

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
CONSTRUCTION OF WATER SUPPLY SYSTEM,
BARANGAY CAGANHAO, BOAC, MARINDUQUE

BOAC, MARINDUQUE

SUBMITTED:


FERNAN S. DIAZ
CHIEF, PLANNING AND DESIGN SECTION


DATE:

RECOMMENDED:


ARISTEO L. LINGA
ASSISTANT DISTRICT ENGINEER

DATE:

APPROVED:


EVELYN R. PUERTOLLANO
DISTRICT ENGINEER

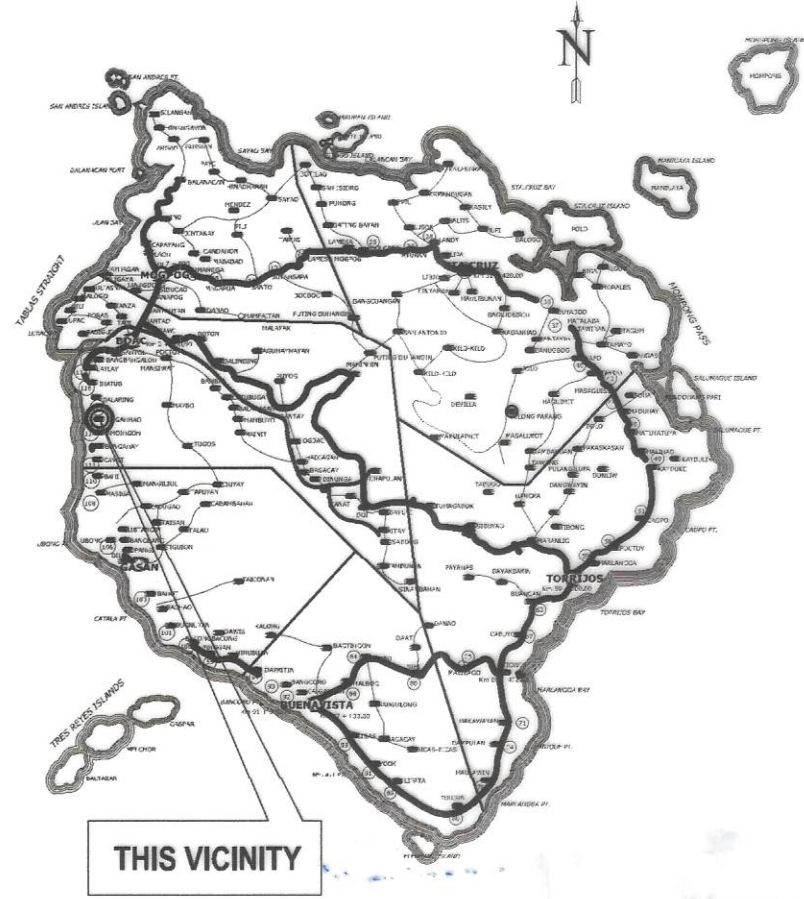
DATE:

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	LOCATION PLAN	3
	TYPICAL DRAWINGS	4 - 12








SUMMARY OF QUANTITIES				
ITEM NO.	DESCRIPTION	ORIGINAL QUANTITY	UNIT	REMARKS
PART A:	FACILITIES FOR THE ENGINEER			
A.1.1(8)	PROVISION OF FIELD OFFICE FOR THE ENGINEER (RENTAL BASIS)	3.17	mos.	
A.1.2(4)	PROVISION OF FIELD 4x2 PICK UP TYPE SERVICE VEHICLE FOR THE ENGINEER ON BARE RENTAL BASIS	3.17	mos.	
PART B:	OTHER GENERAL REQUIREMENTS			
B.4(10)	MISCELLANEOUS SURVEY AND STAKING	1.00	LS	Staked Plan To be submitted by the contractor
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.9	MOBILIZATION / DEMOBILIZATION	1.00	LS	
PART C:	EARTHWORKS			
803(1)a	STRUCTURE EXCAVATION (COMMON SOIL)	16.60	m³	For Foundation and Pipelines
804(4)	GRAVEL FILL	2.16	m³	For Concrete Foundation
PART D:	PLAIN AND REINFORCED CONCRETE WORKS			
900(1)c2	STRUCTURAL CONCRETE FOR FOOTING AND SLAB (CLASS A, 28 DAYS)	34.60	m³	For Elevated Water Tank & Pump Motor House
902(1)a	REINFORCING STEEL (DEFORMED), GRADE 40	3,044.61	kgs	For Pump Motor House
903(2)	FORMWORKS AND FALSEWORKS	123.08	m²	For Water Tank
PART E:	FINISHING WORKS			
1027(1)	CEMENT PLASTER FINISH	160.20	m²	For Elevated Water Tank & Pump Motor House
1046(2)a1	100MM CHB NON-LOAD BEARING (INCLUDING REINFORCING STEEL)	21.60	m²	For Elevated Water Tank & Pump Motor House
1032(1)a	PAINTING WORKS (MASONRY CONCRETE)	140.05	m²	For Elevated Water Tank & Pump Motor House
1032(1)c	PAINTING WORKS (STEEL)	18.80	m²	For Elevated Water Tank & Pump Motor House
1018(1)	GLAZED TILES AND TRIMS	45.00	m²	For Elevated Water Tank & Pump Motor House
1047(1)	STRUCTURAL STEEL	1.00	LS	For Elevated Water Tank & Pump Motor House
PART F:	PLUMBING WORKS			
1201(1)	WATER PUMPING SYSTEM	1.00	LS	For Pipe Drilling & Pump Motor House
1001(10)	PIPES WITH FITTINGS CONNECTION	1.00	LS	
1602(5)	POLYETHYLENE PLASTIC PIPE (HDPE)	1.00	LS	For Distribution Line
1603(1)	VALVE	1.00	LS	
1002(27)	PLUMBING WORKS	1.00	LS	
PART G:	ELECTRICAL WORKS			
1100(10)	CONDUIT, BOXES, AND FITTINGS (CONDUIT WORKS/CONDUIT ROUGH-IN)	1.00	LS	For Pump Motor House
1101(33)	WIRES AND WIRING DEVICES	1.00	LS	For Pump Motor House
1102(1)	PANEL BOARD WITH MAIN & BRANCHES BREAKERS	1.00	LS	For Pump Motor House
1103(1)	LIGHTING FIXTURES AND LAMPS	1.00	LS	For Pump Motor House

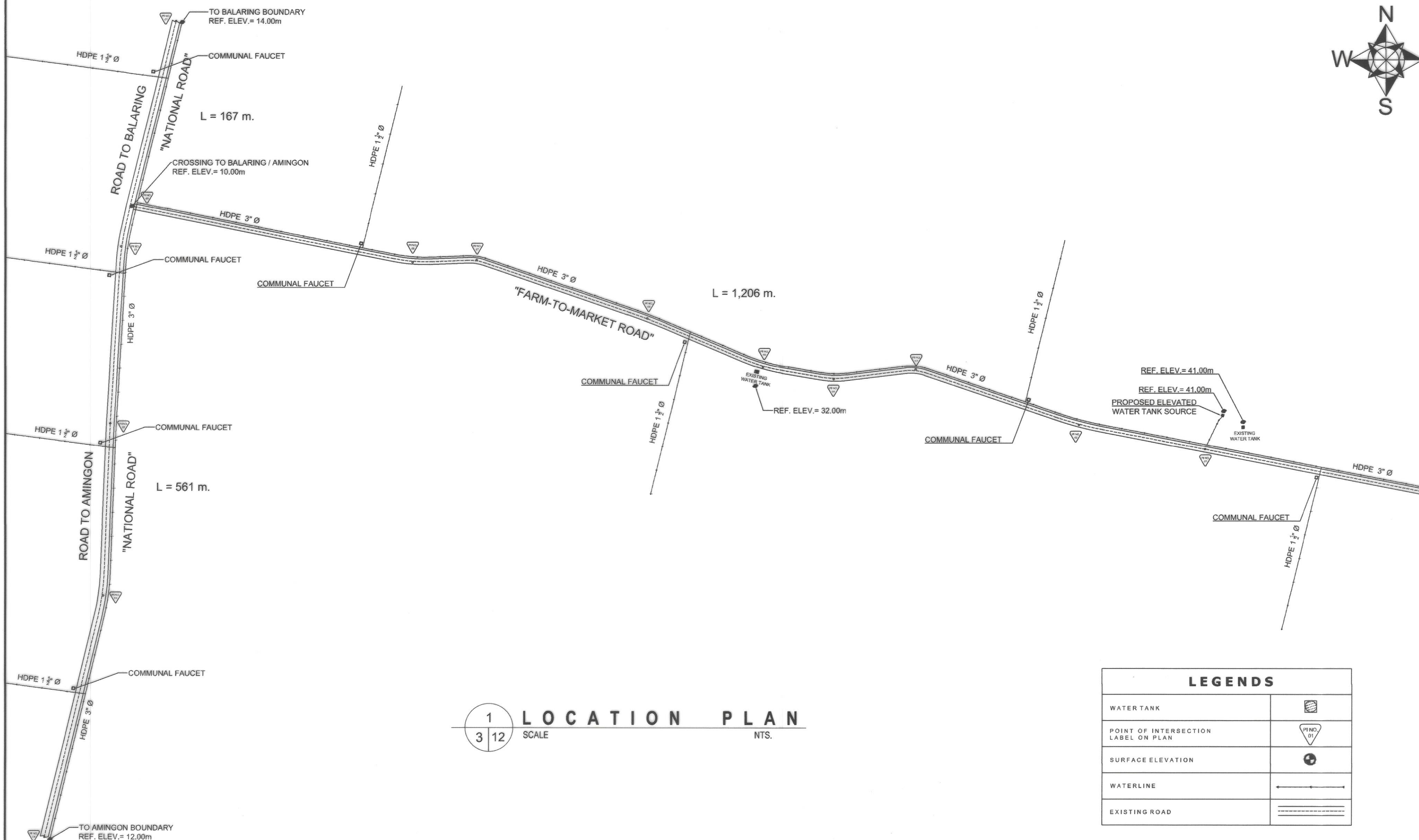
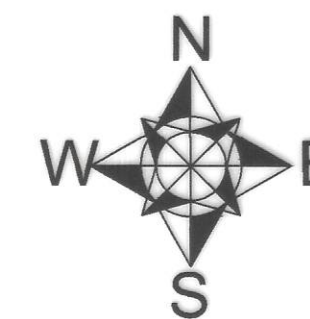


KEY MAP



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.
	CONSTRUCTION OF WATER SUPPLY SYSTEM, BARANGAY CAGANHAO, BOAC, MARINDUQUE BOAC, MARINDUQUE	INDEX OF SHEETS SUMMARY OF QUANTITIES KEY MAP LOCATION MAP	ARTURIO L. JARDELEZA ENGINEERING ASSISTANT PREPARED :  JERSON O. MONTERA ENGINEER II	 JERSON O. MONTERA ENGINEER II DATE :	 FERNAN S. DIAZ CHIEF, PLANNING AND DESIGN SECTION DATE :	 ARISTEO L. LINGA ASSISTANT DISTRICT ENGINEER DATE :	 EVELYN R. RUERTOLLANO DISTRICT ENGINEER DATE :	 DPWH REGION IV-B C1 - 2023 MQ	2 12



1 LOCATION PLAN
3 12 SCALE NTS.

LEGENDS	
WATER TANK	
POINT OF INTERSECTION LABEL ON PLAN	
SURFACE ELEVATION	
WATERLINE	
EXISTING ROAD	



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PROJECT NAME AND LOCATION :
CONSTRUCTION OF WATER SUPPLY SYSTEM,
BARANGAY CAGANHAO, BOAC, MARINDUQUE
BOAC, MARINDUQUE

SHEET CONTENTS :
LOCATION PLAN

DRAFTED :
ARTSUE M. JARDELEZA
ENGINEERING ASSISTANT
PREPARED :
MICHAEL C. CASAYAN
ENGINEER II

REVIEWED :
JERSON O. MONTERA
ENGINEER II
DATE :

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

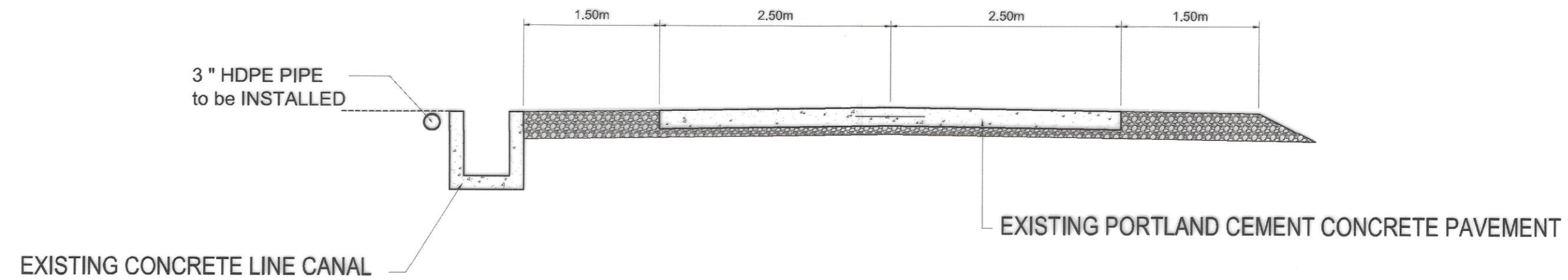
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ASSISTANT DISTRICT ENGINEER
DATE :

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EVELYN R. PUERTOLLANO
DISTRICT ENGINEER
DATE :

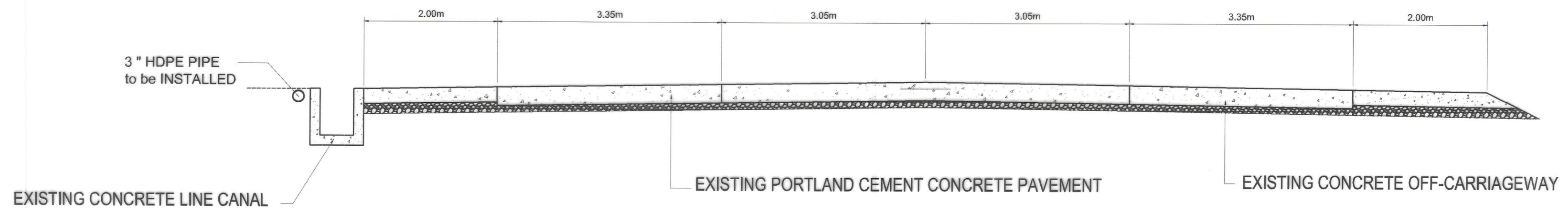
SET NO.
CY-2003
MQ

SHEET NO.
3
12

TYPICAL ROADWAY SECTION



1 SECTION THRU FARM TO MARKET ROAD
4 12 SCALE 1: 50m



2 SECTION THRU NATIONAL ROAD
4 12 SCALE 1: 50m



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PROJECT NAME AND LOCATION :

CONSTRUCTION OF WATER SUPPLY SYSTEM,
BARANGAY CAGANHAO, BOAC, MARINDUQUE
BOAC, MARINDUQUE

SHEET CONTENTS :

TYPICAL DRAWINGS

DRAFTED :

ARTHURINE MANDELEZA
ENGINEERING ASSISTANT

PREPARED :

INVESTIGATOR
ENGINEER II

REVIEWED :

JERSON O. MONTERA
ENGINEER II

DATE :

SUBMITTED :

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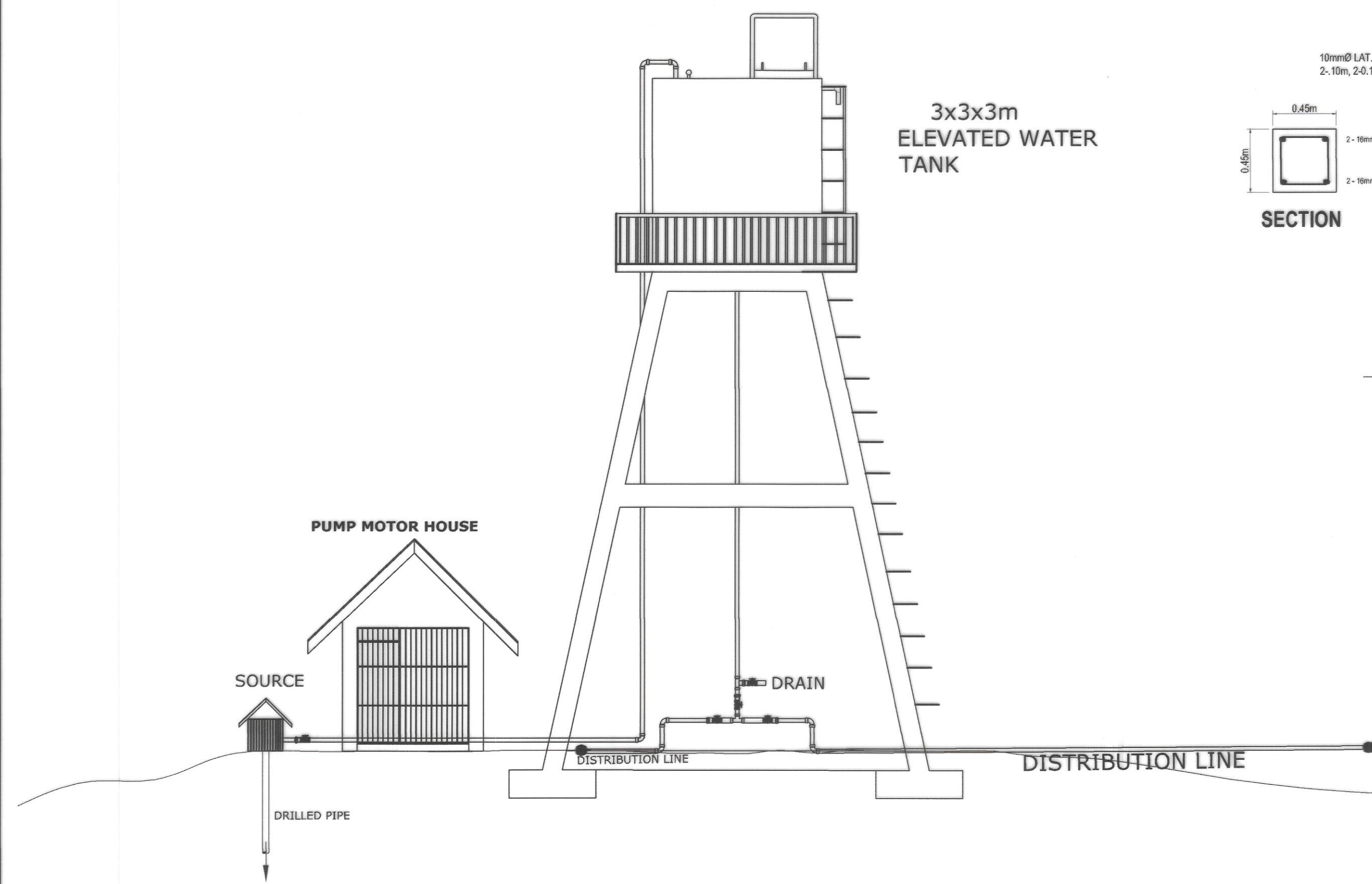
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SET NO.

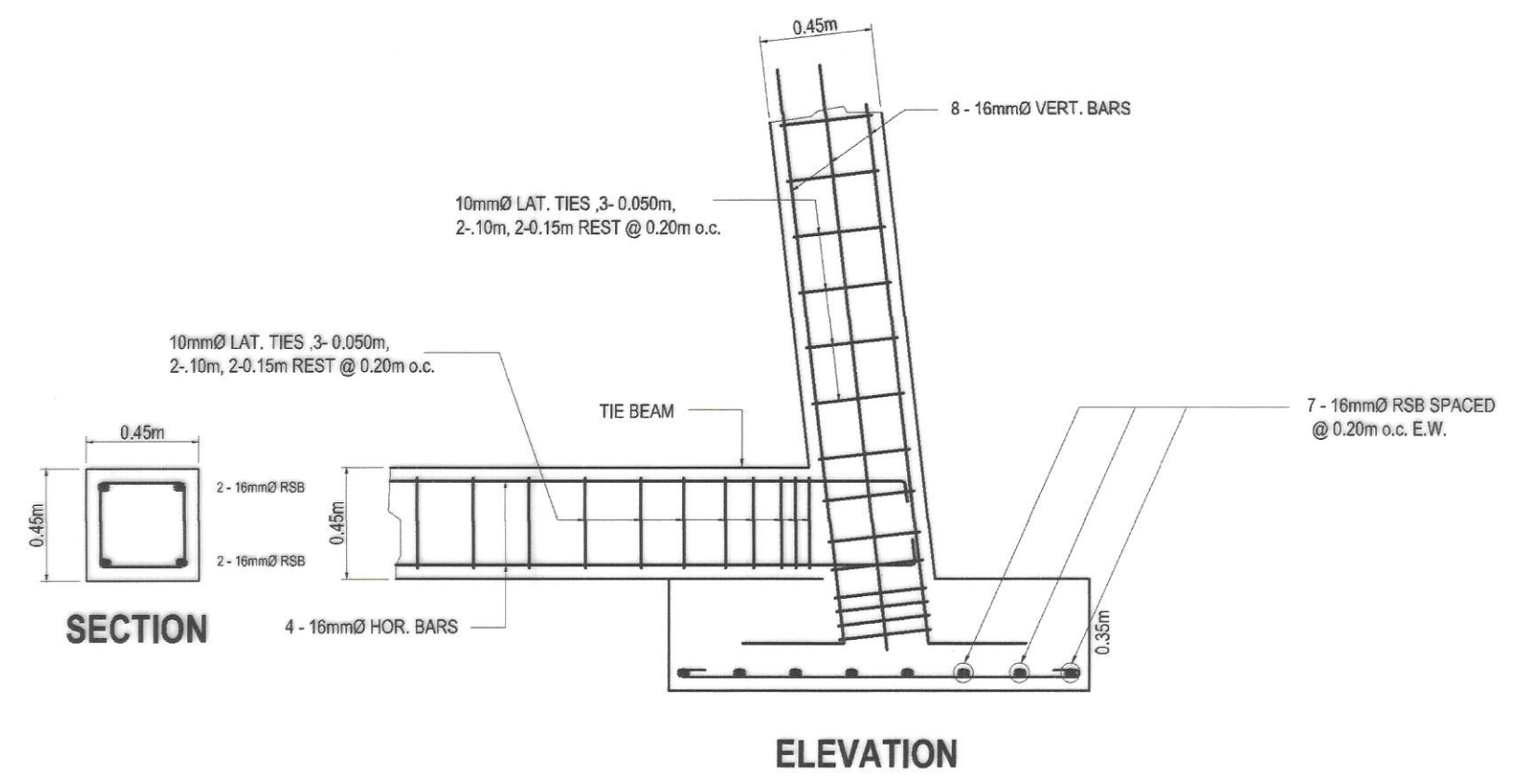
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DPWH
REGION IV-B
01-2003
MQ

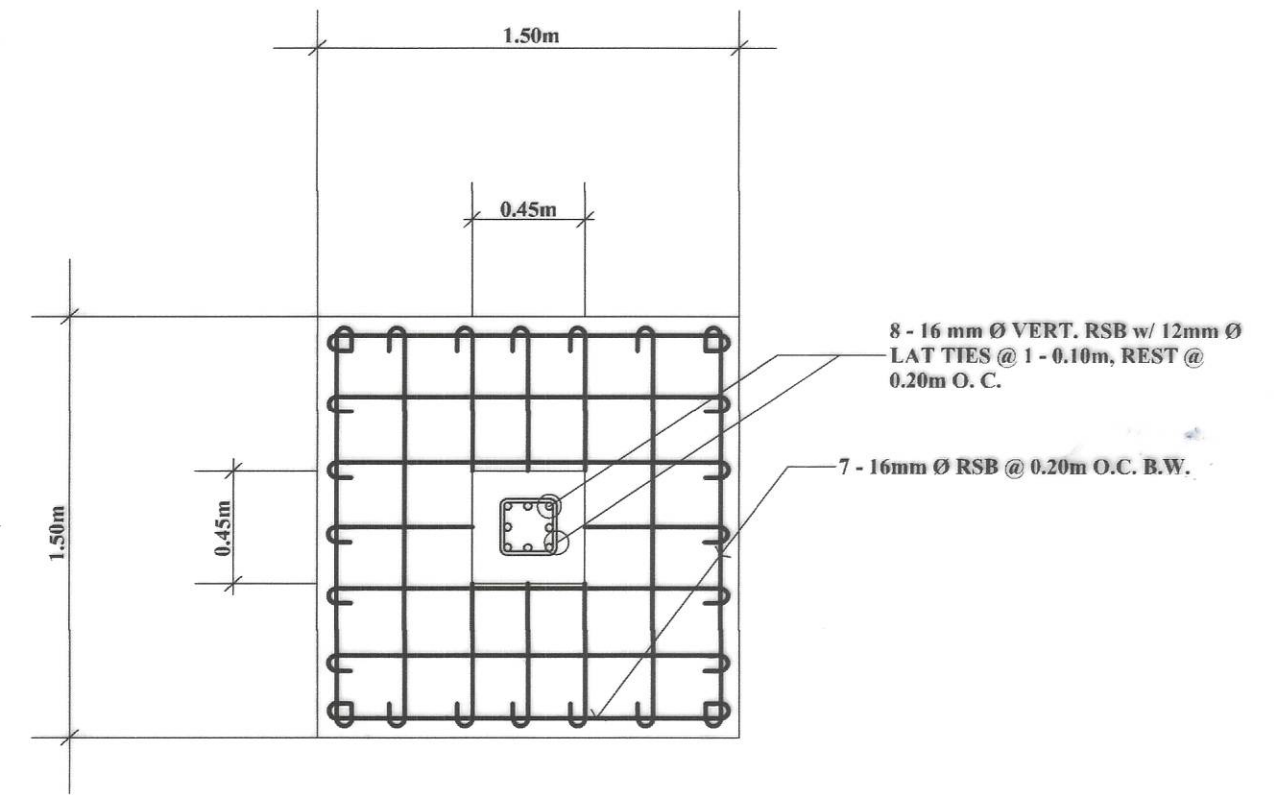
4
12




1
5 12
SCALE
P L A N
NTS

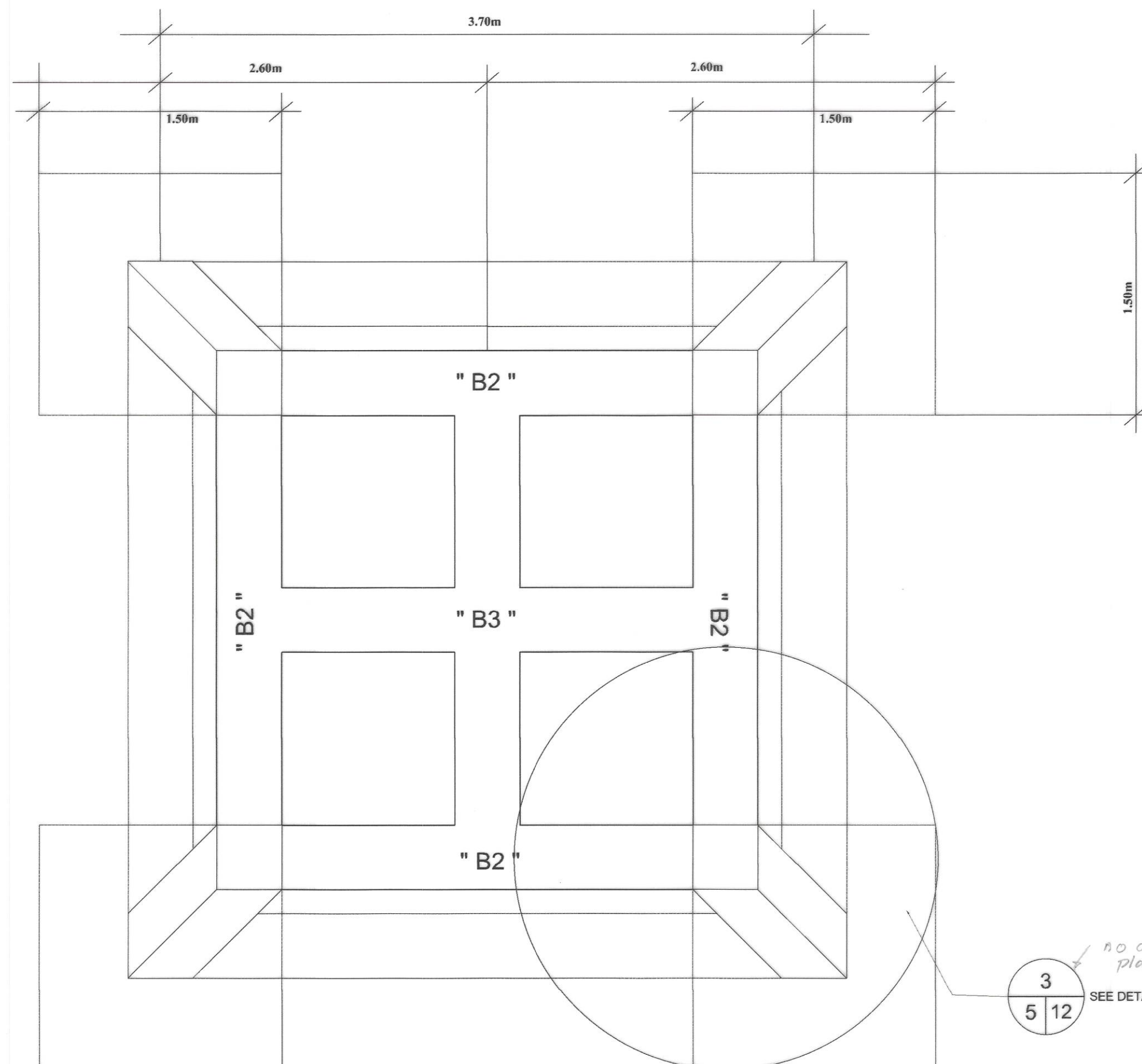


3
5 12
SCALE
COLUMN FOOTING & TIE BEAM DETAILS
1:20m

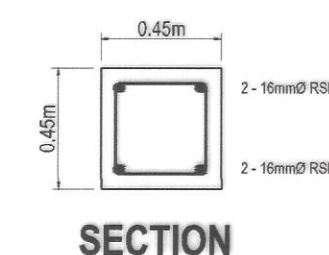
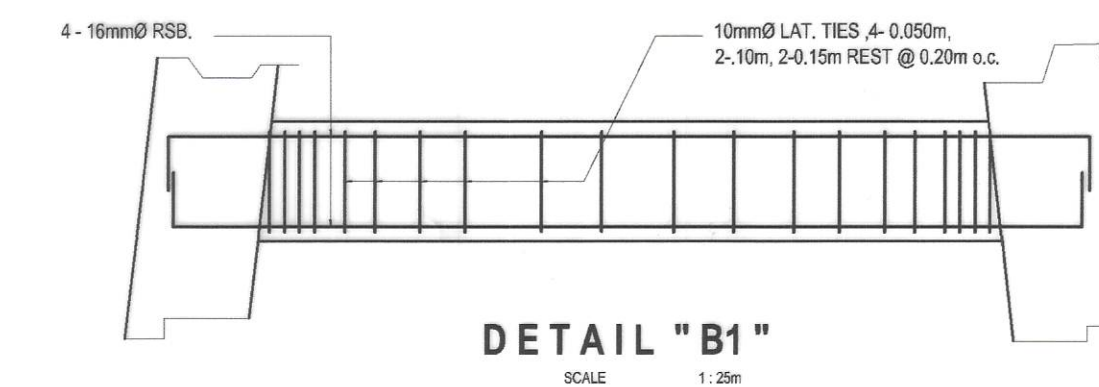
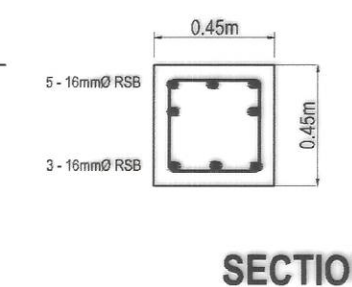
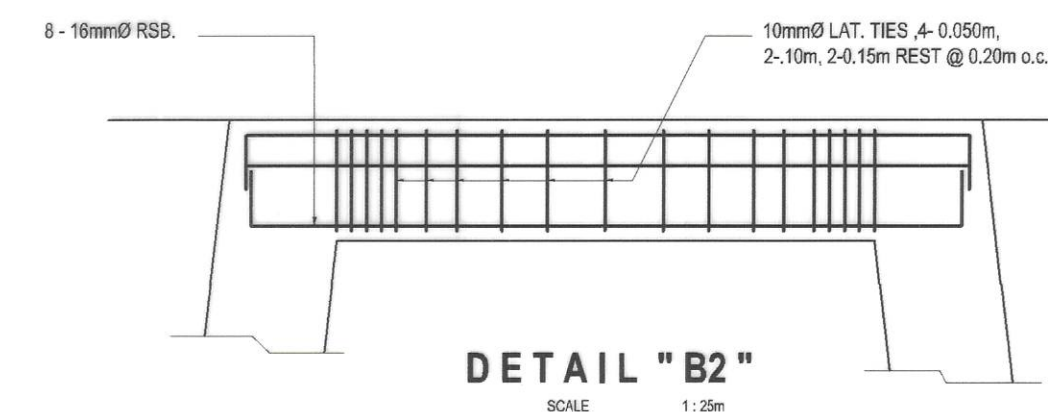
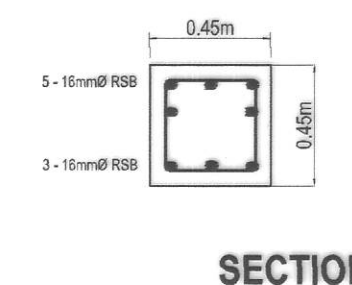
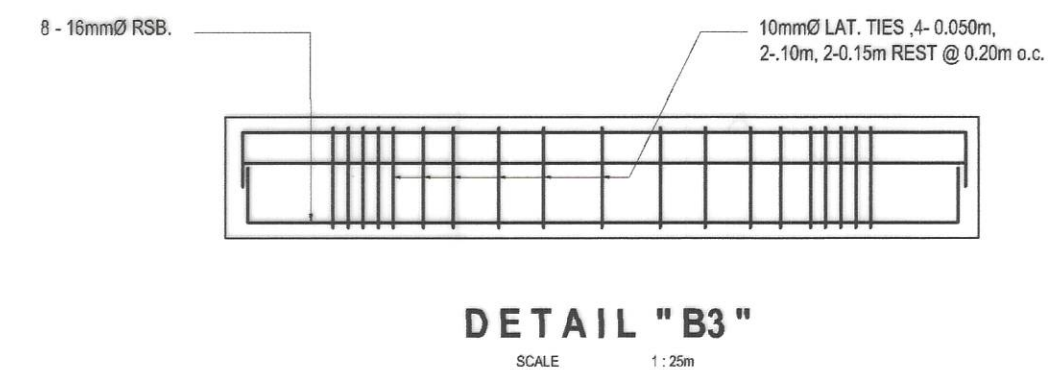


2
5 12
SCALE
FOOTING DETAIL
1:20m

 <p>REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGION IV - B, MIMAROPA OFFICE OF THE DISTRICT ENGINEER BOAC, MARINDUQUE</p>	<p>PROJECT NAME AND LOCATION :</p> <p>CONSTRUCTION OF WATER SUPPLY SYSTEM, BARANGAY CAGANHAO, BOAC, MARINDUQUE</p>	<p>SHEET CONTENTS :</p> <p>ELEVATED WATER TANK TYPICAL DRAWINGS</p>	<p>DRAFTED :</p> <p>ARTURO M. YARDELEZA ENGINEERING ASSISTANT</p> <p>PREPARED :</p> <p>MICHAEL R. MALIBRO ENGINEER II</p>	<p>REVIEWED :</p> <p>JERSON O. MONTERA ENGINEER II</p> <p>DATE :</p>	<p>SUBMITTED :</p> <p>FERNAN S. DIAZ CHIEF, PLANNING AND DESIGN SECTION</p> <p>DATE :</p>	<p>RECOMMENDED :</p> <p>ARISTEO L. LINGA ASSISTANT DISTRICT ENGINEER</p> <p>DATE :</p>	<p>APPROVED :</p> <p>EVELYN R. PUERTOLLANO DISTRICT ENGINEER</p> <p>DATE :</p>	<p>SET NO.</p> <p>5</p>	<p>SHEET NO.</p> <p>12</p>
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1 FOUNDATION PLAN
7 12 SCALE 1:20m



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PROJECT NAME AND LOCATION :
CONSTRUCTION OF WATER SUPPLY SYSTEM,
BARANGAY CAGANHAO, BOAC, MARINDUQUE
BOAC, MARINDUQUE

SHEET CONTENTS :
ELEVATED WATER TANK
TYPICAL DRAWINGS

DRAFTED :
ARTHUR M. PANDOLEZA
ENGINEERING ASSISTANT
PREPARED :
MICHAEL P. MALITAO
ENGINEER II

REVIEWED :
JERSON O. MONTERA
ENGINEER II
DATE :

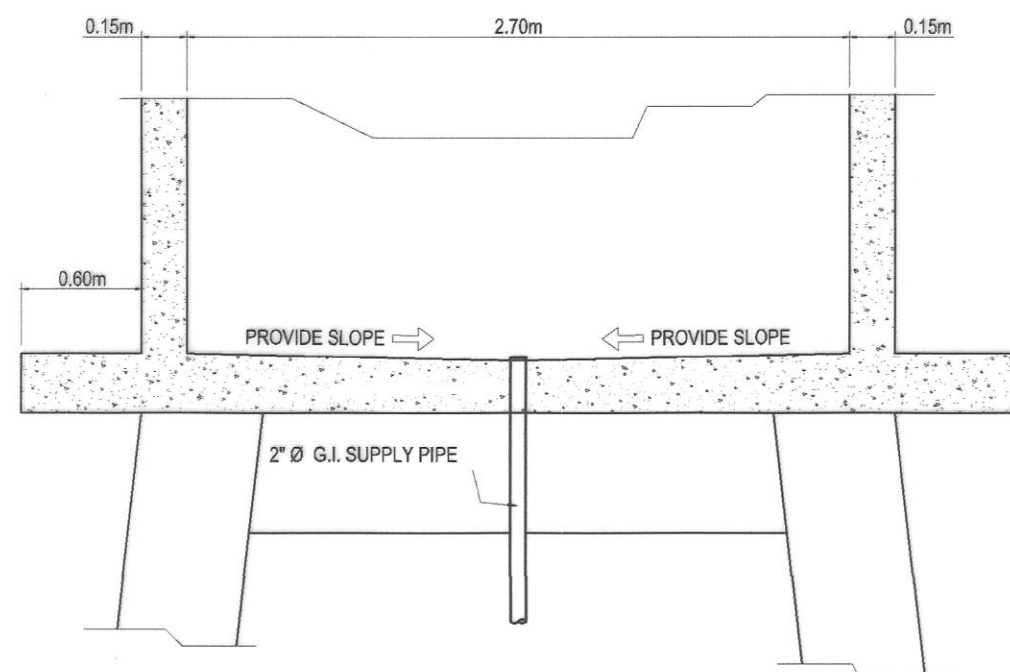
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FERNAN S. DIAZ
CHIEF, PLANNING AND DESIGN SECTION
DATE :

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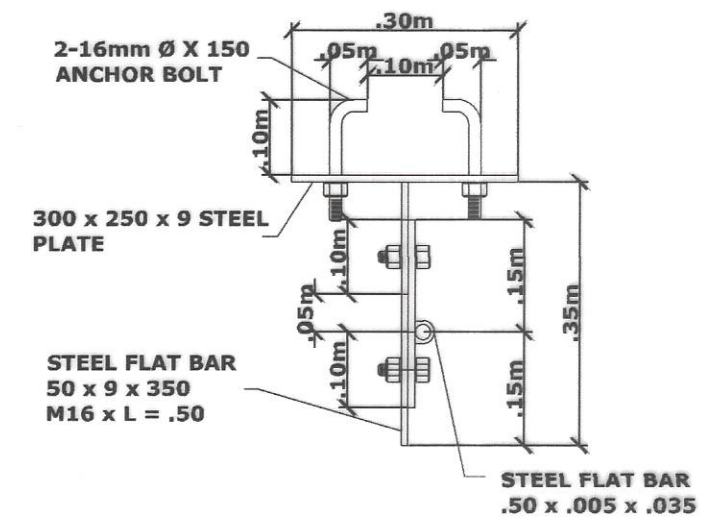




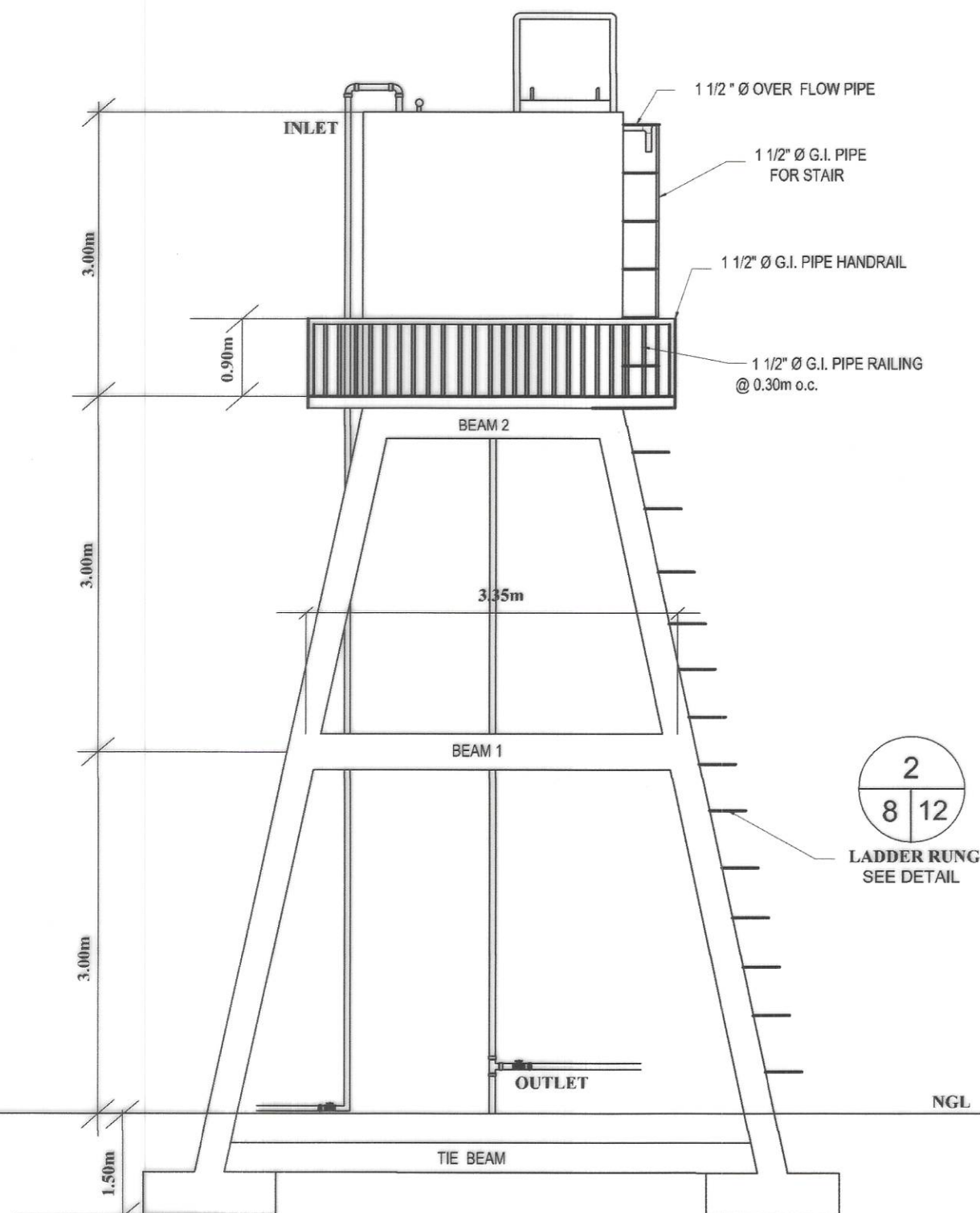
DETAIL "A" (X-SECTION OF TANK)



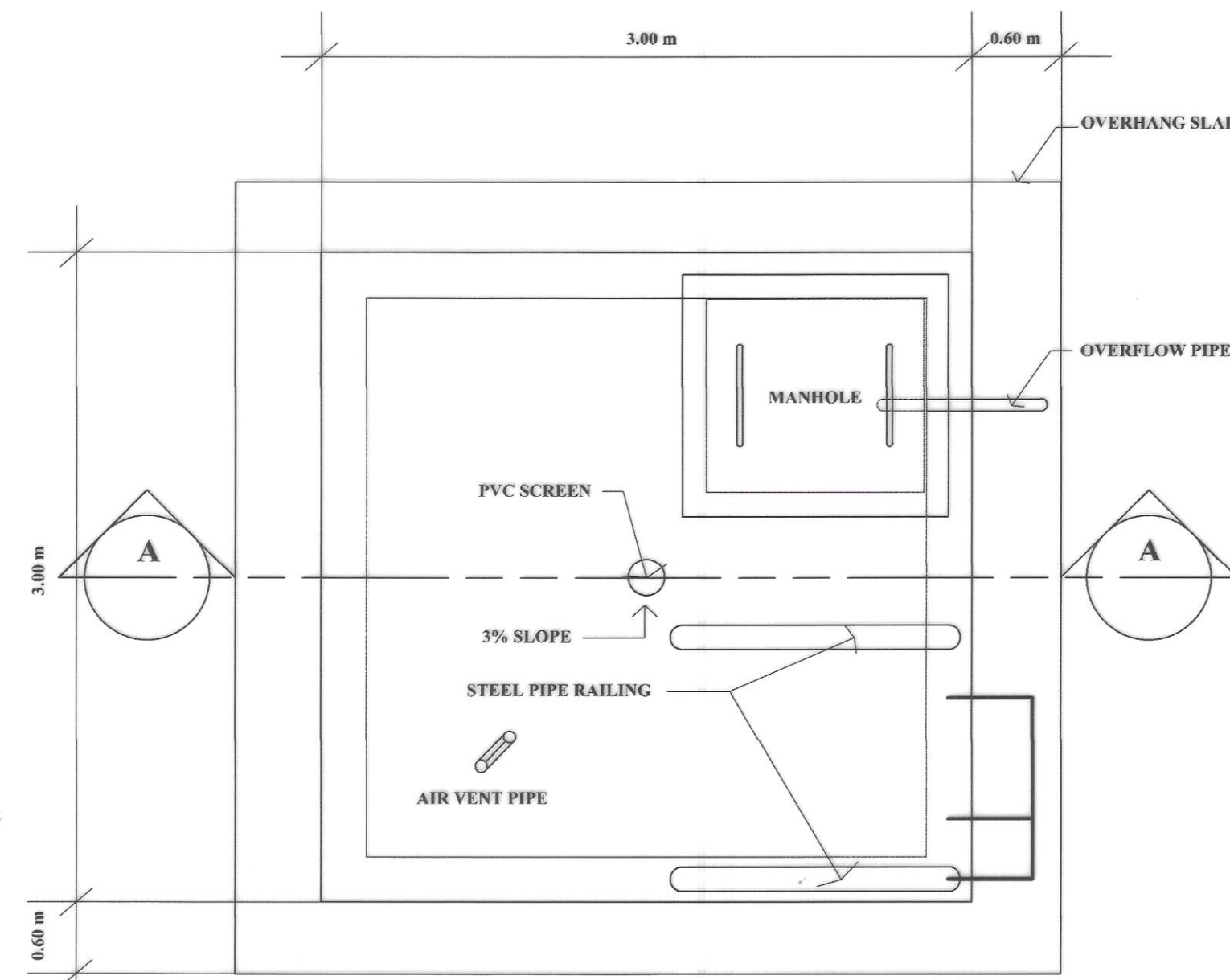
AIR VENT DETAIL



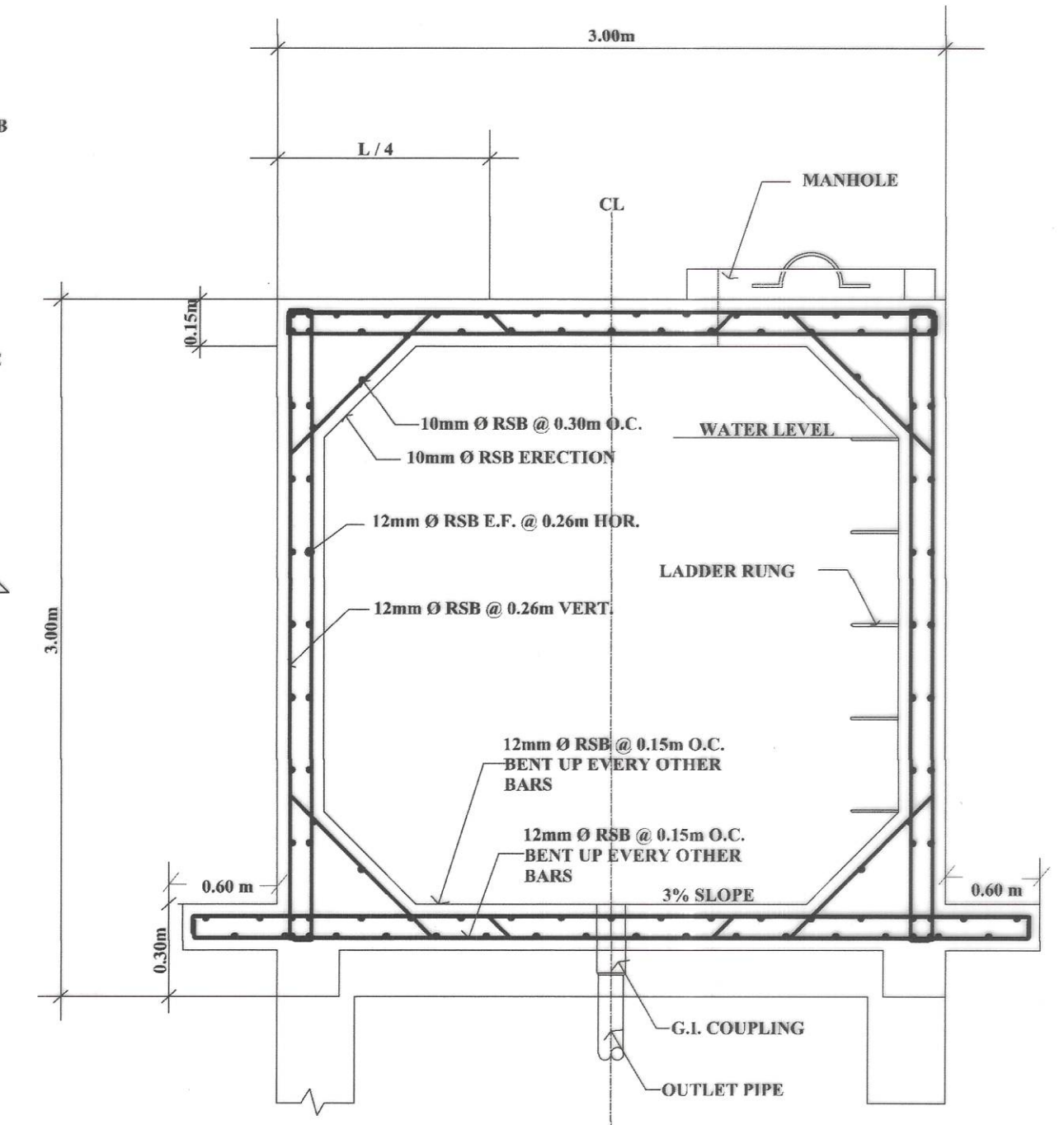
DETAIL OF PIPE HOLDER



ELEVATION



PLAN



SECTION A-A



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CONSTRUCTION OF WATER SUPPLY SYSTEM,
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SHEET CONTENTS :
ELEVATED WATER TANK
TYPICAL DRAWINGS

DRAFTED :
ARTHUR M. JARDELEZA
ENGINEERING ASSISTANT
PREPARED :
MICHAEL P. MATHIAS
ENGINEER II

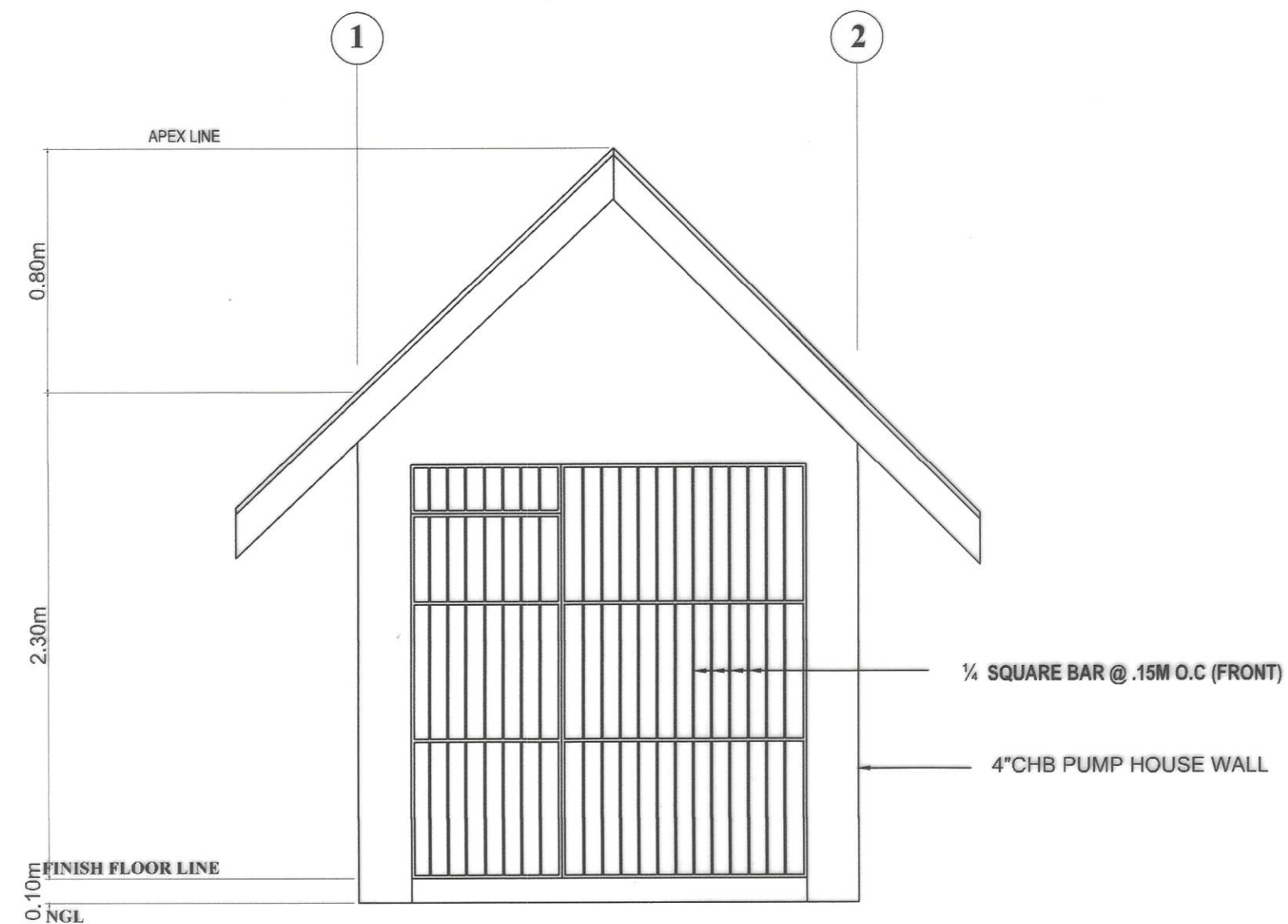
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ENGINEER II
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CHIEF, PLANNING AND DESIGN SECTION
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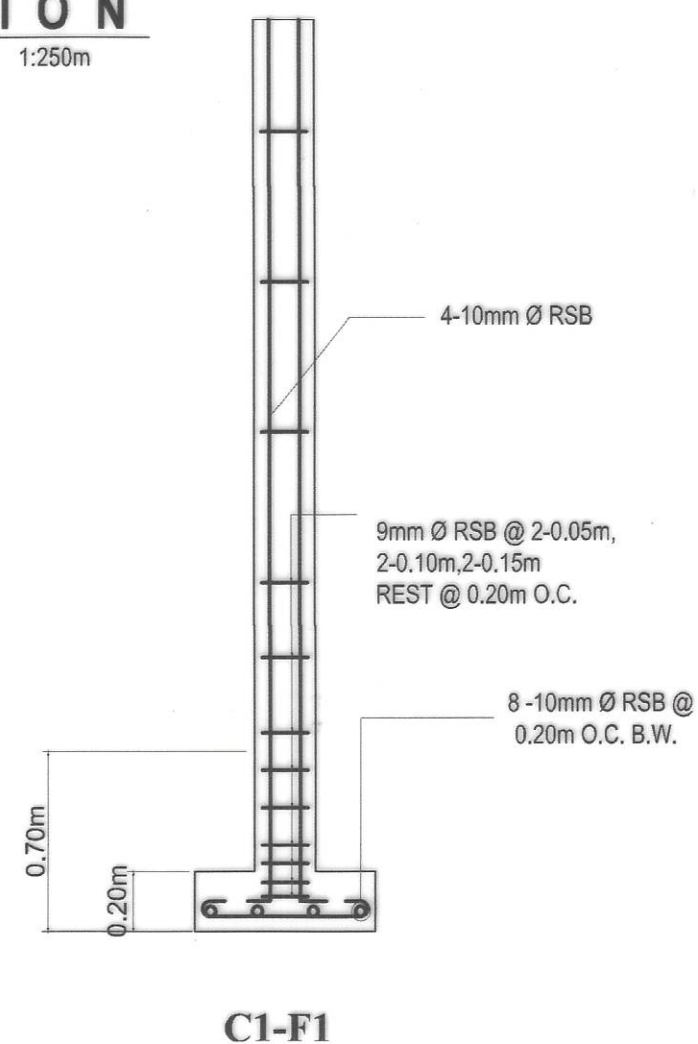
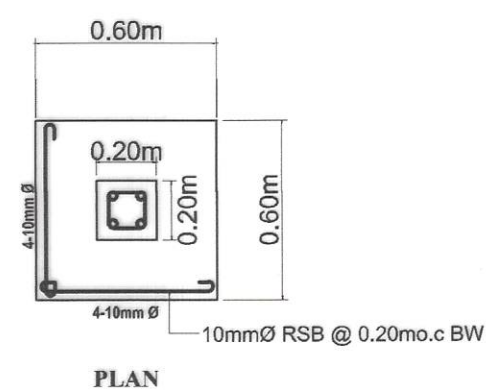
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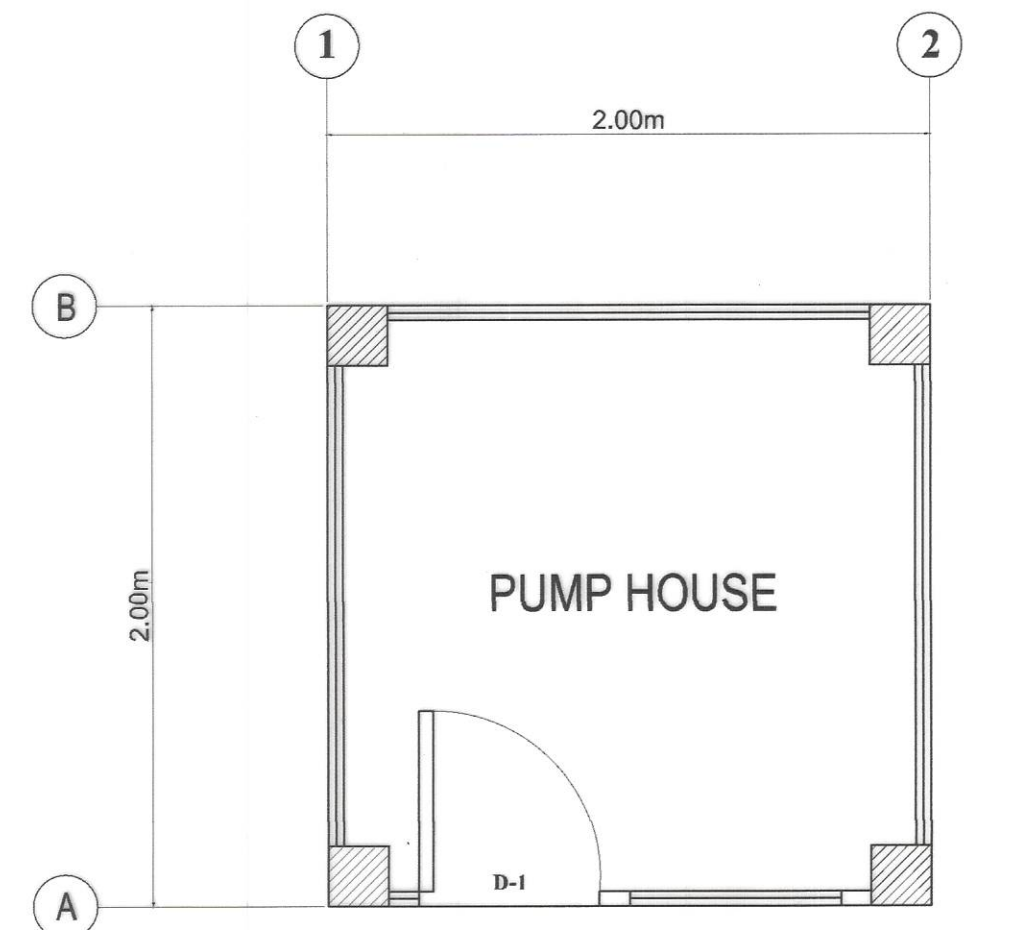
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SHEET NO. :
6
12



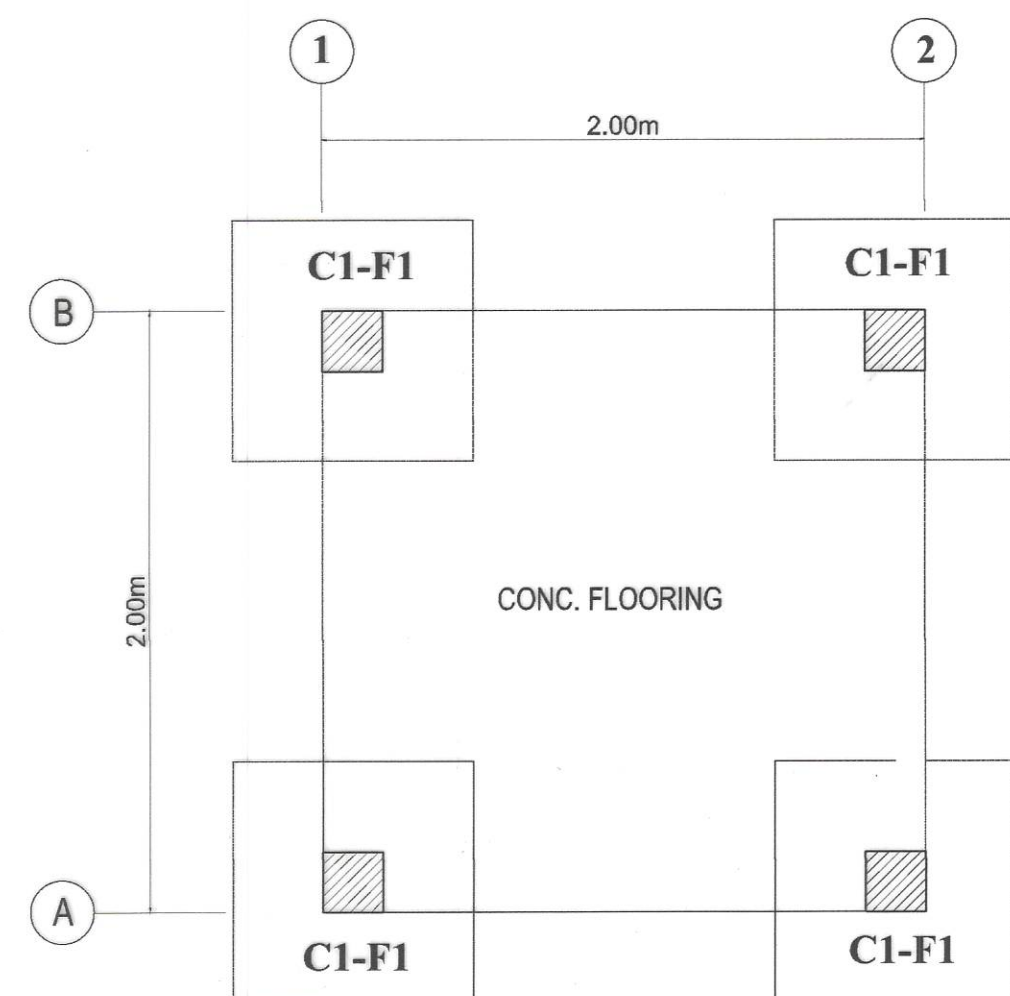
1
9 12 SCALE 1:250m
FRONT ELEVATION



3
9 12 SCALE 1:20m
DETAIL OF C1-F1



2
9 12 SCALE 1:250m
FLOOR PLAN



4
9 12 SCALE 1:250m
FOUNDATION PLAN



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BOAC, MARINDUQUE

PROJECT NAME AND LOCATION :
**CONSTRUCTION OF WATER SUPPLY SYSTEM,
BARANGAY CAGANHAO, BOAC, MARINDUQUE**

SHEET CONTENTS :
**PUMP HOUSE
TYPICAL DRAWINGS**

DRAFTED :
ARBALEON J. ARCELEZA
ENGINEERING ASSISTANT
PREPARED :
MICHAEL R. MALABAD
ENGINEER II

REVIEWED :
JERSON O. MONTERA
ENGINEER II
DATE :

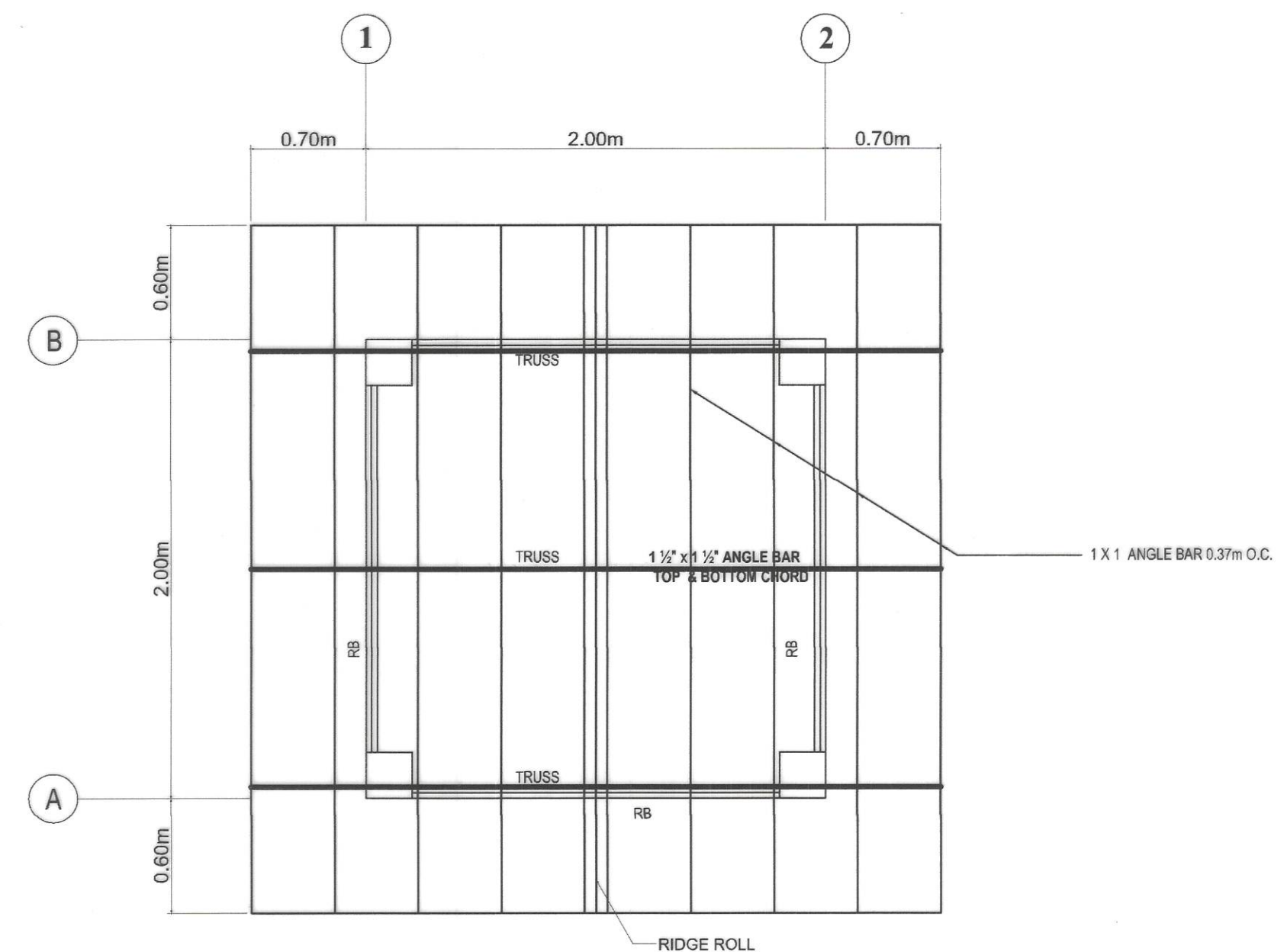
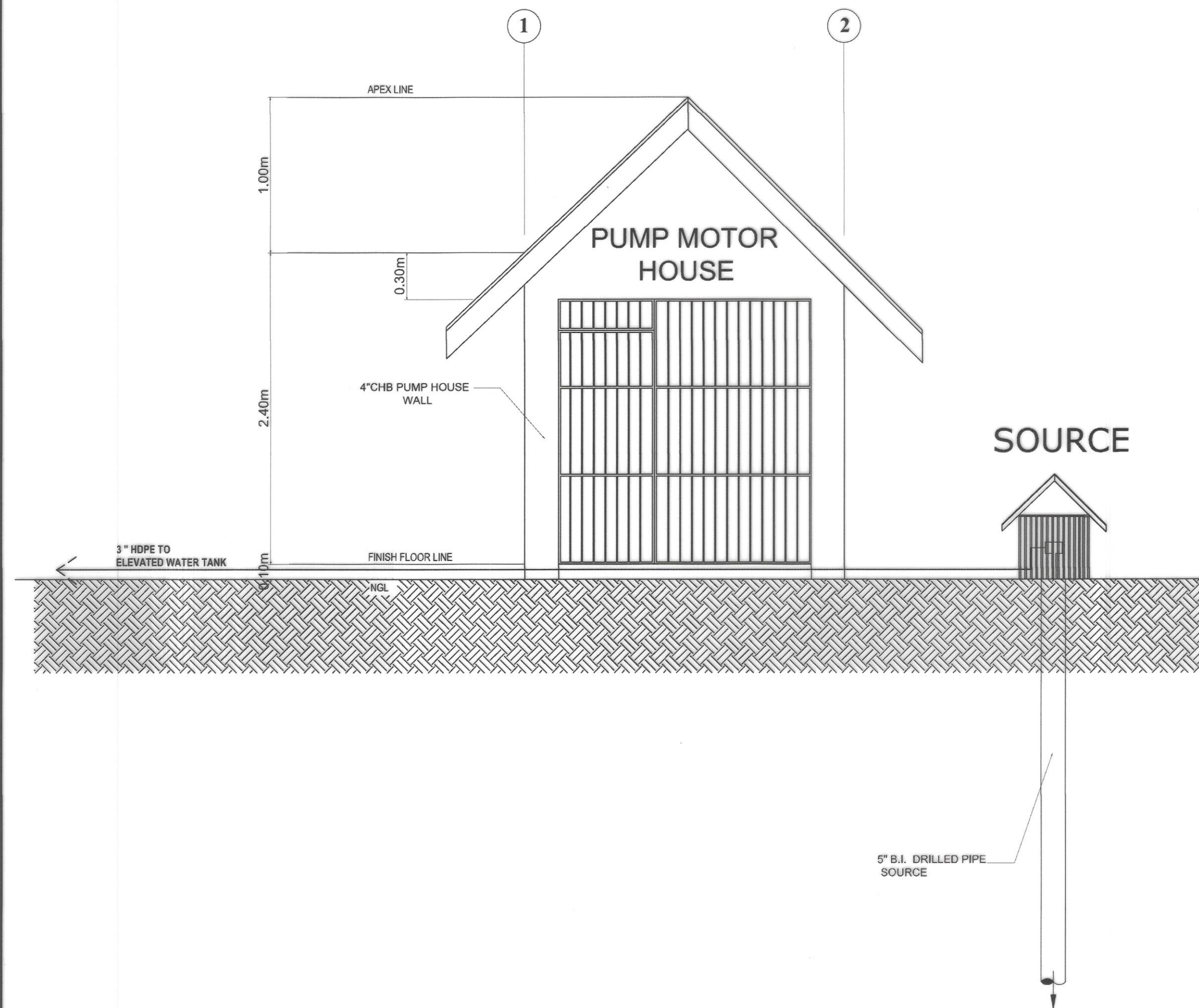
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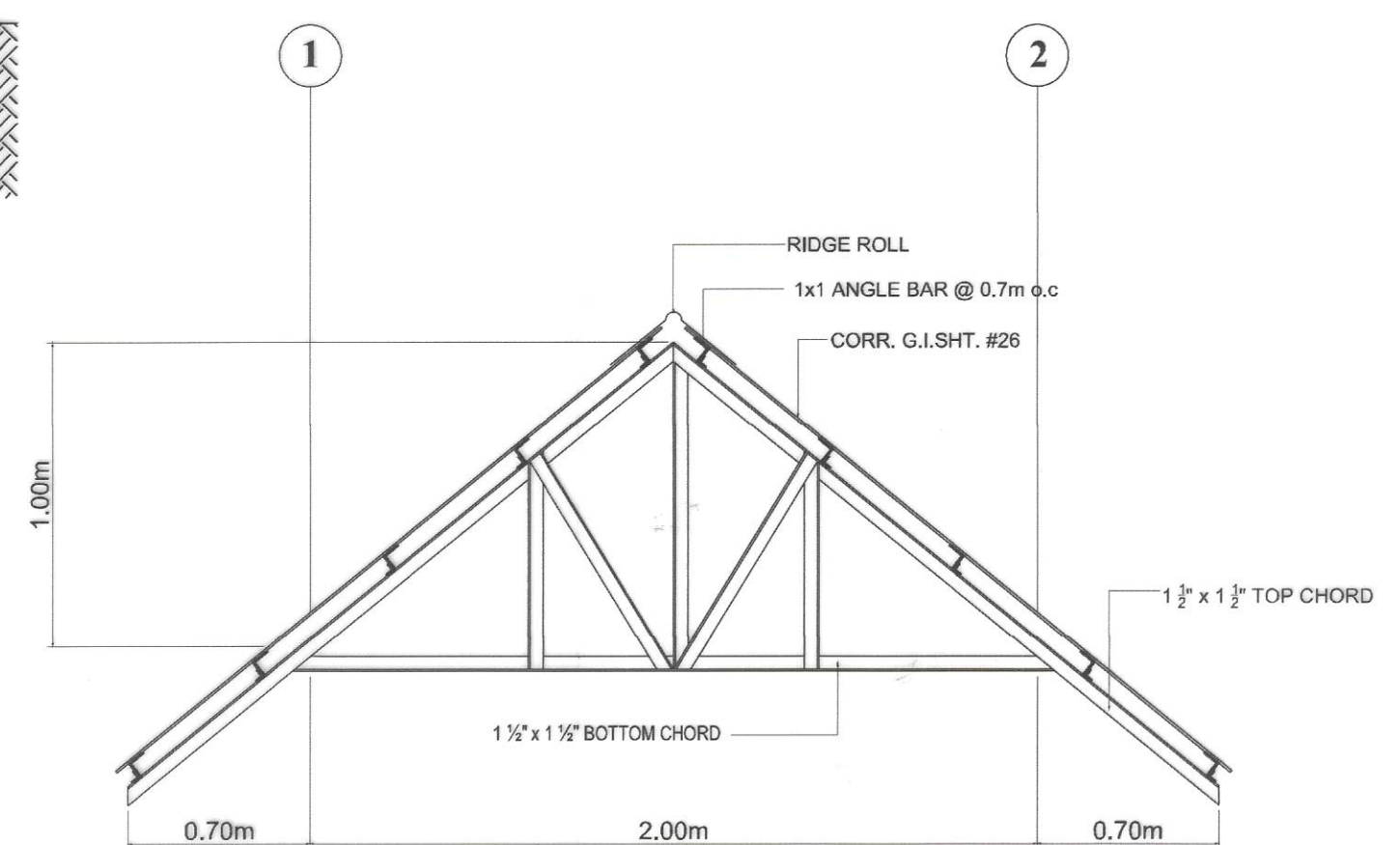
APPROVED :
EVELYN R. PUERTOLLANO
DISTRICT ENGINEER
DATE :

SET NO.
MQ

SHEET NO.
**9
12**



1 ROOF FRAMING PLAN
SCALE 1:250m



2 TRUSS DETAIL
SCALE 1:20m

	PROJECT NAME AND LOCATION : CONSTRUCTION OF WATER SUPPLY SYSTEM, BARANGAY CAGANHAO, BOAC, MARINDUQUE BOAC, MARINDUQUE	SHEET CONTENTS : PUMP HOUSE TYPICAL DRAWINGS	DRAFTED : ENGINEERING ASSISTANT PREPARED : ENGINEER II	REVIEWED : JERSON O. MONTERO ENGINEER II DATE :	SUBMITTED : FERNAN S. DIAZ CHIEF, PLANNING AND DESIGN SECTION DATE :	RECOMMENDED : ARISTEO L. LINGA ASSISTANT DISTRICT ENGINEER DATE :	APPROVED : EVELYN R. PUERTOLLANO DISTRICT ENGINEER DATE :	SET NO. MQ	SHEET NO. 10 12
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SCHEDULE OF LOADS																									
CIRCUIT NUMBER	LOAD DESCRIPTION	HP	OUTLETS				SWITCHES				VOLT. AMP.	AMP.	VOLTS	OCPD BOLT-ON				CONDUCTORS	CONDUIT	AREA SERVED					
			O.L.	MOTOR	C.O.	L.O.	S	S2	S3	S3W				AF	P	AT	KAIC				THHN CU STRANDED				
1	LIGHTING POINTS AND CONVENIENCE OUTLET							1			380	1.652	230V	50	2	20	10	2 # 3.5 mm ² E= 1 # 2.0 mm ²	20 MMØ	COMMERCIAL BLDG. INSIDE					
2	WATER PUMP	3HP		1							3910	17.0	230V	50	2	40	10	2 # 5.5 mm ² E= 1 # 3.5 mm ²	20 MMØ	COMMERCIAL BLDG. INSIDE					
3	SPARE										1500	6.26	230V	50	2	20	10			SPARE					
4	SPARE										1500	6.26	230V	50	2	20	10			SPARE					
TOTAL											7290														
MAXIMUM DEMAND IN KVA:			7,290		O . C . P . D										SERVICE ENTRANCE CONDUCTOR:				2 # 14MM ² THHN WIRE						
MAXIMUM DEMAND IN AMP:		57.19			BREAKER		QTY.	TYPE	AT	AF	P	KAIC	GROUNDING CONDUCTOR:								1 # 8.0MM ² TW WIRE				
					MAIN		1	MCCB	60	100	2	10	MAIN CONDUIT:								25MMØ RSC CONDUIT				
					BRANCHES		1	MCB	40	50	2	10													
							3	MCB	20	50	2	10													

COMPUTATONS

FOR MAIN SERVICE ENTRANCE CONDUCTOR

$$I_T = \frac{7,290VA + (3910VA \times 0.25)}{230V}$$
$$= 35.94A$$

USE 2NOS. 14.0mm² THHN WIRE
1NO. 8.0mm² TW WIRE (G)
IN 1Ø 25mm²









COMPUTATONS

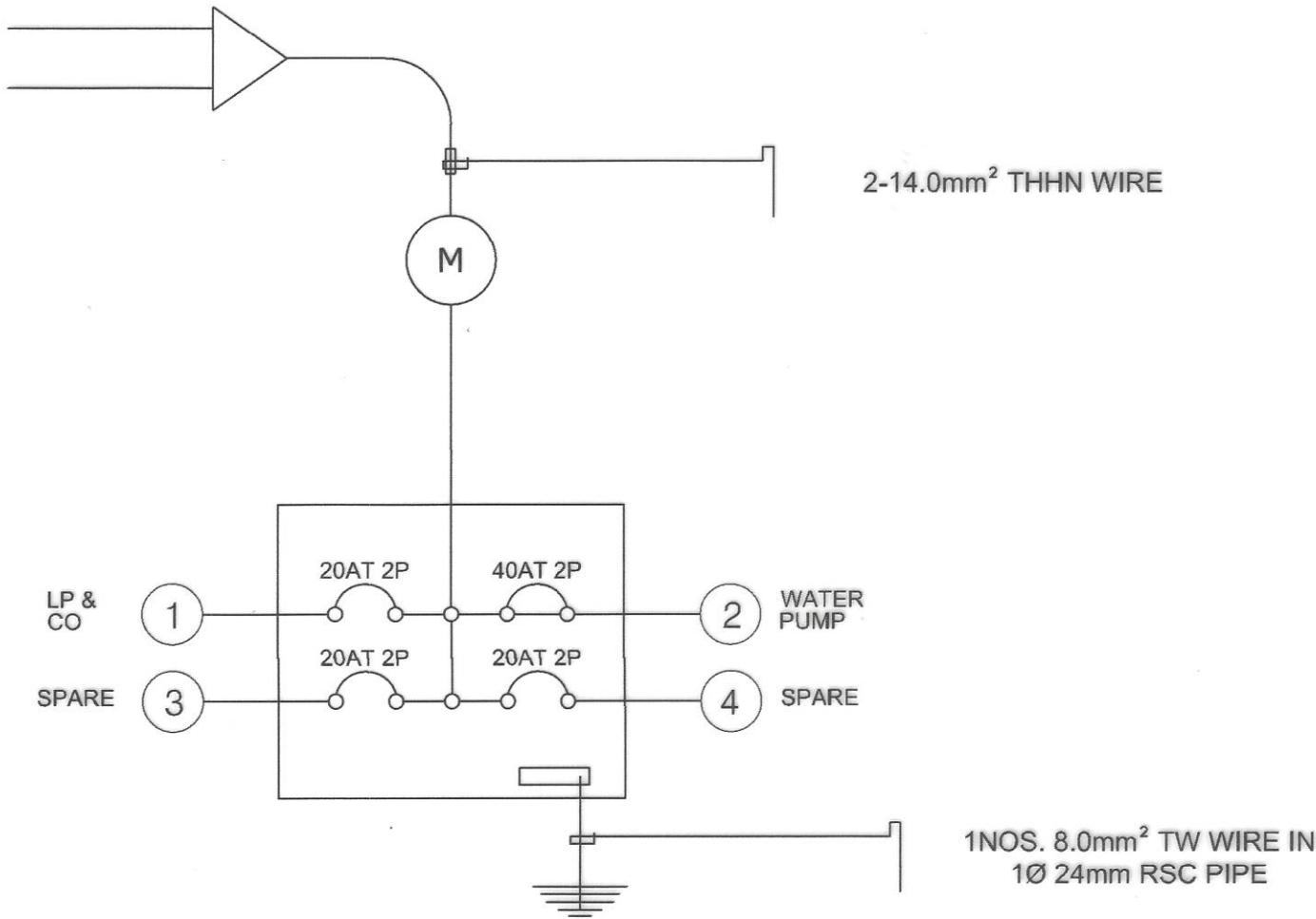
FOR MAIN DISCONNECTION EQUIPMENT

$$I_T = \frac{7,290VA + (3910VA \times 1.50)}{230V}$$
$$= 57.19A$$

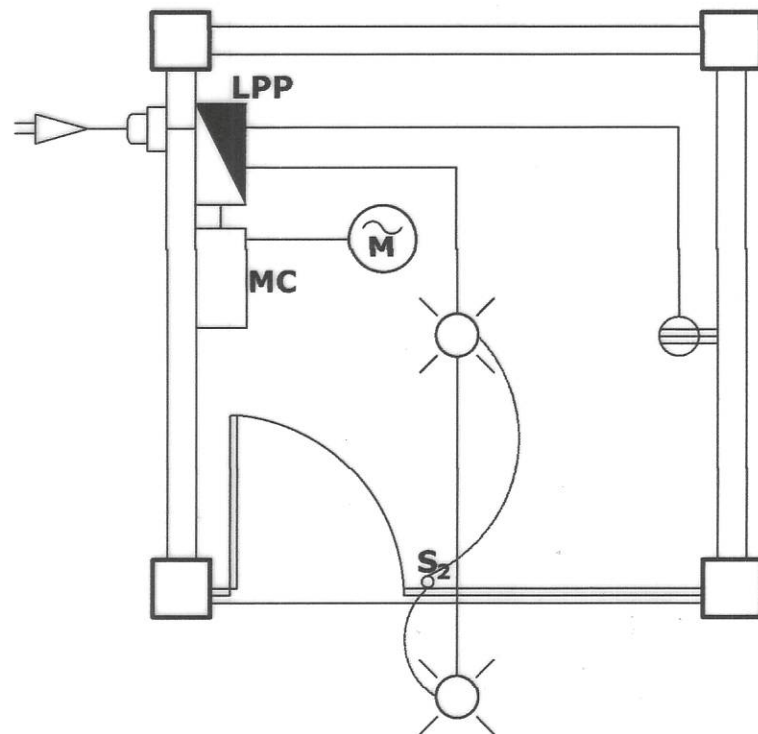
USE ONE 60AT, 100AF, 2P, 230V, MCCB
WITH GROUND BUS AND
BRANCHES:
1NO-40AT, 50AF, 2P

LEGEND :

-  SERVICE ENTRANCE
-  THREE GANG CONVENIENCE OUTLET
-  CEILING LIGHT OUTLET WITH 9W LED BULB
-  MC MOTOR CONTROL
-  PANEL BOARD
-  KWHR METER
-  3HP, 230V, 60HZ, 1PHASE WATER PUMP MOTOR
-  TWO WAY SWITCH



1 SINGLE LINE DIAGRAM
11 12 SCALE NTS



2 P U M P H O U S E
11 12 SCALE NTS



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PROJECT NAME AND LOCATION :
CONSTRUCTION OF WATER SUPPLY SYSTEM,
BARANGAY CAGANHAO, BOAC, MARINDUQUE
BOAC, MARINDUQUE

SHEET CONTENTS :
SCHEDULE OF LOADS - PUMP HOUSE
ELECTRICAL - PUMP HOUSE
TYPICAL DRAWING

DRAFTED :
ARTHUR M. JARBELEZA
ENGINEERING ASSISTANT
PREPARED :
ADRIAN V. LOPEZ
ENGINEER II


REVIEWED :
MICHAEL P. MALITAO
ENGINEER II
DATE :

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

RECOMMENDED :
ARISTEO L. LINGA
ASSISTANT DISTRICT ENGINEER
DATE :

APPROVED :
EVELYN R. PUERTOLLANO
DISTRICT ENGINEER
DATE :

SET NO. SHEET NO.
11 12



THIS IS WHERE YOUR TAXES GO

NAME OF PROJECT:
 LOCATION:
 NAME OF CONTRACTOR:
 DATE STARTED:
 CONTRACT COMPLETION DATE:
 CONTRACT COST:
 IMPLEMENTING OFFICE:
 SOURCES OF FUND:

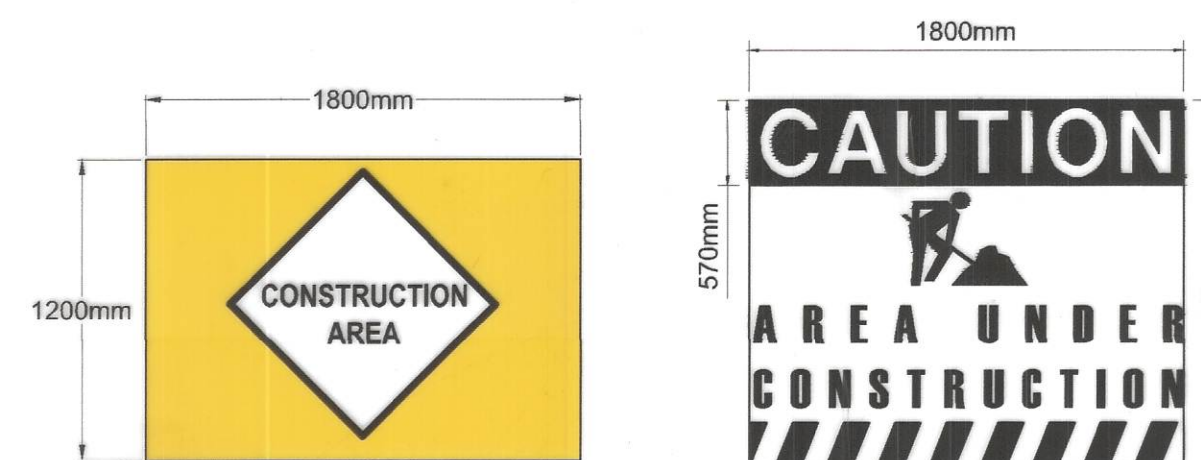
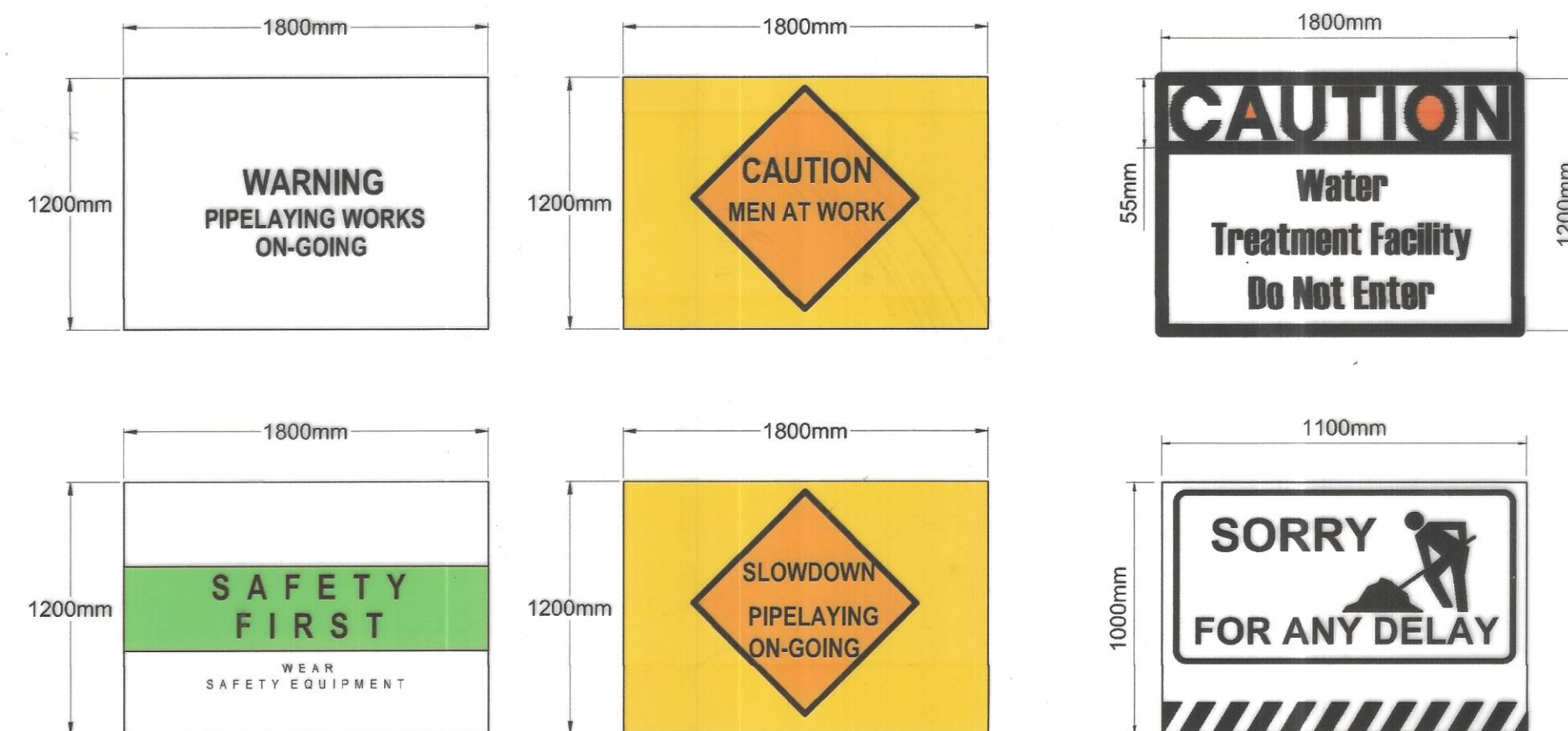
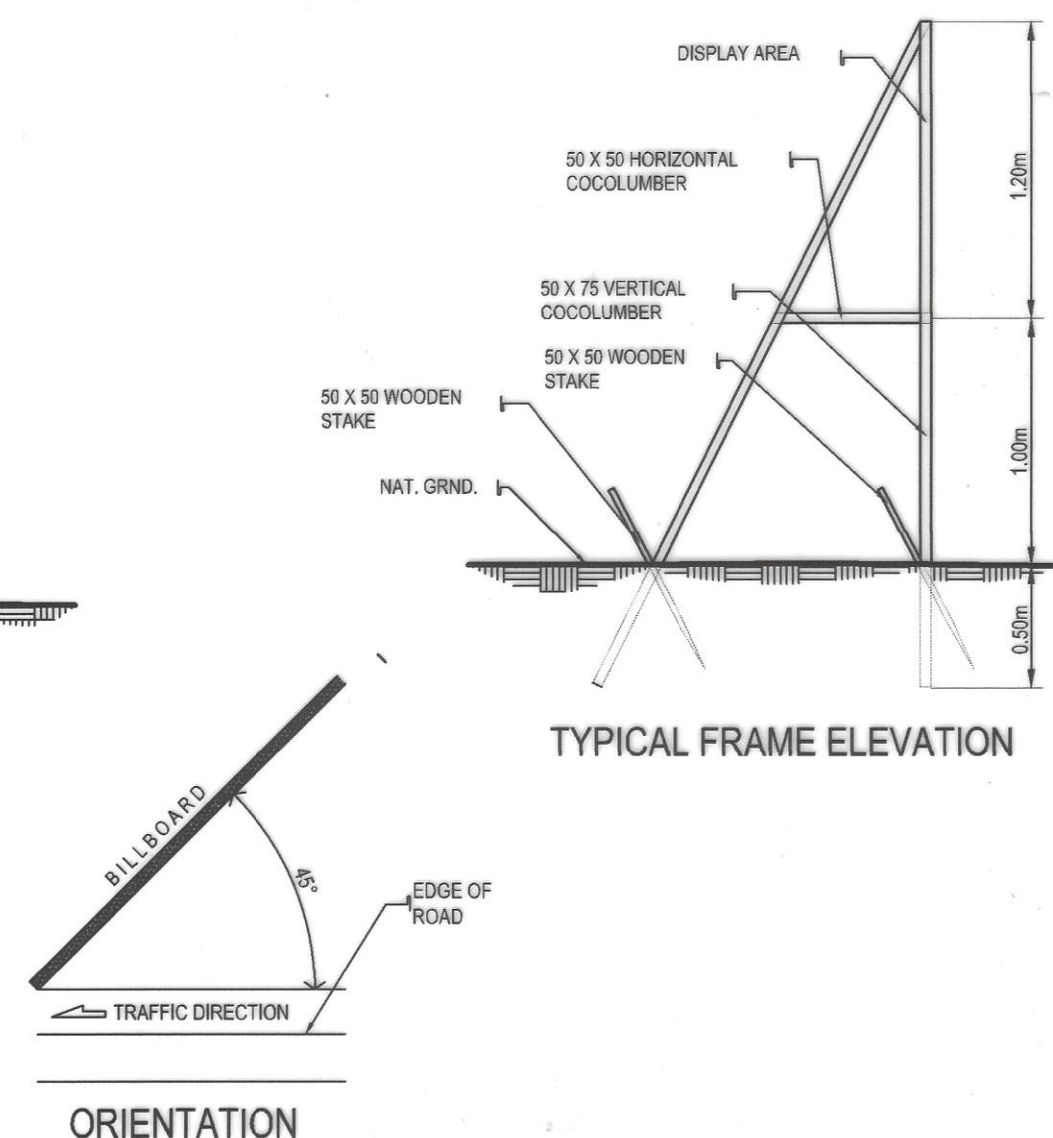
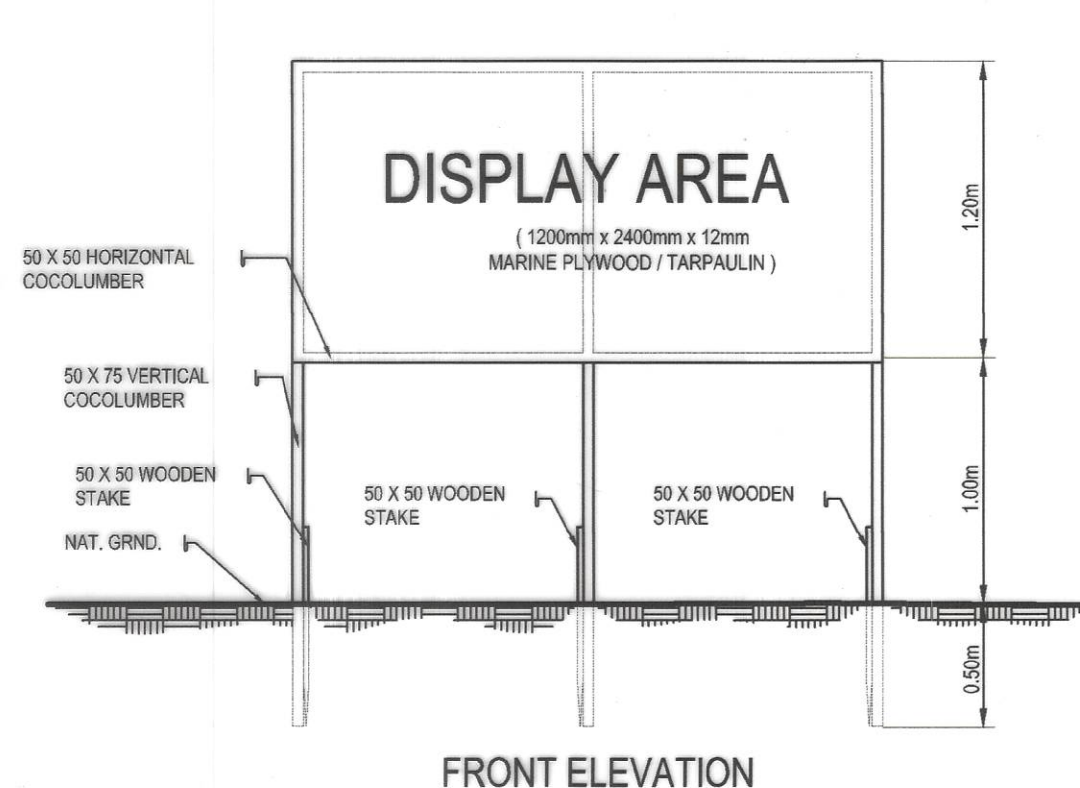
Department of Public Works and Highways
 Text 2920 or call (02) 165-02 for any concern on this project
 www.dpwh.gov.ph

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DETAIL OF BILLBOARD

NOTES :

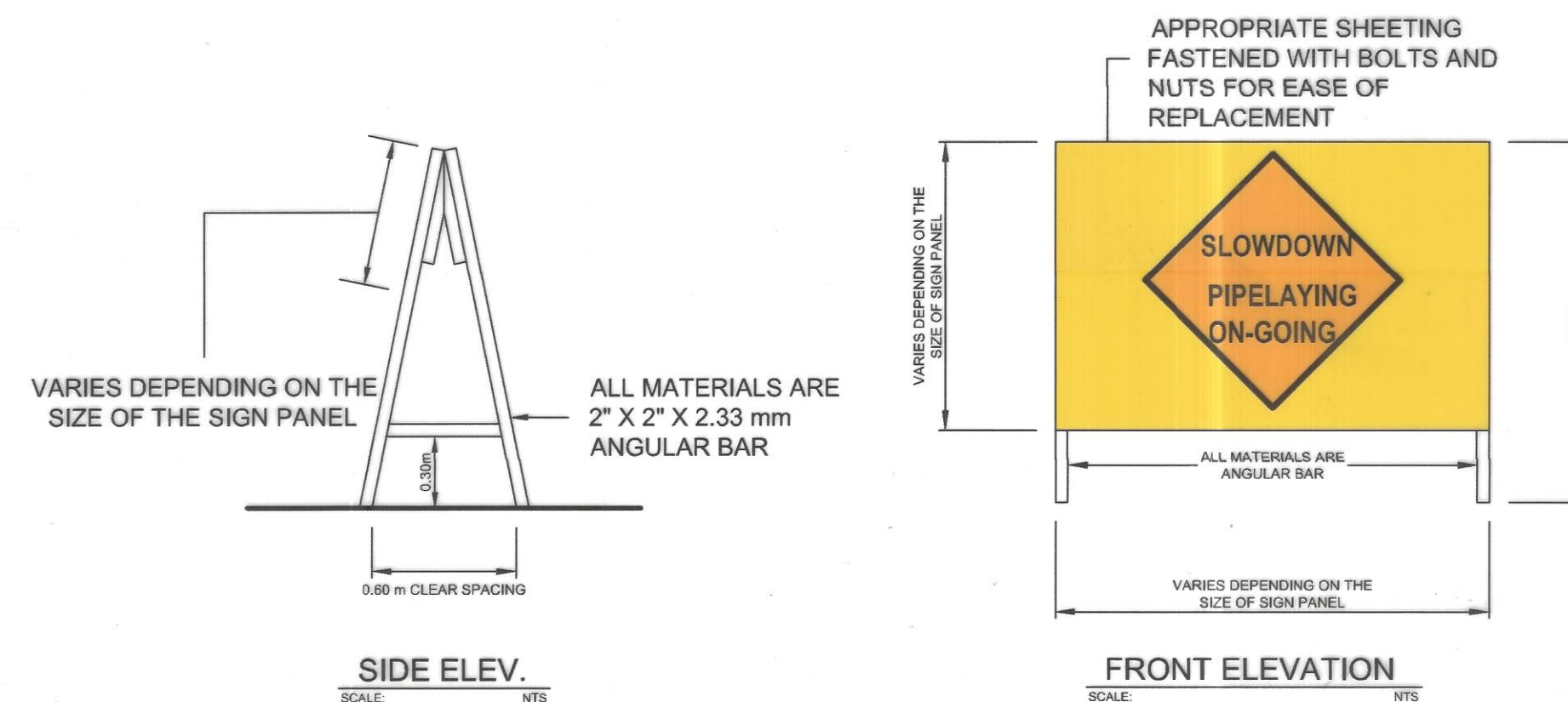
1. THE INSTALLATION OF THE REQUIRED STANDARD BILLBOARD SIZE (1200MM X 2400MM / 4 FT. X 8FT.) FOR ALL PROJECTS SHALL BE STRICTLY ENFORCED.
2. NO POLITICAL BILLBOARDS SHALL BE ALLOWED TO BE INSTALLED 100 METERS BEFORE AND 100 METERS AFTER ALL DPWH PROJECTS AND IN BETWEEN THE PROJECT LIMITS OR WITHIN THE 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.



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WATERWORKS CONSTRUCTION SIGNAGE

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



SIGNAGE INSTALLATION DETAIL

SCALE: NTS

 <p>REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS REGION IV - B, MIMAROPA OFFICE OF THE DISTRICT ENGINEER BOAC, MARINDUQUE</p>	PROJECT NAME AND LOCATION :	SHEET CONTENTS :	DRAFTED :	REVIEWED :	SUBMITTED :	RECOMMENDED :	APPROVED :	SET NO.	SHEET NO.
	CONSTRUCTION OF WATER SUPPLY SYSTEM, BARANGAY CAGANHAO, BOAC, MARINDUQUE	TYPICAL DRAWINGS	ARTURIO C. ELEZA ENGINEER ASSISTANT	JERSON O. MONTERA ENGINEER II	FERNAN S. DIAZ CHIEF, PLANNING AND DESIGN SECTION	ARISTEO L. LINGA ASSISTANT DISTRICT ENGINEER	EVELYN R. PUERTOLLANO DISTRICT ENGINEER	DPWH REGION IV-B CY-2023 MQ	12 12