

APPROVED BY:

PANEL BOARD ACU 3F - SCHEDULE OF LOADS

PANEL NO.	CKT NO.	LOAD DESCRIPTION	L.O.	C.O.	OTHER LOADS	HP RATING	SWITCHES					VOLTAGE RATING	OUTLET (VA) RATING	VA PER CIRCUIT	CIRCUIT LOAD CURRENT (W/DF)				SIZE OF BREAKERS			SIZE OF HOMERUN CKT		
							S ₁	S ₂	S ₃	S _{3W}	S _{3W}				AB	BC	CA	3P	F	P	T	WIRE (sq. mm)	CONDUIT	GROUNDING
PBA3	C1	ACCU-3-01			1	4					230	5175	5175	22.50				60	2	60	2 - 8.0 mm ² THHN Copper Wire	25 mm # Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire	
	C2	ACCU-3-01			1	4					230	5175	5175	22.50				60	2	60	2 - 8.0 mm ² THHN Copper Wire	25 mm # Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire	
	C3	ACCU-3-02			1	4					230	5175	5175			22.50		60	2	60	2 - 8.0 mm ² THHN Copper Wire	25 mm # Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire	
	C4	ACCU-3-02			1	4					230	5175	5175			22.50		60	2	60	2 - 8.0 mm ² THHN Copper Wire	25 mm # Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire	
	C5	ACCU-3-03			1	4					230	5175	5175		22.50			60	2	60	2 - 8.0 mm ² THHN Copper Wire	25 mm # Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire	
	C6	ACCU-3-03			1	4					230	5175	5175		22.50			60	2	60	2 - 8.0 mm ² THHN Copper Wire	25 mm # Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire	
	C7	ACCU-3-04			1	4					230	5175	5175	22.50				60	2	60	2 - 8.0 mm ² THHN Copper Wire	25 mm # Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire	
	C8	ACCU-3-04			1	4					230	5175	5175	22.50				60	2	60	2 - 8.0 mm ² THHN Copper Wire	25 mm # Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire	
	C9	ACCU-3-05			1	4					230	5175	5175			22.50		60	2	60	2 - 8.0 mm ² THHN Copper Wire	25 mm # Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire	
	C10	ACCU-3-05			1	4					230	5175	5175			22.50		60	2	60	2 - 8.0 mm ² THHN Copper Wire	25 mm # Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire	
	C11	ACCU-3-06			1	3					230	3910	3910		17.00			60	2	50	2 - 5.5 mm ² THHN Copper Wire	20 mm # Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire	
	C12	ACCU-3-06			1	3					230	3910	3910		17.00			60	2	50	2 - 5.5 mm ² THHN Copper Wire	20 mm # Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire	
	C13	ACCU-3-07			1	2.5					230	3335	3335	14.50				60	2	40	2 - 5.5 mm ² THHN Copper Wire	20 mm # Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire	
	C14	ACCU-3-08			1	2.5					230	3335	3335	14.50				60	2	40	2 - 5.5 mm ² THHN Copper Wire	20 mm # Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire	
	C15	ACCU-3-09			1	2.5					230	3335	3335			14.50		60	2	40	2 - 5.5 mm ² THHN Copper Wire	20 mm # Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire	
	C16	SPARE									230	1500	1500					60	2	20				
	C17	SPARE									230	1500	1500				5.22		60	2	20			
TOTAL			0	0	15	53.5	0	0	0	0			72575	119.00	84.22	109.72	0.00							

Calculation:

For Service Conductor
 $IL = (119 + 25\% (22.5)) \times 1.732 \cdot 0$
 215.86 A

For Service Protection
 $IL = (119 + 150\% (22.5)) \times 1.732 \cdot 0$
 264.57 A

THEREFORE USE 275 AMPERE CIRCUIT BREAKER, 3 PHASE, 230V
 USE 4 - 100 mm² THHN COPPER, 1 - 22 mm² GROUND @ 75 mm # Conduit - PVC

Load Type	VA	FLC			
		AB	BC	CA	3P
LD	0.00	0.00	0.00	0.00	0.00
CD	0.00	0.00	0.00	0.00	0.00
ACU	69575.00	119.00	79.00	104.50	0.00
MOTOR (NC)	0.00	0.00	0.00	0.00	0.00
MOTOR (C)	0.00	0.00	0.00	0.00	0.00
LARGEST MOTOR	0.00	0.00	0.00	0.00	0.00
SPARE	3000.00	0.00	5.22	5.22	0.00
TOTAL	72575.00	119.00	84.22	109.72	0.00

PANEL BOARD ACU 4F - SCHEDULE OF LOADS

PANEL NO.	CKT NO.	LOAD DESCRIPTION	L.O.	C.O.	OTHER LOADS	HP RATING	SWITCHES					VOLTAGE RATING	OUTLET (VA) RATING	VA PER CIRCUIT	CIRCUIT LOAD CURRENT (W/DF)				SIZE OF BREAKERS			SIZE OF HOMERUN CKT		
							S ₁	S ₂	S ₃	S _{3W}	S _{3W}				AB	BC	CA	3P	F	P	T	WIRE (sq. mm)	CONDUIT	GROUNDING
PBA4	C1	ACCU-4-01			1	4					230	5175	5175	22.50				60	2	60	2 - 8.0 mm ² THHN Copper Wire	25 mm # Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire	
	C2	ACCU-4-01			1	4					230	5175	5175	22.50				60	2	60	2 - 8.0 mm ² THHN Copper Wire	25 mm # Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire	
	C3	ACCU-4-02			1	4					230	5175	5175			22.50		60	2	60	2 - 8.0 mm ² THHN Copper Wire	25 mm # Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire	
	C4	ACCU-4-02			1	4					230	5175	5175			22.50		60	2	60	2 - 8.0 mm ² THHN Copper Wire	25 mm # Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire	
	C5	ACCU-4-03			1	4					230	5175	5175		22.50			60	2	60	2 - 8.0 mm ² THHN Copper Wire	25 mm # Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire	
	C6	ACCU-4-03			1	4					230	5175	5175		22.50			60	2	60	2 - 8.0 mm ² THHN Copper Wire	25 mm # Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire	
	C7	ACCU-4-04			1	4					230	5175	5175	22.50				60	2	60	2 - 8.0 mm ² THHN Copper Wire	25 mm # Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire	
	C8	ACCU-4-04			1	4					230	5175	5175	22.50				60	2	60	2 - 8.0 mm ² THHN Copper Wire	25 mm # Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire	
	C9	ACCU-4-05			1	4					230	5175	5175			22.50		60	2	60	2 - 8.0 mm ² THHN Copper Wire	25 mm # Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire	
	C10	ACCU-4-05			1	4					230	5175	5175			22.50		60	2	60	2 - 8.0 mm ² THHN Copper Wire	25 mm # Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire	
	C11	ACCU-4-06			1	3					230	3910	3910		17.00			60	2	50	2 - 5.5 mm ² THHN Copper Wire	20 mm # Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire	
	C12	ACCU-4-06			1	3					230	3910	3910		17.00			60	2	50	2 - 5.5 mm ² THHN Copper Wire	20 mm # Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire	
	C13	ACCU-4-07			1	2.5					230	3335	3335	14.50				60	2	40	2 - 5.5 mm ² THHN Copper Wire	20 mm # Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire	
	C14	ACCU-4-08			1	2.5					230	3335	3335	14.50				60	2	40	2 - 5.5 mm ² THHN Copper Wire	20 mm # Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire	
	C15	ACCU-4-08			1	2.5					230	3335	3335			14.50		60	2	40	2 - 5.5 mm ² THHN Copper Wire	20 mm # Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire	
	C18	SPARE									230	1500	1500				5.22		60	2	20			
	C19	SPARE									230	1500	1500					5.22		60	2	20		
TOTAL			0	0	15	53.5	0	0	0	0			72575	119.00	84.22	109.72	0.00							

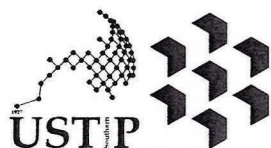
Calculation:

For Service Conductor
 $IL = (119 + 25\% (22.5)) \times 1.732 \cdot 0$
 215.86 A

For Service Protection
 $IL = (119 + 150\% (22.5)) \times 1.732 \cdot 0$
 264.57 A

THEREFORE USE 275 AMPERE CIRCUIT BREAKER, 3 PHASE, 230V
 USE 4 - 100 mm² THHN COPPER, 1 - 22 mm² GROUND @ 75 mm # Conduit - PVC

Load Type	VA	FLC			
		AB	BC	CA	3P
LD	0.00	0.00	0.00	0.00	0.00
CD	0.00	0.00	0.00	0.00	0.00
ACU	69575.00	119.00	79.00	104.50	0.00
MOTOR (NC)	0.00	0.00	0.00	0.00	0.00
MOTOR (C)	0.00	0.00	0.00	0.00	0.00
LARGEST MOTOR	0.00	0.00	0.00	0.00	0.00
SPARE	3000.00	0.00	5.22	5.22	0.00
TOTAL	72575.00	119.00	84.22	109.72	0.00



REPUBLIC OF THE PHILIPPINES
 UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES
 CAGAYAN DE ORO CAMPUS
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 WEBSITE: www.ustp.edu.ph

PROFESSIONAL ELECTRICAL ENGINEER
 PRC NO. _____ PTR NO. _____
 DATE: _____ PLACE: _____
 TIN NO. _____

PROJECT: CONSTRUCTION OF 21ST CENTURY CLASSROOM BUILDINGS PHASE III, VILLANUEVA CAMPUS
 LOCATION: USTP VILLANUEVA CAMPUS, MISAMIS ORIENTAL
 OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL:

 ENGR. GRACE C. BABA
 DIRECTOR, IPFDO

RECOMMENDING APPROVAL:

 ATTY. ERWIN B. BUCIO
 VP FOR ADMINISTRATION & LEGAL AFFAIRS

APPROVED BY:

 DR. AMBROSIO B. CULTURA II
 PRESIDENT, USTP SYSTEM

SHEET CONTENTS:
 SCHEDULE OF LOADS

DRAWN BY:
 DATE DRAWN:
 PNT:

E18

APPROVED BY:

PANEL BOARD ACU 5F - SCHEDULE OF LOADS																									
PANEL NO.	CKT NO.	LOAD DESCRIPTION	L.O.	C.D.	OTHER LOADS	HP RATING	SWITCHES					VOLTAGE RATING	OUTLET (VA) RATING	VA PER CIRCUIT	CIRCUIT LOAD CURRENT (W/DF)				SIZE OF BREAKERS			SIZE OF HOMERUN CKT		GROUNDING	
							S ₁	S ₂	S ₃	S ₄	S ₅				AB	BC	CA	3P	F	P	T	WIRE (sq. mm)	CONDUIT		
PBA5	C1	ACCU-5-01			1	3						230	3910	3910		17.00				60	2	50	2 - 5.5 mm ² THHN Copper Wire	20 mm ø Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire
	C2	ACCU-5-01			1	3						230	3910	3910		17.00				60	2	50	2 - 5.5 mm ² THHN Copper Wire	20 mm ø Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire
	C3	ACCU-5-02			1	3						230	3910	3910				17.00		60	2	50	2 - 5.5 mm ² THHN Copper Wire	20 mm ø Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire
	C4	ACCU-5-02			1	3						230	3910	3910				17.00		60	2	50	2 - 5.5 mm ² THHN Copper Wire	20 mm ø Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire
	C5	ACCU-5-03			1	4						230	5175	5175				22.50		60	2	60	2 - 8.0 mm ² THHN Copper Wire	25 mm ø Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire
	C6	ACCU-5-03			1	4						230	5175	5175				22.50		60	2	60	2 - 8.0 mm ² THHN Copper Wire	25 mm ø Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire
	C7	ACCU-5-04			1	3						230	3910	3910		17.00				60	2	50	2 - 5.5 mm ² THHN Copper Wire	20 mm ø Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire
	C8	ACCU-5-08			1	1						230	1840	1840		8.00				60	2	20	2 - 5.5 mm ² THHN Copper Wire	20 mm ø Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire
	C9	ACCU-5-04			1	3						230	3910	3910				17.00		60	2	50	2 - 5.5 mm ² THHN Copper Wire	20 mm ø Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire
	C10	ACCU-5-05			1	3						230	3910	3910				17.00		60	2	50	2 - 5.5 mm ² THHN Copper Wire	20 mm ø Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire
	C11	ACCU-5-09			1	1						230	1840	1840				8.00		60	2	20	2 - 5.5 mm ² THHN Copper Wire	20 mm ø Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire
	C12	ACCU-5-05			1	3						230	3910	3910				17.00		60	2	50	2 - 5.5 mm ² THHN Copper Wire	20 mm ø Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire
	C13	ACCU-5-11			1	2.5						230	3335	3335		14.50				60	2	40	2 - 5.5 mm ² THHN Copper Wire	20 mm ø Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire
	C14	ACCU-5-12			1	1						230	1840	1840		8.00				60	2	30	2 - 5.5 mm ² THHN Copper Wire	20 mm ø Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire
	C15	ACCU-5-13			1	3						230	3910	3910				17.00		60	2	30	2 - 5.5 mm ² THHN Copper Wire	20 mm ø Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire
	C16	ACCU-5-06			1	1.5						230	2300	2300				10.00		60	2	25	2 - 5.5 mm ² THHN Copper Wire	20 mm ø Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire
	C17	ACCU-5-10			1	3						231	3927	3927				17.00		60	2	50	2 - 5.5 mm ² THHN Copper Wire	20 mm ø Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire
	C18	ACCU-5-10			1	3						232	3944	3944				17.00		60	2	50	2 - 5.5 mm ² THHN Copper Wire	20 mm ø Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire
	C19	SPARE										230	1500	1500				5.22		60	2	20	2 - 5.5 mm ² THHN Copper Wire	20 mm ø Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire
	C20	SPARE										230	1500	1500				5.22		60	2	20	2 - 5.5 mm ² THHN Copper Wire	20 mm ø Conduit - PVC	1 - 5.5 mm ² THHN Copper Wire
TOTAL			0	0	10	48	0	0	0	0			67566						91.93		104.00				

Calculation:	For Service Conductor $IL = (104 + 25\% (22.5)) \times 1.732 \times 0$ 189.88 A	For Service Protection $IL = (104 + 150\% (22.5)) \times 1.732 \times 0$ 238.59 A	THEREFORE USE 250 AMPERE CIRCUIT BREAKER, 3 PHASE, 230V USE 4 - 100 mm ² THHN COPPER, 1 - 22 mm ² GROUND @ 75 mm ø Conduit - PVC
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Load Type	VA	FLC			
		AB	BC	CA	3P
LD	0.00	0.00	0.00	0.00	0.00
CD	0.00	0.00	0.00	0.00	0.00
ACU	64566.00	81.50	104.00	95.00	0.00
MOTOR (NC)	0.00	0.00	0.00	0.00	0.00
MOTOR (C)	0.00	0.00	0.00	0.00	0.00
LARGEST MOTOR	0.00	0.00	0.00	0.00	0.00
SPARE	3000.00	10.43	0.00	0.00	0.00
TOTAL	67566.00	91.93	104.00	95.00	0.00

TRANSFORMER TO MCB	
LENGTH	5 m
FLC	1724.19 A
SETS	5
PHASE	3
FACTOR	1.732
CABLE	
250mm ²	
RESISTANCE	0.029 Ω
REACTANCE	0.048 Ω
COMPUTATION	$VD = [1.732 \times (1724.19/5) \times \sqrt{(0.029^2 + 0.048^2)}] / 305m \times 5m$
VOLTAGE DROP	0.5490547 V

MCB TO ATS	
LENGTH	5 m
FLC	1724.19 A
SETS	5
PHASE	3
FACTOR	1.732
CABLE	
250mm ²	
RESISTANCE	0.029 Ω
REACTANCE	0.048 Ω
COMPUTATION	$VD = [1.732 \times (1724.19/5) \times \sqrt{(0.029^2 + 0.048^2)}] / 305m \times 5m$
VOLTAGE DROP	0.5490547 V

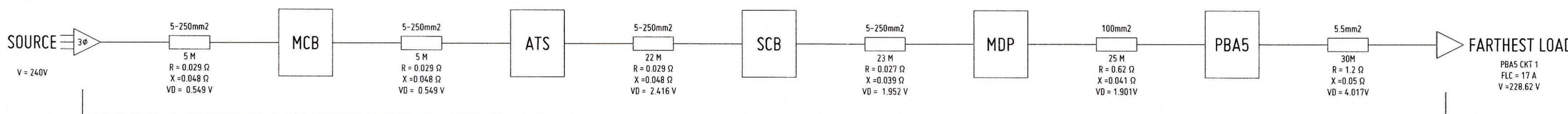
ATS TO SCB	
LENGTH	22 m
FLC	1724.19 A
SETS	5
PHASE	3
FACTOR	1.732
CABLE	
250mm ²	
RESISTANCE	0.029 Ω
REACTANCE	0.048 Ω
COMPUTATION	$VD = [1.732 \times (1724.19/5) \times \sqrt{(0.029^2 + 0.048^2)}] / 305m \times 22m$
VOLTAGE DROP	2.415998407 V

SCB TO MDP	
LENGTH	23 m
FLC	1575.57 A
SETS	5
PHASE	3
FACTOR	1.732
CABLE	
250mm ²	
RESISTANCE	0.027 Ω
REACTANCE	0.039 Ω
COMPUTATION	$VD = [1.732 \times (1575.57/5) \times \sqrt{(0.027^2 + 0.039^2)}] / 305m \times 23m$
VOLTAGE DROP	1.952243847 V

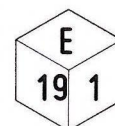
MDP TO PBA5	
LENGTH	25 m
FLC	180.13 A
SETS	1
PHASE	3
FACTOR	1.732
CABLE	
100mm ²	
RESISTANCE	0.062 Ω
REACTANCE	0.041 Ω
COMPUTATION	$VD = [1.732 \times (180.13/1) \times \sqrt{(0.062^2 + 0.041^2)}] / 305m \times 25m$
VOLTAGE DROP	1.900795631 V

PBA5 TO FARTHEST MOTOR LOAD (CKT 1)	
LENGTH	30 m
FLC	17.00 A
SETS	1
PHASE	1
FACTOR	2
CABLE	
5.5mm ²	
RESISTANCE	1.2 Ω
REACTANCE	0.05 Ω
COMPUTATION	$VD = [2 \times (17/1) \times \sqrt{(1.2^2 + 0.05^2)}] / 305m \times 30m$
VOLTAGE DROP	4.01659685 V

VOLTAGE DROP ANALYSIS			
TOTAL VOLTAGE DROP FROM SERVICE TO FARTHEST LOAD	$0.55 + 0.55 + 2.42 + 1.95 + 1.9 + 4.02$	11.38 V	PERCENT VOLTAGE DROP
VOLTAGE DROP COMPUTATION USING NOMINAL VOLTAGE (240V)	$240 - 11.38 V$	228.62V	4.74%



11.38 V OR 4.74%



VOLTAGE DROP ANALYSIS

NOT DRAWN TO SCALE



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WEBSITE: www.ustp.edu.ph

PROFESSIONAL ELECTRICAL ENGINEER	
PRC NO.	PTR NO.
DATE	PLACE
TIN NO.	

PROJECT	CONSTRUCTION OF 21ST CENTURY CLASSROOM BUILDINGS PHASE III, VILLANUEVA CAMPUS
LOCATION	USTP VILLANUEVA CAMPUS, MISAMIS ORIENTAL
OWNER	UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL:
[Signature]
ENGR. GRACE C. BABA
DIRECTOR, IPFDD

RECOMMENDING APPROVAL:
[Signature]
ATTY. ERWIN B. BUCIO
VP FOR ADMINISTRATION & LEGAL AFFAIRS

APPROVED BY:
[Signature]
DR. AMBROSIO B. CULTURA II
PRESIDENT, USTP SYSTEM

SHEET CONTENTS:	SCHEDULE OF LOADS
	VOLTAGE DROP ANALYSIS
DATE DRAWN:	
DATE:	

DRAWN BY:	
DATE:	
FILE:	

E19

USING POINT TO POINT METHOD

Transformer Full Load Current (I_{FLA})
 For 3Ø Transformer:
 $I_{FLA} = (kVA \times 1000) / (E_{L-L} \times \sqrt{3})$
 For 1Ø Transformer:
 $I_{FLA} = (kVA \times 1000) / E_{L-L}$

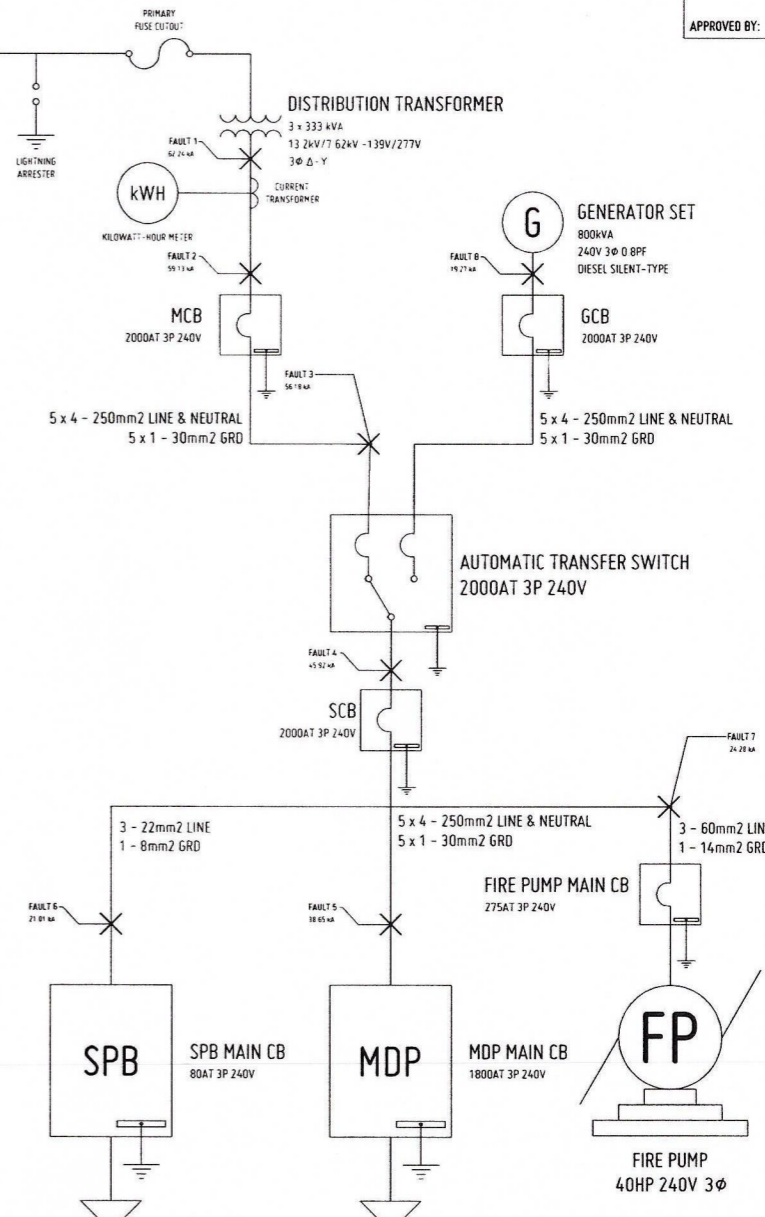
1. For 3Ø System:
 $f = (1.732 \times L \times I_{sp}) / (C \times n \times E_{L-L})$
 2. For Line-to-Line:
 $f = (2 \times L \times I_{L-L}) / (C \times n \times E_{L-L})$
 3. For Line-to-Neutral: $f = (2 \times L \times I_{L-N}) / (C \times n \times E_{L-N})$

Multiplier = $100 / (\%Z_{transformer})$
 $M = 1 / (1 + f)$
 $I_{SC sym RMS} = I_{SC} \times M$
 $I_{SC Motor Contribution} = I_{SC} \times 4$

APPROVED BY:

DISTRIBUTION UTILITY

13.2kV 3Ø



FAULT LOCATION 1 XMER SECONDARY SIDE		
TRANSFORMER FLC	2403.290993	A
MULTIPLIER	23.14814815	
3P FAULT CURRENT	55631.73595	A
	55.63173595	kA
TOTAL 3P FAULT CURRENT	62244.46875	A
	62.24446875	kA

FAULT LOCATION 2 MCB		
CONDUCTOR	250mm²	
NO. OF SETS	5	
LENGTH	5	m
C VALUE	22185	
"f" FACTOR	0.059372435	
MULTIPLIER	0.943955088	
3P FAULT CURRENT	52513.86018	A
	52.51386018	kA
TOTAL 3P FAULT CURRENT	59126.59298	A
	59.12659298	kA

FAULT LOCATION 3 ATS		
CONDUCTOR	250mm²	
NO. OF SETS	5	
LENGTH	5	m
C VALUE	22185	
"f" FACTOR	0.059372435	
MULTIPLIER	0.943955088	
3P FAULT CURRENT	49570.72549	A
	49.57072549	kA
TOTAL 3P FAULT CURRENT	56183.45829	A
	56.18345829	kA

FAULT LOCATION 4 SCB		
CONDUCTOR	250mm²	
NO. OF SETS	5	
LENGTH	22	m
C VALUE	22185	
"f" FACTOR	0.261238715	
MULTIPLIER	0.792871316	
3P FAULT CURRENT	39303.20636	A
	39.30320636	kA
TOTAL 3P FAULT CURRENT	45915.93916	A
	45.91593916	kA

FAULT LOCATION 5 MDP		
CONDUCTOR	250mm²	
NO. OF SETS	5	
LENGTH	23	m
C VALUE	26706	
"f" FACTOR	0.226878469	
MULTIPLIER	0.815076656	
3P FAULT CURRENT	32035.12601	A
	32.03512601	kA
TOTAL 3P FAULT CURRENT	38647.85881	A
	38.64785881	kA

FAULT LOCATION 6 SPB		
CONDUCTOR	22mm²	
NO. OF SETS	1	
LENGTH	5	m
C VALUE	3806	
"f" FACTOR	1.730396055	
MULTIPLIER	0.366247233	
3P FAULT CURRENT	14394.69057	A
	14.39469057	kA
TOTAL 3P FAULT CURRENT	21007.42337	A
	21.00742337	kA

FAULT LOCATION 7 FIRE PUMP		
CONDUCTOR	60mm²	
NO. OF SETS	1	
LENGTH	10	m
C VALUE	10755	
"f" FACTOR	1.224711741	
MULTIPLIER	0.449496437	
3P FAULT CURRENT	17666.6512	A
	17.6666512	kA
TOTAL 3P FAULT CURRENT	24279.384	A
	24.279384	kA

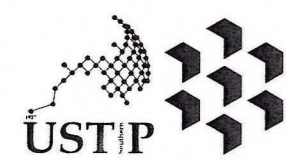
TRANSFORMER RATING	999	kVA
%Z	4.8	(Typical Value)
PRIMARY LINE VOLTAGE	13.2	kV
SECONDARY LINE VOLTAGE	240	V

GENERATOR					
RATING	PF	VOLTAGE	FLC	SUBTRANSIENT REACTANCE (X'')	SHORT CIRCUIT CURRENT CONTRIBUTION (kA)
800	0.8	240	1924.557352	25%	7.70

MOTOR LOADS		
TYPE	FLC	SHORT CIRCUIT CURRENT CONTRIBUTION (kA)
AIRCON	1362.72	5.45
MOTOR (NON CONTINUOUS)	50.75	0.20
MOTOR (CONTINUOUS)	59.58	0.24
LARGEST MOTOR	180.13	0.72
TOTAL MOTOR CONTRIBUTION		6.61

SHORT CIRCUIT ANALYSIS			
FAULT NO.	FAULT LOCATION	TOTAL 3P FAULT CURRENT (kA)	MINIMUM CB KAIC RATING
1	XMER SECONDARY SIDE	62.24	65
2	MCB	59.13	65
3	ATS	56.18	65
4	SCB	45.92	65
5	MDP	38.65	42
6	SPB	21.01	42
7	FIRE PUMP	24.28	30

E 20 1 **SHORT CIRCUIT ANALYSIS**
NOT DRAWN TO SCALE



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WEBSITE: www.ustp.edu.ph

PROFESSIONAL ELECTRICAL ENGINEER
 PRC NO. _____ PTR NO. _____
 DATE _____ PLACE _____
 TIN NO. _____

PROJECT: CONSTRUCTION OF 21ST CENTURY CLASSROOM BUILDINGS PHASE III, VILLANUEVA CAMPUS
 LOCATION: USTP VILLANUEVA CAMPUS, MISAMIS ORIENTAL
 OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL:
 ENGR. GRACE C. BABA
 DIRECTOR, IPFDO

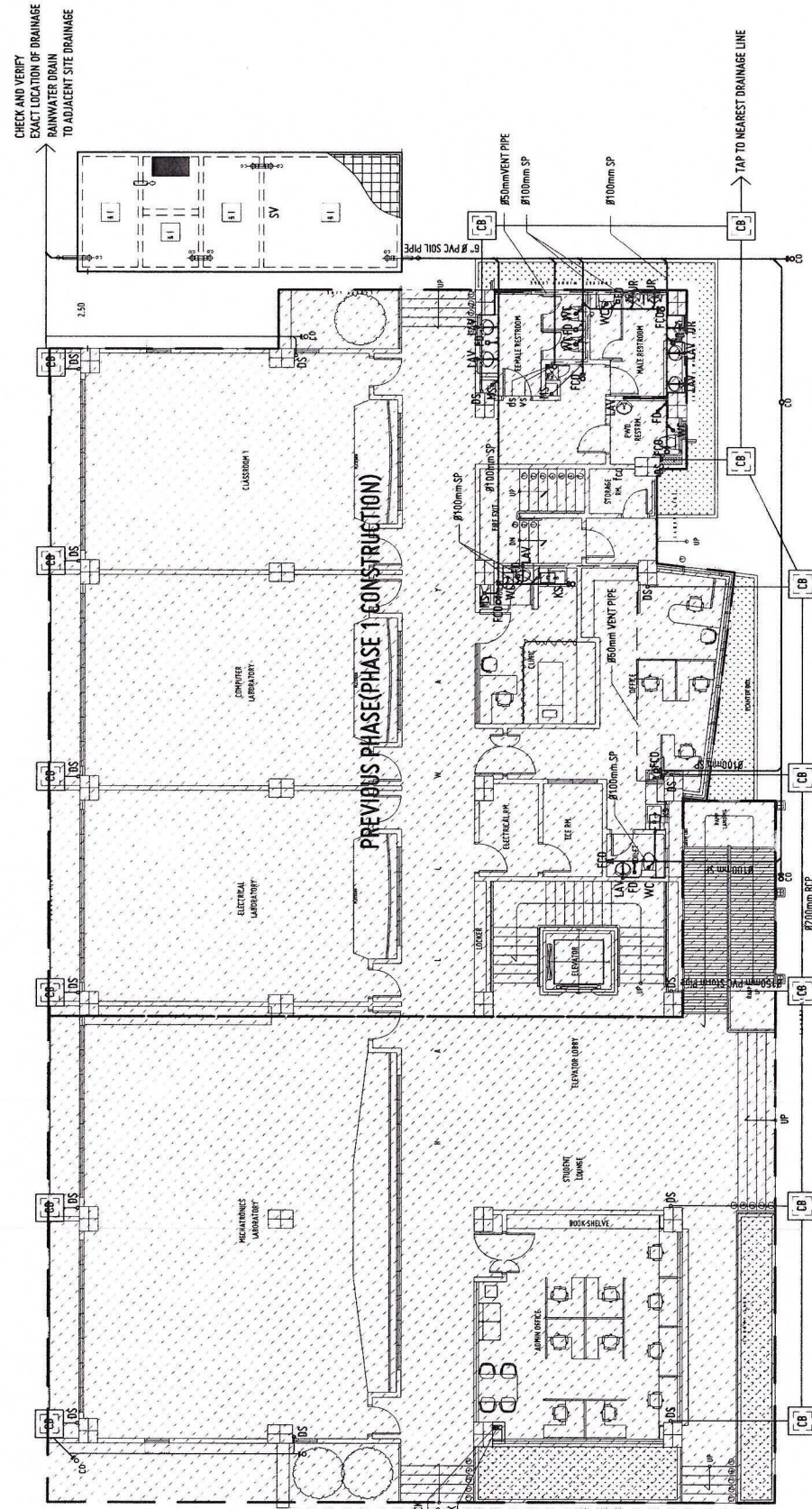
RECOMMENDING APPROVAL:
 ATTY. ERWIN B. BUSIO
 VP FOR ADMINISTRATION & LEGAL AFFAIRS

APPROVED BY:
 DR. AMBROSIO B. CULTURA II
 PRESIDENT, USTP-SYSTEM

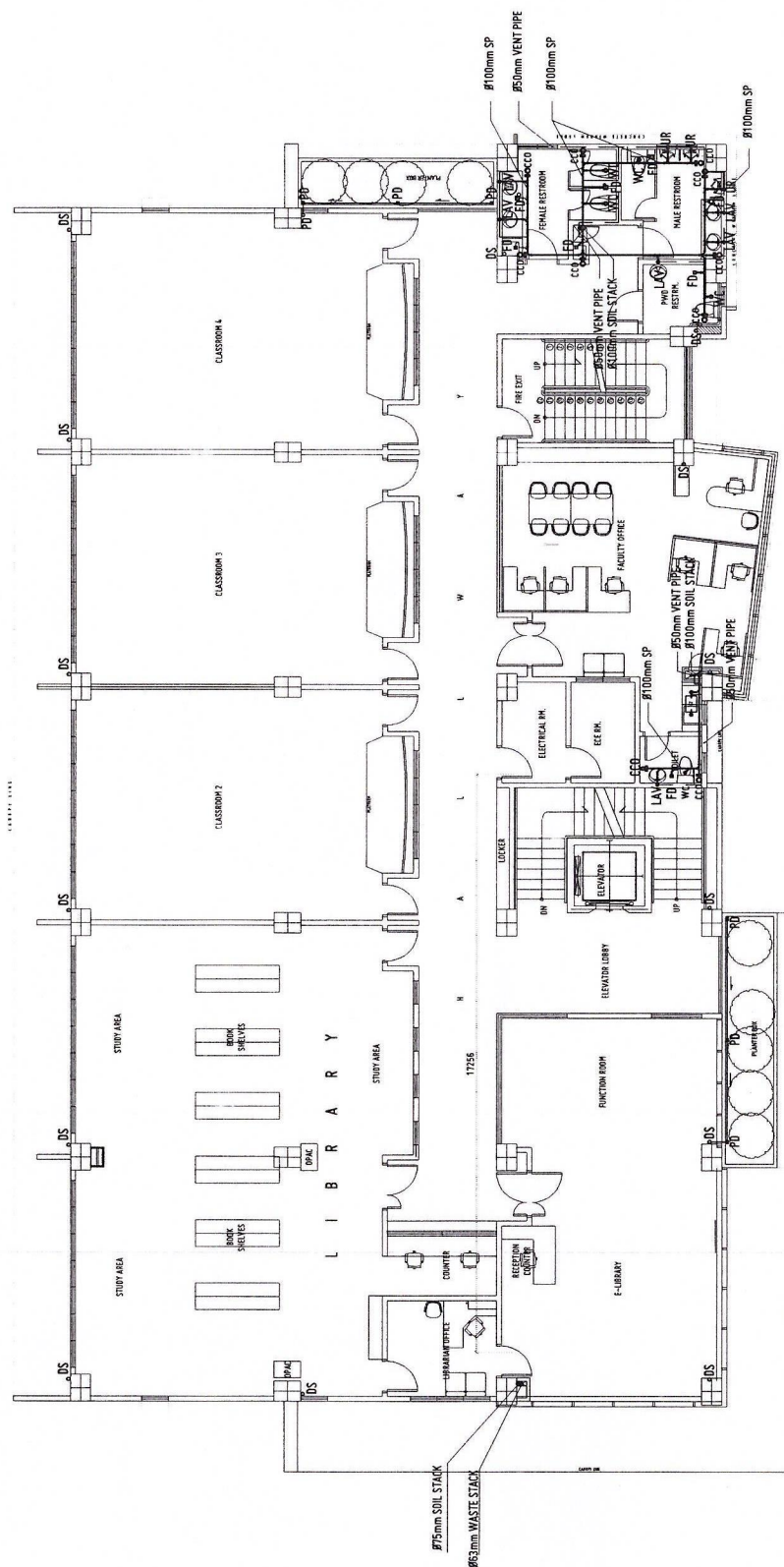
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 SHORT CIRCUIT ANALYSIS
 DRAWN BY: _____
 DATE DRAWN: _____
 FMT: _____



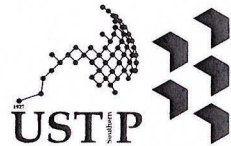
APPROVED BY:



GROUND FLOOR-PLUMBING LAYOUT-PHASE 2 CONSTRUCTION
SCALE: 1:100 MTS



SECOND FLOOR-PLUMBING LAYOUT
SCALE: 1:100 MTS



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WEBSITE: www.ustp.edu.ph

MASTER PLUMBER	
PRC NO.:	PTR NO.:
DATE:	PLACE:
TIN NO.:	

PROJECT	CONSTRUCTION OF 21ST CENTURY CLASSROOM BUILDINGS PHASE III, VILLANUEVA CAMPUS
LOCATION	USTP VILLANUEVA CAMPUS, MISAMIS ORIENTAL
OWNER	UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL:
Engr. Grace C. Baba
ENGR. GRACE C. BABA
DIRECTOR, IPFDD

RECOMMENDING APPROVAL:
Atty. Erwin B. Bucio
ATTY. ERWIN B. BUCIO
-VP FOR ADMINISTRATION & LEGAL AFFAIRS

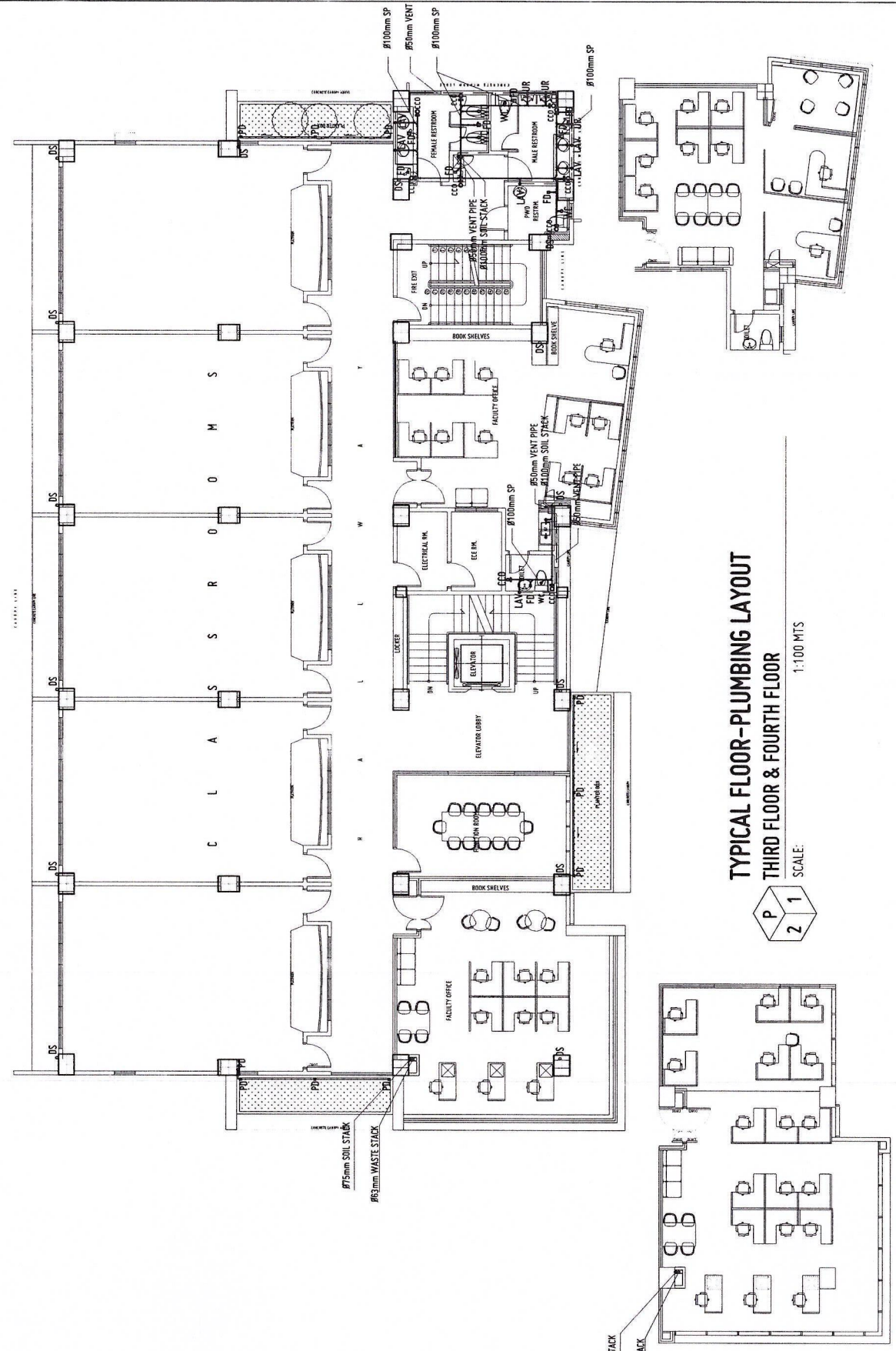
APPROVED BY:
Dr. Ambrosio B. Cultura II
DR. AMBROSIO B. CULTURA II
PRESIDENT, USTP SYSTEM

SHEET CONTENTS:	PLUMBING WASTE LINE LAYOUT: GROUND FLOOR
	PLUMBING WASTE LINE LAYOUT: SECOND FLOOR

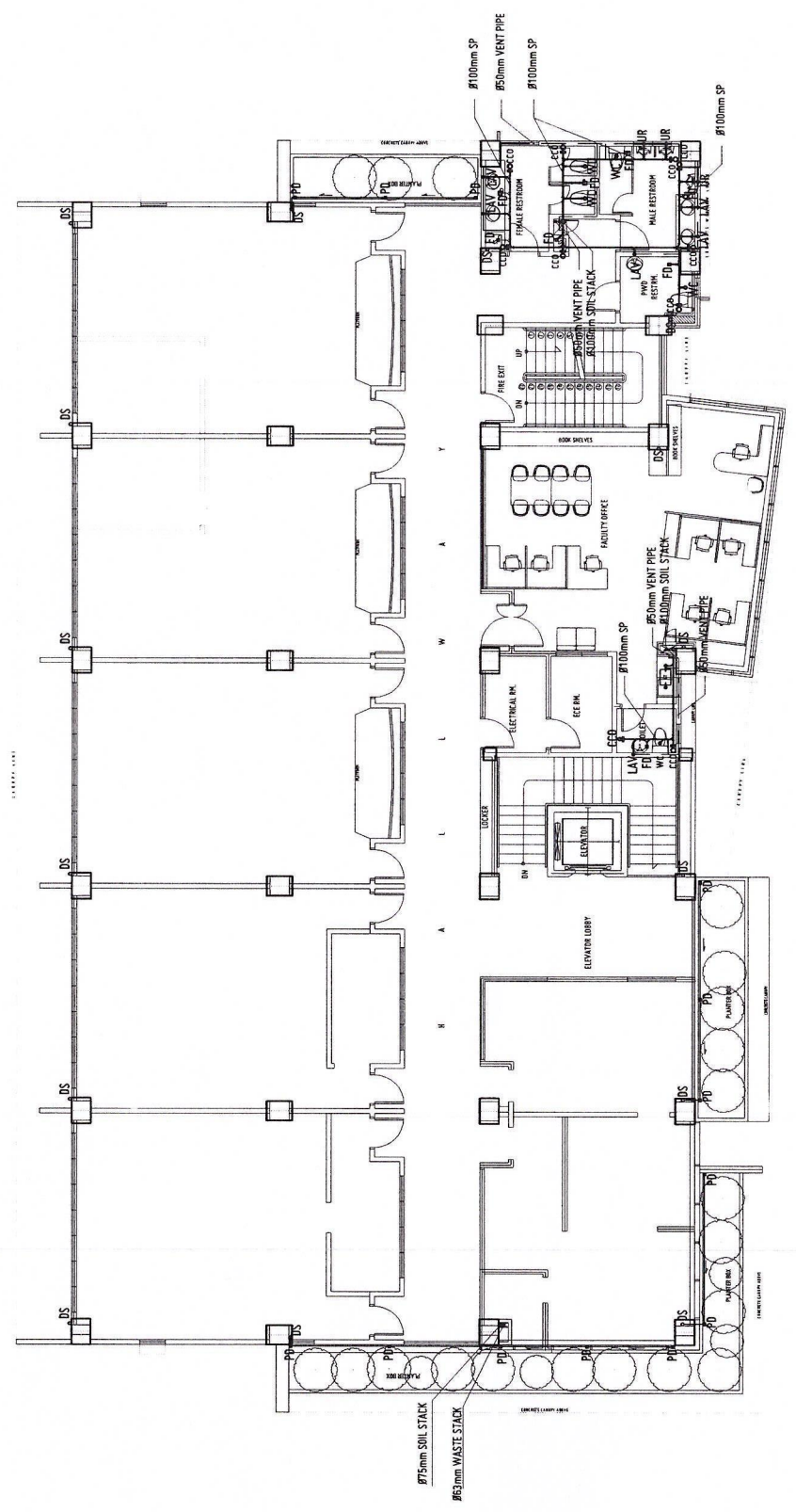
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DATE DRAWN:	
FNT:	

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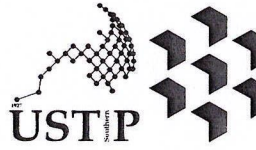
APPROVED BY:



TYPICAL FLOOR-PLUMBING LAYOUT
THIRD FLOOR & FOURTH FLOOR
SCALE: 1:100 MTS



FIFTH FLOOR-PLUMBING LAYOUT
SCALE: 1:100 MTS



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OWNER	UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL
ENGR. GRACE C. BABA
DIRECTOR, IPFDO

RECOMMENDING APPROVAL
ATTY. ERWIN S. RUCIO
VP FOR ADMINISTRATION & LEGAL AFFAIRS

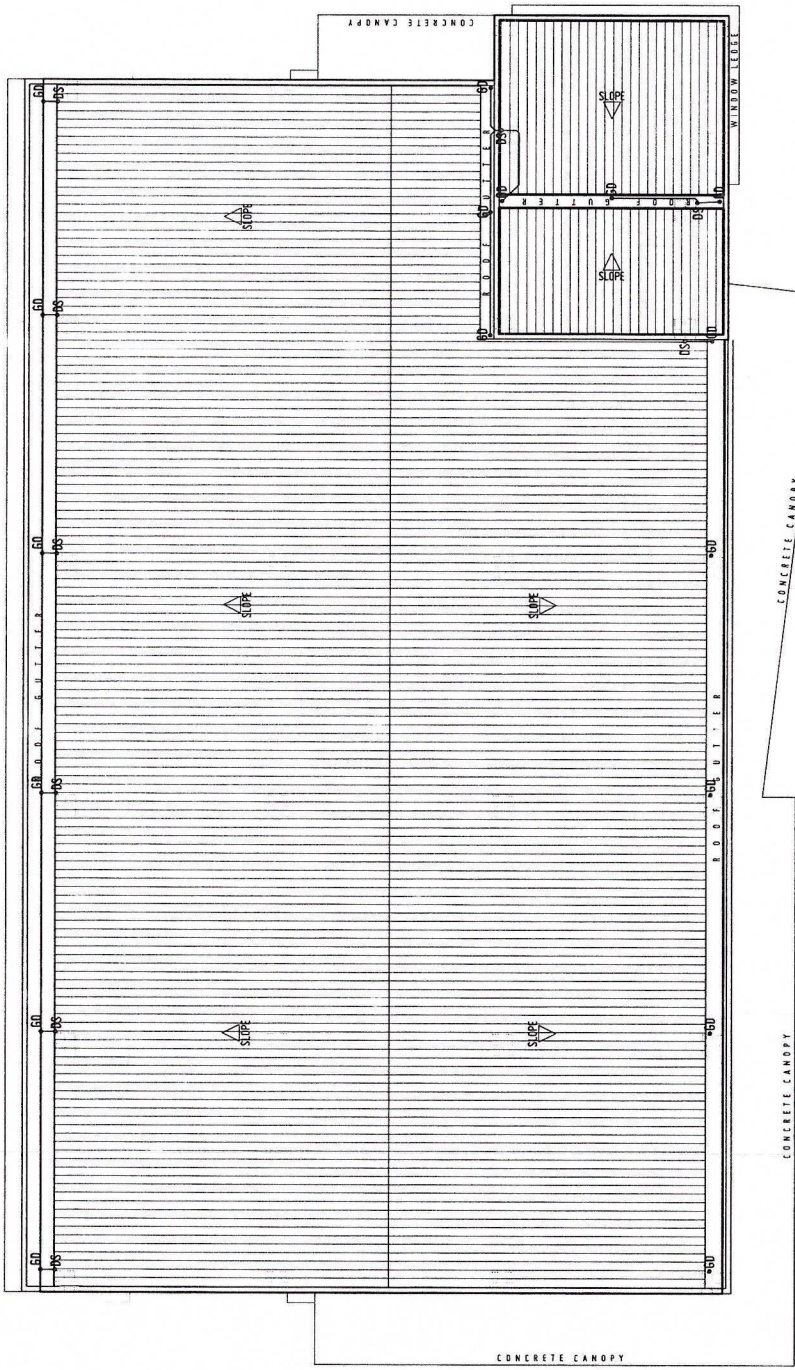
APPROVED BY:
DR. AMBROSIO B. CULTURA II
PRESIDENT, USTP SYSTEM

SHEET CONTENTS:
PLUMBING WASTE LINE LAYOUT:
TYPICAL PLAN - THIRD FLOOR &
FOURTH FLOOR
PLUMBING WASTE LINE LAYOUT:
FIFTH FLOOR

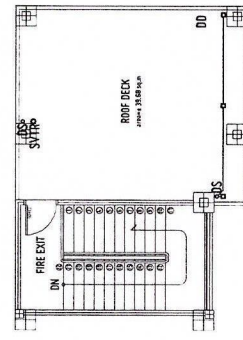
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DATE DRAWN:
PNT:

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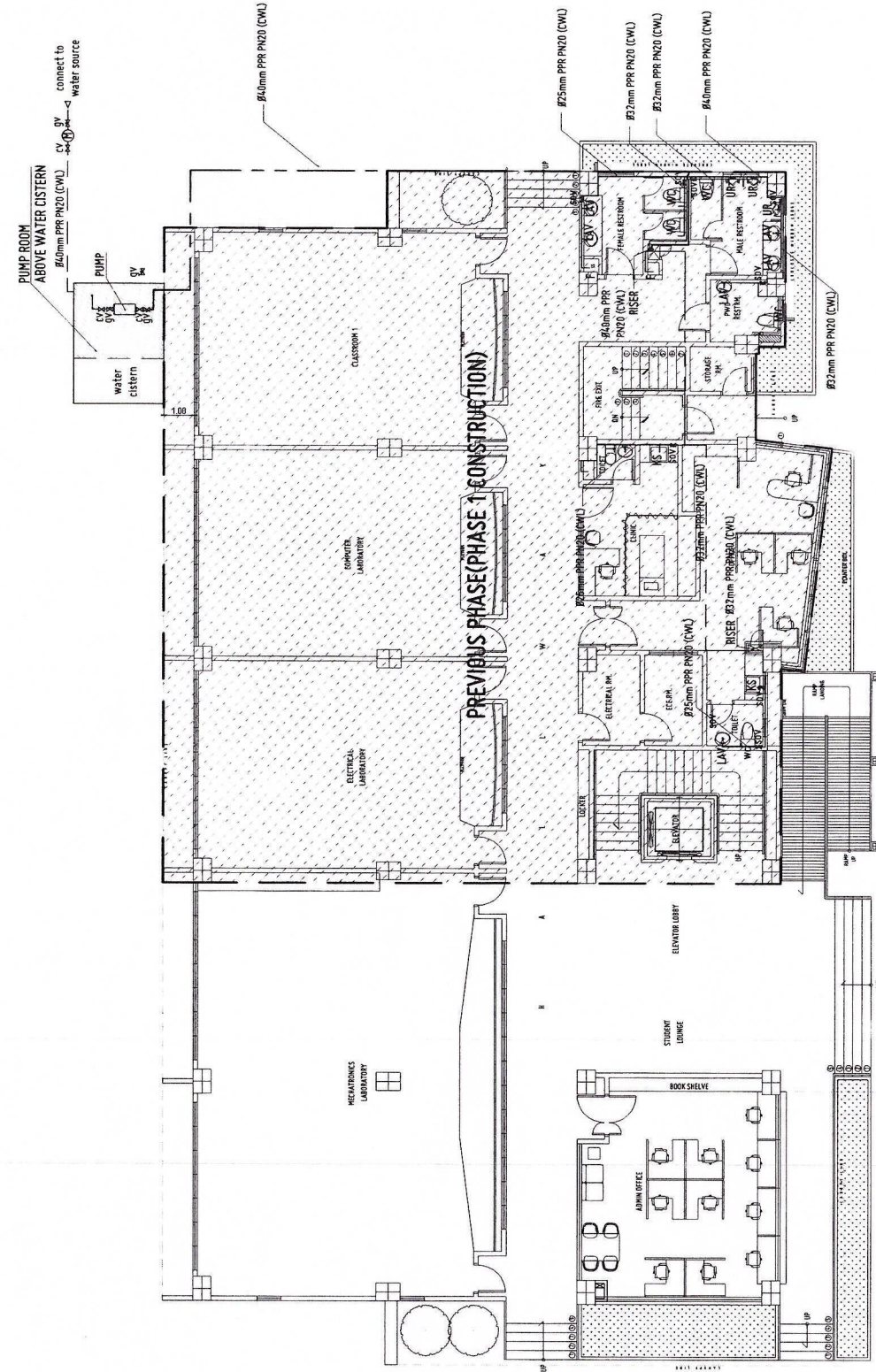
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ROOF PLAN
SCALE: 1:100 MTS



ROOF DECK PLAN
SCALE: 1:100 MTS



GROUND FLOOR-WATER LINE LAYOUT
SCALE: 1:100 MTS



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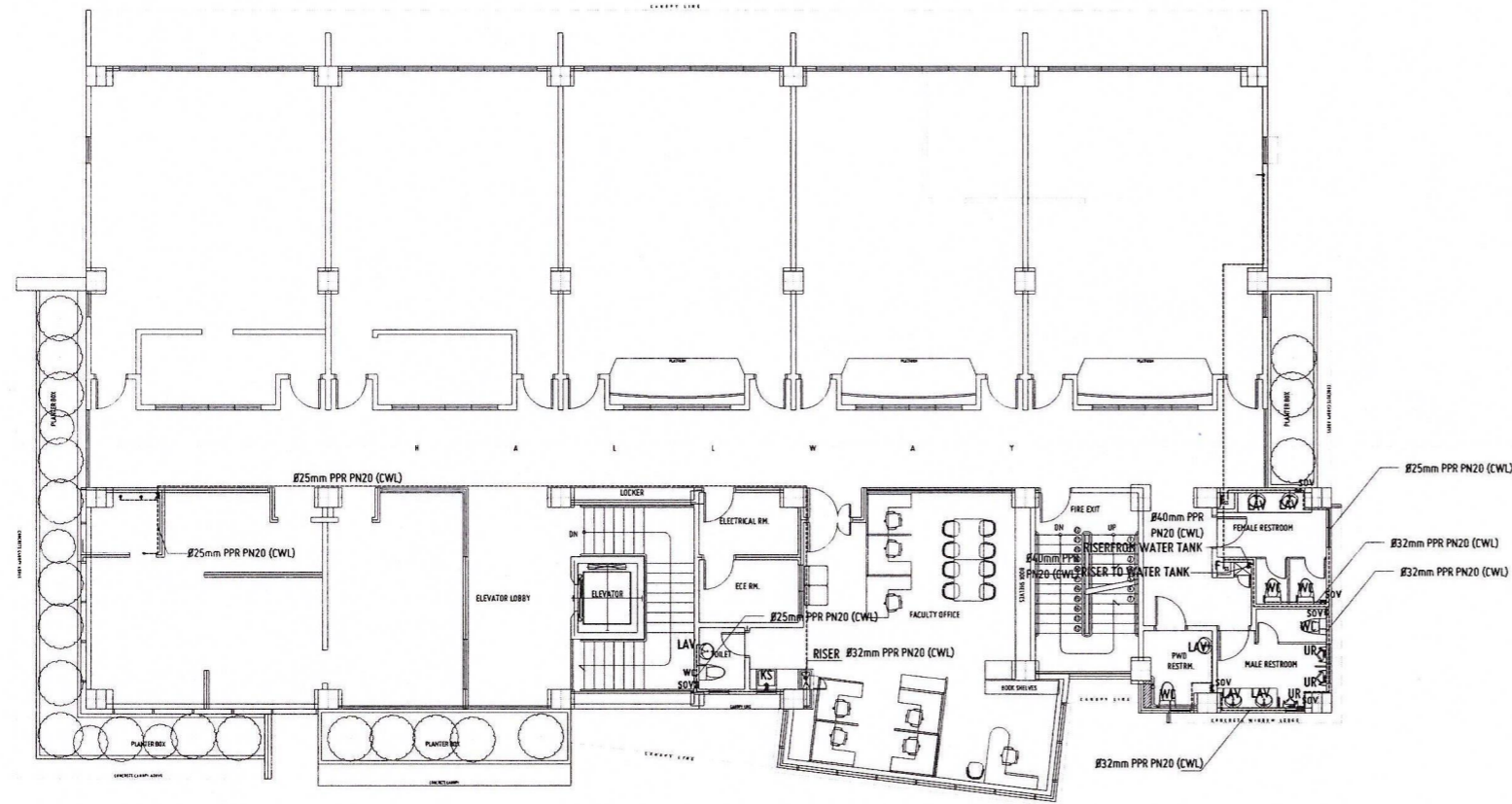
APPROVED BY:
DR. AMBROSIO G. CULTURA II
PRESIDENT, USTP SYSTEM

SHEET CONTENTS:
PLUMBING WASTE LINE LAYOUT:
ROOF
WATER LINE LAYOUT:
GROUND FLOOR

DRAWN BY:
DATE DRAWN:
PNT:

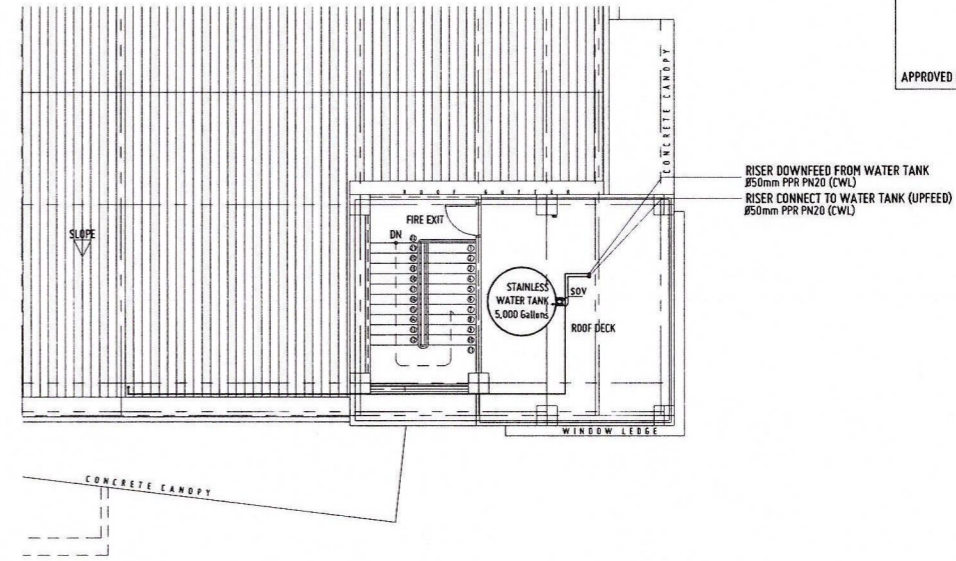
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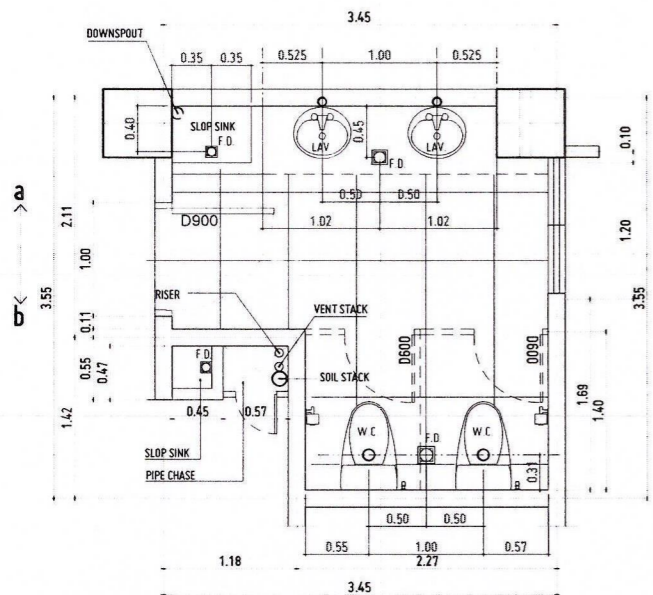
FIFTH FLOOR-WATER LINE LAYOUT

SCALE: 1:100 MTS



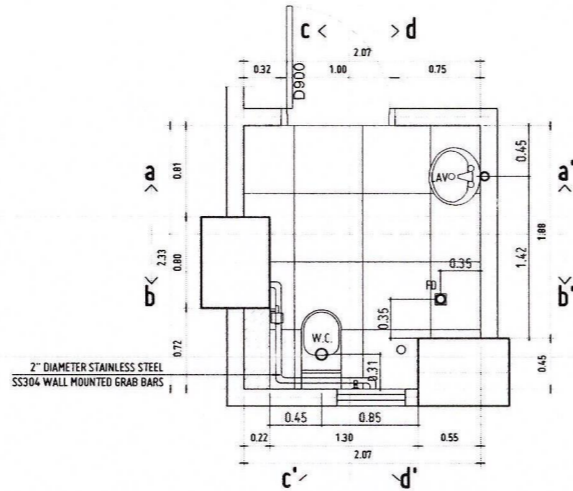
ROOF DECK-WATER LINE LAYOUT

SCALE: 1:100 MTS



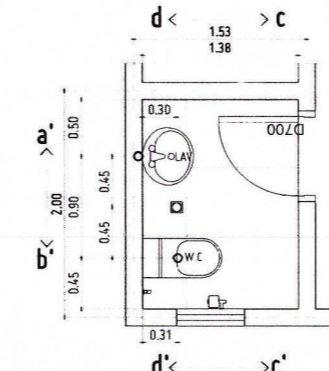
STUB-OUT PLAN FEMALE RESTROOM

SCALE: 1:30 MTS



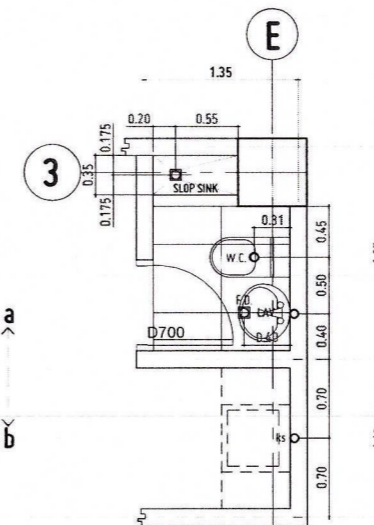
STUB-OUT PLAN PWD RESTROOM

SCALE: 1:30 MTS



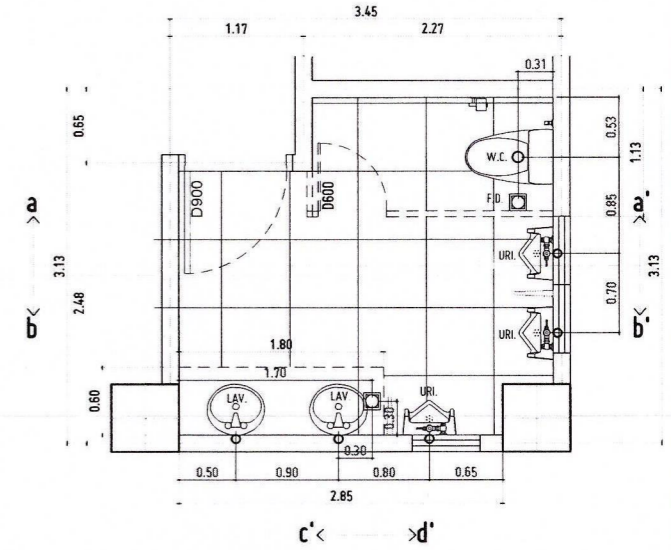
STUB-OUT PLAN STAFF/FACULTY RESTROOM

SCALE: 1:30 MTS



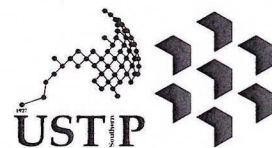
STUB-OUT PLAN CLINIC RESTROOM

SCALE: 1:30 MTS



STUB-OUT PLAN MALE RESTROOM

SCALE: 1:30 MTS



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WEBSITE: www.ustp.edu.ph

MASTER PLUMBER	
PRC NO.:	PTR NO.:
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PROJECT	CONSTRUCTION OF 21ST CENTURY CLASSROOM BUILDINGS PHASE III, VILLANUEVA CAMPUS
LOCATION	USTP VILLANUEVA CAMPUS, MISAMIS ORIENTAL
OWNER	UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL:
[Signature]
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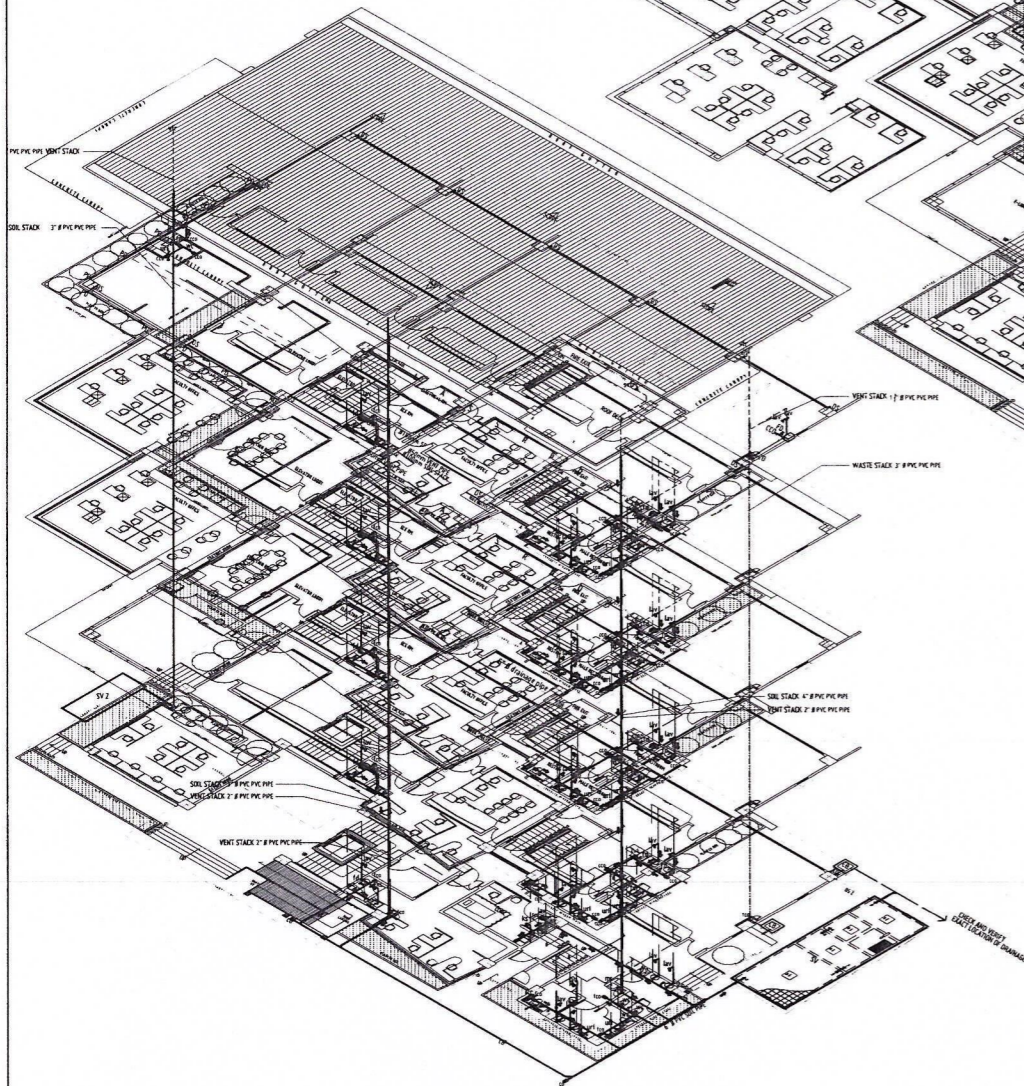
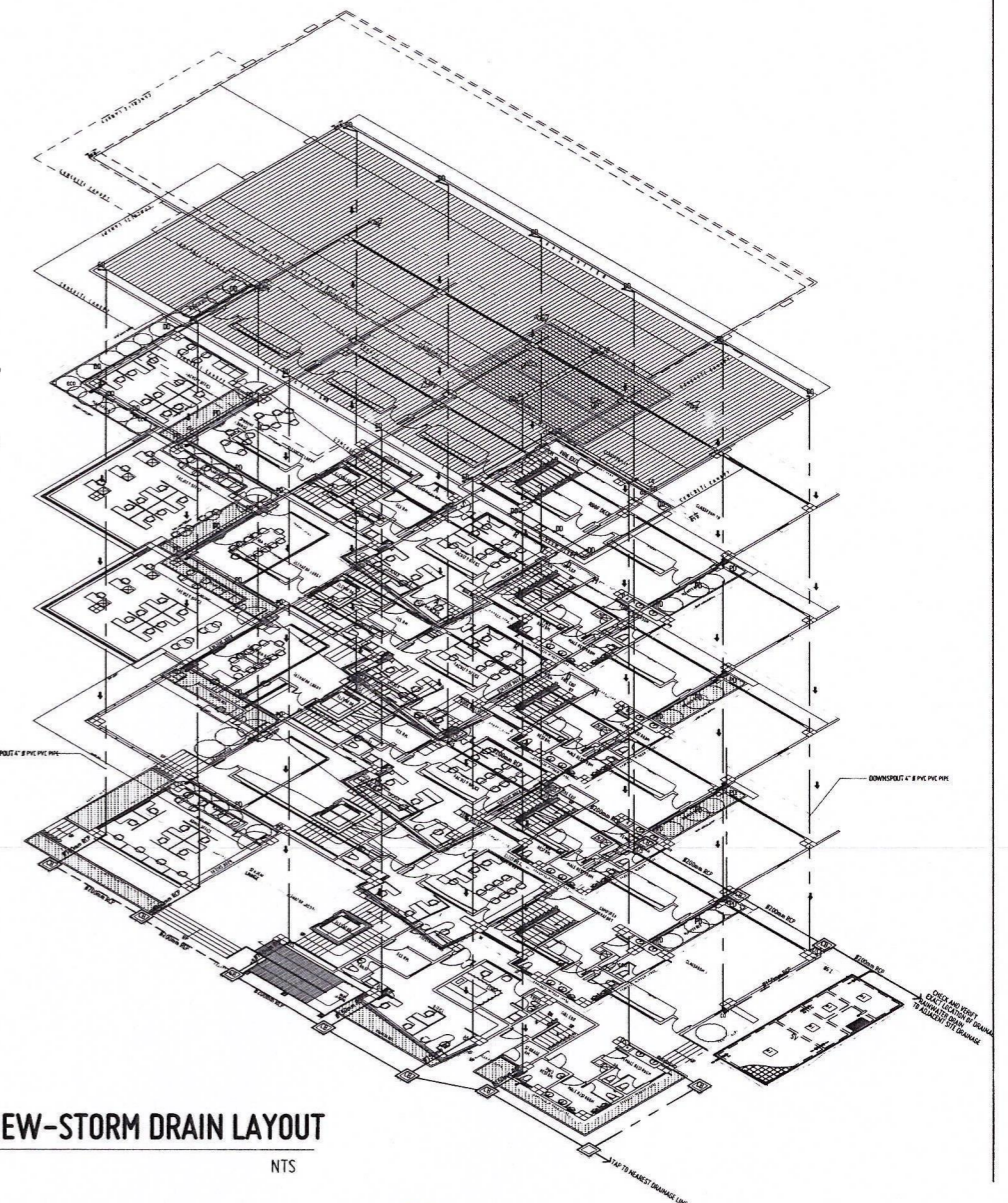
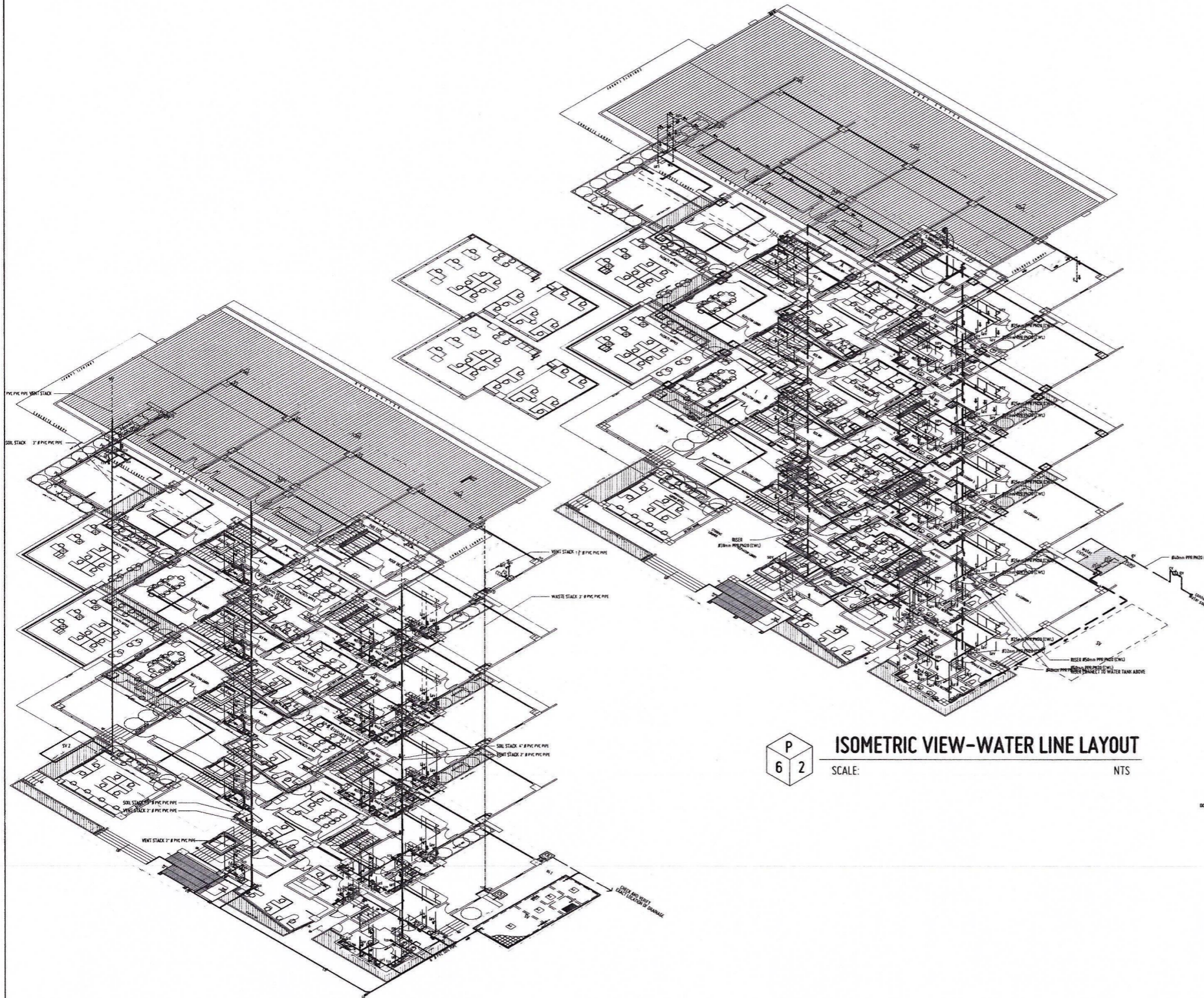
RECOMMENDING APPROVAL:
[Signature]
ATTY. ERWIN B. BUCIB
VP FOR ADMINISTRATION & LEGAL AFFAIRS

APPROVED BY:
[Signature]
DR. AMBROSIO B. CULTURA II
PRESIDENT, USTP SYSTEM

SHEET CONTENTS:
WATER LINE LAYOUT:
FIFTH FLOOR
STUB-OUT PLANS
FEMALE RESTROOM
MALE RESTROOM
PWD RESTROOM
STAFF/FACULTY RESTRM

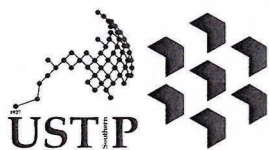
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DATE DRAWN:
FNT:

APPROVED BY:



P 6 1 ISOMETRIC VIEW-SOIL & WASTE PIPING LAYOUT
SCALE: NTS

P 6 3 ISOMETRIC VIEW-STORM DRAIN LAYOUT
SCALE: NTS



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MASTER PLUMBER	
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PROJECT	LOCATION	OWNER
CONSTRUCTION OF 21ST CENTURY CLASSROOM BUILDINGS PHASE III, VILLANUEVA CAMPUS	USTP VILLANUEVA CAMPUS, MISAMIS ORIENTAL	UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL:
Grace C. Baba
ENGR. GRACE C. BABA
DIRECTOR, IPFDD

RECOMMENDING APPROVAL:
Erwin B. Bucio
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VP FOR ADMINISTRATION & LEGAL AFFAIRS

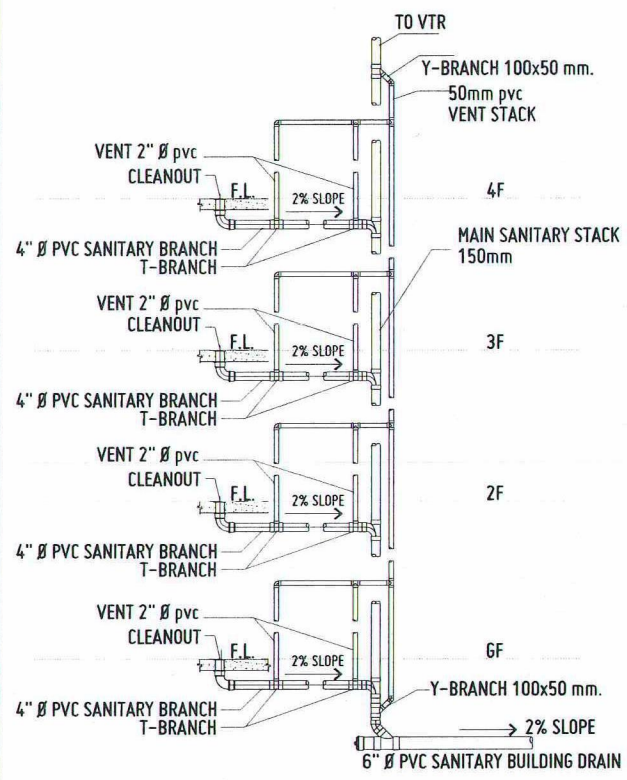
APPROVED BY:
Ambrosio Cultura II
DR. AMBROSIO CULTURA II
PRESIDENT, USTP SYSTEM

SHEET CONTENTS:
ISOMETRIC VIEW:
PLUMBING WASTE WATER LAYOUT
WATER LINE LAYOUT

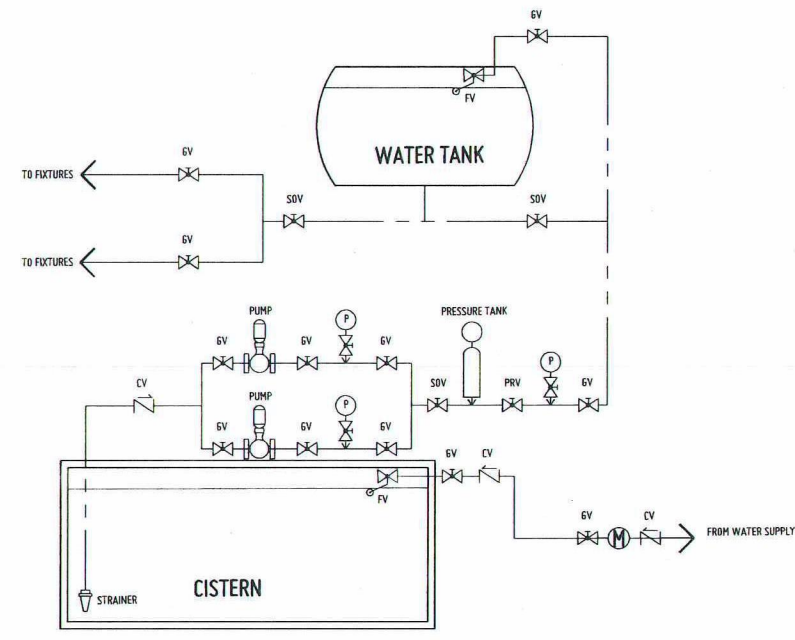
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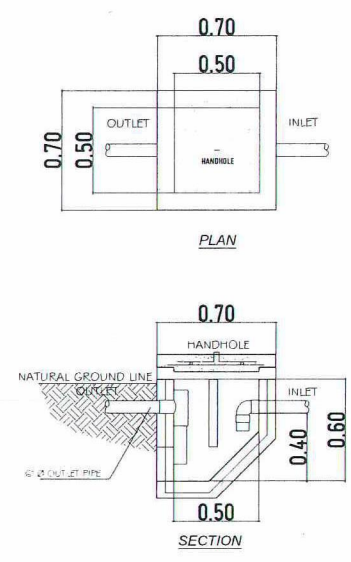
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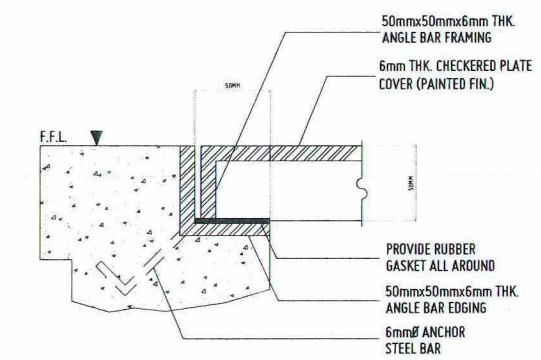
P 7 1 PLUMBING WASTE DIAGRAM
SCALE: NTS



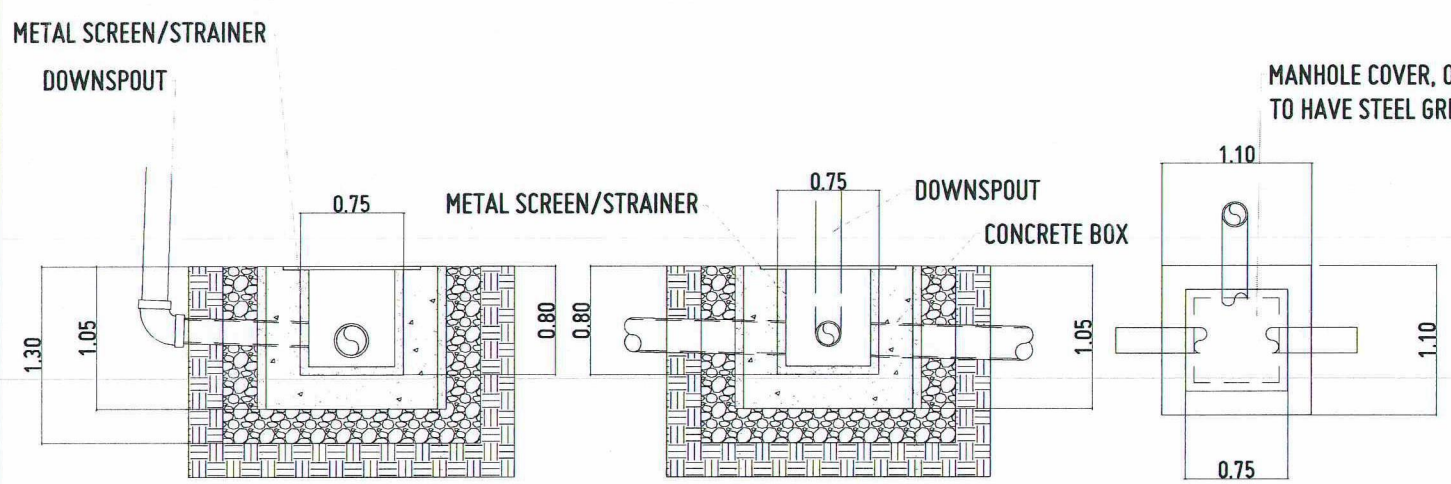
P 7 2 WATER SUPPLY SINGLE LINE DIAGRAM
SCALE: NTS



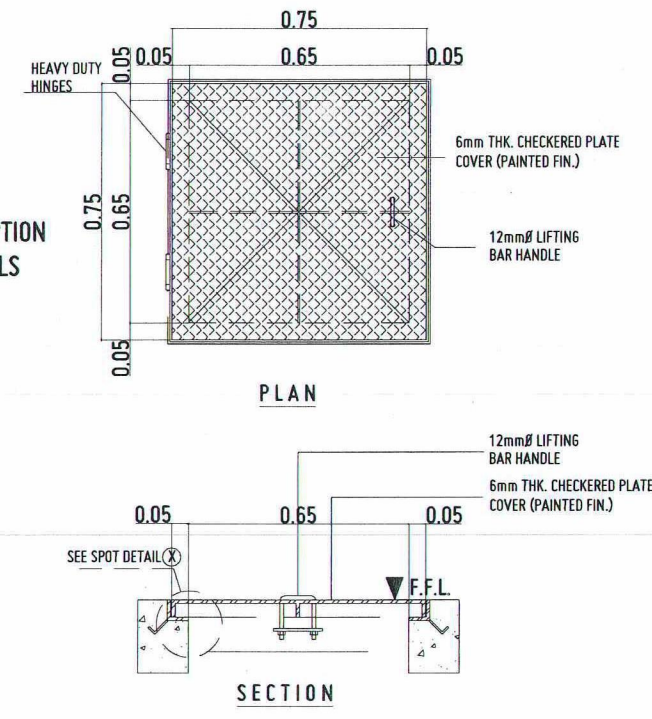
P 7 3 GREASE TRAP DETAIL
SCALE: 1:20 MTS



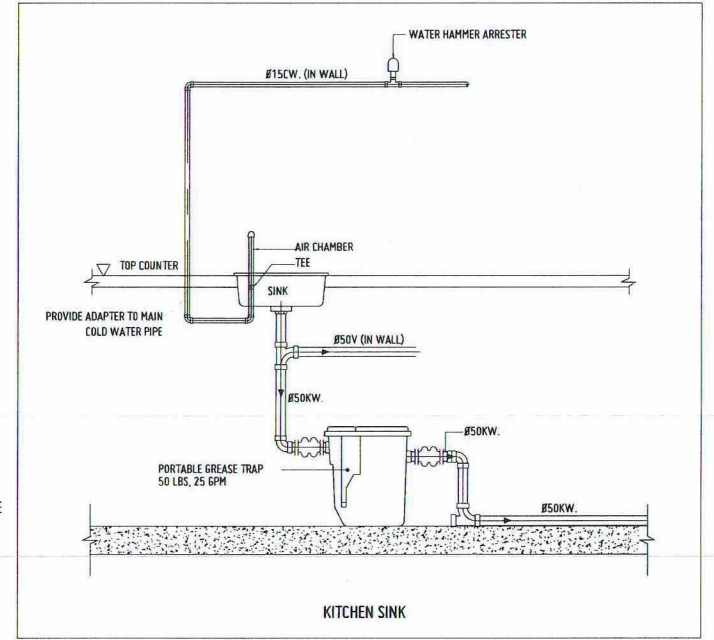
P 7 4 SPOT DETAIL "X"
SCALE: NTS



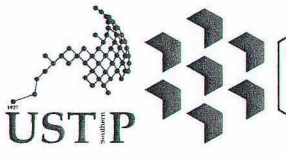
P 7 6 CATCH BASIN DETAIL
SCALE: 1:25 MTS



P 7 5 METAL MANHOLE COVER DETAIL
SCALE: 1:10 MTS



P 7 5 PORTABLE GREASE TRAP CONNECTION
SCALE: 1:10 MTS



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MASTER PLUMBER	
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PROJECT	CONSTRUCTION OF 21ST CENTURY CLASSROOM BUILDINGS PHASE III, VILLANUEVA CAMPUS
LOCATION	USTP VILLANUEVA CAMPUS, MISAMIS ORIENTAL
OWNER	UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL:
[Signature]
ENGR. GRACE C. BABA
DIRECTOR, IPFDO

RECOMMENDING APPROVAL:
[Signature]
ATTY. ERWIN B. BUENO
VP FOR ADMINISTRATION & LEGAL AFFAIRS

APPROVED BY:
[Signature]
DR. AMBROSIO B. CULTURA II
PRESIDENT, USTP SYSTEM

SHEET CONTENTS:	PLUMBING WASTE DIAGRAM WATER SUPPLY SINGLE LINE DIAGRAM METALLIC MANHOLE COVER DETAIL SPOT DETAIL, 72 CATCH BASIN DETAILS GREASE TRAP DETAILS PORTABLE GREASE TRAP CONNECTION
DRAWN BY:	
DATE DRAWN:	
PNT:	