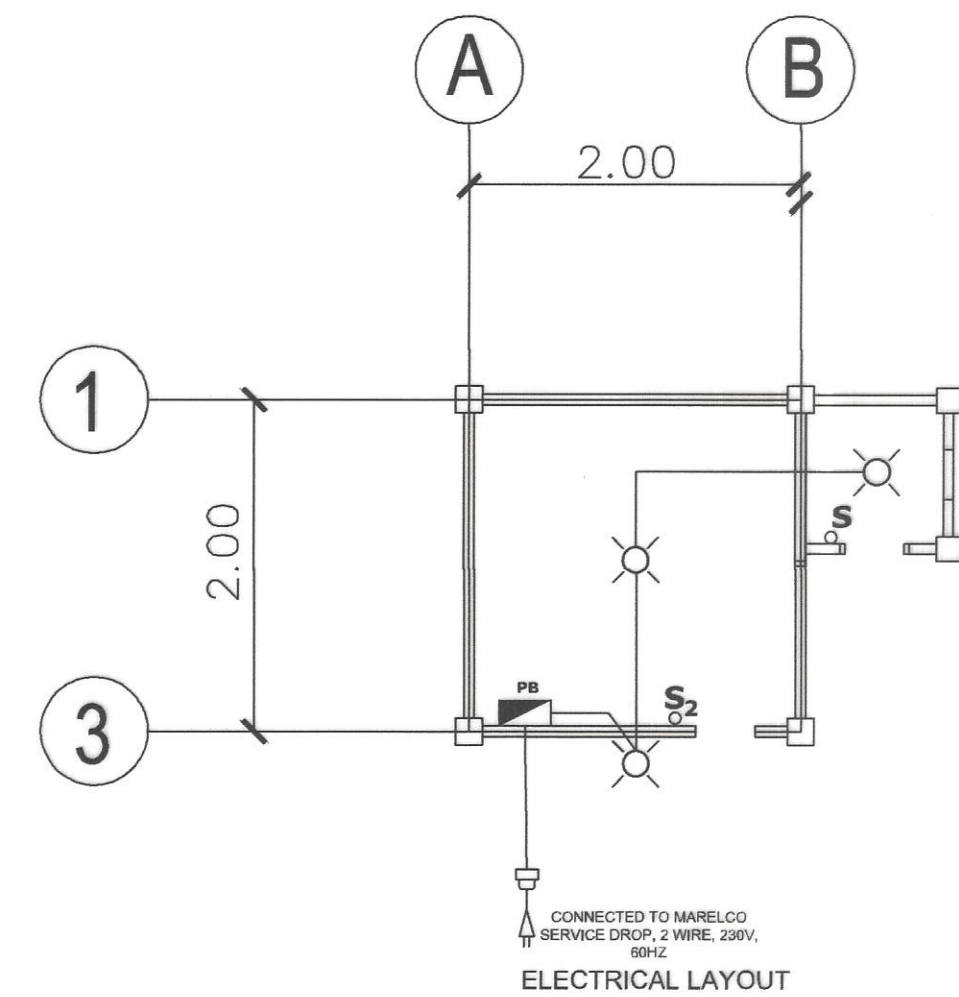
	PROJECT NAME AND LOCATION : REHABILITATION OF STA. CRUZ WATERWORKS SYSTEM, STA. CRUZ, MARINDUQUE	SHEET CONTENTS : GUARD HOUSE TYPICAL DRAWINGS	DRAFTED : PREPARED : JERSON O. MONTERA ENGINEER II	REVIEWED : DATE : FERNAN S. DIAZ CHIEF, PLANNING AND DESIGN SECTION	SUBMITTED : DATE : VACANT	RECOMMENDED : DATE : EVELYN R. PUERTOLLANO DISTRICT ENGINEER	APPROVED : DATE : SET NO.	SHEET NO. 15 24
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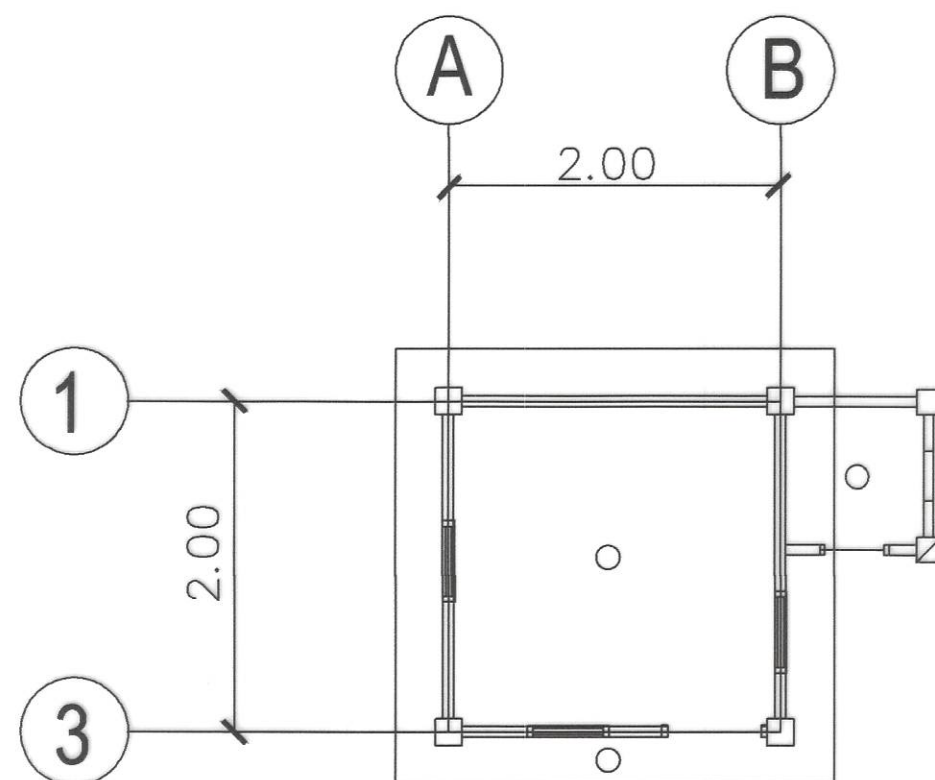
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16/24 SCALE NTS



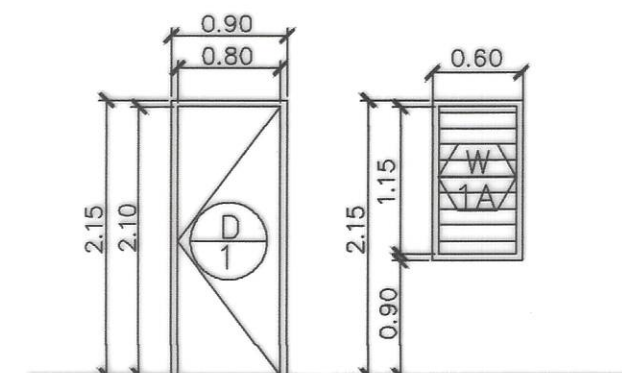
2 BEAM DETAIL
16/24 SCALE NTS



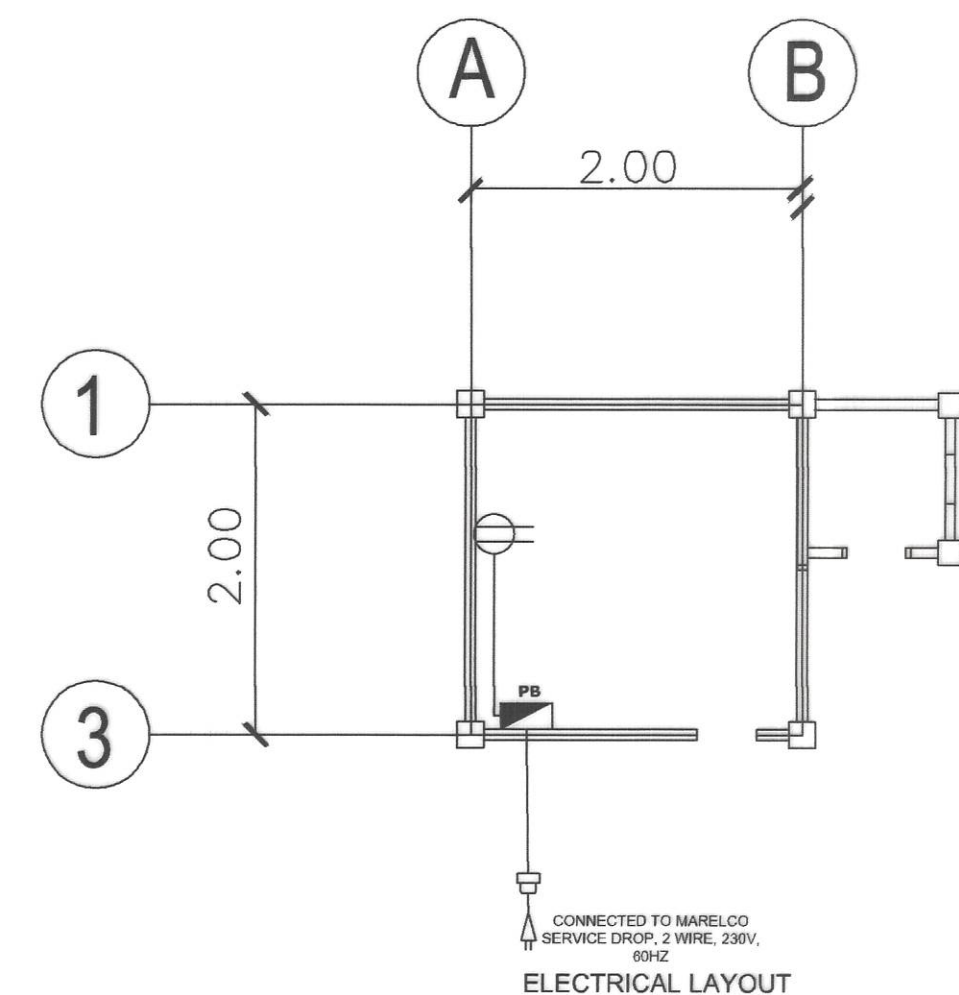
3 ELECT'L LIGHTING LAYOUT
16/24 SCALE NTS



4 REF. CEILING PLAN
16/24 SCALE NTS



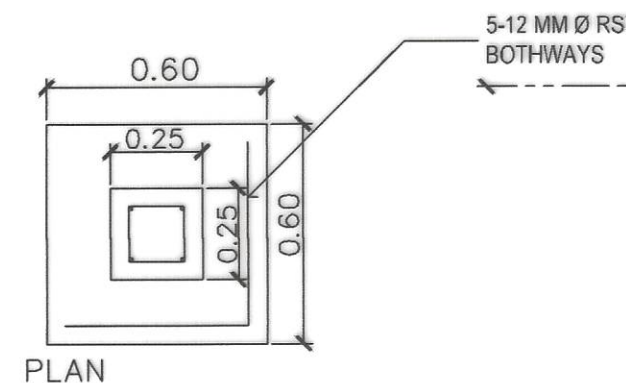
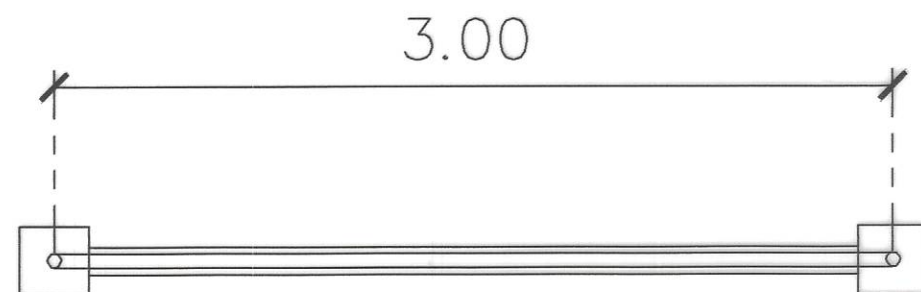
5 DOORS AND WINDOWS
16/24 SCALE NTS



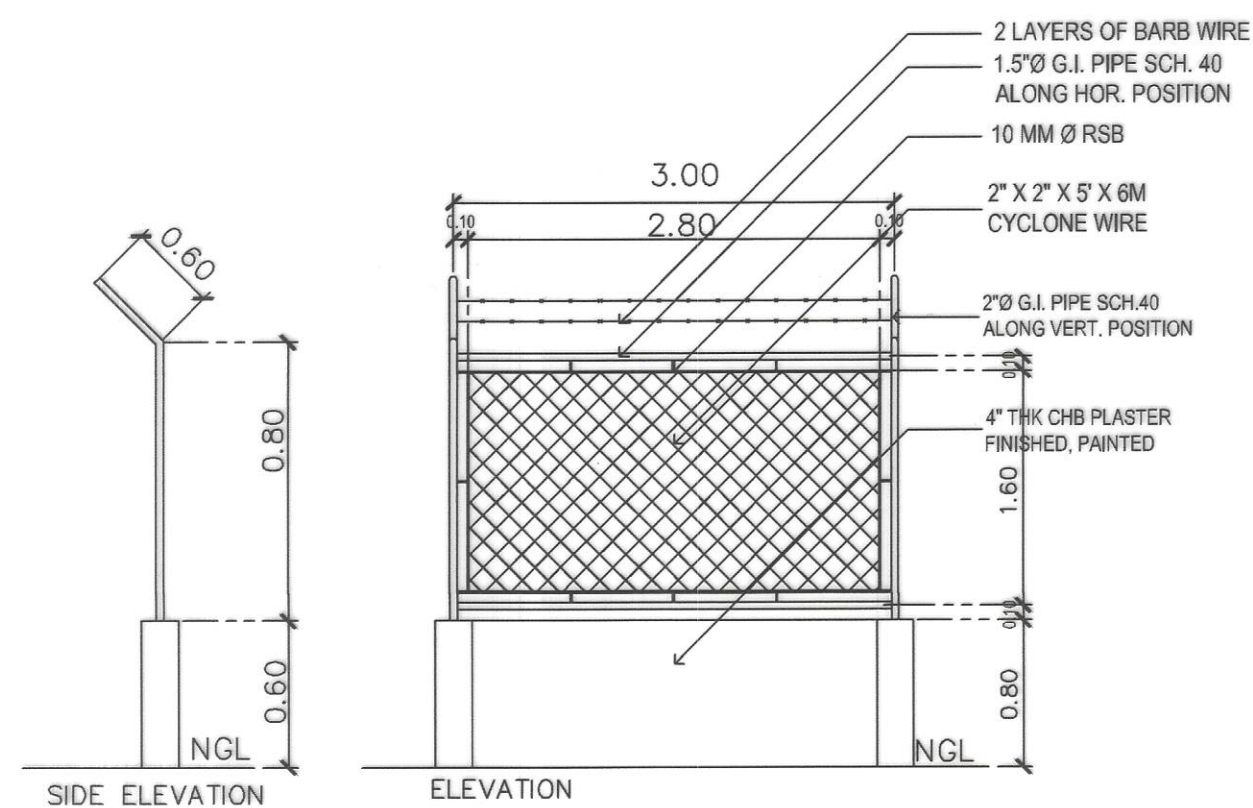
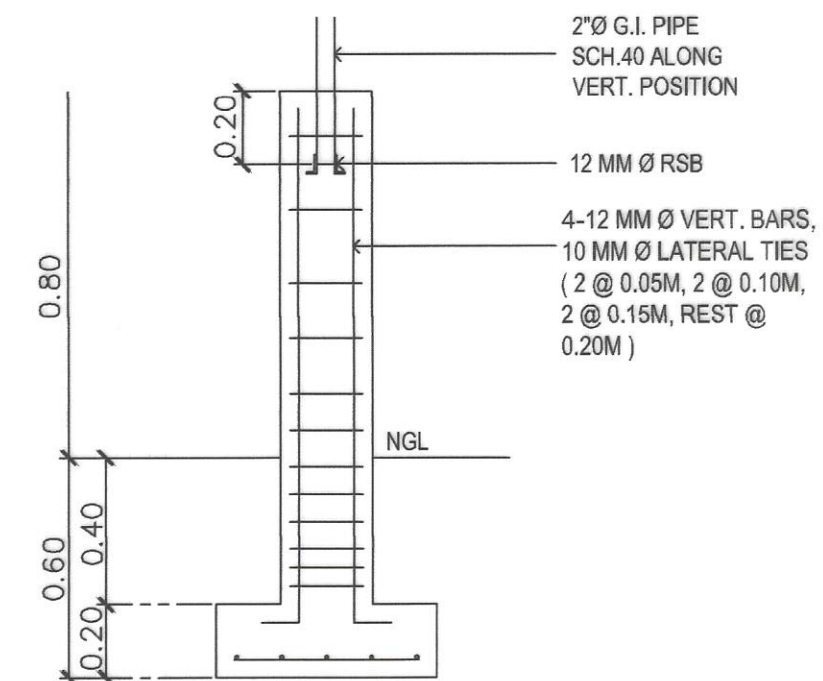
6 ELECT'L POWER LAYOUT
16/24 SCALE NTS

GUARD HOUSE (SINGLE STOREY)

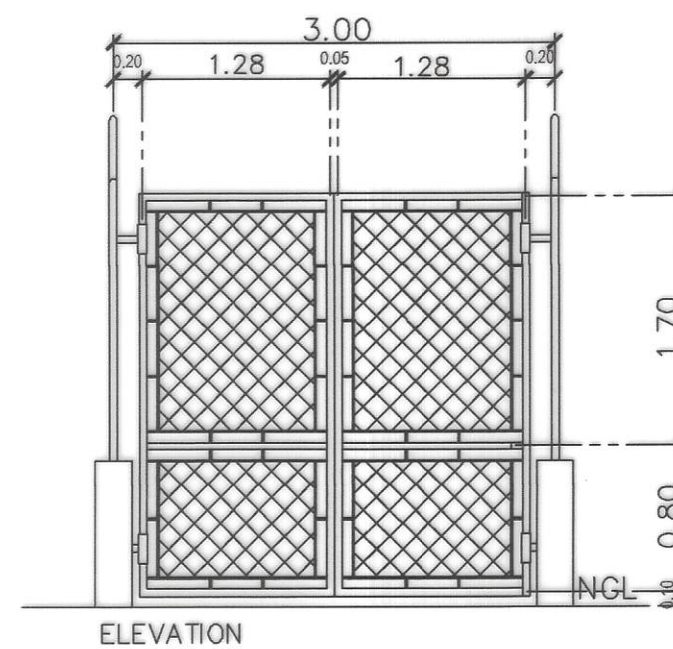
	PROJECT NAME AND LOCATION : REHABILITATION OF STA. CRUZ WATERWORKS SYSTEM, STA. CRUZ, MARINDUQUE	SHEET CONTENTS : GUARD HOUSE TYPICAL DRAWINGS	DRAFTED : ARTHUR D. J. MELEZA ENGINEERING ASSISTANT PREPARED : MICHAEL H. MALITRO ENGINEER II	REVIEWED : JERSON O. MONTERA ENGINEER II DATE :	SUBMITTED : FERNAN S. DIAZ CHIEF, PLANNING AND DESIGN SECTION DATE :	RECOMMENDED : VACANT DATE :	APPROVED : EVELYN R. PUERTOLLANO DISTRICT ENGINEER DATE :	SET NO. MQ	SHEET NO. 16 24
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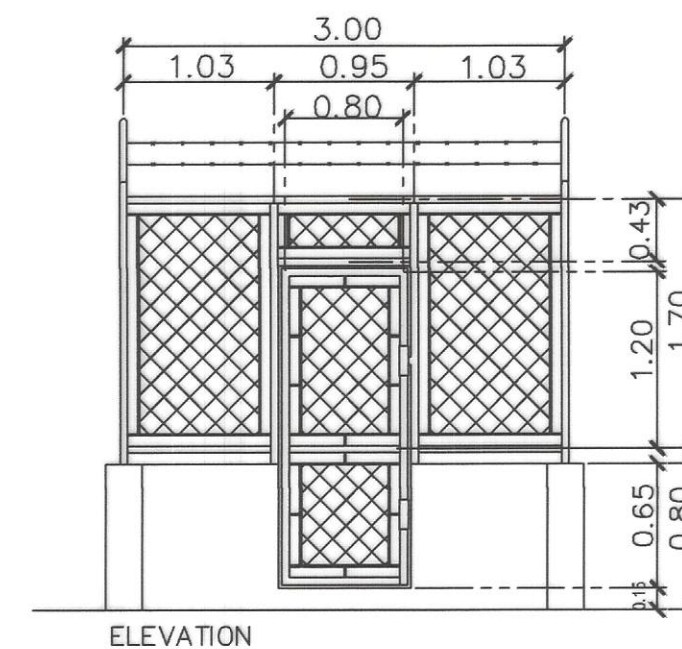
1 COL/FTG DETAIL
17 24 SCALE NTS



2 FENCE DETAIL
17 24 SCALE 1:50 MTS



3 GATE 01 DETAIL
17 24 SCALE 1:50 MTS



4 GATE 02 DETAIL
17 24 SCALE 1:50 MTS



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REGION IV - B, MIMAROPA
OFFICE OF THE DISTRICT ENGINEER
BOAC, MARINDUQUE

PROJECT NAME AND LOCATION :
REHABILITATION OF STA. CRUZ WATERWORKS SYSTEM,
STA. CRUZ, MARINDUQUE
STA. CRUZ, MARINDUQUE

SHEET CONTENTS :
DETAIL OF STEEL FENCE
TYPICAL DRAWINGS

DRAFTED :
ARTHUR M. CARMELEZA
ENGINEERING ASSISTANT
PREPARED :
MICHAEL P. MALITAD
ENGINEER II

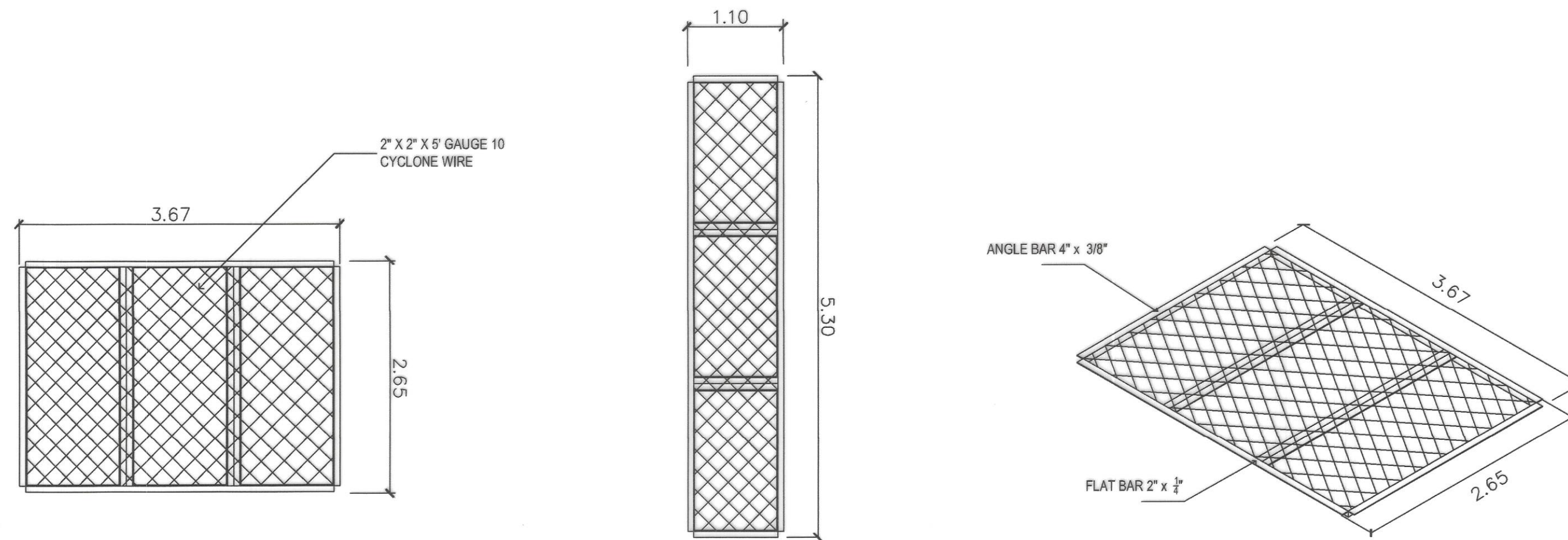
REVIEWED :
JERSON O. MONTERA
ENGINEER II
DATE :

SUBMITTED :
FERNAN S. DIAZ
CHIEF, PLANNING AND DESIGN SECTION
DATE :

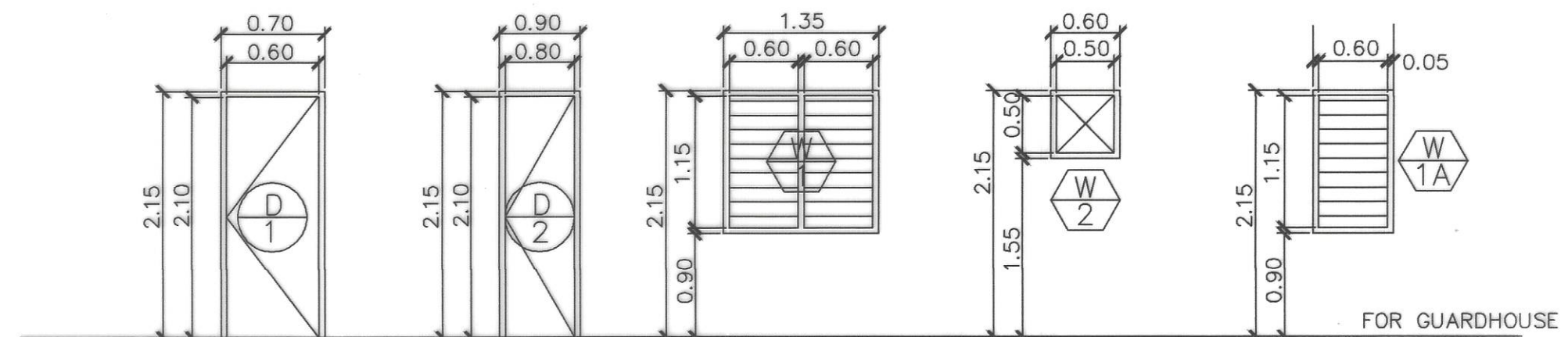
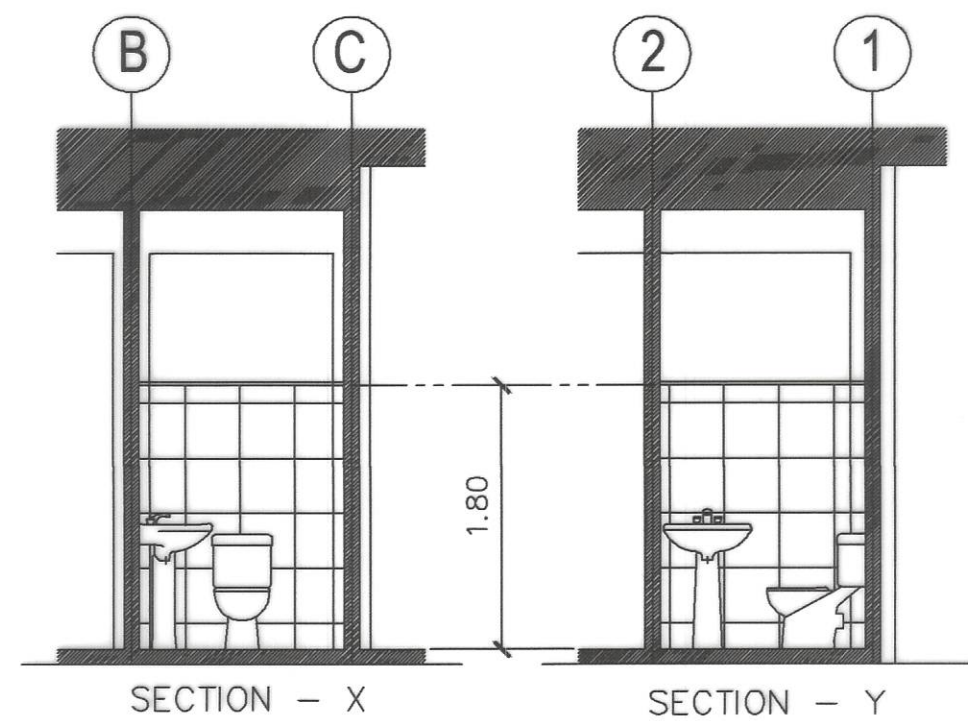
RECOMMENDED :
VACANT
DATE :

APPROVED :
EVELYN R. PUERTOLLANO
DISTRICT ENGINEER
DATE :

SET NO. SHEET NO.
17 24



1
18 24 SCALE NTS
DETAIL OF METAL COVER



2
18 24 SCALE NTS
SCHED. OF DOORS & WINDOWS



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
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PROJECT NAME AND LOCATION :
REHABILITATION OF STA. CRUZ WATERWORKS SYSTEM,
STA. CRUZ, MARINDUQUE
STA. CRUZ, MARINDUQUE

SHEET CONTENTS :
DETAIL OF METAL COVER
SCHEDULE OF DOOR & WINDOWS
TYPICAL DRAWINGS

DRAFTED :
ARTHUR M. JARLEZA
ENGINEERING ASSISTANT
PREPARED :
MICHAEL P. MALITAD
ENGINEER II

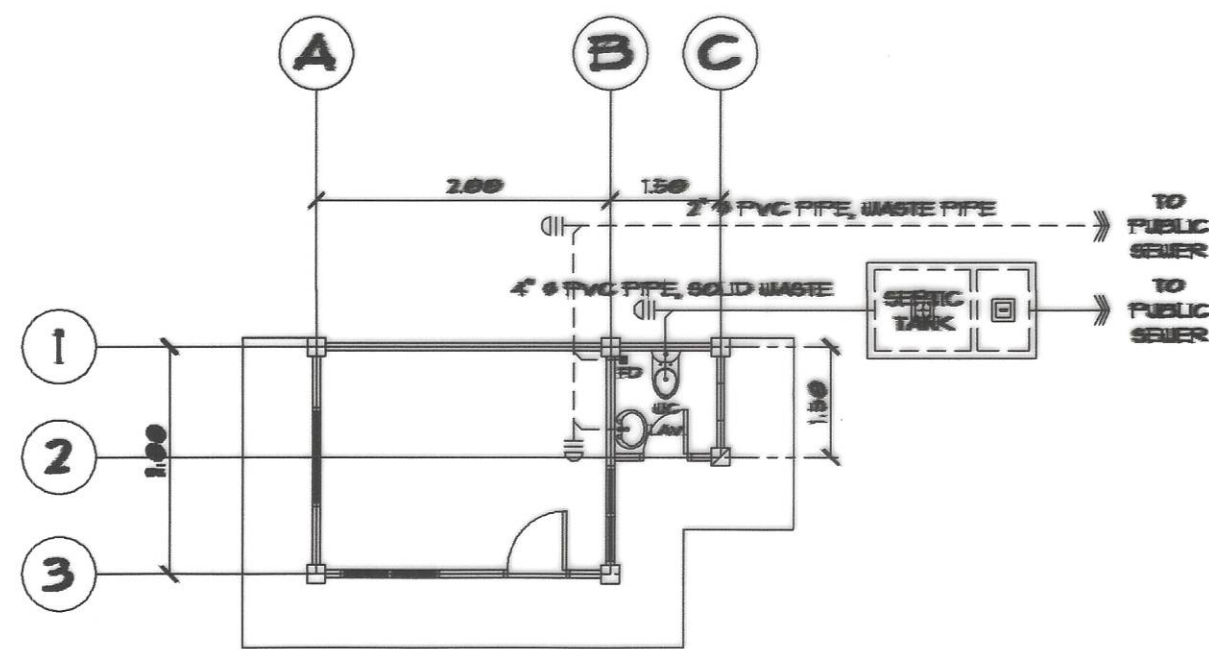
REVIEWED :
JERSON O. MONTERA
ENGINEER II
DATE :

SUBMITTED :
FERNAN S. DIAZ
CHIEF, PLANNING AND DESIGN SECTION
DATE :

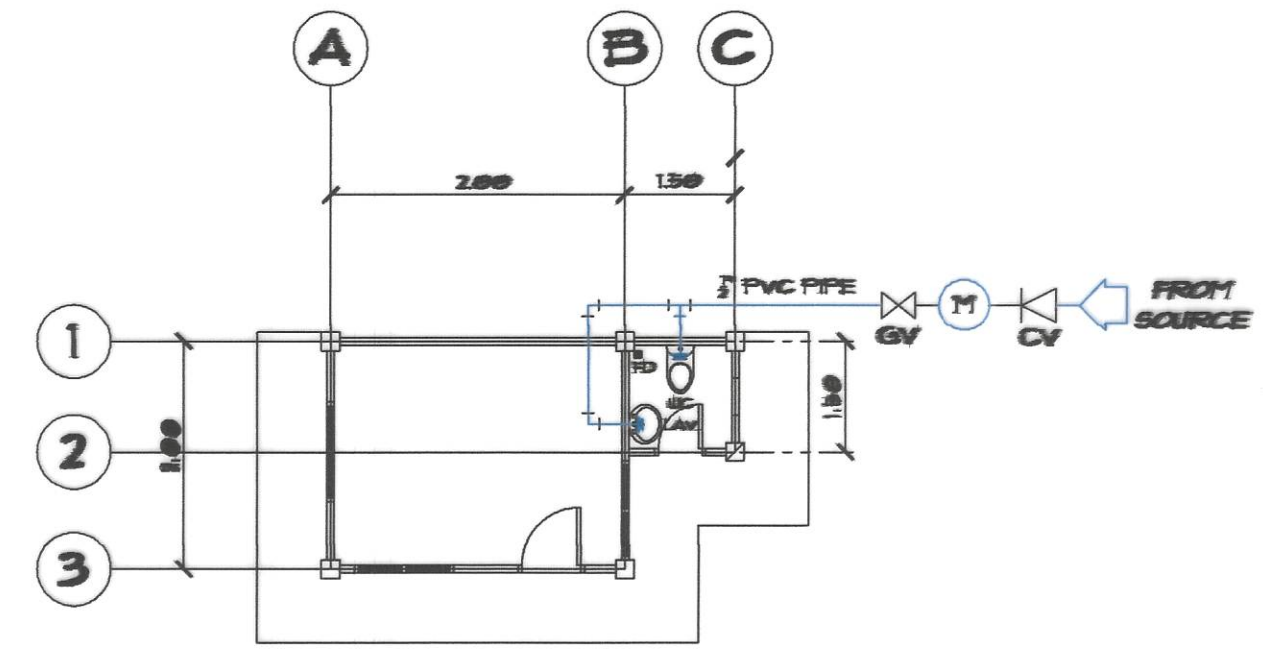
RECOMMENDED :
VACANT
DATE :

APPROVED :
EVELYN R. PUERTOLLANO
DISTRICT ENGINEER
DATE :

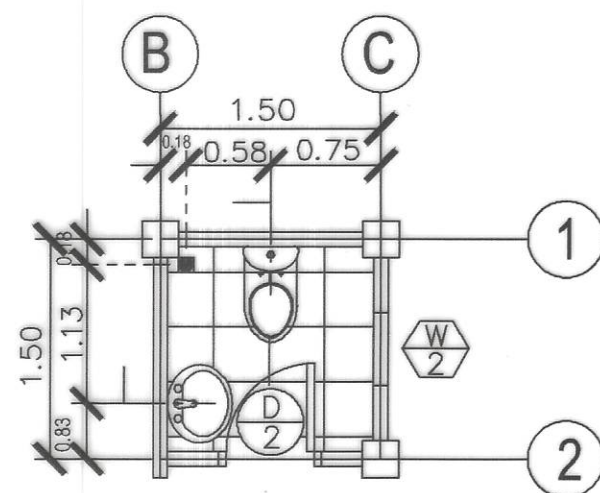
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18 24
MQ



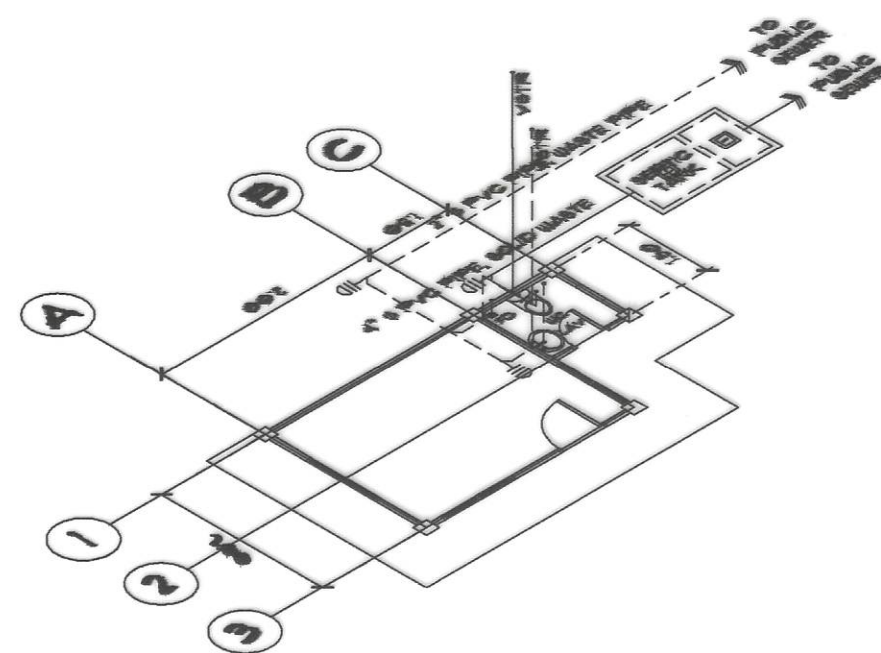
1 SEWER LINE LAYOUT
SCALE NTS



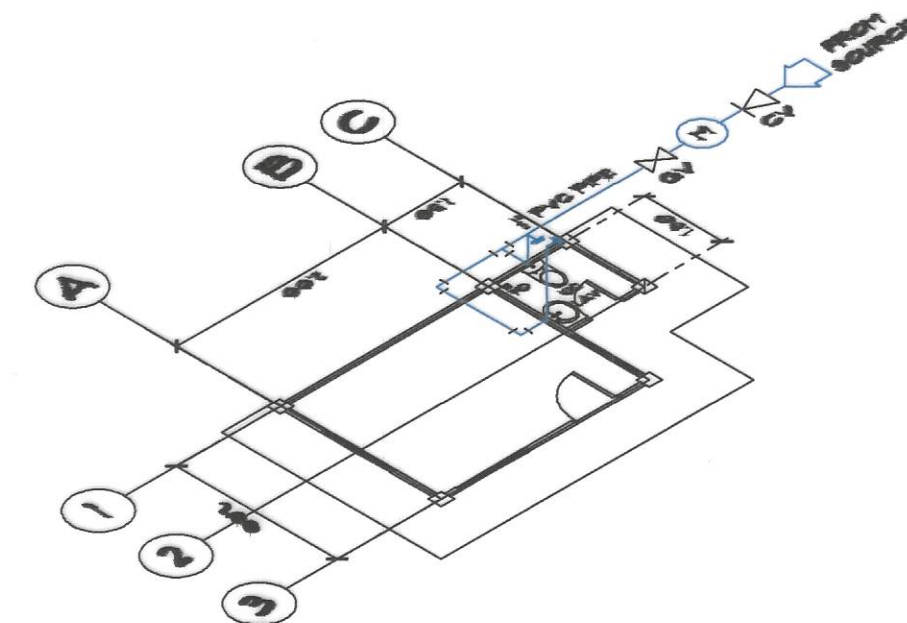
2 WATER LINE LAYOUT
SCALE NTS



3 TOILET DETAIL
SCALE NTS



4 ISO. SEWER LINE LAYOUT
SCALE NTS



5 ISO. WATER LINE LAYOUT
SCALE NTS



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PROJECT NAME AND LOCATION :
REHABILITATION OF STA. CRUZ WATERWORKS SYSTEM,
STA. CRUZ, MARINDUQUE
STA. CRUZ, MARINDUQUE

SHEET CONTENTS :
PLUMBING LAY-OUT
TYPICAL DRAWINGS

DRAFTED :
ARTHUR M. FARDELEZA
ENGINEERING ASSISTANT
PREPARED :
MICHAEL P. PAMILLO
ENGINEER II

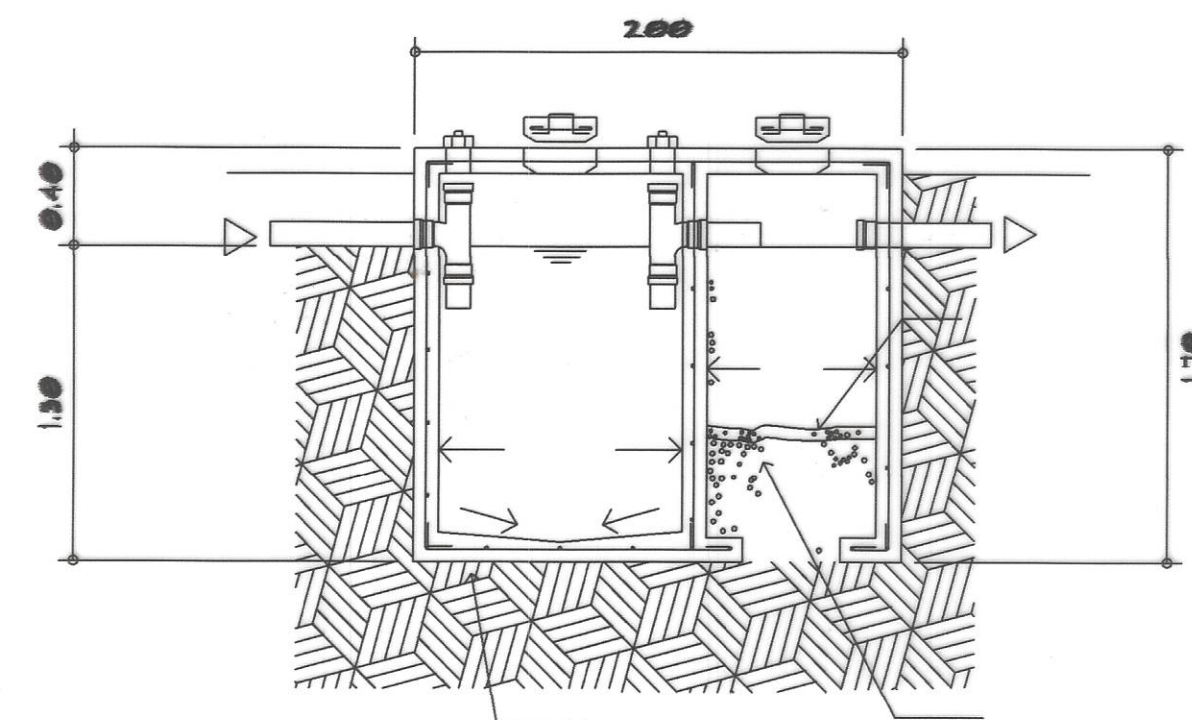
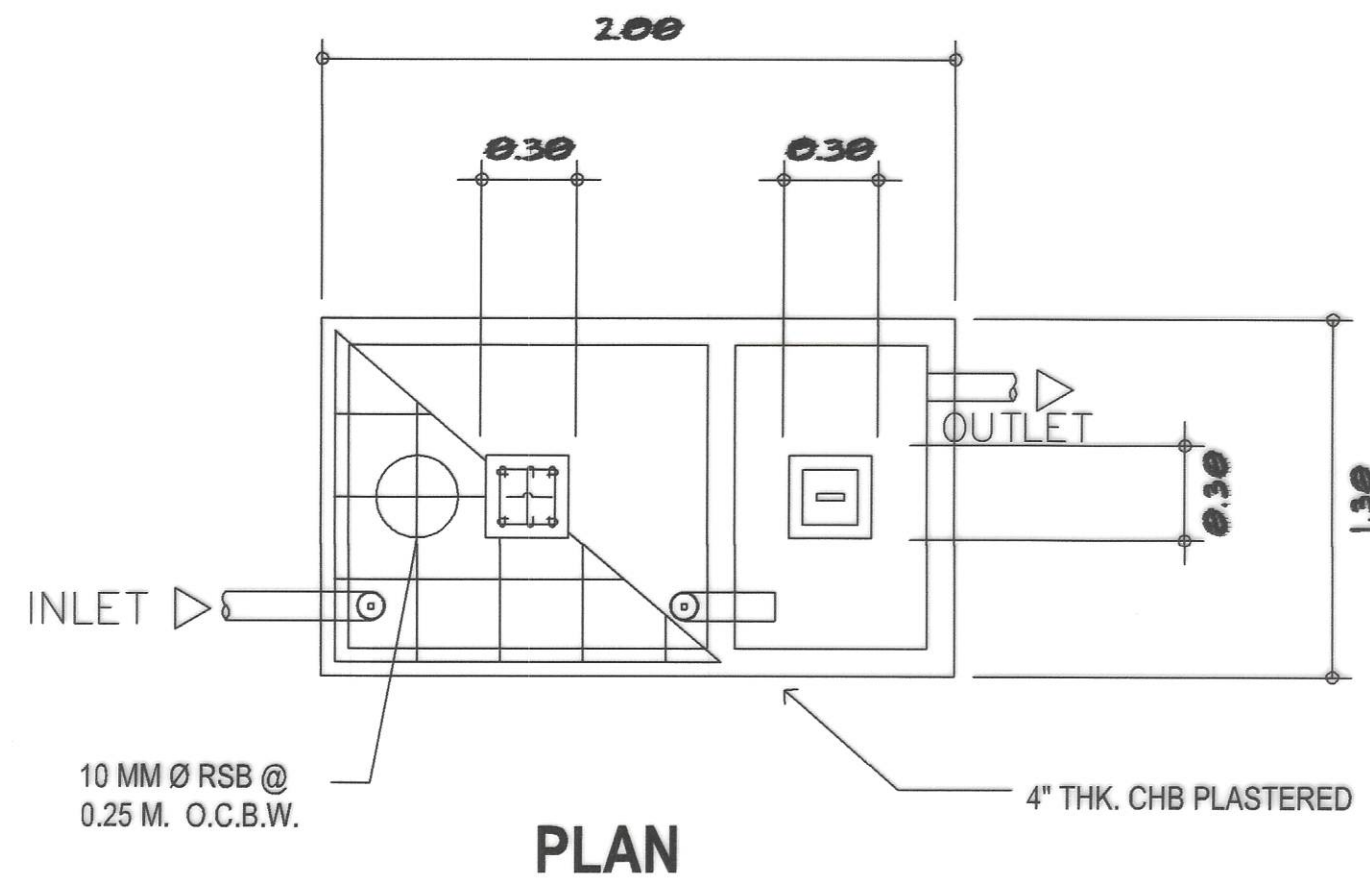
REVIEWED :
JERSON O. MONTERA
ENGINEER II
DATE :

SUBMITTED :
FERNAN S. DIAZ
CHIEF, PLANNING AND DESIGN SECTION
DATE :

RECOMMENDED :
VACANT
DATE :

APPROVED :
EVELYN R. PUERTOLLANO
DISTRICT ENGINEER
DATE :

SET NO. SHEET NO.
19 24



1
20 24 SCALE NTS
SEPTIC VAULT DETAILS

LEGEND

— — —	WATER LINE	FD	FLOOR DRAIN
— — —	SOLID WASTE BASIN LINE	MH	MANHOLE
— — —	WASTE BASIN LINE	WC	WATER CLOSET
△	REDUCER FITTINGS	F	FAUCET
⊗ GV	GATE VALVE	SHO.	SHOWER
○ WM	WATER METER	LAV.	LAVATORY
△ CV	CHECK VALVE	C.O.	CLEAN OUT
		ST	SEPTIC TANK

GENERAL PLUMBING NOTES

1. ALL PLUMBING NOTES INCLUDED HEREIN SHALL BE ACCORDANCE WITH THE PROVISION OF THE PLUMBING CODE, NATIONAL BUILDING CODE AND THE LOCAL REGULATIONS OF THE LOCALITY.
2. COORDINATE THE DRAWINGS WITH THE OTHER RELATED DRAWINGS AND SPECIFICATIONS. THE ENGINEER AND / OR ARCHITECT SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCY FOUND HEREIN.
3. ALL PIPES SHALL BE INSTALLED AS INDICATED, ANY RELOCATION REQUIRED FOR PROPER EXECUTION OF PLUMBING WORKS SHALL BE WITH THE PRIOR APPROVAL OF THE ENGINEER AND / OR ARCHITECT.
4. PROPOSED SANITARY UTILITIES SHALL CONFORM TO THE ACTUAL LOCATION, DEPTH, AND INVERT ELEVATIONS OF ALL EXISTING PIPES AND STRUCTURE AS VERIFIED BY THE CONSTRUCTOR.
5. ALL SLOPES FOR HORIZONTAL DRAINAGE SHALL MAINTAIN ONE PERCENT (0.01) AND A HALF (0.008) MINIMUM UNLESS OTHERWISE SPECIFIED.
6. WATER SUPPLY PIPE TO FIXTURES SHALL BE SIZED ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.
7. ALL BRANCHES OF FIXTURES OR GROUP OF FIXTURES SHALL BE PROVIDED WITH AIR CHAMBER MADE OF CAPPED VERTICAL EXTENSION PIPE.
8. ALL WATER LINES SHALL BE HYDROSTICALLY TESTED AT 100 psi FOR A PERIOD OF TWO (2) HOURS BEFORE BURIED OR COVERED GALVANIZED IRON (G.I.) DIRECTLY IN CONTACT WITH THE SOIL SHALL BE PROVIDED WITH TWO COATS OF ASPHALT.



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REHABILITATION OF STA. CRUZ WATERWORKS SYSTEM,
STA. CRUZ, MARINDUQUE
STA. CRUZ, MARINDUQUE

SHEET CONTENTS :
DETAIL OF SEPTIC TANK
GENERAL PLUMBING NOTES
TYPICAL DRAWINGS

DRAFTED :
ARTHUR M. BARDELEZA
ENGINEERING ASSISTANT
PREPARED :
MICHAEL P. MALIBY
ENGINEER II

REVIEWED :
JERSON O. MONTERA
ENGINEER II
DATE :

SUBMITTED :
FERNAN S. DIAZ
CHIEF, PLANNING AND DESIGN SECTION
DATE :

RECOMMENDED :
VACANT
DATE :

APPROVED :
EVELYN R. PUERTOLLANO
DISTRICT ENGINEER
DATE :

SET NO. SHEET NO.
20 24
DPWH
REGION IV-B
CY-2023
MQ

SCHEDULE OF LOADS																			
CIRCUIT NUMBER	LOAD DESCRIPTION	HP	OUTLETS			SWITCHES				VOLT. AMP.	AMP.	VOLTS	CPD BOLT-ON				CONDUCTORS	CONDUIT	AREA SERVED
			O.L.	MOTOR	C.O.	L.O.	S	S2	S3				S3W	AF	P	AT	KAIC		
	LIGHTING POINTS AND CONVENIENCE OUTLET				1	3	1	1		660	2.87	230V	50	2	20	10	2 # 3.5 mm ² E= 1 # 3.5 mm ²	20 MMØ	GUARD HOUSE

FOR MAIN SERVICE ENTRANCE CONDUCTOR
USE 2 NOS. 8.0.0mm² THHN WIRE
1NO. 5.5mm² TW WIRE (G)
IN 1Ø 25mm² RSC CONDUIT

FOR MAIN DISCONNECTION EQUIPMENT
USE ONE 30AT, 2P CIRCUIT BREAKER
BOLT-ON IN NEMA-1 ENCLOSURE

GENERAL NOTES

ALL ELECTRICAL INSTALLATION SHALL BE DONE IN ACCORDANCE WITH THE PROVISIONS OF THE LATEST EDITION OF THE PHILIPPINE ELECTRICAL CODE 2000 EDITION THE LAWS AND ORDINANCES OF THE LOCAL CODE ENFORCING AUTHORITIES AND THE REQUIREMENTS OF THE LOCAL UTILITY

- SERVICE TO THE BUILDING SHALL BE 230V, 60HZ, SINGLE PHASE, 2-WIRE
- MINIMUM SIZE OF CONDUCTORS SHALL BE 230V, 2.00 mm THHN OR TW FOR LIGHTING AND 3.5mm THHN OR TW FOR CONVENIENCE AND POWER CIRCUITS, WITH A MINIMUM CONDUIT OF 20MMØ UPVC
- WIRING METHOD SHALL BE AS FOLLOWS :
 - RIGID UPVC PIPE FOR RUNS EMBEDDED IN CONCRETE OR UNDERGROUNDS
 - RIGID UPVC PIPE WITH APPROVED MEANS OF SUPPORT FOR EXPOSED CONDUIT SYSTEM.
 - RIGID UPVC PIPE OR FLEXIBLE UPVC CONDUIT FOR RUNS CONCEALED ON CEILING AND DOUBLE WALLS.
- UNLESS OTHERWISE INDICATED, MOUNTING HEIGHTS SHALL BE AS FOLLOWS:

LIGHTING SWITCHES	-----	1.40m	ABOVE FFL @ CENTER
PANEL BOARD	1.50m	-----	ABOVE FFL @ CENTER
CONVENIENCE OUTLET	-----	0.30m	ABOVE FFL @ CENTER
SPECIAL PURPOSE OUTLET	-----	AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER.	
- ALL MATERIALS TO BE USED SHALL BE BRAND NEW AND SHALL BE INSTALLED IN APPLICATION FOR WHICH THEY ARE INTENDED.
- ALL BOXES FOR ENCLOSURE TO BE INSTALLED OUTDOOR SHALL BE RAIN PROOF NEMA 3R RATING OR BE PROVIDED WITH EQUIVALENT PROTECTION.
- ALL ELECTRICAL INSTALLATION HEREIN SHALL BE DONE UNDER THE SUPERVISION OF A LICENSED ELECTRICAL ENGINEER OR A REGISTERED MASTER ELECTRICIAN.

CONNECTED TO MARELCO
SERVICE DROP, 2 WIRE, 230V,
60HZ

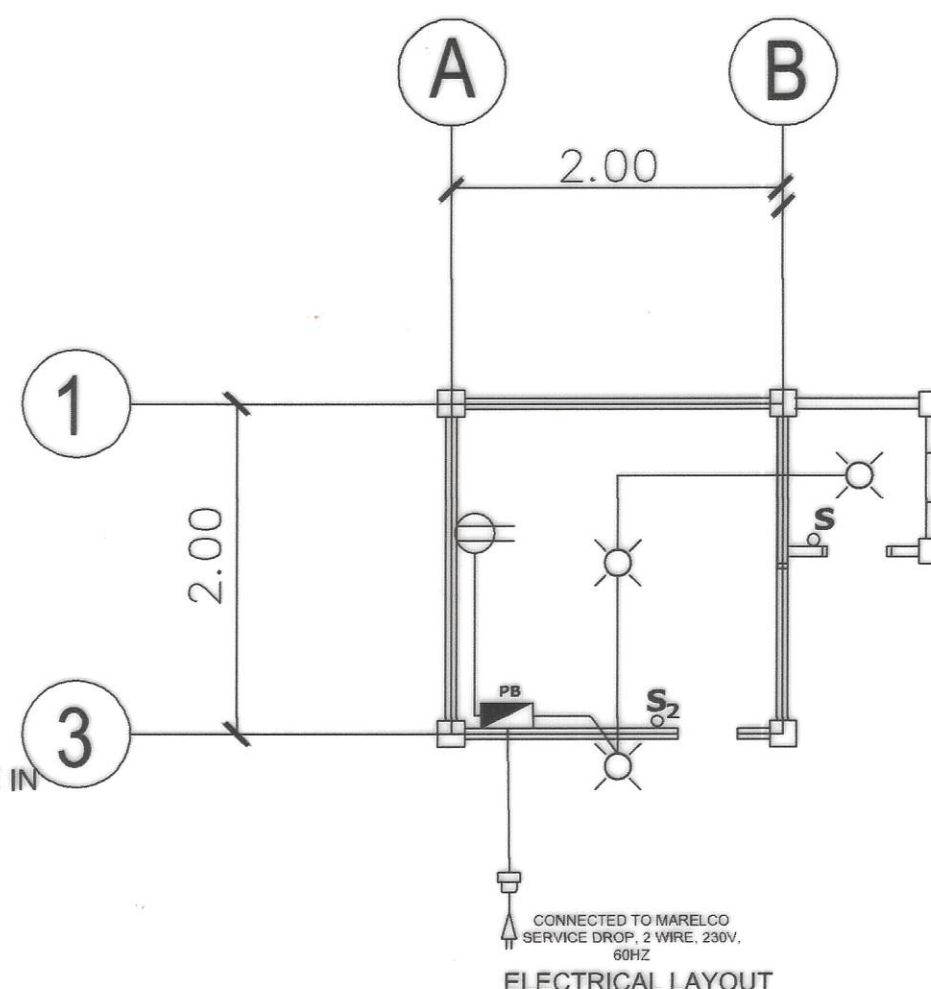
KWH METER BY MARELCO

5/8" x 8' GROUND ROD COPPER
CLAD

2-8.0.0mm² THHN WIRE
1-5.5mm² TW WIRE
1- 25mm dia. RSC

GROUND BUS

1NOS. 5.5mm² TW WIRE IN
1Ø 25mm RSC PIPE



ELECTRICAL LAY-OUT

1
21 24 SCALE 1:25m

LEGEND :

- SERVICE ENTRANCE
- DUPLEX CONVINIENCE OUTLET
W/ GROUND AND SHUTTER
- CEILING LIGHT OUTLET WITH 15W LED BULB
- PB PANEL BOARD 30AT, 2P CIRCUIT
BREAKER BOLT-ON IN NEMA-1
ENCLOSURE
- KWHR METER IN 5METERS CONCRETE PEDESTAL
- S ONE GANG ONE WAY SWITCH
- S2 TWO GANG ONE WAY SWITCH



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REHABILITATION OF STA. CRUZ WATERWORKS SYSTEM,
STA. CRUZ, MARINDUQUE
STA. CRUZ, MARINDUQUE

SHEET CONTENTS :
ELECTRICAL LAY-OUT
TYPICAL DRAWINGS

DRAFTED :
ARTHUR D. TARDELEZA
ENGINEERING ASSISTANT
PREPARED :
MICHAEL P. MALITAO
ENGINEER II

REVIEWED :
MICHAEL P. MALITAO
ENGINEER II
DATE :

SUBMITTED :
FERNAN S. DIAZ
CHIEF, PLANNING AND DESIGN SECTION
DATE :

RECOMMENDED :
VACANT
DATE :

APPROVED :
EVELYN R. PUERTOLLANO
DISTRICT ENGINEER
DATE :

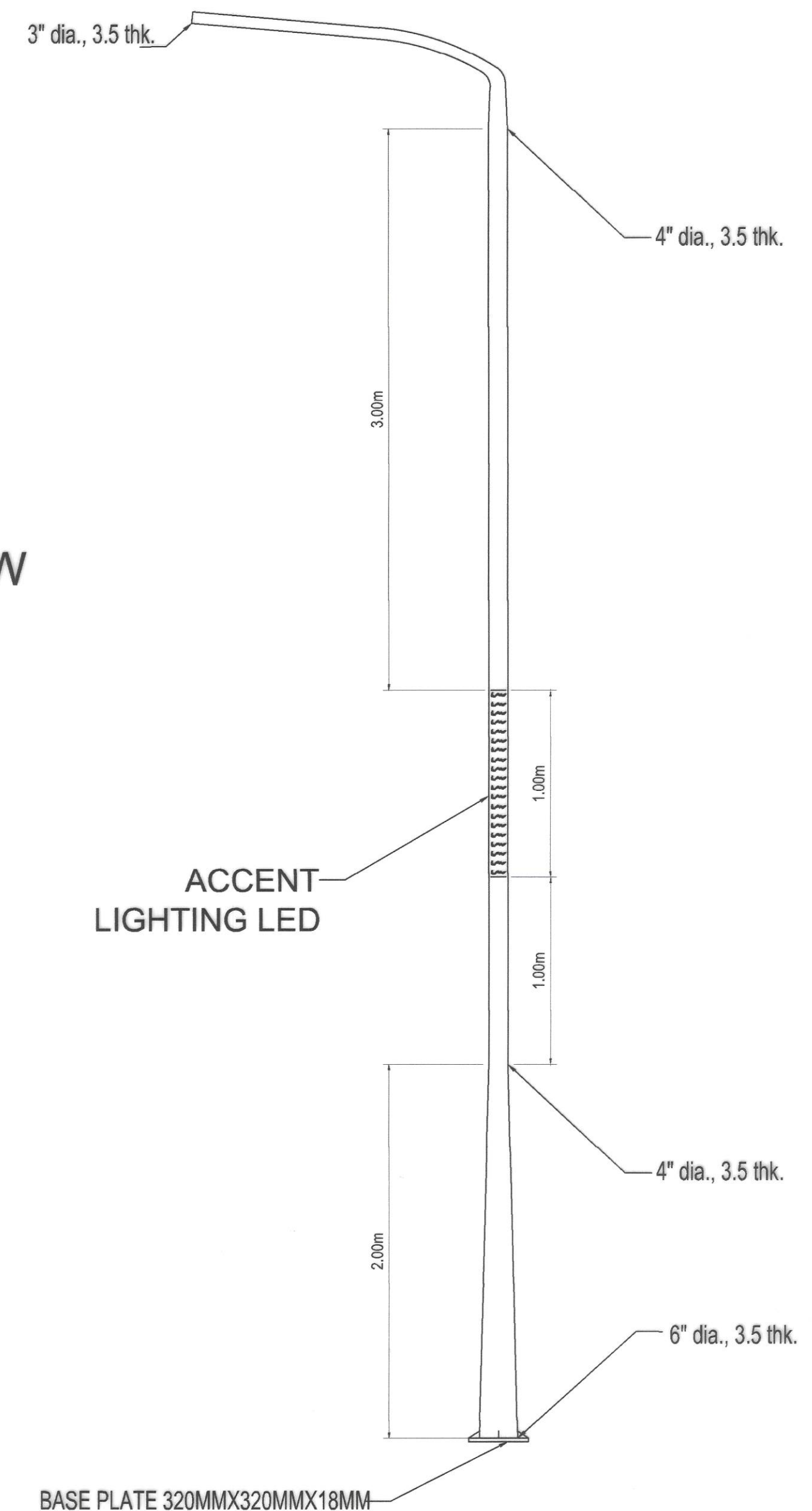
SET NO. SHEET NO.
21
24

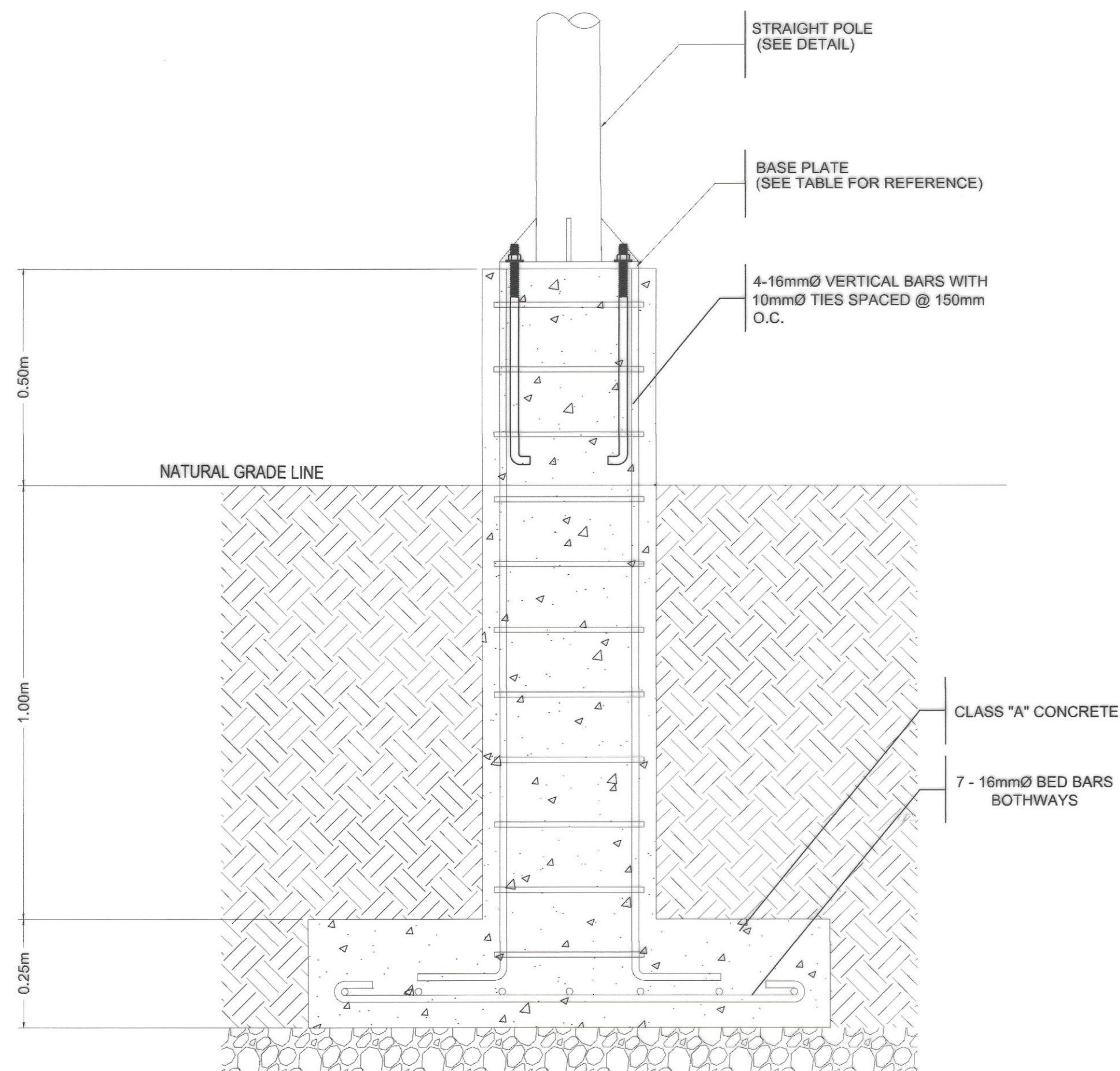
LED SOLAR LAMP SPECIFICATIONS OVERVIEW

LAMP BRIGHTNESS	70 WATTS
LED STRUCTURE	200PCS IN 4 LED PCB 50X4 SMD 3030 BAT-WING POLARIZED LENS 120 DEGREES VIEWING ANGLE
LUMENS	8,000 - 10,000 LUMENS
LIFESPAN	50,000 HOURS
CCT	6000K COLOR TEMPERATURE
CHARGE CONTROLLER	MPPT, 30A CHARGE CURRENT INTELLIGENT LED POWER CONTROL W/ 120W MAXIMUM OUTPUT POWER AND 10-STEP LOAD WORKING MODE
BATTERY	360WH, ORIGINAL LIFEPO4 (LITHIUM ION PHOSPHATE), GREATER THAN 3000 CYCLES AT 80% DOD, W/ 20% AGING FACTOR
SOLAR PANEL	MONOCRYSTALLINE, 90W, CELL EFFICIENCY GREATER 18%, GREATER THAN 70% FILL FACTOR TEMPERED GLASS
BODY MATERIAL	HIGH-PRESSURE DIE-CAST ALUMINUM ALLOY, IP65 ENCLOSURE
BODY COLOR	EPOXY PAINT DARK GREY COLOR CASING W/ COLLAR LIGHT(BLUE LED)
WIND STRENGTH	60M/S OR 200KG PER SQM EPA NOT MORE THAN 0.5 SQ.M
DIMENSION	LENGTH: 1000-1100MM WIDTH: 500-550MM THICKNESS: 140-150MM
WORKING TIME	12 HRS ; 3-5 CLOUDY / RAINY DAYS
CHARGING TIME	6 HOURS EFFECTIVE SUNSHINE
TOTAL WEIGHT	LESS THAN 25KG
WARRANTY	5 YEARS

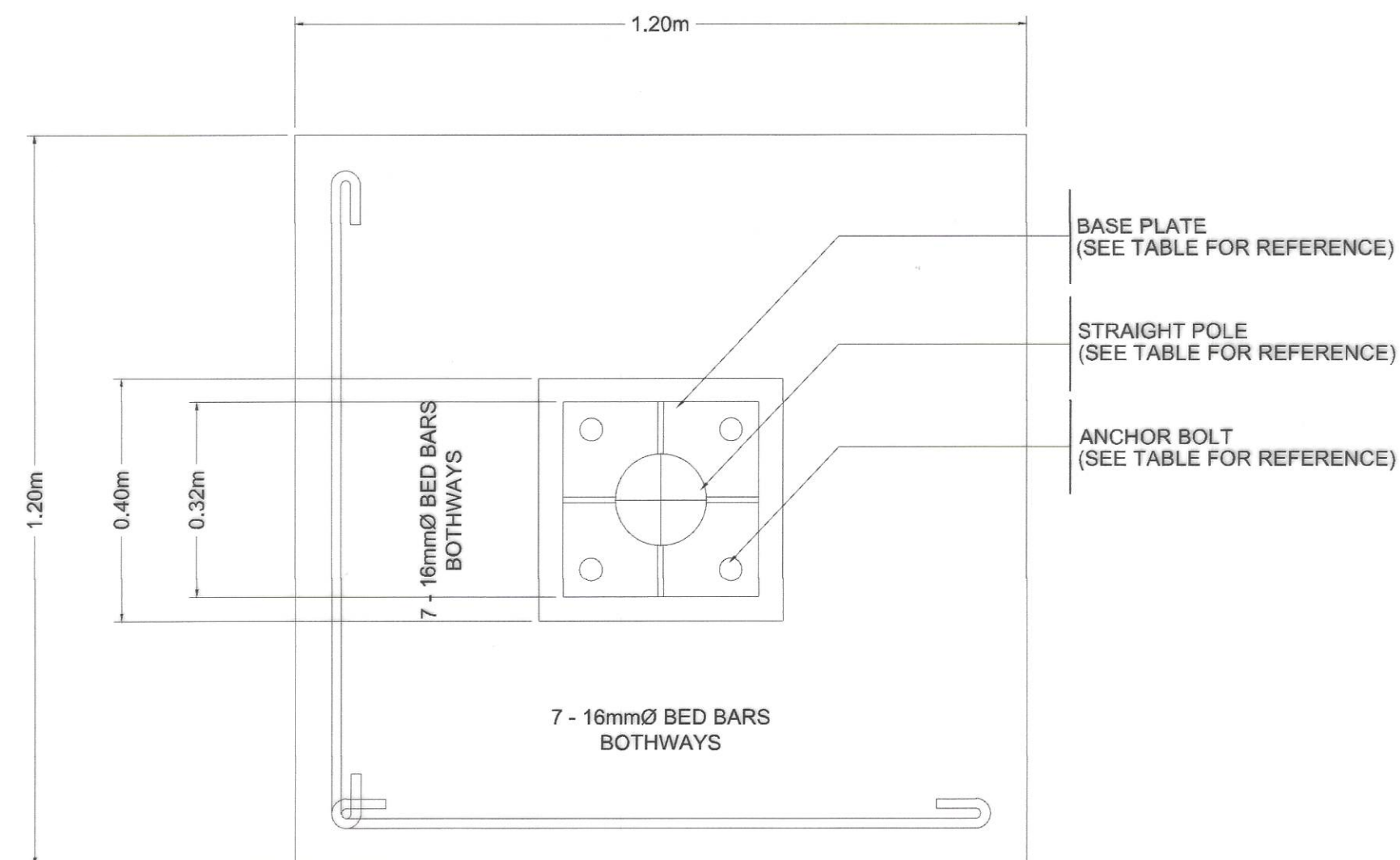
STEEL LAMP POLE SPECIFICATIONS OVERVIEW

ARM DIAMETER	3 INCHES
TOP DIAMETER	3 INCHES
BOTTOM DIAMETER	6 INCHES
TOTAL POLE HEIGHT	7 METERS
ARM LENGTH	1.5 METERS
BASE PLATE	320MMX320MMX16MM
FINISH	HOT DIP GALVANIZED

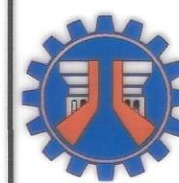




1
23 24 SCALE 1: 10m
DETAIL OF PEDESTAL



2
23 24 SCALE 1: 10m
DETAIL OF FOOTING



REPUBLIC OF THE PHILIPPINES
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REHABILITATION OF STA. CRUZ WATERWORKS SYSTEM,
STA. CRUZ, MARINDUQUE
STA. CRUZ, MARINDUQUE

SHEET CONTENTS :
SOLAR LIGHT
TYPICAL DRAWINGS

DRAFTED :
ARTHUR M. BARDELEZA
ENGINEERING ASSISTANT
PREPARED :
MARCEL P. MALITZA
ENGINEER II

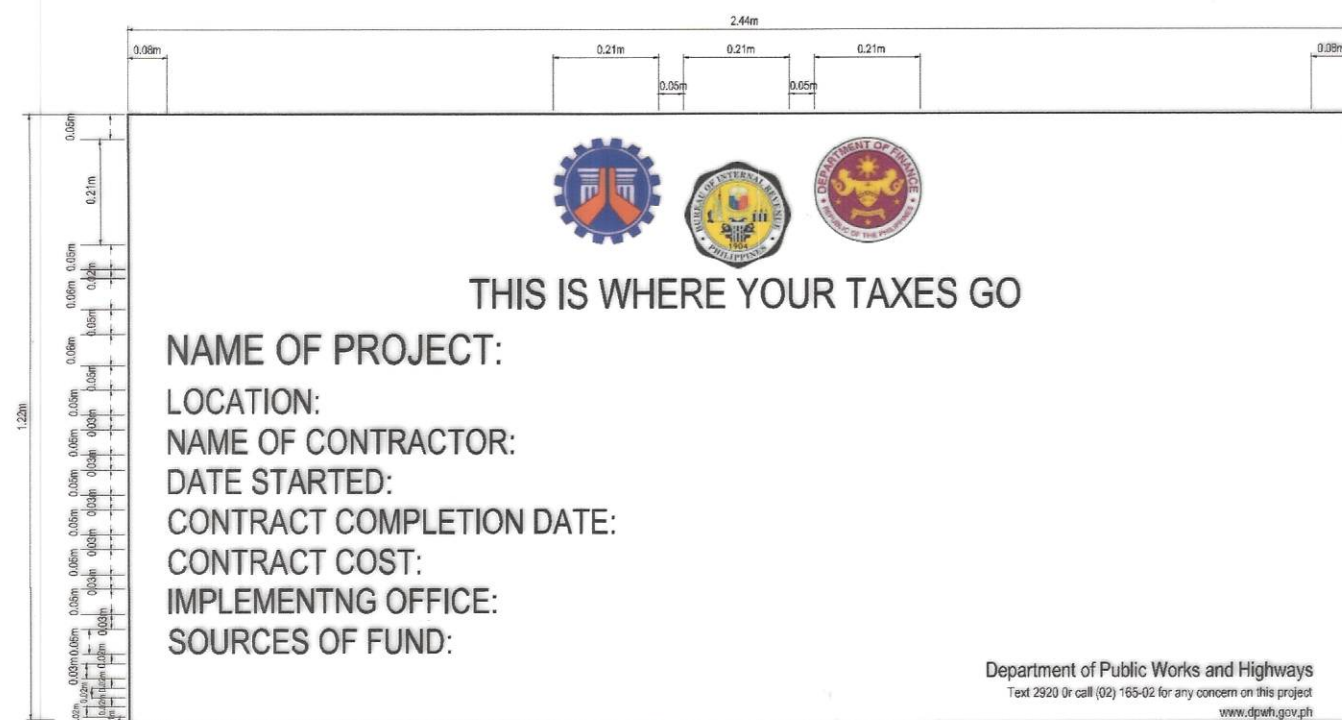
REVIEWED :
JERSON O. MONTERA
ENGINEER II
DATE :

SUBMITTED :
FERNAN S. DIAZ
CHIEF, PLANNING AND DESIGN SECTION
DATE :

RECOMMENDED :
VACANT
DATE :

APPROVED :
EVELYN R. PUERTOLLANO
DISTRICT ENGINEER
DATE :

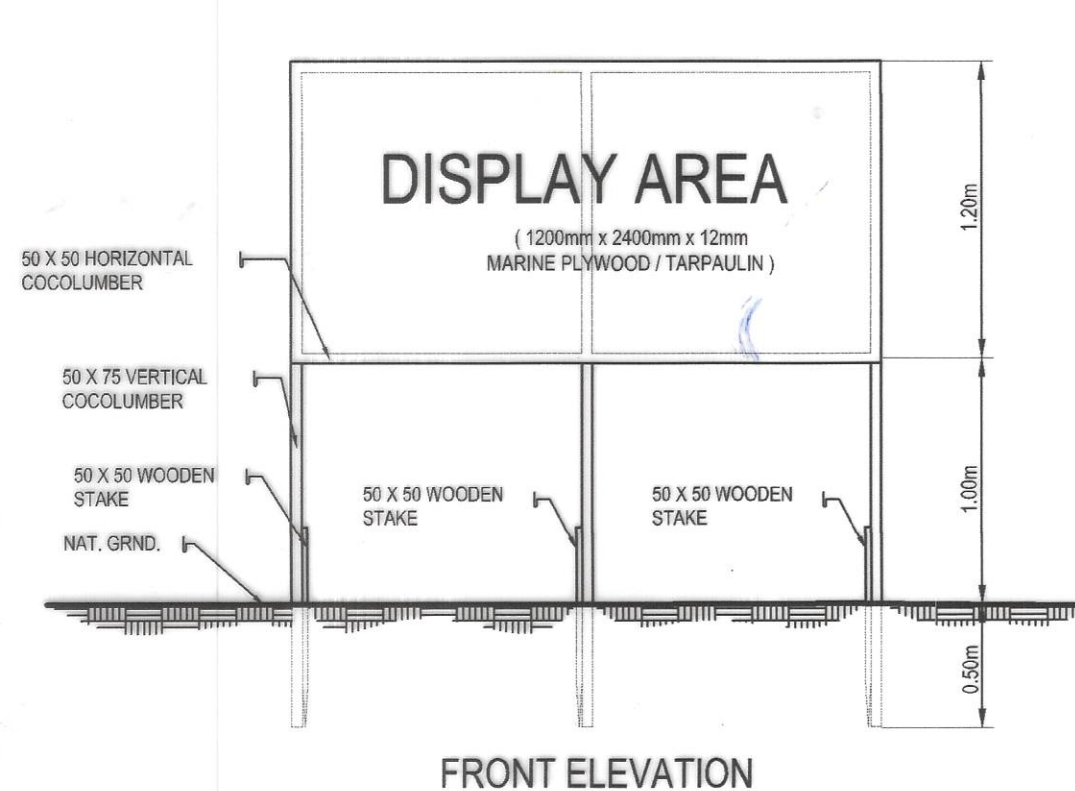
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23 24



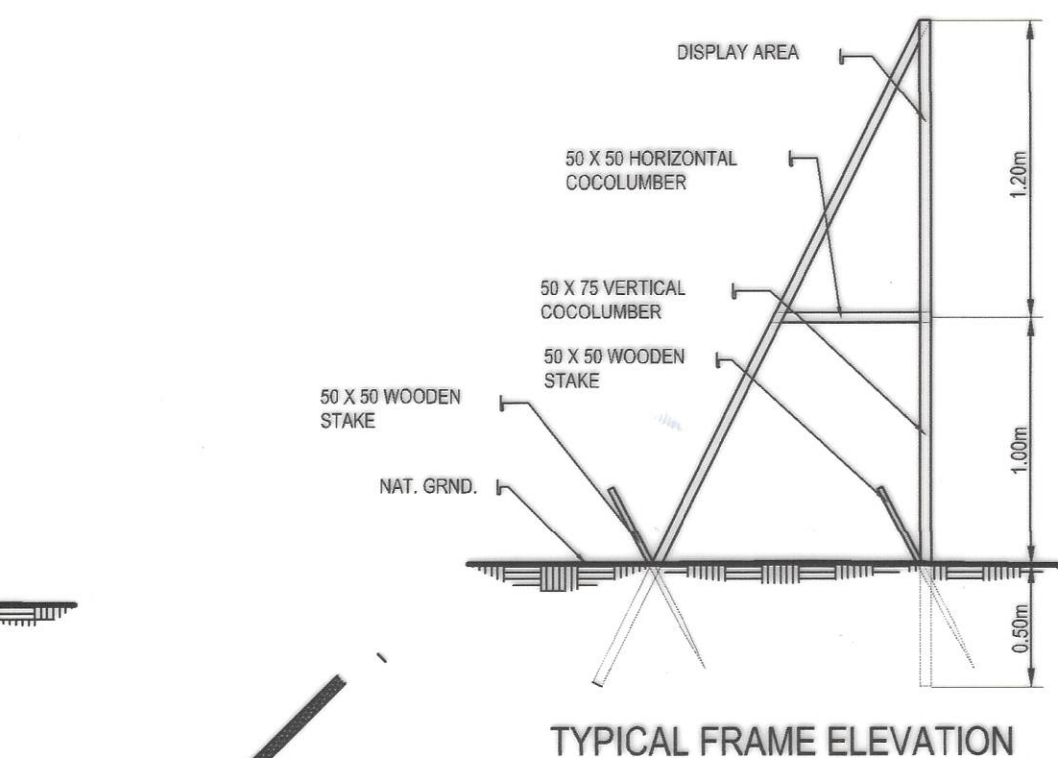
1 24 24 DETAIL OF BILLBOARD

NOTES :

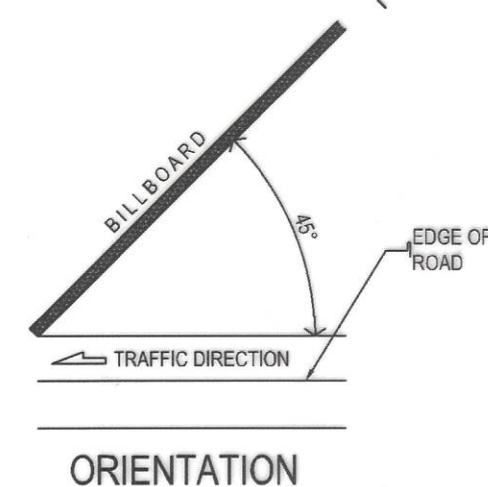
1. THE INSTALLATION OF THE REQUIRED STANDARD BILLBOARD SIZE (1200MM X 2400MM / 4 FT. X 8FT.) FOR ALL PROJECTS SHALL BE STRICTLY ENFORCED.
2. NO POLITICAL BILLBOARDS SHALL BE ALLOWED TO BE INSTALLED 100 METERS BEFORE AND 100 METERS AFTER ALL DPWH PROJECTS AND IN BETWEEN THE PROJECT LIMITS OR WITHIN THE ROAD RIGHT OF WAY.
3. DPWH CONTRACTORS SHALL NOT BE ALLOWED TO PLACE NAMES OF POLITICIANS ON THEIR EQUIPMENT OR CARRY POLITICAL BILLBOARD ON THEIR EQUIPMENT.



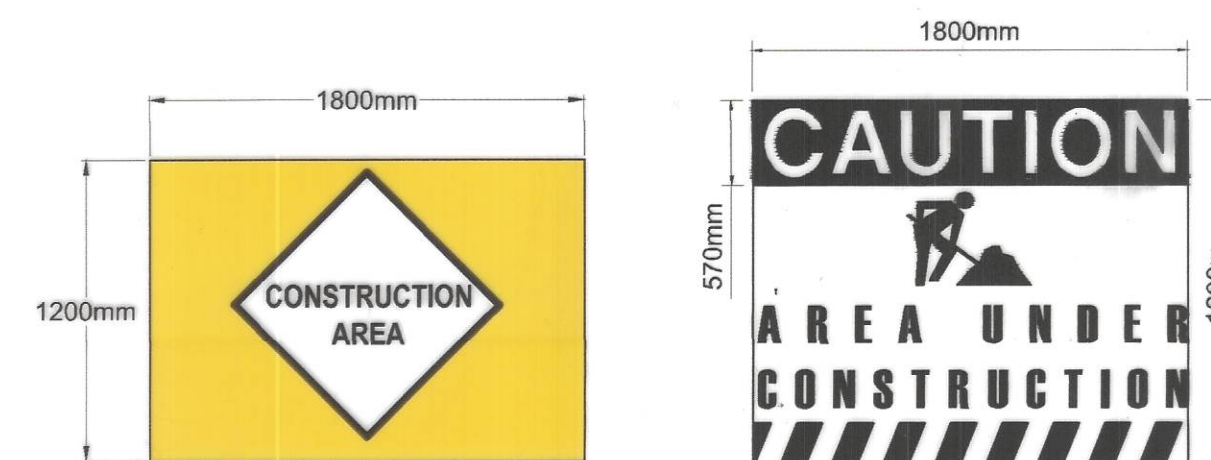
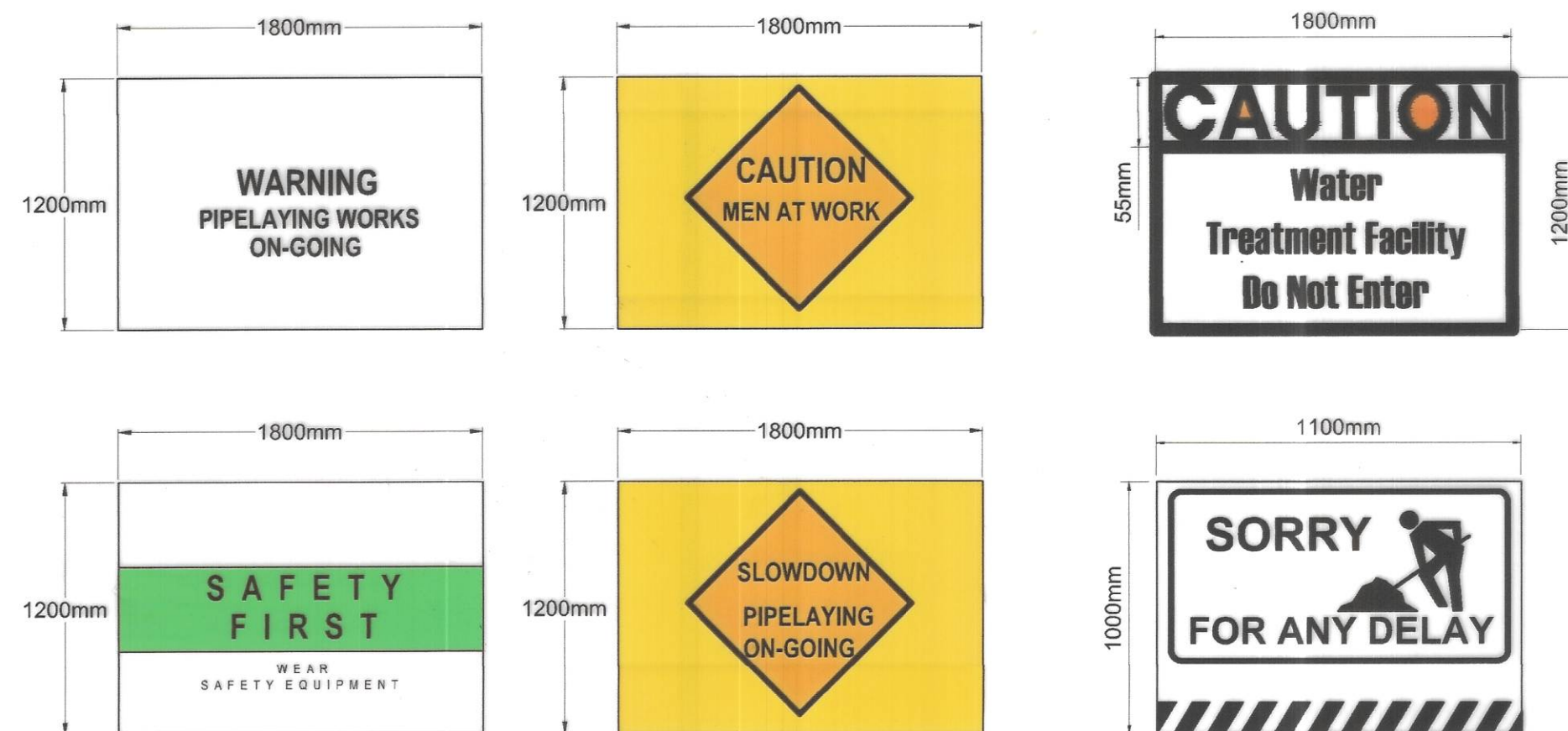
FRONT ELEVATION



TYPICAL FRAME ELEVATION

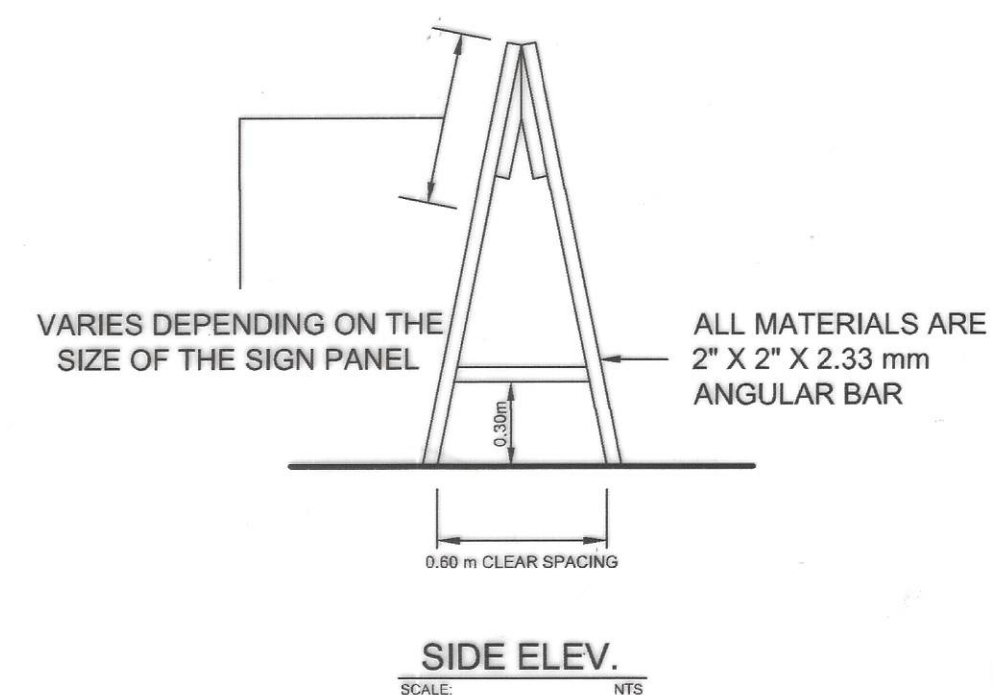


ORIENTATION

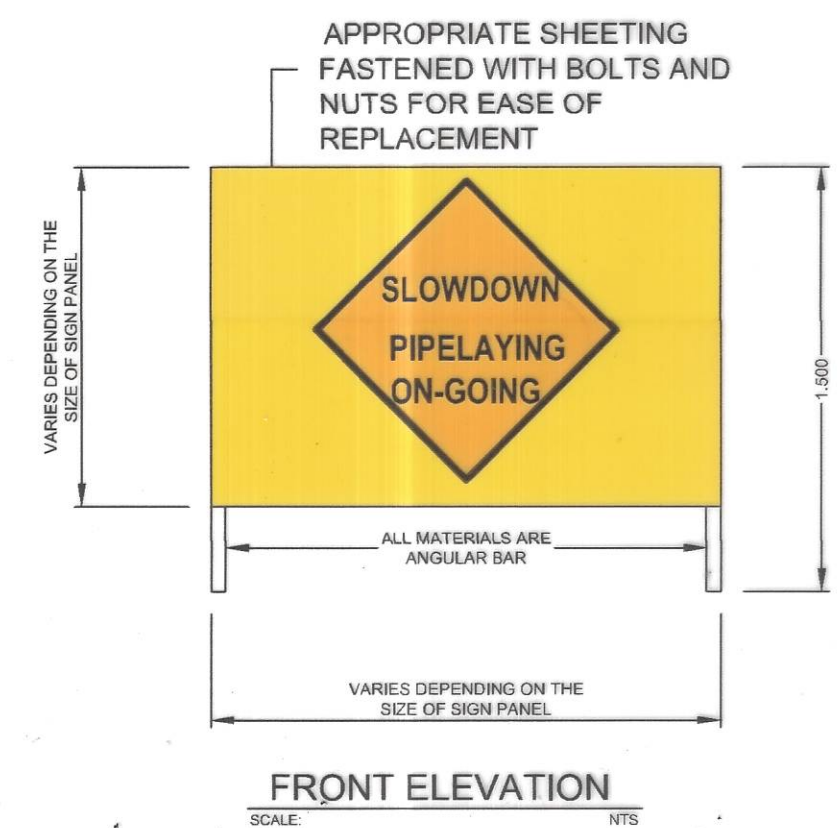


2 24 24 WATERWORKS CONSTRUCTION SIGNAGE

NOTE: SIGNS SHALL BE MADE FROM RETROFLECTIVE SIGN FACE MATERIAL AS PER DO 13 SERIES OF 2018



SIDE ELEV.
SCALE: NTS



FRONT ELEVATION
SCALE: NTS

SIGNAGE INSTALLATION DETAIL

SCALE: NTS

 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGION IV - B, MIMAROPA OFFICE OF THE DISTRICT ENGINEER BOAC, MARINDUQUE	PROJECT NAME AND LOCATION : REHABILITATION OF STA. CRUZ WATERWORKS SYSTEM, STA. CRUZ, MARINDUQUE	SHEET CONTENTS : TYPICAL DRAWINGS	DRAFTED : ARTHUR M. JARDELEZA ENGINEERING ASSISTANT PREPARED : MICHAEL P. MALTAO ENGINEER II	REVIEWED : JERSON O. MONTERA ENGINEER II DATE : _____	SUBMITTED : FERNAN S. DIAZ CHIEF, PLANNING AND DESIGN SECTION DATE : _____	RECOMMENDED : _____ DATE : _____	APPROVED : EVELYN R. PUERTOLLANO DISTRICT ENGINEER DATE : _____	SET NO. : 24 SHEET NO. : 24
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