



Republic of the Philippines
Benguet State University
 La Trinidad, 2601, Benguet Province
 Tel/Fax No. 619-1839



Bids and Awards Committee (BAC) - Infrastructure

INVITATION TO SUBMIT QUOTATION

December 6, 2024

Reference Number: **RFQ 2024-** 12-114

Name of Project: **REPAIR AND UPGRADING OF DEEP WELL PUMP AND WATER LINE SYSTEM**

Project Location: BSU Buguias Campus, Loo, Buguias, Benguet

Approved Budget for the Contract (ABC): Php. 500,000.00

Contract Duration: 60 calendar days

Source of Fund: IGI Fund- FY 2024

I. Introduction:

- A. The Benguet State University, through the Bids and Awards Committee (BAC) will undertake Negotiated Procurement- Small Value Procurement for the above stated project, thus, inviting registered contractors with valid license issued and classified by the Philippine Contractors Accreditation Board (PCAB. The project is a repair and upgrading of the deep well pump and water line system with power house. The scope of work includes earthworks, finishing and other civil works and plumbing works.
- B. Prospective Bidders must have key personnel and equipment (owned, leased or under leased agreement) available for the prosecution of the project.

II. Scope of Work

Item No.	Scope of Work
A.	Other General Requirement (Project Billboard, Occupational Safety and Health Program, Mobilization/Demobilization, general Scaffolding and Shoring)
B.	Earthwork (subgrade preparation, leveling and marking of the area, Removal of Obstruction, dismantling of existing water line)
C.	Finishing and Other Civil Works (CHB non load bearing, cement plaster, steel door and frame, steel doors, steel glass windows, painting works, metal structures, pre-painted metal sheets, fabricated metal roofing)
D.	Plumbing works- includes testing and commissioning

III. Technical Personnel Required- The key personnel must have valid PRC licenses/ certificates and PTR.

- a. 1 - Site Engineer/ site Architect
- b. 1 - Safety Officer/ Practitioner – part time (with COSH training from accredited provider)
- c. 1 – Sanitary Engineer/ Registered Master Plumber
- d. 1- Construction Foreman

IV. List of Equipment – must be in good condition

- a. 1 – Welding Machine
- b. 1 – Bar Cutter/ Steel Cutter

- V. Eligibility Requirements (must be updated)- All eligibility requirements will be used for procurement purposes only.
- a. PhilGEPS Registration (must be Platinum)- with complete annexes
 - b. Business Permit
 - c. PCAB License
 - d. Certificate of Site Inspection
 - e. List of Technical Personnel with updated PRC licenses, PTR and accreditation
 - f. List of Equipment with proof of ownership

VI. Procurement Activities:

- a. Issuance of bid documents:

Interested bidders/ contractors can get a copy of the plans and designs, bill of quantities of the project **starting December 7, 2024** during office hours at the Procurement Management Office (PMO), 1st Floor, Administration Building, BSU, La Trinidad, Benguet

- b. Deadline for Submission of Quotation

Quotation is to be submitted in a sealed envelope with the eligibility requirements on or before **December 10, 2024** at 10:00 AM at the Procurement Management Office (PMO), Administration Building, BSU Buguias Campus , Loo, Buguias, Benguet.

VII. For further information, please refer to:

BAC Secretariat Committee
Procurement Management Office
Benguet State University-Buguias Campus
1/F Administration Building
Tel No. 09295303604
Email: buguias.pmo@bsu.edu.ph

VIII. You may visit the following websites:

For downloading of Bidding Documents: www.bsu.edu.ph/bids-awards


SAMUEL S. FALDEN
Chairperson
Bids and Awards Committee



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Republic of the Philippines
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BILL OF QUANTITIES

PROJECT TITLE: **REPAIR AND UPGRADING OF DEEP WELL PUMP AND WATER LINE SYSTEM**
 LOCATION: **BSU BUGUIAS CAMPUS, LOO, BUGUIAS, BENGUET**
 ABC: Php. 500,000.00
 PROJECT DURATION: 60 C.D. INCLUSIVE OF: 6 UNWORKABLE DAYS
 IMPLEMENTATION MODE: BY CONTRACT

PROJECT DESCRIPTION	EQUIPMENT NEEDED		TECHNICAL PERSONEL	
	NO.	DESCRIPTION	NO.	DESCRIPTION
THE PROJECT IS A REPAIR AND UPGRADING OF DEEP WELL PUMP AND WATER LINE SYSTEM WITH POWER HOUSE. THE SCOPE OF WORK INCLUDES EARTH WORKS, FINISHING WORKS AND PLUMBING WORKS.	1	Welding Machine	1	Site Architect / Site Engineer
	1	Bar Cutter/ Steel Cutter	1	Sanitary Engineer / RMP
			1	Part Time Safety Officer
			1	Construction Foreman

ITEM NO.	DESCRIPTION	% WEIGHT	QUANTITY	UNIT	UNIT COST	TOTAL COST
I.	OTHER GENERAL REQUIREMENTS					
B.5	PROJECT BILLBOARD / SIGNBOARD		1	EACH		
B.7	OCCUPATIONAL SAFETY AND HEALTH PROGRAM		1	LUMPSUM		
B.9	MOBILIZATION / DEMOBILIZATION		1	LUMPSUM		
B.24	GENERAL SCAFFOLDING AND SHORING		1	LUMPSUM		
A.	EARTHWORK					
105	SUBGRADE PREPARATION (LEVELING AND MARKING OF THE AREA)		228	SQ.M.		
801 (1)	REMOVAL OF STRUCTURES AND OBSTRUCTION (DISMANTLING OF EXISTING WATER LINE PIPES)		1	LUMPSUM		
B.	FINISHINGS AND OTHER CIVIL WORKS					
1046 (2)a1	CHB NON LOAD BEARING, 150MM(INCLUDING REINFORCING STEEL)		24	SQ.M.		
1027(1)	CEMENT PLASTER FINISH (PLASTERING OF INTERIOR AND EXTERIOR WALL)		48	SQ.M.		
1006(6)	STEEL DOOR AND FRAMES (FABRICATION AND INSTALLATION)		2	SET/S		
1008	STEEL GLASS WINDOWS (INSTALLATION)		1	SET/S		
1032	PAINTING WORKS (MASONRY/CONCRETE-PAINTING OF WALLS)		48	SQ.M.		
1047	METAL STRUCTURES (TRUSSES, PURLINS, BOLTS, SAGRODS, TURNBACKLE, CROSS BRACING, & STEEL PLATES)		1	LUMP SUM		
1014 (1)b1	PRE-PAINTED METAL SHEETS (INSTALLATION OF ROOFING)		16	SQ.M.		
1013 (2)	FABRICATED METAL ROOFING ACCESSORIES		16	L.M.		
C.	PLUMBING WORKS					
1002(27)	PLUMBING WORKS AND INSTALLATION (INCLUDING TESTING AND COMMISSIONING)		1	LUMP SUM		
TOTAL BID COST						

BREAKDOWN OF BID COST:					TOTAL COST
A.	DIRECT COST				
	EQUIPMENT				
	LABOR				
	MATERIALS				
B.	INDIRECT COST				
	OCM				
	CONTRACTOR'S PROFIT				
	TAXES				
C.	PROJECT COST(TOTAL A+B)				
ESTIMATED PROJECT COST (EPC)					

TOTAL BID COST (IN FIGURES)
TOTAL BID AMOUNT IN WORDS:

I hereby submit the foregoing bid; and that I understood the terms and conditions and the content.

NAME OF BIDDER/CONTRACTOR

NAME OF CONSTRUCTION FIRM/ COMPANY: _____
 DATE: _____

PART B: OTHER GENERAL REQUIREMENTS						
ITEM NO.:	B.5	PROJECT BILLBOARD / SIGNBOARD	UNIT:	EACH	QUANTITY:	1.00
DESCRIPTION:	DESCRIPTION		QTY:	HOURS	UNIT COST	AMOUNT
A.	Equipment Rental: (To include Operators, Helpers, Fuel and Lubricants)					
a.	Minor Tools				Equipment Total	
B.	Labor					
a.	Skilled Laborer				Skilled Sub Total	
b.	Laborers				Unskilled Sub Total	
					Labor Total	
C.	Materials					
a.	Printed Billboard Tarpaulin	5.76	sq.m.			
b.	1/4"x1.2mx2.44m Ordinary Plywood	2	pcs.			
c.	Good Lumber (Frames)	40	bd.ft.			
d.	Assorted CWNs	1	kg.			
D.	DIRECT COST(A+B+C)					
E.	OCM				DIRECT COST	
F.	Contractor's Profit				DIRECT COST	
G.	Tax				5% (DC+OCM+CP)	
H.	INDIRECT COST (E+F+G)					
I.	TOTAL ITEM COST(D+H)					
					Material Total	
					Unit Cost/each	
PART B: OTHER GENERAL REQUIREMENTS						
ITEM NO.:	B.7	OCCUPATIONAL SAFETY AND HEALTH PROGRAM	UNIT:	LUMPSUM	QUANTITY:	1.00
DESCRIPTION:	DESCRIPTION		QTY:	DAYS	UNIT COST	AMOUNT
A.	Equipment Rental: (To include Operators, Helpers, Fuel and Lubricants)					
a.	None					
B.	Labor					
a.	Safety Practitioner/ Officer (Part Time)				Equipment Total	
b.	None					
C.	Materials					
a.	Safety Helmet	6	man-days			
b.	Safety Shoes	6	man-days			
c.	Safety Gloves	4	man-days			
d.	ReflectORIZED Vest	4	man-days			
e.	Rain Coats	1	man-days			
f.	Eye Goggles	1	man-days			
g.	Safety First Signage (2' x 3')	1	sets			
h.	Warning Signs (2' x 3')	2	sets			
i.	Caution Tape, 100ft	1	rolls			
D.	DIRECT COST(A+B+C)					
E.	OCM				0% DIRECT COST	
F.	Contractor's Profit				DIRECT COST	
G.	Tax				5% (DC+OCM+CP)	
H.	INDIRECT COST (E+F+G)					
I.	TOTAL ITEM COST(D+H)					
					Material Total	
					Unit Cost/lump sum	

Submitted by:

NAME OF BIDDER/CONTRACTOR

PART B: OTHER GENERAL REQUIREMENTS					
ITEM NO.:	B.9	UNIT:	LUMPSUM		
DESCRIPTION:	MOBILIZATION / DEMOBILIZATION	QUANTITY:	1.00		
DESCRIPTION	QTY	DAYS	UNIT COST	AMOUNT	
A. Equipment Rental: (To include fuel, oil, lubricants, and equipment maintenance)					
a. None	-	-	-	-	-
			Equipment Total		-
B. Labor					
a. None	-	-	-	-	-
			Skilled Sub Total		-
b. None	-	-	-	-	-
			Unskilled Sub Total		-
			Labor Total		-
C. Materials					
a. None	-	-	-	-	-
			Material Total		-

NOTE: In No case that the Mob. And Demob. Exceeds 1% of Estimated Direct Cost (EDC) of the Civil Work items.

D. DIRECT COST(A+B+C)			
E. OCM	0% DIRECT COST		-
F. Contractor's Profit	0% DIRECT COST		-
G. Tax	5% (DC+OCM+CP)		
H. INDIRECT COST (E+F+G)			
I. TOTAL ITEM COST(D+H)			

Unit Cost/lump sum _____

PART C: EARTHWORKS					
ITEM NO.:	105	UNIT:	SQ.M.		
DESCRIPTION:	SUBGRADE PREPARATION (LEVELING AND MARKING OF THE AREA)	QUANTITY:	228		
DESCRIPTION	QTY	DAYS	UNIT COST	AMOUNT	
A. Equipment Rental(To include fuel, oil, lubricants, and equipment maintenance)					
b. Plate Compactor (5 PH)					
c. Minor Tools (10% of Labor Cost)					
			Equipment Total		
B. Labor:					
a. Leadman					
c. Plate Compactor (5 PH) Semi Skilled Operator					
			Skilled Sub-Total		
d. Laborers					
			Unskilled Sub-Total		
			Labor Total		
C. Materials					
a. None					
			Material Total		

D. DIRECT COST(A+B+C)			
E. OCM	DIRECT COST		
F. Contractor's Profit	DIRECT COST		
G. Tax	5% (DC+OCM+CP)		
H. INDIRECT COST(E+F+G)			
I. TOTAL ITEM COST(D+H)			

Unit Cost/sq.m. _____

Submitted by:

NAME OF BIDDER/CONTRACTOR

PART C: EARTHWORKS					
ITEM NO.:	801 (1)	UNIT:	LUMPSUM		
DESCRIPTION:	REMOVAL OF STRUCTURES AND OBSTRUCTION (DISMANTLING OF EXISTING WATER LINE PIPES)	QUANTITY:	1.00		
DESCRIPTION	QTY.	DAYS	UNIT COST	AMOUNT	
A. Equipment Rental: (To include Operators, Helpers, Fuel & Lubricants)					
a. Grinder					
b. Minor Tools					
				Equipment Total	
B. Labor:					
a. Leadman					
b. Semi-skilled Laborer					
c. Laborers					
				Skilled Sub-Total	
				Unskilled Sub-Total	
				Labor Total	
C. Materials:					
a. 4" Dia. Metal Cutting Disc.	2.00	pcs			
				Materials Total	
D.	DIRECT COST (A+B+C)				
E.	OCM				
F.	Contractor's Profit				
G.	Tax				
H.	INDIRECT COST (E+F+G)				
I.	TOTAL ITEM COST (D+H)				

Unit Cost/ lump sum

PART B: OTHER GENERAL REQUIREMENTS					
ITEM NO.:	B.24	UNIT:	LUMPSUM		
DESCRIPTION:	GENERAL SCAFFOLDING AND SHORING	QUANTITY:	1		
DESCRIPTION	QTY	DAYS	UNIT COST	AMOUNT	
A. Equipment Rental (To include fuel, oil, lubricants, and equipment maintenance)					
a. H-Frame 1.7m x 1.2m, set: 2pcs. H-Frames; 4pcs. Diagonal Cross Braces; 4pcs. Horizontal Braces; 8 pcs. Joint Pins					
b. Adjustable U-head Jack, 0.6m					
c. Adjustable Base Jack, 0.6m					
d. 1-1/2" GI Pipe x 6m					
e. 1-1/2" GI Pipe x 3m					
f. 1-1/2" GI Pipe x 4m					
g. 1-1/2" GI Pipe x 1m					
h. Tie Rod x 0.6m					
i. Round Wing Nut					
				Equipment Total	
B. Labor: Fabrication					
a. Leadman					
b. Skilled Laborers					
c. Laborers					
				Skilled Sub-Total	
				Unskilled Sub-Total	
				Labor Total	
				Skilled Sub-Total	
				Unskilled Sub-Total	
				Labor Total	
				Skilled Sub-Total	
				Unskilled Sub-Total	
				Labor Total	
C. Materials					
a. None					
				Material Total	
D.	DIRECT COST (A+B+C)				
E.	OCM				
F.	Contractor's Profit				
G.	Tax				
H.	INDIRECT COST (E+F+G)				
I.	TOTAL ITEM COST (D+H)				

Unit Cost/lump sum

Submitted by:

NAME OF BIDDER/CONTRACTOR

PART C: FINISHINGS AND OTHER CIVIL WORKS			
ITEM NO.:	1046 (2)a1	UNIT:	SQ.M.
DESCRIPTION:	CHB NON LOAD BEARING, 150MM(INCLUDING REINFORCING STEEL)	QUANTITY:	24

DESCRIPTION	QTY.	DAYS	UNIT COST	AMOUNT
A. Equipment Rental: (To include Operators, Helpers, Fuel & Lubricants)				
a. Minor Tools				
Equipment Total				
B. Labor:				
a. Leadman				
b. Skilled Laborers				
Skilled Sub-Total				
c. Laborers				
Unskilled Sub-Total				
Labor Total				
C. Materials:				
a. CHB Ordinary (6" thk)	289	pcs.		
b. Portland Cement	13	bags		
c. Washed Sand	1	cu.m.		
d. 6m x 12mm Dia. RSB Deformed	77	kgs.		
e. #16 Galvanized Iron Wire	1.19	kgs.		
f. Miscellaneous(3% material cost)	1	lump sum		
Materials Total				

D. DIRECT COST (A+B+C)

E. OCM of Direct Cost

F. Contractor's Profit of Direct Cost

G. Tax 5.00% of (DC + OCM +CP)

H. INDIRECT COST (E+F+G)

I. TOTAL ITEM COST (D+H)

Unit Cost/ sq.m.

PART C: FINISHINGS AND OTHER CIVIL WORKS			
ITEM NO.:	1027(1)	UNIT:	SQ.M.
DESCRIPTION:	CEMENT PLASTER FINISH (PLASTERING OF INTERIOR AND EXTERIOR WALL)	QUANTITY:	48

DESCRIPTION	QTY	DAYS	UNIT COST	AMOUNT
A. Equipment Rental(To include fuel, oil, lubricants, and equipment maintenance)				
a. Minor Tools (10% of Labor Cost)				
Equipment Total				
B. Labor:				
a. Leadman				
b. Skilled Laborers				
Skilled Sub-Total				
c. Laborers				
Unskilled Sub-Total				
Labor Total				
C. Materials				
a. Cement	12	bags.		
b. Sand	1.2	cu.m.		
Material Total				

D. DIRECT COST(A+B+C)

E. OCM DIRECT COST

F. Contractor's Profit DIRECT COST

G. Tax 5% (DC+OCM+CP)

H. INDIRECT COST(E+F+G)

I. TOTAL ITEM COST(D+H)

Unit Cost/sq.m.

Submitted by:

NAME OF BIDDER/CONTRACTOR

PART C: FINISHINGS AND OTHER CIVIL WORKS					
ITEM NO.:	1006(6)	UNIT:	SET/S		
DESCRIPTION:	STEEL DOOR AND FRAMES (FABRICATION AND INSTALLATION)	QUANTITY:	2		
DESCRIPTION	QTY.	DAYS	UNIT COST	AMOUNT	
A. Equipment Rental(To include fuel, oil, lubricants, and equipment maintenance)					
a. Minor Tools (10% of Labor Cost)					
				Equipment Total	
B. Labor:					
a. Leadman					
b. Skilled Laborers					
				Skilled Sub-Total	
c. Laborers					
				Unskilled Sub-Total	
				Labor Total	
C. Materials					
a. D-1 (Refer to Door Schedule).	2	set/s			
b. Consumables (1% material cost)	1	lump sum			
				Material Total	
D. DIRECT COST(A+B+C)					
E. OCM			DIRECT COST		
F. Contractor's Profit			DIRECT COST		
G. Tax			5% (DC+OCM+CP)		
H. INDIRECT COST(E+F+G)					
I. TOTAL ITEM COST(D+H)					
				Unit Cost/set	

PART C: FINISHINGS AND OTHER CIVIL WORKS					
ITEM NO.:	1008	UNIT:	SET/S		
DESCRIPTION:	STEEL GLASS WINDOWS (INSTALLATION)	QUANTITY:	1		
DESCRIPTION	QTY	DAYS	UNIT COST	AMOUNT	
A. Equipment Rental(To include fuel, oil, lubricants, and equipment maintenance)					
a. Minor Tools (10% of Labor Cost)					
				Equipment Total	
B. Labor:					
a. Leadman					
b. Skilled Laborers					
				Skilled Sub-Total	
c. Laborers					
				Unskilled Sub-Total	
				Labor Total	
C. Materials					
a. W-1 (Refer to Window Schedule).	1	set/s			
b. Consumables (1% material cost)	1	lump sum			
				Material Total	
D. DIRECT COST(A+B+C)					
E. OCM			DIRECT COST		
F. Contractor's Profit			DIRECT COST		
G. Tax			5% (DC+OCM+CP)		
H. INDIRECT COST(E+F+G)					
I. TOTAL ITEM COST(D+H)					
				Unit Cost/set	

Submitted by:

NAME OF BIDDER/CONTRACTOR

PART C: FINISHINGS AND OTHER CIVIL WORKS					
ITEM NO.:	1032	UNIT:	SQ.M.		
DESCRIPTION:	PAINTING WORKS (MASONRY/CONCRETE-PAINTING OF WALLS)	QUANTITY:	48		
DESCRIPTION	QTY.	DAYS	UNIT COST	AMOUNT	
A. Equipment Rental: (To include Operators, Helpers, Fuel & Lubricants)					
a. Minor Tools					
				Equipment Total	
B. Labor:					
a. Leadman					
b. Skilled Laborer				Skilled Sub-Total	
c. Laborers				Unskilled Sub-Total	
				Labor Total	
C. Materials:					
EXTERIOR WALLS					
a. Concrete Neutralizer	0.2	gals.			
b. Acrylic Concrete Primer and Sealer	1	gals.			
c. Skim Coat or Approved Equivalent	1	bags			
d. Megacryl Latex - Semi-gloss	1	gals.			
INTERIOR WALLS					
e. Concrete Neutralizer	0.2	gals.			
f. Acrylic Concrete Primer and Sealer	1	gals.			
g. Skim Coat or Approved Equivalent	1	bags			
h. Megacryl Latex - Semi-gloss	1	gals.			
i. Consumables (Sand Paper, Rollers, Paint Brush, Tapes, etc.)	1	lump sum			
				Materials Total	

- D. DIRECT COST (A+B+C)
E. OCM of Direct Cost
F. Contractor's Profit of Direct Cost
G. Tax 5.00% of (DC + OCM +CP)
H. INDIRECT COST (E+F+G)
I. TOTAL ITEM COST (D+H)

Unit Cost/ sq.m.

PART C: FINISHINGS AND OTHER CIVIL WORKS					
ITEM NO.:	1047	UNIT:	LUMP SUM		
DESCRIPTION:	METAL STRUCTURES (TRUSSES, PURLINS, BOLTS, SAGRODS, TURNBACKLE, CROSS BRACING, & STEEL PLATES)	QUANTITY:	1		
DESCRIPTION	QTY.	DAYS	UNIT COST	AMOUNT	
A. Equipment Rental: (To include Operators, Helpers, Fuel & Lubricants)					
a. Welding Machine					
b. Steel Cutter					
d. Minor Tools					
				Equipment Total	
B. Labor:					
a. Leadman					
b. Skilled Laborer				Skilled Sub-Total	
c. Laborers				Unskilled Sub-Total	
				Labor Total	
C. Materials:					
a. 50mm x 50mm x 6mm thk. x 6meter Structural Angle Bar	10	pcs.			
b. 50mm X 75mm X 1.2mm thk. X 3m C-Purlin	11	pcs.			
c. 50mm X 150mm X 1.2mm thk. X 3m C-Purlin (end fascia)	6	pcs.			
d. Tekscrew 12x65mm (STEEL)	340	pcs.			
e. 16mmφ x 300mm Long Bent Anchor Bolts with N&W	6	pcs.			
f. Welding Rod	12	kgs.			
g. Red Lead Paint	1	gals.			
h. 16mm dia. X 50mm Bolts	16	pcs.			
i. 0.2mx0.3mx10mm Steel Base Plate	4	pcs.			
j. Consumables (cutting disks, etc.)	1	lumpsum			
				Materials Total	

- D. DIRECT COST (A+B+C)
E. OCM of Direct Cost
F. Contractor's Profit of Direct Cost
G. Tax 5.00% of (DC + OCM +CP)
H. INDIRECT COST (E+F+G)
I. TOTAL ITEM COST (D+H)

Unit Cost/ lump sum

Submitted by:

NAME OF BIDDER/CONTRACTOR

PART C: FINISHINGS AND OTHER CIVIL WORKS					
ITEM NO.:	1014 (1)b1	UNIT:	SQ.M.		
DESCRIPTION:	PRE-PAINTED METAL SHEETS (INSTALLATION OF ROOFING)	QUANTITY:	16		
DESCRIPTION	QTY.	DAYS	UNIT COST	AMOUNT	
A. Equipment Rental: (To include Operators, Helpers, Fuel & Lubricants)					
a. Minor Tools					
				Equipment Total	
B. Labor:					
a. Leadman					
b. Skilled Laborer				Skilled Sub-Total	
c. Laborers				Unskilled Sub-Total	
				Labor Total	
C. Materials:					
a. 0.40mm Thick Prepainted Corrugated Roofing Sheet Long Span	16	sq.m.			
c. Tek screw 12x65mm (STEEL)	157	pcs.			
d. Silicon Sealant	1	pcs.			
e. Touch Up Paint	1	gal.			
f. Blind Rivets (5/32 x 1/2)	250.92	pcs.			
g. Miscellaneous (3% of Materials)	1	lump sum			
				Materials Total	

- D. DIRECT COST (A+B+C)
E. OCM of Direct Cost
F. Contractor's Profit of Direct Cost
G. Tax 5.00% of (DC + OCM +CP)
H. INDIRECT COST (E+F+G)
I. TOTAL ITEM COST (D+H)

Unit Cost/ sq.m.

PART C: FINISHINGS AND OTHER CIVIL WORKS					
ITEM NO.:	1013 (2)	UNIT:	L.M.		
DESCRIPTION:	FABRICATED METAL ROOFING ACCESSORIES	QUANTITY:	16		
DESCRIPTION	QTY.	DAYS	UNIT COST	AMOUNT	
A. Equipment Rental: (To include Operators, Helpers, Fuel & Lubricants)					
a. Minor Tools					
				Equipment Total	
B. Labor:					
a. Leadman					
b. Skilled Laborer				Skilled Sub-Total	
c. Laborers				Unskilled Sub-Total	
				Labor Total	
C. Materials:					
a. Pre-Painted Roof End Flashing GA24(0.701mm) x 2.44m	12	l.m.			
b. Pre-Painted Gutter GA24(0.701mm) x 2.44m	4	l.m.			
c. Blind Rivets (5/32 x 1/2)	124	pcs.			
d. Silicon Sealant	1	pcs.			
e. Miscellaneous (Wires, Nails, Cutting Disc etc.)	1	lumpsum			
				Materials Total	

- D. DIRECT COST (A+B+C)
E. OCM of Direct Cost
F. Contractor's Profit of Direct Cost
G. Tax 5.00% of (DC + OCM +CP)
H. INDIRECT COST (E+F+G)
I. TOTAL ITEM COST (D+H)

Unit Cost/ l.m.

Submitted by:

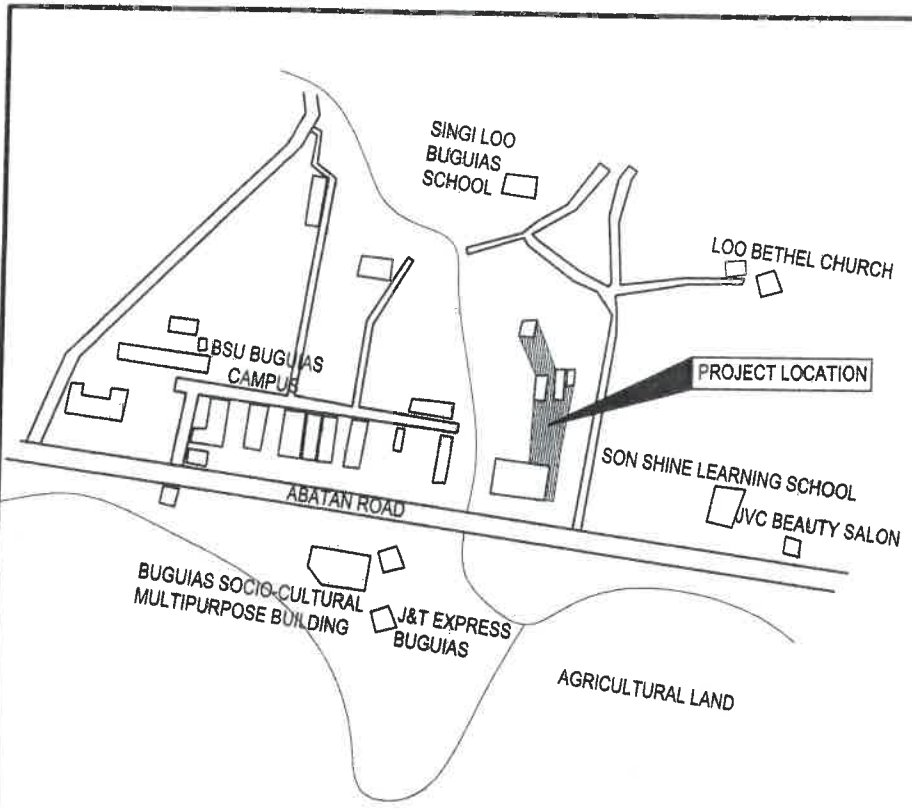
NAME OF BIDDER/CONTRACTOR

PART D: PLUMBING WORKS

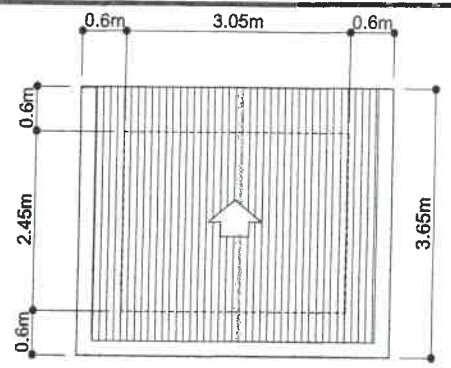
ITEM NO.:		1002(27)	UNIT: LUMP SUM		
DESCRIPTION:		PLUMBING WORKS AND INSTALLATION (INCLUDING TESTING AND COMMISSIONING)		QUANTITY: 1	
	DESCRIPTION	QTY	DAYS	UNIT COST	AMOUNT
A.	Equipment Rental (To include fuel, oil, lubricants, and equipment maintenance)				
a.	Minor Tools (10% of Labor Cost)				
				Equipment Total	
B.	Labor:				
a.	Leadman				
b.	Semi- skilled Laborers				
				Skilled Sub-Total	
c.	Laborers				
				Unskilled Sub-Total	
				Labor Total	
C.	Materials				
a.	Gate Valve	10	pcs.		
b.	1" Diameter Check Valve	2	pcs.		
c.	1" Diameter Foot Valve	1	pcs.		
d.	3 1/4 Diameter Float Valve	4	pcs.		
e.	19mm Dia. X 4m PPR Pipe, PN 10	37	pcs.		
f.	25mm dia. X 90 ft Bio Pipe Hose	5	roll		
g.	25mm Dia. Alkathene Pipe/ MDPE Pipe (Blue)	5	pcs.		
h.	Assorted PPR Pipe Fittings Various Dia.	1	lump sum		
i.	HP Jetmatic Water Pump with Water Pressure Tank	2	unit		
j.	50mm Dia. X 3m PVC Pipe	2	pcs.		
k.	50mm Dia. PVC Assorted Pipe Fittings	1	lump sum		
l.	Solvent Cement	1	can		
m.	Saddle Clamps for PVC Pipe	1	lump sum		
n.	Consumables (5% material cost)	1	lump sum		
				Material Total	
D.	DIRECT COST(A+B+C)				
E.	OCM			DIRECT COST	
F.	Contractor's Profit			DIRECT COST	
G.	Tax			5% (DC+OCM+CP)	
H.	INDIRECT COST(E+F+G)				
I.	TOTAL ITEM COST(D+H)				
				Unit Cost/lump sum	

Submitted by:

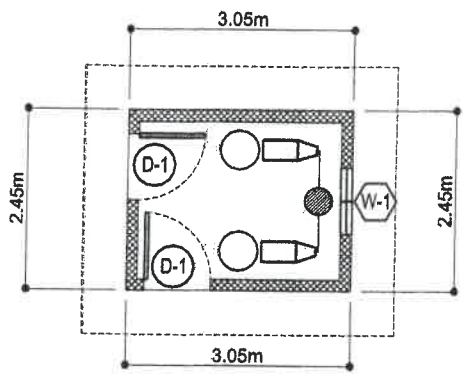
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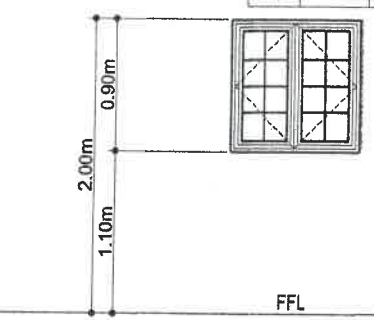
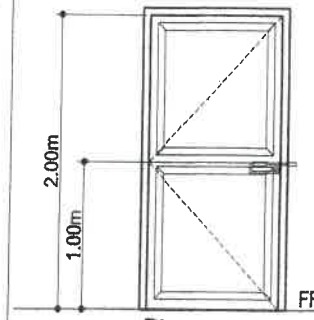
A
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VICINITY MAP
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A
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POWER HOUSE ROOF PLAN
 1:100MTS.

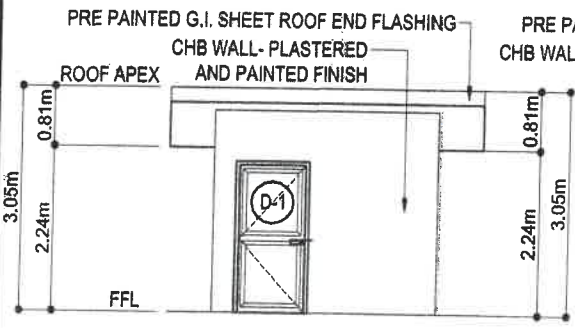


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POWER HOUSE FLOOR PLAN
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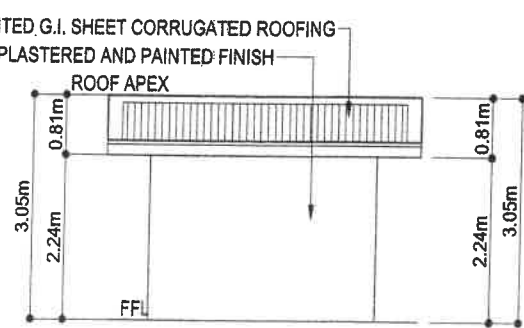


D-1	TYPE: FABRICATED SWING STEEL DOOR ON A STEEL DOOR JAMB AND PAINTED FINISHED, COMPLETE WITH HARDWARE AND ACCESSORIES.	W-1	TYPE: 6mm THK. CLEAR GLASS ON A SWING STEEL FRAMED WINDOW WITH SQUARE BAR WINDOW GRILL AND COMPLETE WITH HARDWARE AND ACCESSORIES.
2-SET/S	LOCATION: ENTRY/ EXIT OF POWER HOUSE	1-SET/S	LOCATION: POWER HOUSE

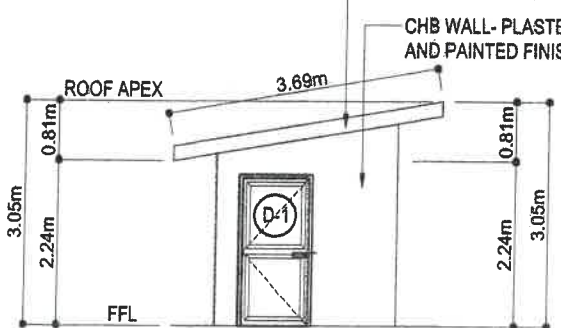
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 0101 SCALE
POWER HOUSE DOORS AND WINDOW SCHEDULE
 1:50MTS.



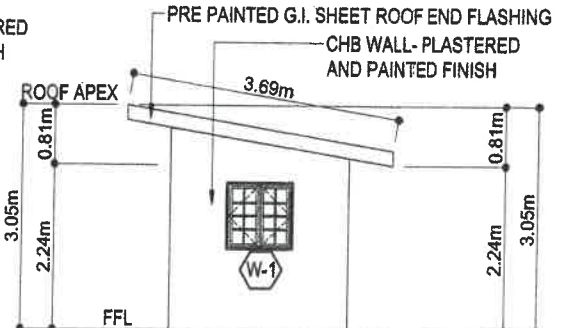
A
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POWER HOUSE FRONT ELEVATION
 1:100MTS.



A
 0102 SCALE
POWER HOUSE REAR ELEVATION
 1:100MTS.



A
 0103 SCALE
POWER HOUSE RIGHT ELEVATION
 1:100MTS.



A
 0104 SCALE
POWER HOUSE LEFT ELEVATION
 1:100MTS.

ARCH. HAZEL N. TIBANGAY, IAP PRC REG. NO. 028540 - NOV. 18, 2024 PTR NO. - LA TRINIDAD - ARCHITECT	ENGINEER	DRAFTED BY: ERGD 2024	OWNER/ PROJECT TITLE/ LOCATION	CONFORME:	RECOMMENDING APPROVAL:	RECOMMENDING APPROVAL:	APPROVED:	SHEET CONTENT:	SHEET
			"REPAIR AND UPGRADING OF DEEP WELL PUMP AND WATER LINE SYSTEM" BSU BUGUIAS CAMPUS, LOO, BUGUIAS, BENGUET	VILLALON W. LAMPACAN END-USERS	FLORENZO P. GOMILA EXECUTIVE DEAN	AT V MATHA ANGIWAN, R. ALLAN CASLO SACPA VICE PRESIDENT FOR ADMINISTRATION AND FINANCE	KENNETH ALIP LARUAN UNIVERSITY PRESIDENT	AS SHOWN	A 01-01

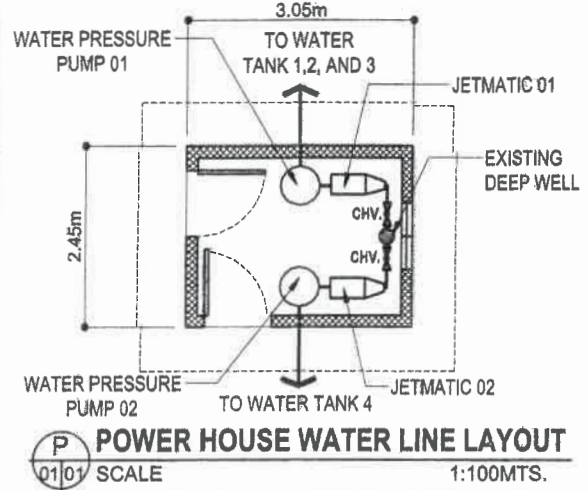
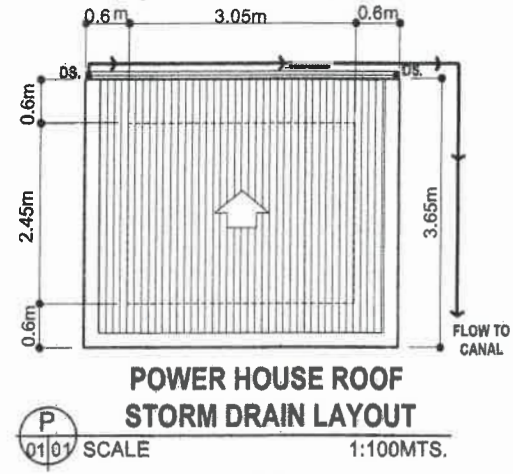
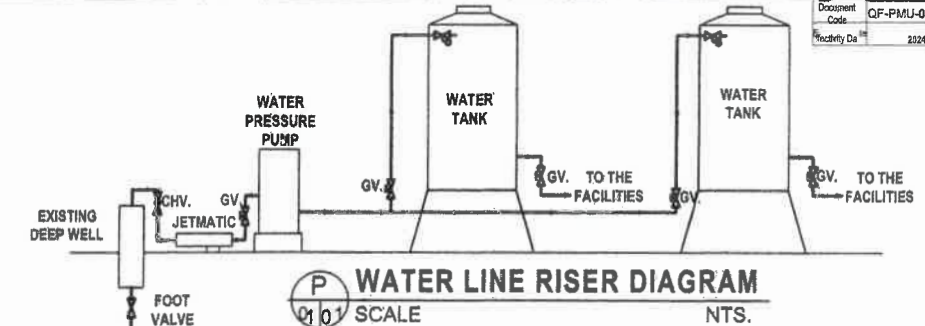
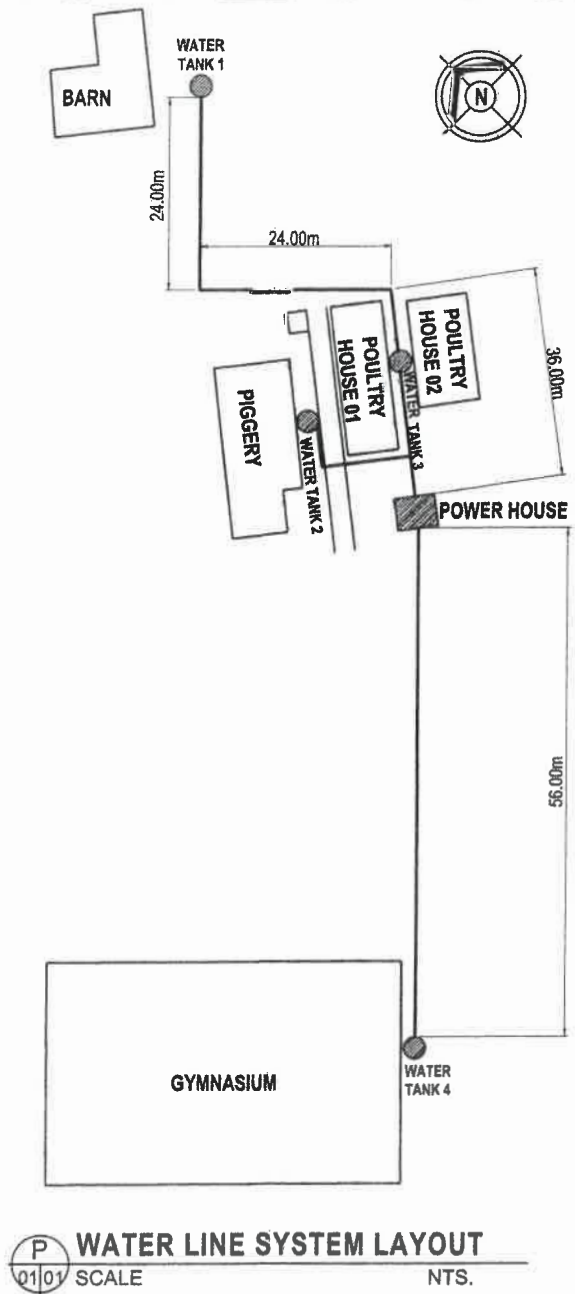
DEC 06 2024

GENERAL NOTES:

1. ALL PLUMBING WORKS TO BE DONE AND SIZES OF PIPES TO BE USED SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL PLUMBING CODE OF THE PHILIPPINES AND LOCAL REGULATIONS AND ORDINANCES.
2. ALL PIPES SHALL BE INSTALLED AS INDICATED IN THE WORKING DRAWINGS. ANY RELOCATION REQUIRED FOR PROPER EXECUTION OF OTHER TRADES SHALL BE UPON THE APPROVAL OF THE SANITARY ENGINEER.
3. WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALED DIMENSIONS.
4. ALL PIPES SHALL BE PROVIDED W/ PROPER HANGER AND SUPPORT.
5. ALL FIXTURES SHALL BE VENTED INDIVIDUALLY AND WATERLINES SHALL BE VALVE BY GROUP.
6. UNLESS OTHERWISE SPECIFIED, ALL PLUMBING FIXTURES SHALL BE PROPERLY VENTED. MAXIMUM DISTANCE OF VENTILATION FROM FIXTURES SHALL BE 1.50m MEASURED ALONG THE LENGTH OF PIPE.
7. ALL PLUMBING FITTINGS SHALL BE ACCESSIBLE FOR MAINTENANCE. PROVIDE MANHOLE IF SUCH INSTALLATIONS ARE INSIDE THE CEILING.
8. ALL CHANGES IN DIRECTION SHALL BE MADE BY APPROPRIATE USE OF FORTY-FIVE DEGREES (45°) WYES, LONG SWEEP QUARTER BEND. ONE EIGHT WHEN THE CHANGE OF FLOW IS FROM HORIZONTAL TO VERTICAL A SINGLE BEND COMBINATION MAY BE USED ONLY ON VENT PIPE.
9. NO DOUBLE HUB OR DOUBLE TEE BRANCH SHALL BE USED ON HORIZONTAL SOIL OR WASTE LINES.
10. PROVIDE PIPE SLEEVES AT WALL, COLUMNS OR SLAB TO PROTECT FROM BREAKAGE.
11. ALL EXPOSED PIPES AND FITTINGS IN THE AREAS SHALL BE CHROME PLATED.
12. THE BRAND AND OTHER DETAILED PLUMBING FIXTURES SHALL BE IN ACCORDANCE WITH THE SCHEDULE FURNISHED BY THE ARCHITECT.
13. GATE VALVE SHALL BE BRONZE BODY, SOLID WEDGE TYPE, SCREWED OR FLANGE END.
14. USE POLYPROPYLENE RANDOM, TYPE 3, PN20 FOR ALL WATER PIPING SYSTEM.
15. USE uPVC SANITARY PIPING SYSTEM SERIES 1000 FOR 100 Ø AND SMALLER AND GRAVITY SEWER MAIN uPVC PIPING SYSTEM FOR 150 Ø AND BIGGER.
16. ENGINEER-IN-CHARGE TO VERIFY ACTUAL LOCATION AND ELEVATION OF STREET DRAINAGE, STREET SEWER AND STREET WATER MAINS FOR CONNECTION BEFORE CONSTRUCTION.

PASTURE LAND

ACACAN RIVER



PLUMBING LEGENDS:

SYMBOL	DESCRIPTION
	GATE VALVE (GV.)
	CHECK VALVE (CHV.)
	FOOT VALVE
	FLOAT VALVE
	WATER LINE / PIPE LINE
	WATER DIRECTION FLOW INDICATOR
	PIPE FITTINGS
	DOWN SPOUT (DS.)

ARCH. HAZELINE W. TIBANGAY, UAP
 PRC REG. NO. 028540 - NOV. 18, 2024
 PTR NO. _____ - LA TRINIDAD - _____
 ARCHITECT

ENGINEER

OWNER/ PROJECT TITLE/ LOCATION

"REPAIR AND UPGRADING OF DEEP WELL PUMP AND WATER LINE SYSTEM"
 BSU BUGUIAS CAMPUS, LOO, BUGUIAS, BENGUET

CONFORME:
 VILLALON W. LAMPACAN
 END-USERs

RECOMMENDING APPROVAL:

 FLORENDO P. COMILA
 EXECUTIVE DEAN

RECOMMENDING APPROVAL:

 ALLAN CASIDO SACPA
 VICE PRESIDENT FOR ADMINISTRATION AND FINANCE

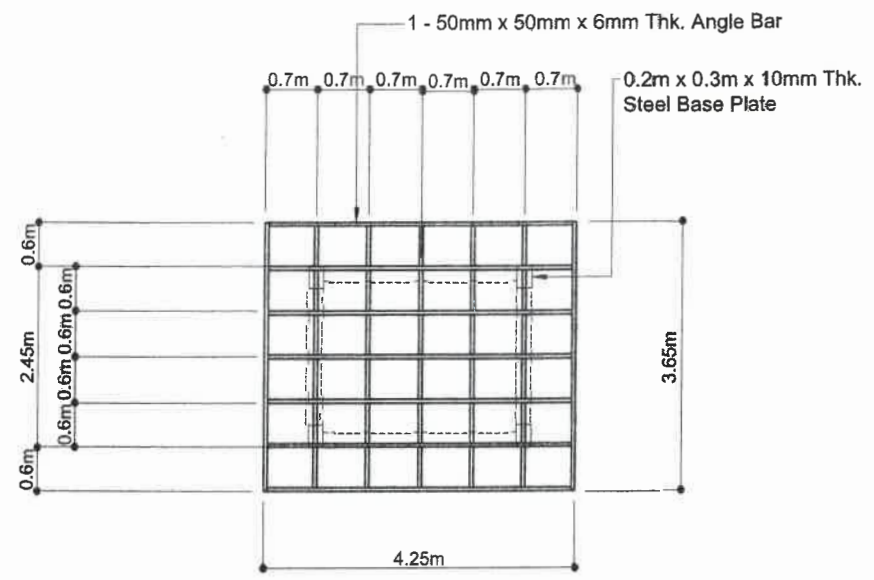
APPROVED:

 KENNETH ALIP LARUAN
 UNIVERSITY PRESIDENT

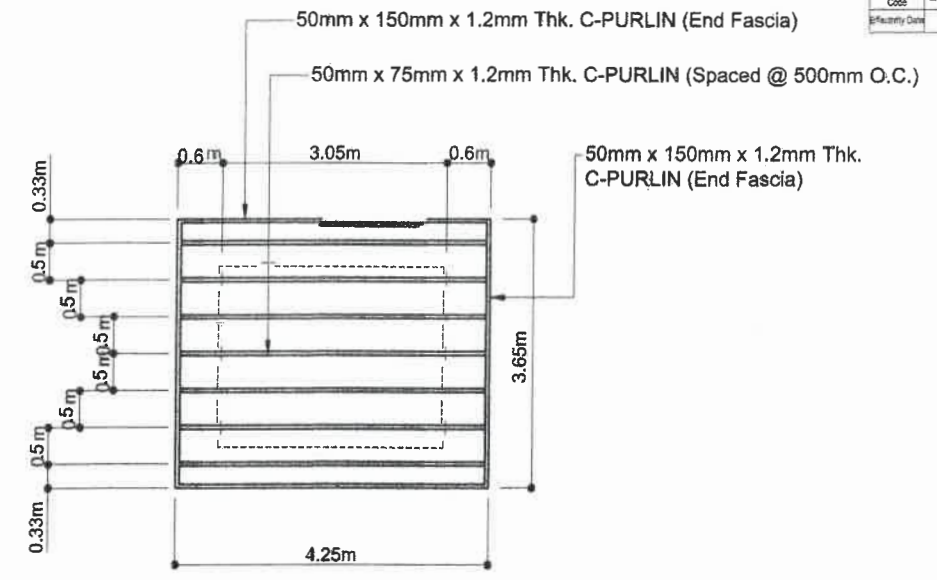
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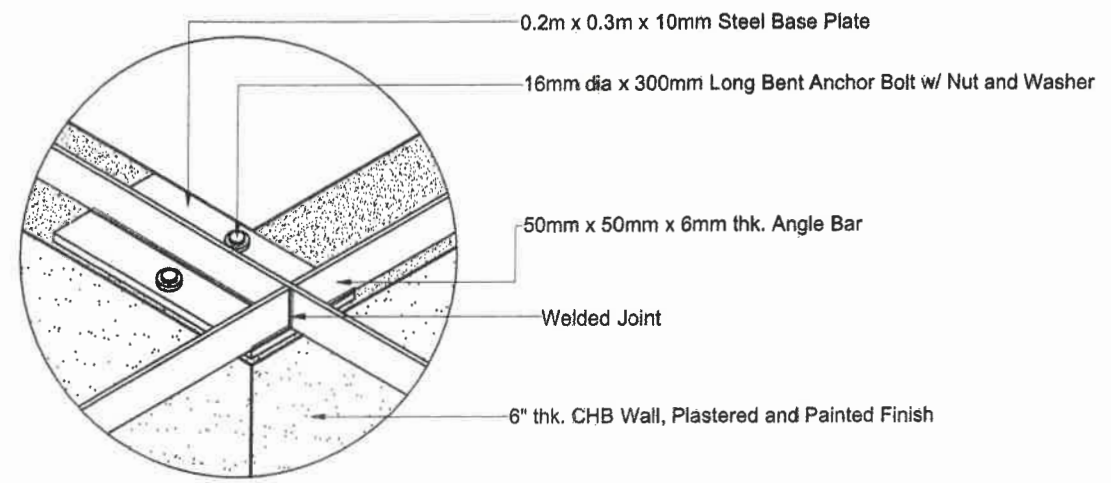
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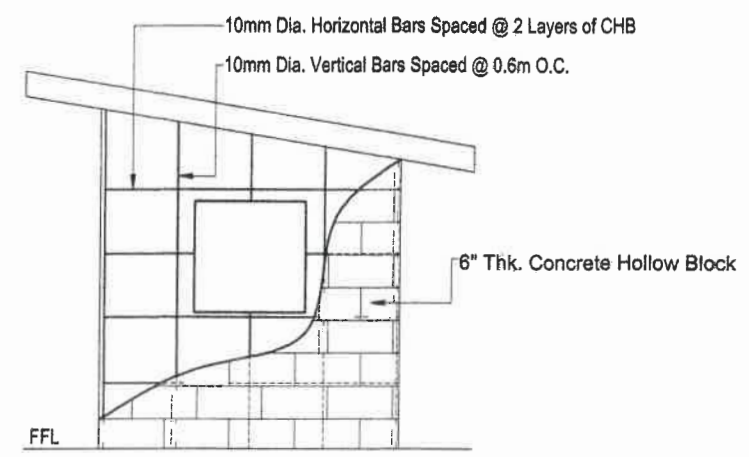
S POWER HOUSE ROOF BOTTOM CHORD FRAMING PLAN
 0101 SCALE 1:100MTS.



S POWER HOUSE ROOF TOP CHORD FRAMING PLAN
 0101 SCALE 1:100MTS.



S BOTTOM CHORD BLOW-UP DETAIL
 0101 SCALE NTS.



S REINFORCED CHB WALL BLOW-UP DETAIL
 0101 SCALE NTS.

 HAZELINE N. TIBANGAY UA / PMU HEAD Project Management Unit ARCHITECT	 SHERIFF JOHN C. LA MADRID PROJECT DEVELOPMENT OFFICER III, Project Management Unit ENGINEER	OWNED BY: ERGD 2024 "REPAIR AND UPGRADING OF DEEP WELL PUMP AND WATER LINE SYSTEM" BSU BUGUIAS CAMPUS, LOO, BUGUIAS, BENGUET	CONFORME: VILLALON W. LAMPACAN END-USERS	RECOMMENDING APPROVAL: FLORENCIO P. COMILA EXECUTIVE DEAN	RECOMMENDING APPROVAL: MATIAS S. ANGIWAN, JR. VICE PRESIDENT FOR ADMINISTRATION AND FINANCE	APPROVED: KENNETH HALIP LARUAN UNIVERSITY PRESIDENT	SHEET CONTENT: AS SHOWN	SHEET S 01-01
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DEC 26 2024

TECHNICAL SPECIFICATIONS

Name of Project: **REPAIR AND UPGRADING OF DEEP WELL PUMP AND WATER LINE SYSTEM**
 Location: **BSU BUGUIAS CAMPUS, LOO, BUGUIAS, BENGUET**

B.5 - PROJECT BILLBOARD / SIGNBOARD

B.5.1 Material Requirements:

Tarpaulin

The design and format of the tarpaulin shall have the following specifications:

Color : White
 Size : 8 ft. x 8 ft.
 Resolution : 70 dpi
 Font : Helvetica
 Font Size of Main Information : 3 inches
 Font Size of Sub-Information : 1 inch
 Font Color : Black
 Suitable Frame : Rigid wood frame with post; and
 Posting : Outside display at the project location after award has been made.

The information shall contain but not limited to i.) logo of the funding agencies, ii.) the name of implementing agencies, iii.) name of contractor, iv.) project's title, location, cost and description, v.) project details to include duration, date started, target date of completion and project status, and vi.) COA Anti-corruption Hotline.

The display/and or affixture of the picture, image, motto, logo, color motif, initials or other symbol or graphic representation associated with the top leadership of the project proponent or implementing agency/unit/office, on project billboard, is considered unnecessary. (General Guidelines No. 2.2.6)

B.5.2 Post and Frame

Posts and frames/braces shall be made from good lumber with a 2X3 and 2x2 inches size respectively and shall be well-seasoned, straight and free of injurious defects. The frame will be covered with 2 pieces ¼ inch thick marine plywood where the tarpaulin will be attached.

B.5.3 Method of Measurement

The quantities of project billboard shall be in pieces of such signs of the size specified, including the necessary posts and supports erected and accepted.

B.5.4 Basis of Payment

The quantities measured as determined in the Method of Measurement, shall be paid for at the contract unit price for the Pay Items shown in the Bid Schedule which price and payment shall be full compensation for furnishing and installing project billboard, all labor, equipment, tools and incidentals necessary to complete the Item.

Payment will be made under:

Pay Item No.	Description	Unit of Measurement
B.5	Project Billboard / Signboard	Each

ITEM B.7 – OCCUPATIONAL SAFETY AND HEALTH PROGRAM

B.7.1 Description

A Company Safety Policy which shall serve as the general guiding principles in the implementation of safety and health on site duly signed by the highest company official or his duly authorized representative who has the over-all control of project execution and should include the contractor's general policy towards occupational safety, worker's welfare and health, and environment.

A Safety policy, which shall include the commitment that the contractor shall comply with DOLE minimum safety requirements, including reporting requirements of the Occupational Health and Safety Standards (OSHS), and other relevant DOLE issuances. These may include, but are not limited to the following:

- Registration (Rule 1020 and DO 18--02)
- Report of Safety Committee Organization (Rule 1040)
- Notification of Accidents and Occupational Illnesses (Rule 1050)
- Annual Work Accident/Illness Exposure Data Report (Rule 1050)
- Application for installation of mechanical/electrical equipment for construction of structure for industrial use (Rule 1070 and 1160)
- Annual Medical Report (Rule 1960)

1.2 *Specific Construction Safety and Health Program* shall contain the tendering agency's requirements in addition to the minimum requirements under the appropriate sections of D.O. No. 13 whenever deemed as applicable.

B.7.2 Method of Measurement

Payment shall be made on a proportional basis, calculated by multiplying the percentage rate of physical progress to the total lump sum amount every progress billing.

B.7.3 Basis of Payment

Payment will be made under:

Pay Item Number	Description	Unit of Measurement
B.7	Occupational Safety and Health Program	Lump Sum

ITEM B.9 – MOBILIZATION / DEMOBILIZATION


B.9.1 Description

This item shall consist of the mobilization and demobilization of equipment needed for the project. In addition, this item also includes the cleaning of the project site including its surroundings before the final inspection.

B.9.2 Method of Measurement

TECHNICAL SPECIFICATIONS

REPAIR AND UPGRADING OF DEEP WELL PUMP AND WATER LINE SYSTEM
 BSU Buguias Campus, Loo, Buguias, Benguet

Prepared By:

 EPHRAIM RAY G. DORIA
 Draftsman I-PMU

Reviewed By:
 HAZELINE N. TIBANGAY
 University Architect

The accepted quantities, measured as prescribed in section B.9.1 shall be paid for at the contract unit price for mobilization / demobilization which price and payment shall be full compensation for furnishings and placing all materials, including all labor, equipment, tools, and incidentals necessary to complete the work prescribed in this item.

B.9.3 Basis of Payment

Payment will be made under:

Pay Item Number	Description	Unit of Measurement
B.9	MOBILIZATION / DEMOBILIZATION	LUMP SUM

ITEM 801(1) – REMOVAL OF STRUCTURES AND OBSTRUCTION

801(1) Description

This Item shall consist of the removal wholly or in part, and satisfactory disposal of all buildings, fences, structures, old pavements, abandoned pipe lines, and any other obstructions which are not designated or permitted to remain, except for the obstructions to be removed and disposed off under other items in the Contract. It shall also include the salvaging of designated materials and backfilling the resulting trenches, holes, and pits.

All designated salvable material shall be removed, without unnecessary damage, in sections or pieces which may be readily transported, and shall be stored by the Contractor at specified places on the project or as otherwise shown in the Special Provisions. Perishable material shall be handled as designated in Subsection 100.2.2 Nonperishable material may be disposed off outside the limits of view from the project with written permission of the property owner on whose property the material is placed. Copies of all agreements with property owners are to be furnished to the Engineer/ Architect. Basements or cavities left by the structure removal shall be filled with acceptable material to the level of the surrounding ground and, if within the prism of construction, shall be compacted to the required density.

801(1).2 Method of Measurement

The payment will be made for removal of structures and obstructions on lump-sum basis, the pay item will include all structures and obstructions encountered within the project site. Where the contract stipulates that payment will be made for the removal of specific items on a unit basis, measurement will be made by the unit stipulated in the Contract.

Whenever the Bill of Quantities does not contain an item for any aforementioned removals, the work will not be paid for directly, but will be considered as a subsidiary obligation of the Contractor under other Contract Items.

The accepted quantities, measured as prescribed in section 801(1).1 shall be paid for at the contract unit price for the removal of existing structures and obstructions in the project site which price and payment shall be full compensation for furnishings and placing all materials, including all labor, equipment, tools, and incidentals necessary to complete the work prescribed in this item.

801(1).3 Basis of Payment

Payment will be made under:

Pay Item Number	Description	Unit of Measurement
801(1)	REMOVAL OF STRUCTURES AND OBSTRUCTION	lump sum

ITEM 1046(2)a1 – CHB NON LOAD BEARING, 150mm (INCLUDING REINFORCING STEEL)

1046(2)a1.1 Description

This item shall consist of the laying of CHB including concrete mortar fill and reinforcing bars.

1046(2)a1.2 Method of Measurement

The accepted quantities, measured as prescribed in section 1046(2)a1.1 shall be paid for at the contract unit price for the laying of CHB including concrete mortar fill and reinforcing bars which price and payment shall be full compensation for furnishings and placing all materials, including all labor, equipment, tools, and incidentals necessary to complete the work prescribed in this item.

1046(2)a1.3 Basis of Payment

Payment will be made under:

Pay Item Number	Description	Unit of Measurement
1046(2)a1	CHB NON LOAD BEARING, 150mm (INCLUDING REINFORCING STEEL)	SQ.M.

ITEM 1047 – METAL STRUCTURES

1047.1 Description

This work shall consist of steel structures and the steel structure portions of composite structures, constructed in reasonably close conformity with the lines, grades and dimensions shown on the Plans or established by the Engineer/ Architect.

The work will include the furnishing, fabricating, hauling, erecting, welding and painting of structural metals called for in the Special Provision or shown on the Plans. Structural metals will include structural steel, rivet, welding, special and alloy steels, steel forgings and castings and iron castings. This work will also include any incidental metal construction not otherwise provided for, all in accordance with these Specifications, Plans and Special Provisions.

1047.2 Material and Construction Requirements

Materials shall meet the requirements of Item 712, Structural Metal; Item 409, Welded Structural Steel, and Item 409, Welded Structural Steel; and Item 709, Paints.

1047.3 Method of Measurement

Pay Item Number	Description	Unit of Measurement
1047	METAL STRUCTURES	Lump Sum

ITEM 1014(1)b2 - PREPAINTED METAL SHEETS

1014(1)b2.1 Description


This Item shall consist of furnishing all pre-painted metal sheet materials, tools and equipment, plant including labor required in undertaking the proper installation complete as shown on the Plans and in accordance with this Specification.

1014(1)b2.2 Material Requirements

All pre-painted metal sheet and roofing accessories shall be oven baked painted true to profiles indicated on the Plans.

TECHNICAL SPECIFICATIONS

REPAIR AND UPGRADING OF DEEP WELL PUMP AND WATER LINE SYSTEM
BSU Buguias Campus, Loo, Buguias, Benguet

Prepared By:

EPHRAIM RAY G. DORIA
Draftsman I-PMU

Reviewed By:
HAZELINE N. TIBANGAY
University Architect

1014(1)b2.2.1 Pre-Painted Roofing Sheets

Pre-painted roofing sheets shall be fabricated from cold rolled galvanized iron sheets specially tempered steel for extra strength and durability. It shall conform to the material requirements defined in PNS 67: 1985. Profile section in identifying the architectural moulded rib to be used are as follows: Regular corrugated, Quad-rib, Tri-wave, Rib-wide, twin-rib, etc. Desired color shall be subject to the approval of the Architect/Engineer.

1014.2.2 Gutters, Valleys, Flashings Hip and Ridge roll shall be fabricated from gauge 24 (.600 mm thick) cold-rolled plain galvanized iron sheets specially tempered steel. Profile section shall be as indicated on the Plans.

1014.2.3 Fastening hardware shall be of galvanized iron straps and rivets. G.I. straps are of .500 mm thick x 16 mm wide x 267 mm long (gauge 26 x 5/8" x 10-1/2") and standard rivets.

1014(1)b2.2.4 Base metal thickness shall correspond to the following gauge designation available locally as follows:

a) Base Metal Thickness	Designated Gauges
.400 mm thick	Gauge 28
.500 mm thick	Gauge 26
.600 mm thick	Gauge 24
.800 mm thick	Gauge 22

b) Protective Coatings	<u>Thickness</u>
1. Zinc	34.4 microns (244 gm/m2)
2. Paint coatings	Top coat 15.20 microns Bottom coat 6.8 microns

a) Overall thickness with protective coats	
.400 mm	.428-451 mm
.500 mm	.532-551 mm
.600 mm	.638-651 mm

- b) Length of roofing sheets - available in cut to length long span length up to 18.29 meters
- c) Special length and thickness are available by arrangements.

1014(1)b2.3 Construction Requirements

Before any installation work is commenced, the Contractor shall ascertain that the top faces of the purlins are in proper alignment. Correct the alignment as necessary in order to have the top faces of the purlins on an even plane.

1014(1)b2.3.1 Handling/Lifting/Positioning of Sheets

Sheets shall be handled carefully to prevent damage to the paint coating. Lift all sheets or sheet packs on to the roof frame with the overlapping down-turned edge facing towards the side of the roof where installation will commence, otherwise sheets will have to be turned end-to-end during installation.

1014(1)b2.3.2 Installation Procedure

1014(1)b2.3.2.1 Start roofing installation by placing the first sheet in position with the downturned edge in line with other building elements and fastened to supports as recommended.

1014(1)b2.3.2.2 Place the downturned edge of the next sheet over the edge of the first sheet, to provide side lap and hold the side lap firmly in place. Continue the same procedure for subsequent sheets until the whole roofing area is covered and/or (Adopt installation procedure provided in the instruction manual for each type of Architectural molded rib profile section).

1014(1)b2.3.2.3 For walling applications follow the procedure for roofing. Allow a minimum end lap of 100 mm (4") for vertical walling.

1014(1)b2.3.3 Gutters, Valleys, Flashing ridge and Hip rolls

Gutters, valleys, flashing ridge and hip rolls shall be fastened where indicated on the Plans by self-tapping screws or galvanized iron straps and rivets.

1014(1)b2.3.4 End Laps

In case handling or transport consideration requires to use two or more end lapped sheets to provide full length coverage for the roof run, install each line of sheets from bottom to top or from eave line to apex of roof framing. Provide 150 mm minimum end lap.

1014(1)b2.3.5 Anchorage/Fastening

1014(1)b2.3.5.1 Pre-painted steel roofing sheets shall be fastened to the wood purlins with standard length G.I. straps and rivets.

1014(1)b2.3.5.2 For steel frame up to 4.5 mm thick use self-drilling screw No. 12 by 35 mm long hexagonal head with neoprene washer.

1014(1)b2.3.5.3 For steel support up to 5 mm thick or more use thread cutting screw No. 12 by 40 mm long hexagonal head with neoprene washer.

1014(1)b2.3.5.4 Side lap fastener use self-drilling screw NO.10 by 16 mm long hexagonal head with neoprene washer.

1014(1)b2.3.5.5 Valley fastened to lumber and for walling use self-drilling wood screw No. 12 by 25 mm long hexagonal head with neoprene washer.

1014(1)b2.3.5.6 Valleys fastened to steel supports use self-drilling screws, hexagonal head with neoprene washer. Drill size is 5 mm diameter.

1014(1)b2.3.6 Cutting of Sheets

1014(1)b2.3.6.1 In cutting pre painted steel roofing sheets and accessories to place the exposed color side down. Cutting shall be carried out on the ground and not over the top of other painted roofing product.

1014(1)b2.3.6.2 Power cutting or drilling to be done or carried out on pre-painted products already installed or laid in position, the area around holes or cuts shall be masked to shield the paint from hot fillings.

1014(1)b2.3.7 Storage and Protection


Pre-painted steel roofing, walling products and accessories should be delivered to the jobsite in strapped bundles. Sheets and/or bundles shall be neatly stacked in the ground and if left in the open it shall be protected by covering the stack materials with loose tarpaulin.

1014(1)b2.4 Method of Measurement

The work done under this Item shall be measured by actual area covered or installed with pre-painted steel roofing and/or walling in square meters and accepted to the satisfaction of the Engineer/Architect.

TECHNICAL SPECIFICATIONS

REPAIR AND UPGRADING OF DEEP WELL PUMP AND WATER LINE SYSTEM
BSU Buguias Campus, Loo, Buguias, Benguet

Prepared By:

EPHRAIM RAY G. DORIA
Draftsman I-PMU

Reviewed By:
HAZELINE N. TIBANGAY
University Architect

1014(1)b2.5 Basis of Payment

The area of pre-painted steel roofing and/or walling in square meters as provided in Section 1014(1)b2 shall be paid for at the unit bid or contract unit price which payment shall constitute full compensation including labor, materials, tools and incidents necessary to complete this Item.

Payment shall be made under:

Pay Item Number	Description	Unit of Measurement
1014(1)b2	PRE PAINTED METAL SHEETS	SQ.M.

ITEM 1002 – PLUMBING AND PLUMBING FIXTURES

1002.1 Description

This item shall consist of furnishing all materials, tools, equipment and fixtures required as shown on the Plans for the satisfactory performance of the entire plumbing system including installation in accordance with the edition of the National Plumbing Code, and this Specification.

1002.2 Material Requirements

All piping materials, fixtures and appliances fitting accessories whether specifically mentioned or not but necessary to complete this item shall be furnished and installed.

1002.2.1 Cast Iron Soil Pipes and Fittings

Pipes and fitting materials shall comply with the specification requirements defined in PNS/SAO 4-: 1974. The material and standards of manufacture are herein described:

Cast Iron - the casting shall be made of gray iron which shall be sound, free from cracks, sand and blow holes. They shall be uniformly low hardness that permits drilling and cutting by ordinary methods. Pipes and fittings shall be true to pattern and of compact closed grained structure.

Quality of Iron – the iron shall be made by the cupola, air furnace, electric furnace or other processes which shall be checked by regular chemical and physical control test. The result shall be gray iron of good quality.

Manufacture – the pipes shall be made with hub and spigot ends or hub ends only. All hubs for pipes and fitting shall be provided with held lead grooves and all spigot ends shall be made with beads or plain if machine cast centrifugally. Pugs shall be wrought or cast, machined to the dimension required and shall be free from defects.

Freedom from defects – pipes and fittings shall be true, smooth and cylindrical, their inner and outer surfaces being as nearly concentric as practicable. They shall be in all aspects, sound and good casting free from laps, pin holes or other imperfections and shall be neatly dressed and carefully fettled. The ends shall be finished reasonably square to their axes.

Clean-outs shall be made of heavy cast brass ferrule with counter sunk screw cover same diameter as the pipe except that they shall not be larger than 100mm diameter.

Caulking lead shall be of molten type peg lead conforming to specification requirements defined in ASTM B-29.

Oakum shall be twisted or braided hemp or abaca fibers slightly impregnated with oil.

1002.2.2 Water Supply Pipes and Fittings

Pipes shall be galvanized iron pipe schedule 40 conforming to specification requirements defined in ASTM A-120 with threaded connection. Under roads where necessary shall be suitably protected as shown on the Plans.

Fittings shall be malleable iron Type II, galvanized iron conforming to specification requirements defined in ASTM A338.

Valves

Valves for water supply shall be bronze body with threaded ends rated 21.0 kg/cm. square. All valves shall be gate valves unless otherwise specified. Gate valves shall have solid wedge body and disc conforming to specification requirements defined in ASTM B-62. Globe valves shall have plug type discs with ferrule threaded ends and bronze body.

Unions

Unions on ferrous pipe 50mm in diameter and smaller shall be malleable iron.

Water Meter

Water meter where required to be furnished by the Contract shall be of the type tested and approved by MWSS.

1002.2.3 Approved Alternate Pipes and Fittings

Pipes and fittings for sanitary and potable water lines as approved alternate shall be Unplasticized Polyvinyl Chloride Pipes and Fittings (UPVC).

Pipes and fittings shall be made of virgin materials conforming to specification requirements define in ASTM D-2241 and PNS 65: 1986. Fitting shall be molded type and designed for solvent cement joint connection for water lines and rubber O-ring seal joint for sanitary lines.

1002.2.5 Plumbing Fixtures and Fittings


All fittings and trimmings for fixtures shall be chromium-plated and polished brass unless otherwise approved. Exposed traps and supply pipes for fixtures shall be connected to the roughing in, piping system at the wall unless otherwise indicated on the Plans. Built-in fixtures shall be watertight with provision of water supply and drainage outlet, fitting and trap seal. Unless otherwise specified, all plumbing fixtures shall be made of vitreous china complete with fittings.

- Water closet shall be vitreous china, free standing toilet combination, round front bottom outlet siphonic washdown bowl with extended rear self and closed coupled tank with cover complete with fittings and mounting accessories. Model make and color shall be submitted for approval prior to delivery at jobsite by the Engineer.
- Lavatory shall be vitreous china, wall-hung with rear overflow and cast-in soap dishes, pocket hanger with integral china brackets, complete with twin faucets, supply pipes, P-trap and mounting accessories. Where indicated on the Plans to be counter top model make and color shall be approved by the Engineer.
- Urinal shall be china vitreous, wall-hung wash-out urinal with extended shields and integral flush spreader, concealed wall-hanger pockets, 19mm top spud complete with fitting and mounting accessories. Model make and color shall be approved by the Engineer.

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University Architect

1002.2.6 Bathroom and Toilet Accessories

- a) Shower head and fitting shall be movable, cone type with escutcheon arm complete with stainless steel shower valve and control lever, all exposed surface to be chromium finish.
- b) Grab bars shall be made of tubular stainless steel pipe provided with safety grip and mounting flange.
- c) Floor drains shall be made of stainless steel beehive type, measuring 100mm x 100mm, and provided with detachable stainless strainer, expanded metal lath type.
- d) Toilet paper holder shall be vitreous china wall mounted. Color shall reconcile with the adjacent fixture and facing tiles.
- e) Soap holder shall be vitreous china wall mounted. Color shall reconcile with the adjacent tile works.
- f) Faucet(s) shall be made of stainless steel for interior use.
- g) Hose-bib(s) shall be made of bronze cast finish.

1002.2.7 Special Plumbing Fixtures

- a) Kitchen sink shall be made of stainless steel self-rimming, single compartment complete with supply fittings, strainer traps, dual control lever and other accessories.
- b) Laboratory sink shall be made of cast iron metal with white porcelain finish with single compartment, flat rim ledge, 762mm x 533mm complete with supply fittings, strainer, trap and other accessories.
- c) Scrub-up sink shall be made of cast iron metal with white porcelain finish measuring 610mm x 610mm complete with supply fittings, strainer, trap and wall mounting accessories.
- d) X-ray developing tank shall be made of cast iron white porcelain finish with three (3) compartment x-ray processing tank, drain plug, open standing drain, 19mm IPS inlet spud complete with stand and mounting accessories
- e) Squat bowl(s) shall be vitreous china, wash down squat bowl with integral foot treads, pail flush type. Color, make and type to be approved by the Engineer.
- f) Grease traps shall be made of cast bronze with detachable cover and mounting accessories.

1002.2.8 Roof Drains, Downspout, Overflow Pipes and Steel Grating

The Contractor shall provide, fit and/or install necessary drains with strainers, where shown on the Plans. Each drain with strainer shall fit the size of the corresponding downspout (or roof leader) over which it is to be installed and in conformity with the following schedule:

- a) Scupper drains (for balconies, parapet) shall be made of bronze base with flashing. Flange threaded outlet and convex with integral flashing clamp bolted to flange.
- b) "Josam" type drains shall be made of bronze base semi-dome with large free area, flashing clamp and integral gravel stopper. To be used at roof decks, canopies, gutters, and elsewhere indicated on the Plans.
- c) Downspouts when encased in concrete, unless otherwise shown on the Plans shall be polyvinyl chloride (PVC). Whether indicated or specified to be cast iron or galvanized iron the same shall meet the specification requirement as herein described.
- d) Overflow pipes shall be made of galvanized iron pipe measuring at least 13mm diameter and spaced 200mm on center.
- e) Steel grating shall be made of wrought iron metals of design on shop drawings approved and surfaces to be coated with shop finish.

1002.2.9 Fire Protection System

- a. Fire hose cabinets shall be locally available consisting of 38mm diameter valve hose rack with nipple 30mm rubber lined hose cable with standing 4268 kg/cm square, nozzle 38mm diameter brass, chromium plated.
- b. Fire standpipe system shall consist of risers and hose valves. Pipe shall be extra strong black iron. Valves to be high grade cast bronze mounted withstanding 79.40 kg. working pressure as indicated on the Plans.
- c. Fire extinguisher shall be portable, suitable for Class A, B, C fires, mounted inside cabinet. Cabinet shall be full flush mounting door with aluminum trim for glass plate, frame and box shall be made of gauge 14 galvanized iron sheet with white interior and red exterior baked enamel finish over primer. Cabinet to be wall mounted and size to be able to accommodate the defined components.
- d. Yard hydrant where shown on the Plans shall match the Integrated Fire Department requirements. Outlet shall be single 63mm diameter gate valves with chain connected caps.

1002.2.10 Built-in appliances such as urinal trough, lavatory and slope sink shall be made as indicated on the Plans, exposed surfaces to be tile wainscoating Complete with fitting accessories required as practiced in this specialty trade.

1002.3 Construction Requirements

The Contractor before any installation work is started shall carefully examine the Plans and shall investigate actual structural and finishing work condition affecting all his work. Where actual condition necessitates a rearrangement of the approved pipe layout, the Contractor shall prepare Plan(s) of the proposed pipe layout for approval by the Engineer.

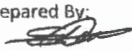
1002.3.1 Installation of Soil, Waste, Drain and Vent Pipe

- a) All cast iron soil and drainage pipes shall be pitch 6 mm per 300 mm but in no case flatter than 3mm per 300mm.
- b) Horizontal lines shall be supported by well secured length heavy strap hangers. Vertical lines shall be secured strongly by hooks to the building frame and a suitable brackets or chairs shall be provided at the floor from which they start.
- c) All main vertical soil and waste stacks shall be extended full size to and above the roof line to act as vents, except otherwise indicated on the Plans.
- d) Vent pipes on roof spaces shall be run as close as possible to underside of roof with horizontal piping pitched down to stacks without forming traps. Vertical vent pipes may be connected into one main vent riser above the highest vented fixtures.
- e) Where an end or circuit vent pipe from any fixtures is connected to a vent line serving other fixtures, the connections shall be at least 1.20 m above the floor on which the fixtures are located.
- f) Horizontal waist line receiving the discharge from two or more fixtures shall be provided with end vents unless separate venting of fixtures is noted on the Plans.
- g) All changes on pipe sizes on soil and waste lines shall be made with reducing fittings or recessed reducers. All changes in directions shall be made by appropriate use of 45 degrees wyes, half wyes, long sweep quarter bends or elbows may be used in soil and waste lines where the change in the

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direction of flow is from the horizontal to the vertical and on the discharge from waste closets. Where it becomes necessary to use short radius fittings in other locations the approval of the Engineer shall be obtained prior to installation of the same.

- h) All joints of cast iron pipes in bell and spigot shall be firmly packed with oakum or hemp or caulked with pig at least 25 mm deep.
- i) Cleanouts at the bottom of each soil stack, waste stack, interior down spout and where else indicated shall be the same size as the pipe up to and including 102 mm, 152 mm, for larger pipes.

Cleanouts on floors shall be cast iron ferrule caulked into cast hub and fitted with cast brass screw plug flush with floor. Cleanouts for threaded pipes shall be installed at the foot of soil, waste and drain stacks and on each building drain outside the building.

- j) Vent pipe shall be flashed and made water tight at the roof with ferrule lead sheet. Flushing shall be turned down into pipes.
- k) Each fixtures and place of equipment requiring connection to the drainage system except fixtures with continuous waste shall be equipped with a trap. Each trap shall be placed as near to the fixture as possible. Traps installed on threaded pipe shall be recessed drainage pattern.
- l) Overhead horizontal runs of pipes shall be hung with adjustable wrought iron pipe hanger spaced not over 3.04 m apart except hub and spigot soil pipe which shall have hanger spaced not over 1.50 m apart and located near a hub.

1002.3.7 Inspection, Warranty Test and Disinfection

All pipes, fittings, traps, fixtures, appurtenances and equipment of the plumbing and drainage system shall be inspected and approved by the Engineer to insure compliance with all requirements of all Codes and Regulations referred to in this Specification.

1002.3.7.1 Drainage System Test

1002.3.7.2

- a) The entire drainage and venting system shall have all necessary openings which can be plugged to permit the entire system to be filled with water to the level of the highest stack vent above the roof.
- b) The system shall hold this water for a full 30 minutes during which time there shall be no drop greater than 102 mm.
- c) Where only a portion of the system is to be tested, the test shall be conducted in the same manner as described for the entire system except that a vertical stack 3.00 m highest horizontal line to be tested may be installed and filled with water to maintain sufficient pressure or water pump may be used to supply the required pressure.
- d) If and when the Engineer decides that an additional test is needed, such as an air to smoke test on the drainage system, the Contractor shall perform such test without any additional cost.

1002.3.7.3 Water Test on System

- a) Upon completion of roughing-in and before connecting fixtures the entire cold-water piping system shall be tested at a hydrostatic pressure 1 ½ times the expected working pressure in the system during the operation and remained tight and leak-proofed.
- b) Where piping system is to be concealed the piping system shall be separately in manner similar to that described for the entire system and in the presence of the Engineer or his duly designated representative.

1002.3.7.4 Defective Work

- a) All defected materials replaced and tested will be repeated until satisfactory performance is attained.
- b) Any material replaced for the satisfactory performance of the system made shall be at the expense of the Contractor.
- c) Caulking of screwed joints or holes will not be permitted.

1002.3.7.5 Disinfection

- a) The entire water distribution system shall be thoroughly flushed and treated with chlorine before it is operated for public use.
- b) Disinfection materials shall be liquid chlorine or hypochlorite and shall be introduced in a manner approved as practiced or approved by the Engineer into the water distribution system.
- c) After a contact period of not less than sixteen hours, the heavenly chlorinated water shall be flushed from the system with potable water.
- d) Valves for the water distribution system shall be opened and closed several times during the 16 hours chlorination treatment is done.

1002.3.8 As-Built Drawings

Upon completion of the work, the Contractor shall submit two sets of prints with all as-built changes shown on the drawings in a neat workmanship manner. Such prints shall show changes or actual installation and conditions of the plumbing system in comparison with the original drawings.

1002.4 Method of Measurement

The work done under this item shall be quantified per length and/or number of units as provided in the Bill of Quantities, tested and accepted to the satisfaction of the Engineer.

1002.5 Basis of Payment

The quantified items, installed in place shall be the basis for payment, based from the unit bid price for which prices and payments shall constitute full compensation including labor, materials and incidentals necessary to complete this item.


Payment shall be made:

Pay Item Number	Description	Unit of Measurement
1002(a)	GALVANIZED IRON PIPES AND FITTINGS	PIECES/ LENGHT
1002(b)	PLUMBING FIXTURES	SETS
1002(c)	ROOF DRAIN WITH STRAINER	SETS

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CERTIFICATE OF SITE INSPECTION REPORT

This is to certify that _____
(Name of Bidder or Technical Representative)

of _____
(Name of Entity)

with office address at _____

_____ had inspected the site/location for
the project: _____

located at _____

This certification is issued to Mr /Ms _____
(Name of Bidder or Representative)

as a part of his/her Technical Proposal.

Issued this _____ of _____, 2024.

Note: to be signed by the authorized representative from Buguias Campus