

PRIMARY HEALTH CARE UNIT - PHCU (Normal Soil)

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UNOPS-SOUTH SUDAN

UNOPS-ETOH





All dimensions are in centimeters unless otherwise explicitly stated on the dimension.

The drawings may be scaled to fit the desired paper size.


Anti - termite treatment to building area, other excavated trenches and pits with "Aldrex 48" or other equal approved anti-termite solution in accordance with manufacturer's instructions and as directed by the UNOPS Engineer.

The designs provided are for a typical Public Health Care Unit (PHCU) that will be situated on various sites within the region. When these sites are selected, the site layout and arrangement of the typical PHCU need to be evaluated towards the compliance of the requirements set out under C1 of the UNOPS Planning Manual.

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## KEY PLAN

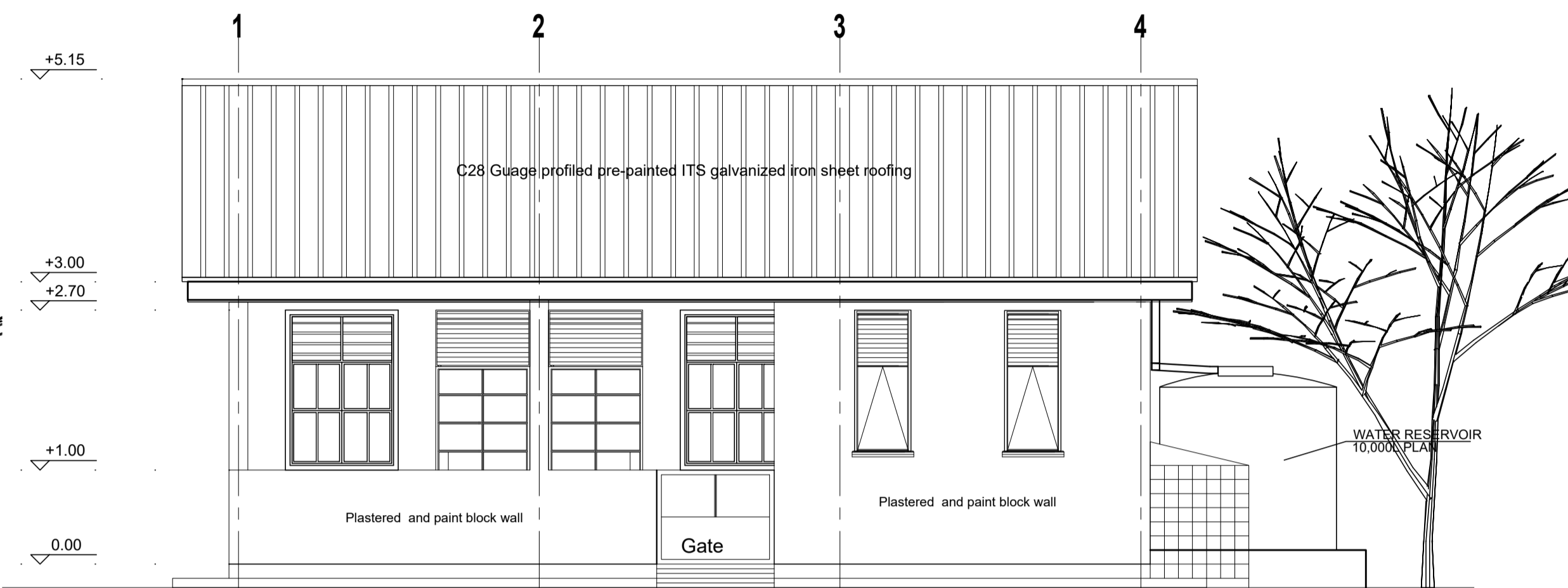
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Program:	Implemented By:
LOCAL GOVERNANCE & SERVICE DELIVERY PROJECT	UNOPS- SOUTH SUDAN
Project Name:	Design:
PRIMARY HEALTH CARE UNIT - PHCU	UNOPS-ETOH
	

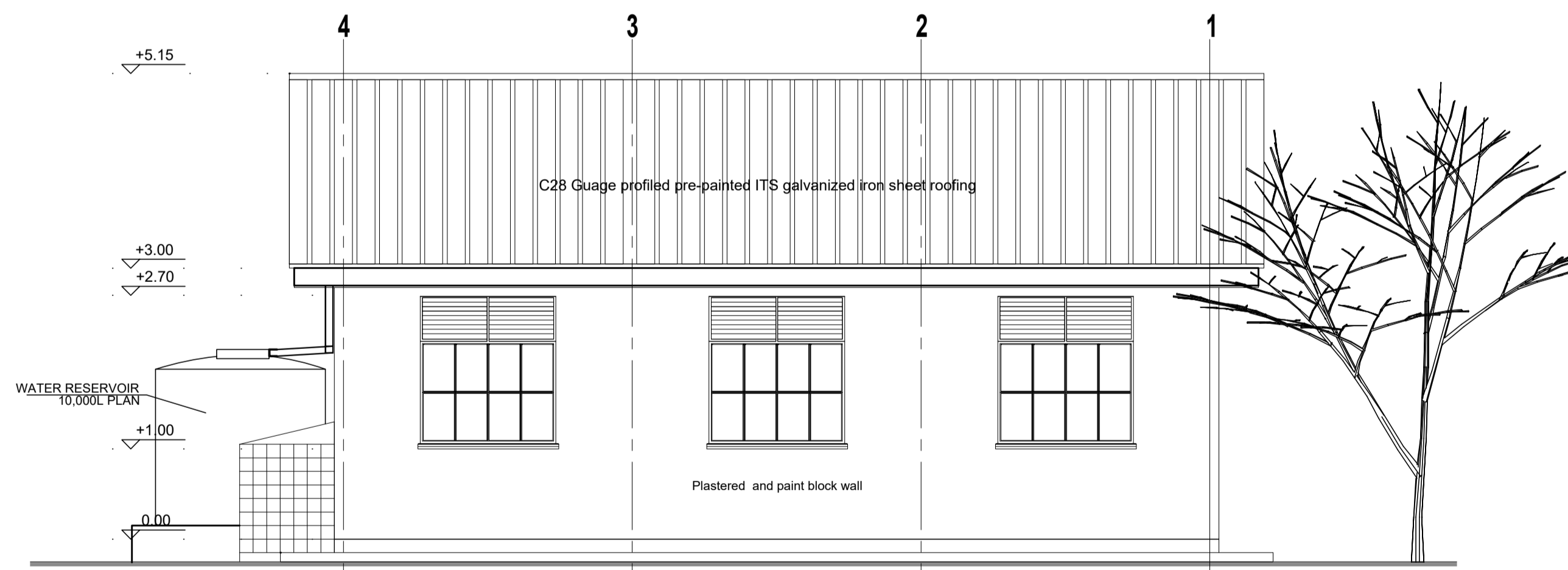
Drawing Title:

## CEILING PLAN & SECTION

Designed by:			Discipline:	Dr. No:	Tot. No:	Rev No:		
AE			AR	02	05	R0		
Drawn:	Checked:	Approved:	Size:	Scale:	Date:	Rev.:		
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FRONT ELEVATION  
Sc. 1:50



REAR ELEVATION  
Sc. 1:50



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LOCAL GOVERNANCE & SERVICE  
DELIVERY PROJECT

UNOPS- SOUTH SUDAN

Project Name:
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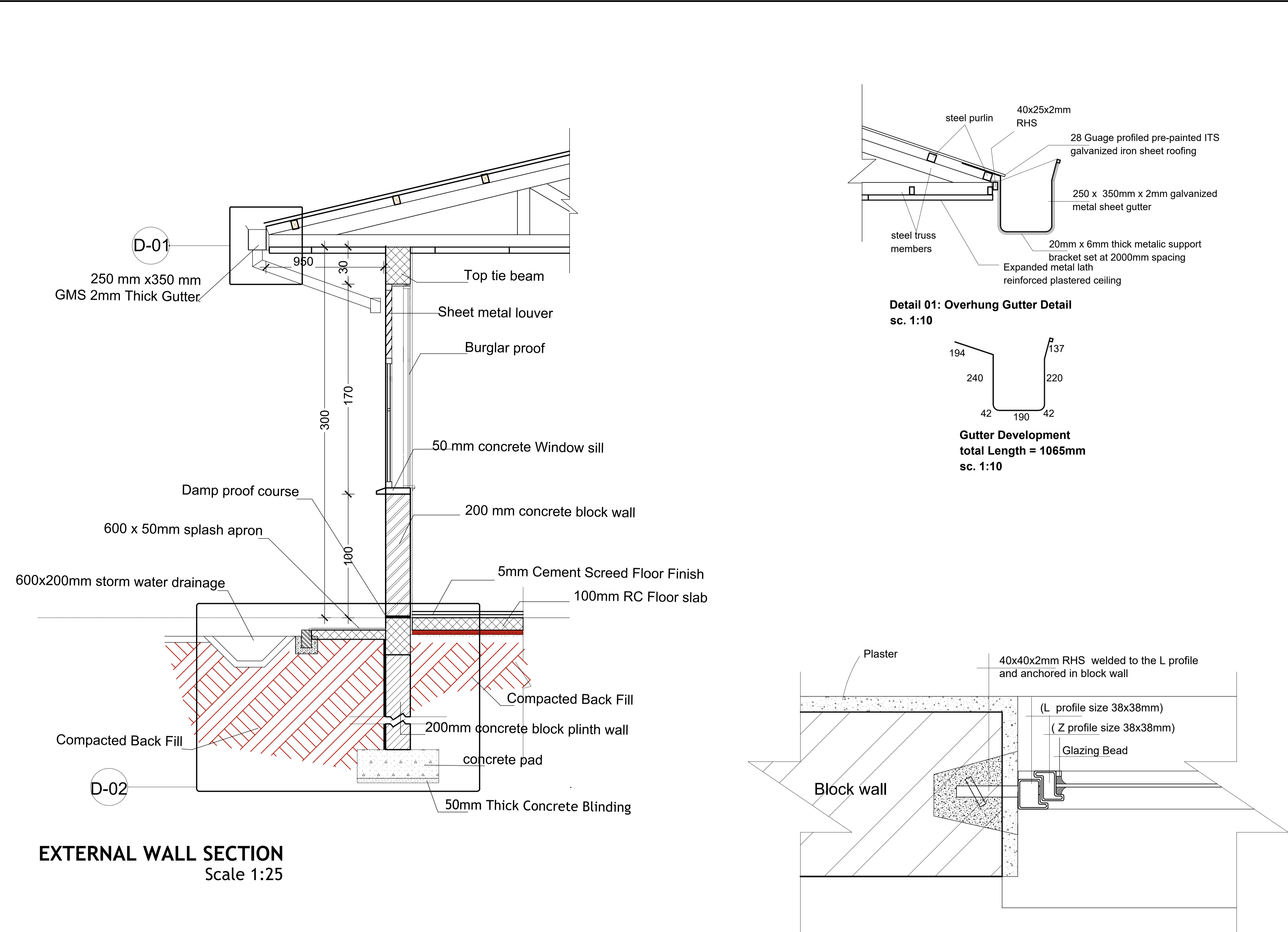
Design:	UNOPS-ETOH
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PRIMARY HEALTH CARE UNIT  
- PHCU



Drawing Title:

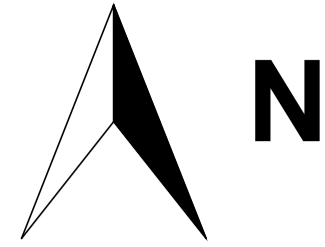
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AE			AR	03	05	R0
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EXTERNAL WALL SECTION  
Scale 1:25

TYPICAL DOOR WINDOW  
FIXING DETAIL

GENERAL NOTES:



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Anti - termite treatment to building area, other excavated trenches and pits with "Aldrex 48" or other equal approved anti-termite solution in accordance with manufacturer's instructions and as directed by the UNOPS Engineer.

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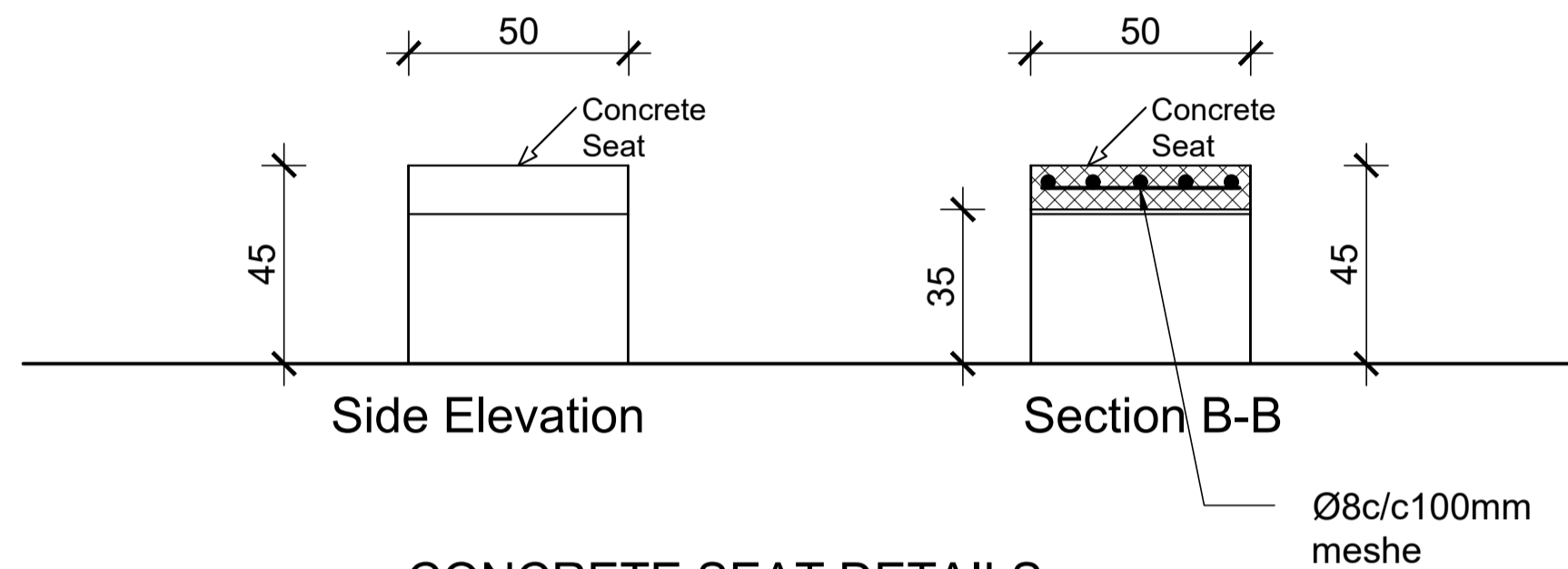
KEY PLAN

Funded By:		Partner:	
GOVERNMENT OF SOUTH SUDAN		GOVERNMENT OF SOUTH SUDAN	
Program:		Implemented By:	
LOCAL GOVERNANCE & SERVICE DELIVERY PROJECT		UNOPS- SOUTH SUDAN	
Project Name:		Design:	
PRIMARY HEALTH CARE UNIT - PHCU		UNOPS-ETOH	
Drawing Title:		UNOPS	

EXTERNAL WALL DETAIL, GUTTER DETAIL  
& DOOR FIXING DETAIL

Designed by:		Discipline:	Dr. No:	Tot. No:	Rev. No:
AE		AR	04	05	R0
Drawn:	Checked:	Approved:	Size:	Scale:	Date:
FM	BM	SM	A1	1:50	1 / 8 / 2021

Door Name	D1	D2
Quantity	5	1
Frame material	RHS steel frame 40mm x 40mm x 2mm	RHS steel frame 40mm x 40mm x 2mm
Frame finish	Painted with 2 coats of antirust paint & one coat of enamel paint	Painted with 2 coats of antirust paint & one coat of enamel paint
Door leaf construction	180D opening made of 0.5mm flat metal pane	180D opening made of 0.5mm flat metal pane
Burglar Proofing	RHS 25X25X2 mm vertical steel bars at equal intervals welded to frames on the interior side	
Ironmongery	Stainless steel parliament hinges, door lock with pull - push bar handle	Stainless steel parliament hinges, door lock with pull - push bar handle
Louwer	0.5mm thick steel louvers welded at top to the frame. Louvers to be covered with approved mosquito net.	



Window Name	W1	W2	W3	W4
Quantity	3	1	2	3
Frame material	RHS steel frame 40mm x 40mm x 2mm	RHS steel frame 40mm x 40mm x 2mm	RHS steel frame 40mm x 40mm x 2mm	RHS steel frame 40mm x 40mm x 2mm
Frame finish	Painted with 2 coats of anti-rust paint & one coat of enamel paint	Painted with 2 coats of anti-rust paint & one coat of enamel paint	Painted with 2 coats of anti-rust paint & one coat of enamel paint	Painted with 2 coats of anti-rust paint & one coat of enamel paint
Glazing	5mm thick clear glass	5mm thick clear glass	5mm thick clear glass	5mm thick clear glass
Burglar proofing	RHS 25X25X2 mm vertical steel bars at equal intervals welded to frames on the interior side		RHS 25X25X2 mm vertical steel bars at equal intervals welded to frames on the interior side	RHS 25X25X2 mm vertical steel bars at equal intervals welded to frames on the interior side
Louvers	0.5mm thick steel louvers welded to RHS frame. Louver to be covered with approved mosquito net.		0.5mm thick steel louvers welded to RHS frame. Louver to be covered with approved mosquito net.	0.5mm thick steel louvers welded to RHS frame. Louver to be covered with approved mosquito net.
<b>Ironmongery</b>	Stainless steel parliament hinges, window lock with handle	Stainless steel parliament hinges, window lock with latch	Stainless steel parliament hinges, window lock with latch	Stainless steel parliament hinges, window lock with bar handle



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The designs provided are for a typical Public Health Care Unit (PHCU) that will be situated on various sites within the region. When these sites are selected, the site layout and arrangement of the typical PHCU need to be evaluated towards the compliance of the requirements set out under C1 of the UNOPS Planning Manual.

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<p>GOVERNMENT OF SOUTH SUDAN</p>	<p>GOVERNMENT OF SOUTH SUDAN</p>
<p>Program:</p>	<p>Implemented By:</p>
<p>LOCAL GOVERNANCE &amp; SERVICE DELIVERY PROJECT</p>	<p>UNOPS- SOUTH SUDAN</p>
<p>Project Name:</p>	<p>Design:</p>
<p>PRIMARY HEALTH CARE UNIT - PHCU</p>	<p>UNOPS-ETOH</p> <div>  </div>

Designed by			Discipline:	Dr. No:	Tot. No:	Rev. No:		
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Drawn:	Checked:	Approved:	Size:	Scale:	Date:	Rev.:		
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Structural Notes:

- i)

Building shall be founded on load bearing stone masonry wall having a depth of 1500mm from the floor finish level with bottom of excavation compacted prior to laying the foundation wall.
- ii)

Stone masonry foundation shall be placed on the natural normal soil layer and achieve a minimum bearing capacity of 150 KN/m<sup>2</sup> . The top 300 mm soil shall be removed and replaced with well graded gravel material and compacted to the approval of the site supervisor.
- iii)

Foundation trench excavation to be approved by the Engineer prior to the construction of the stone masonry foundation.
- iv)

Material Specification

a)

Grade of Structural Concrete

• C-25 (Cube characteristics strength of 25 MPa) for columns and beams;

• C-20 (Cube characteristics strength of 20 MPa) for floor slab

b)

Concrete reinforcement bar

• Grade 460 (Characteristics yield strength of fyk = 460 MPa)

c)

Steel hollow section for roofing system , verandah column and plates

• Grade-C : Tensile Strength = 375 Mpa

Yield Strength = 275 Mpa

d)

Grade of Bolts

• Grade 4.6: Yield Strength = 240 Mpa

Tensile Strength = 400 Mpa

v)

Durability Requirements

❖ Concrete Cover to Reinforcement

- Floor slabs :25mm;

- Beams: 38mm

- Columns; 38 mm

- All substructure (below ground level): 50mm

❖ Protection of Steelwork

▪ Surface preparation by blast cleaning, pickling process or where approved by wirebrushing;

▪ Application of one coat of an approved pre -fabrication primer e.g. Zinc chromate;

▪ Application of one coat of approved primer after fabrication;

▪ Two coats of an approved paint system to be proposed by the Architect, one applied in the shop and the other applied on site after erection.

vi)

Steel Truss manufacturing inspection, by visual examination, must cover most aspects: bending, groove preparation, alignment before and after welding, welding process, penetration, tolerances for circumference, straightness and circularity, - double sided welds, heat treatment, small diameter welds around the nozzles, detecting of undercut, excessive convexity, distortions, etc. Defects acceptance criteria shall be in accordance with ES ISO 5817:2014

vii)

Anti - termite treatment to building area, excavated trenches and pits with "Aldrex 48" or other equal approved anti-termite solution in accordance with manufacturer's instructions and as directed by the UNOPS Engineer.

viii)

The geotechnical report shall be carried out once the site is identified and foundation design to be verified for adequacy.

GENERAL NOTES:

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KEY PLAN

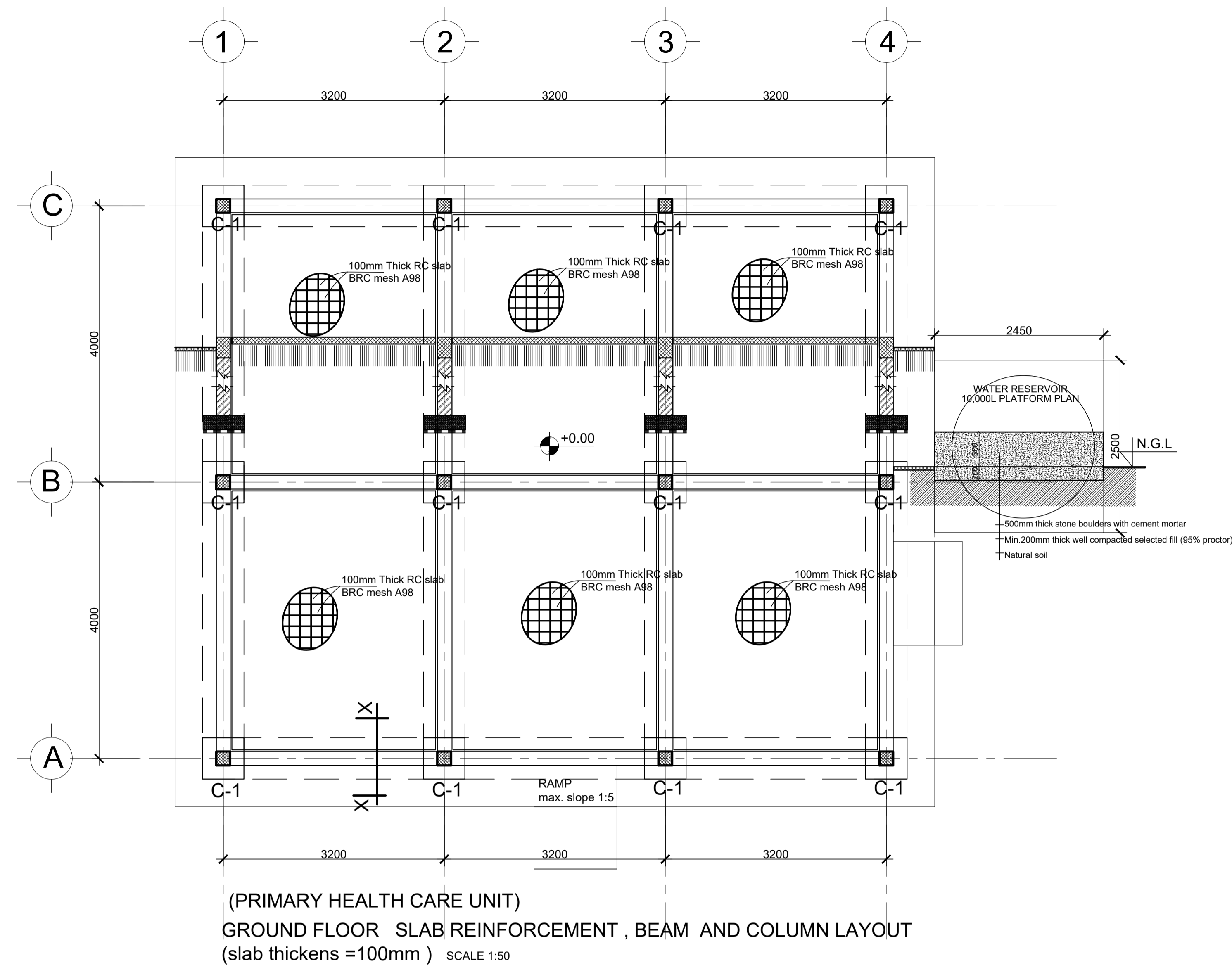
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Project Name:	Design:
PRIMARY HEALTH CARE UNIT - PHCU	UNOPS-ETOH
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Drawing Title:

STRUCTURAL NOTES

Designed by		Discipline:	Dr. No:	Tot. No:	Rev No:
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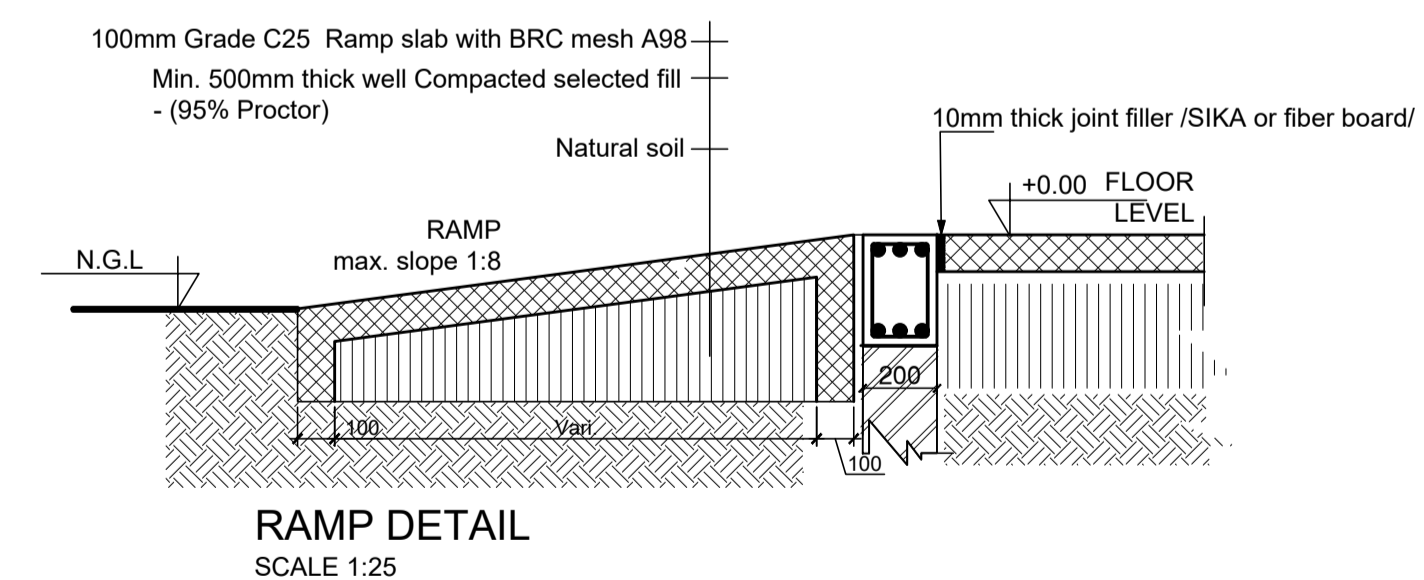
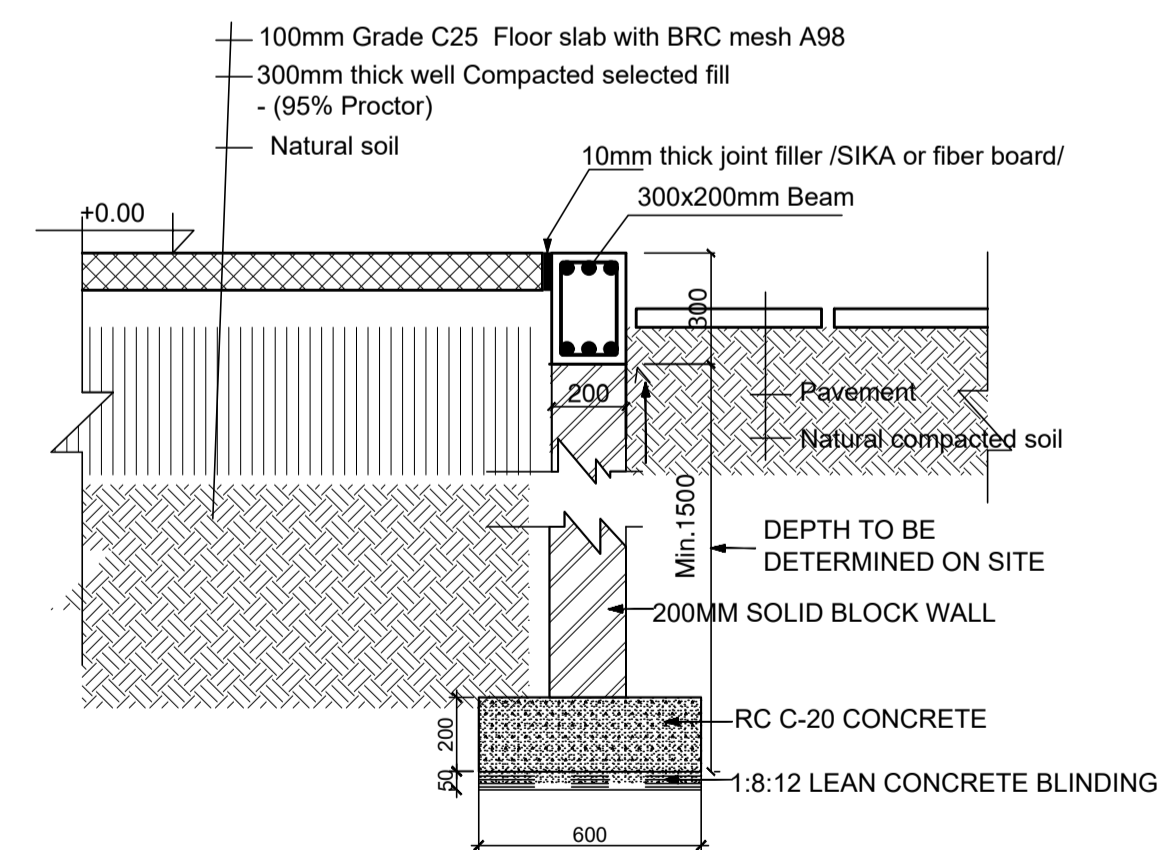
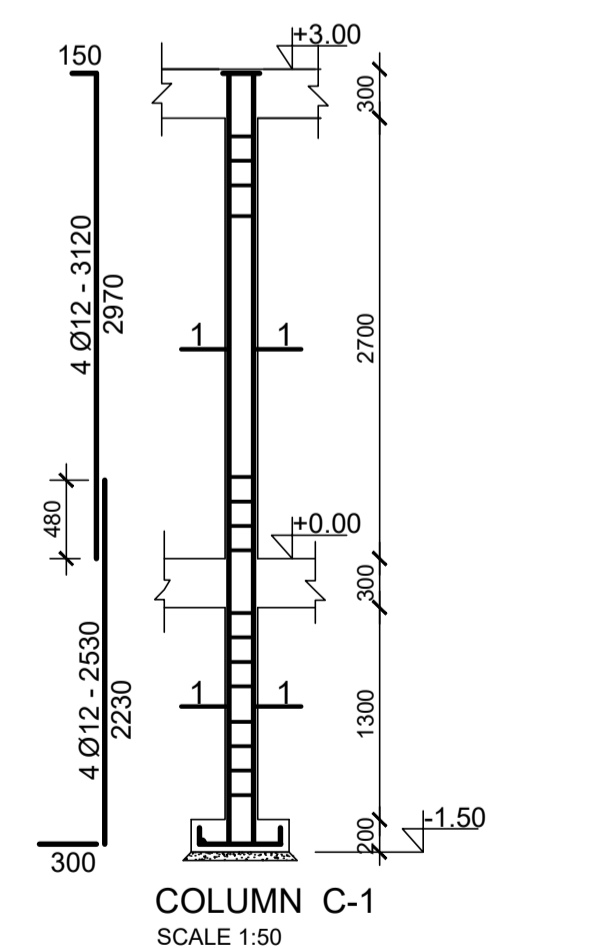
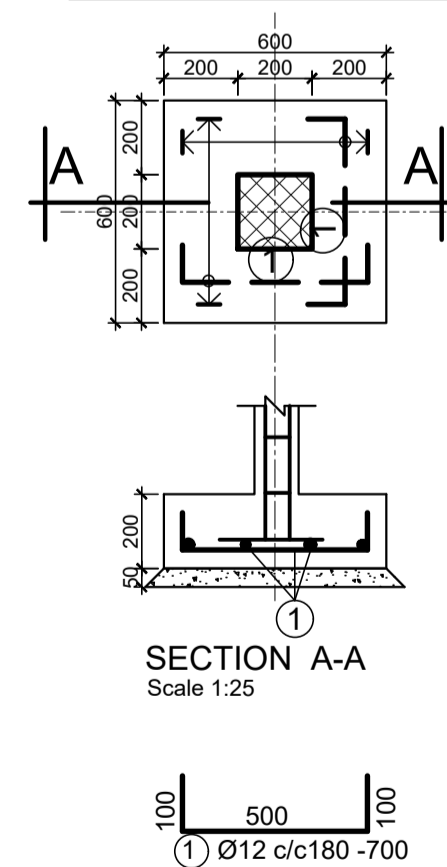


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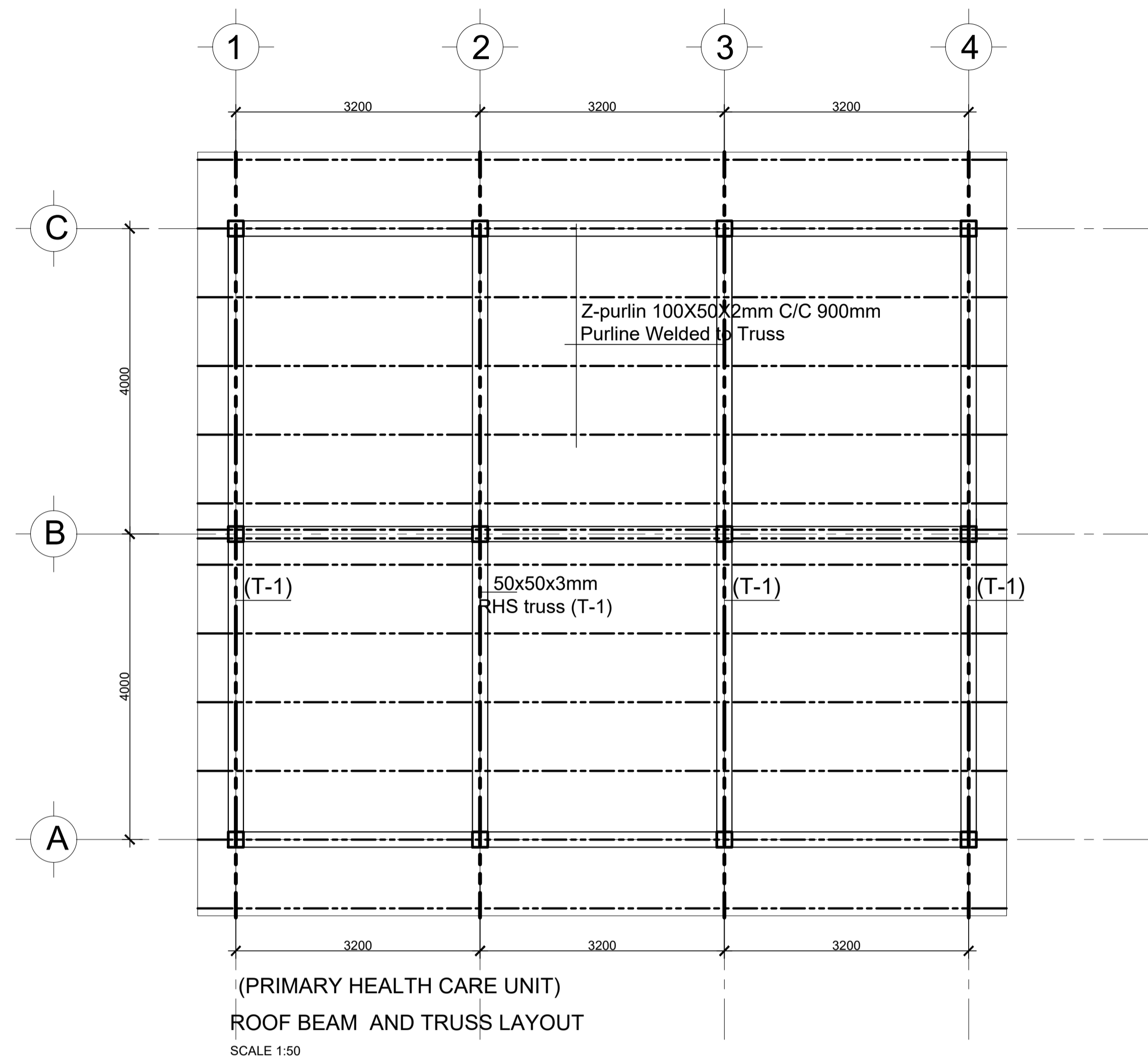
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#### FOUNDATION DETAIL

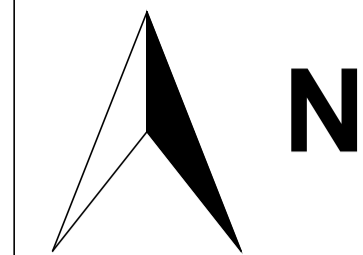


#### KEY PLAN

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Funded By:	Partner:
GOVERNMENT OF SOUTH SUDAN	GOVERNMENT OF SOUTH SUDAN
Program:	Implemented By:
LOCAL GOVERNANCE & SERVICE DELIVERY PROJECT	UNOPS- SOUTH SUDAN
Project Name:	Design:
PRIMARY HEALTH CARE UNIT - PHCU	UNOPS-ETOH
	



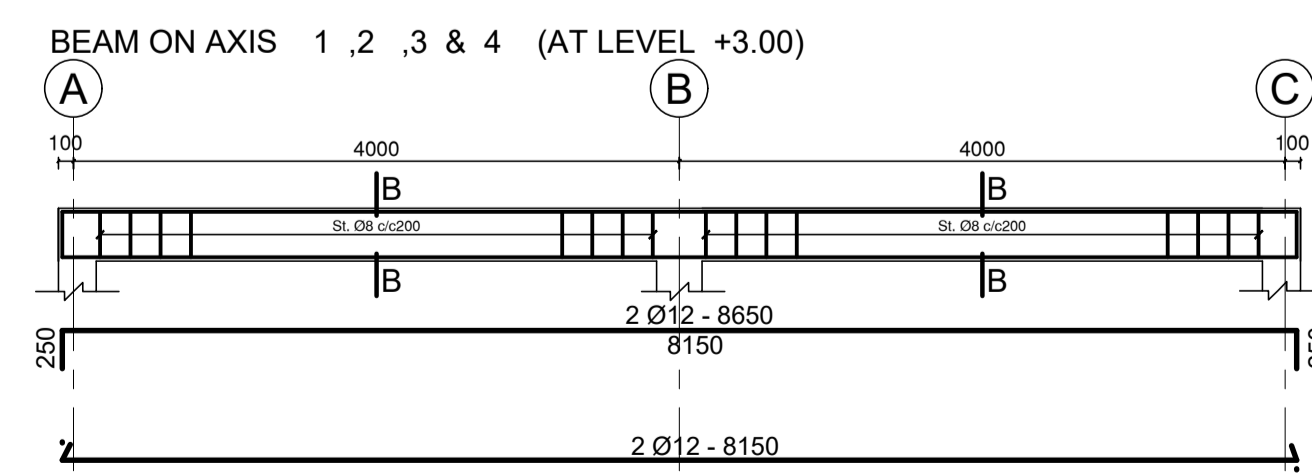
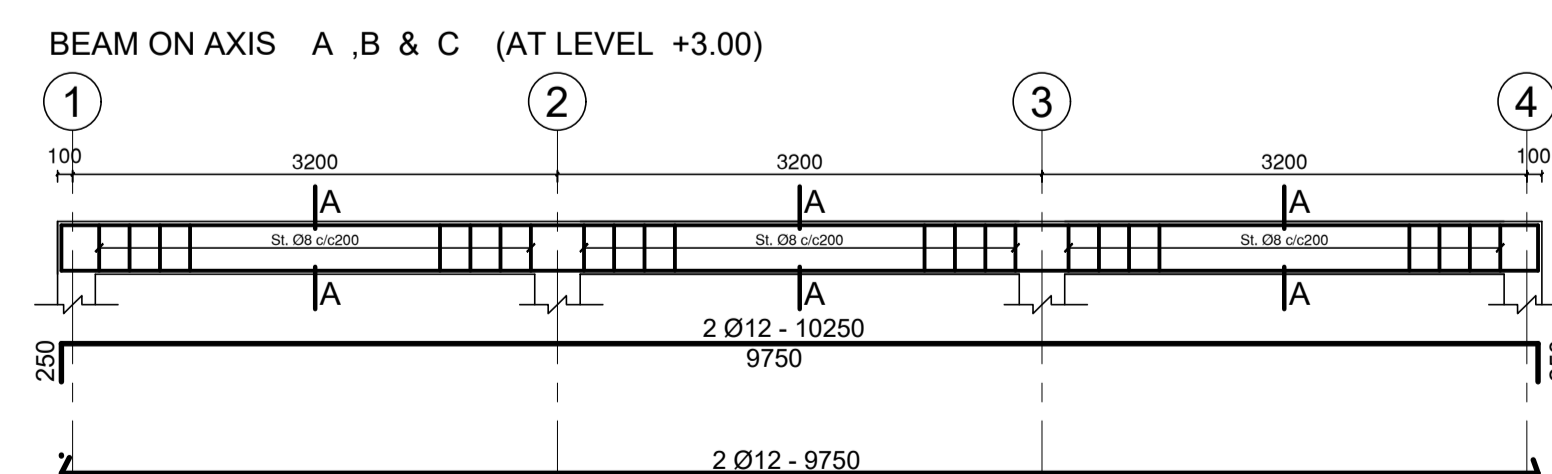
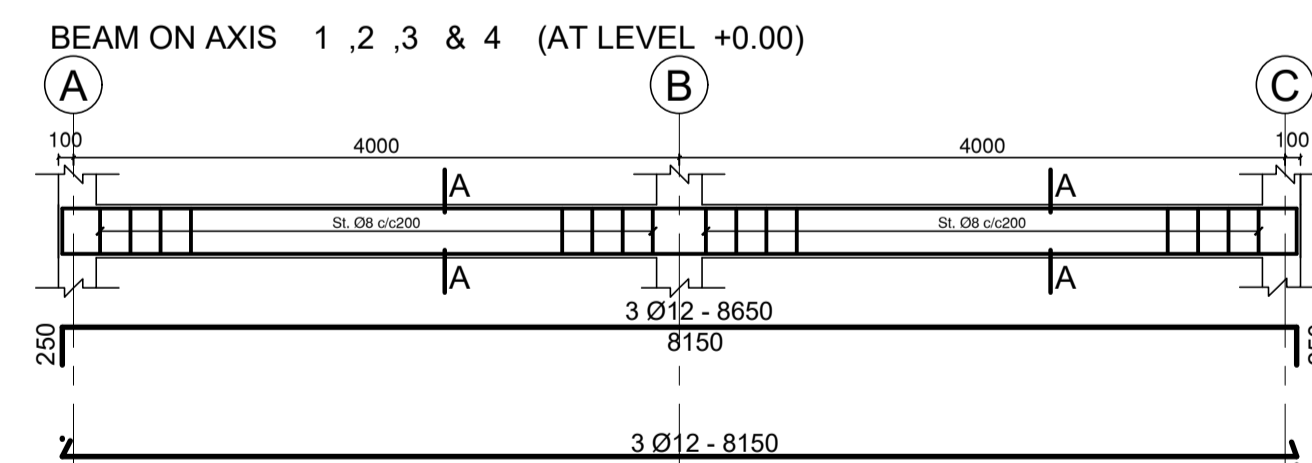
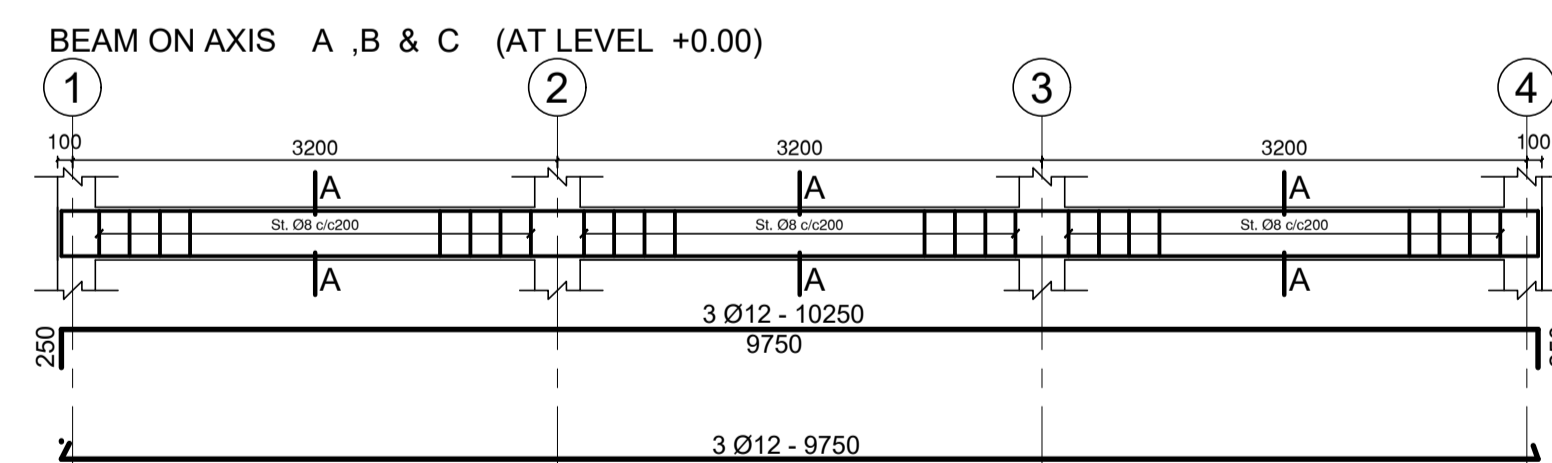
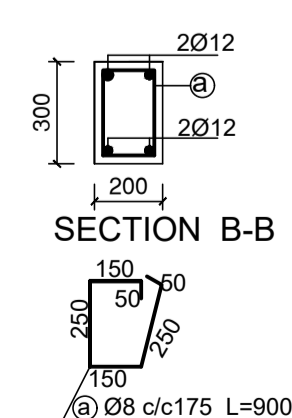
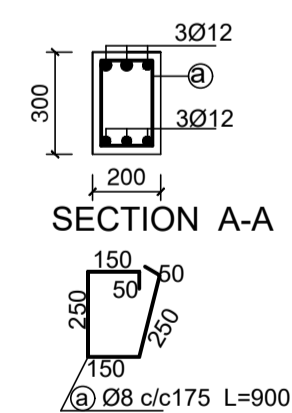
GENERAL NOTES:



All dimensions are in millimeters unless otherwise explicitly stated on the dimension.

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Rev.:	Date:	Description:	Approved	

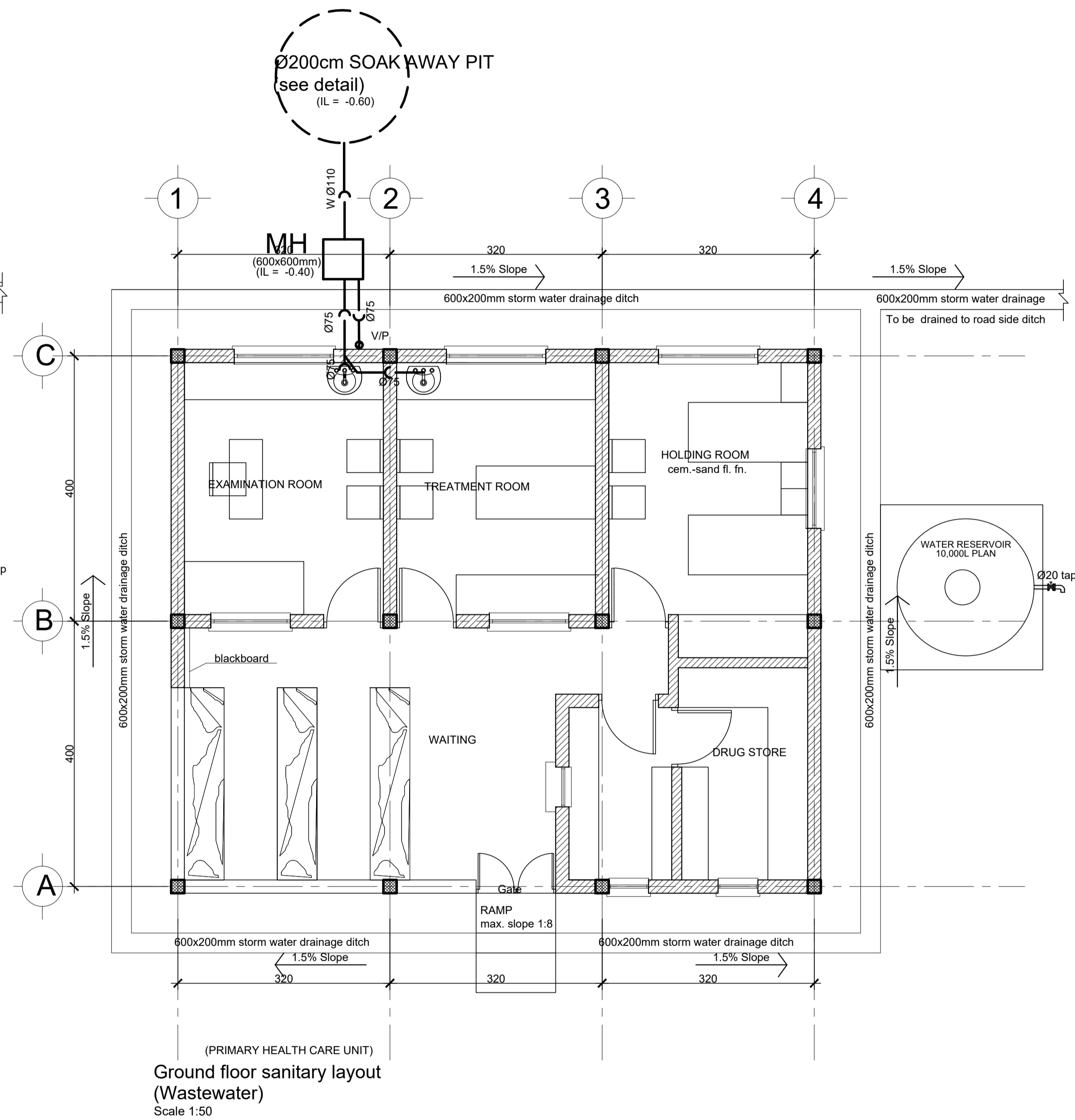


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Program:	Implemented By:
LOCAL GOVERNANCE & SERVICE DELIVERY PROJECT	UNOPS- SOUTH SUDAN
Project Name:	Design:
PRIMARY HEALTH CARE UNIT - PHCU	UNOPS-ETOH
Drawing Title:	
-ROOF BEAM AND TRUSS LAYOUT -BEAM DETAILS	

Designed by	Discipline:	Dr. No:	Tot. No:	Rev No:
AE	ST	03	04	R0
Drawn:	Checked:	Approved:	Size:	Scale:
FM	BM	SM	A1	1:50 ,1:25
Date:				Rev.:
1/ 8 /2021				0



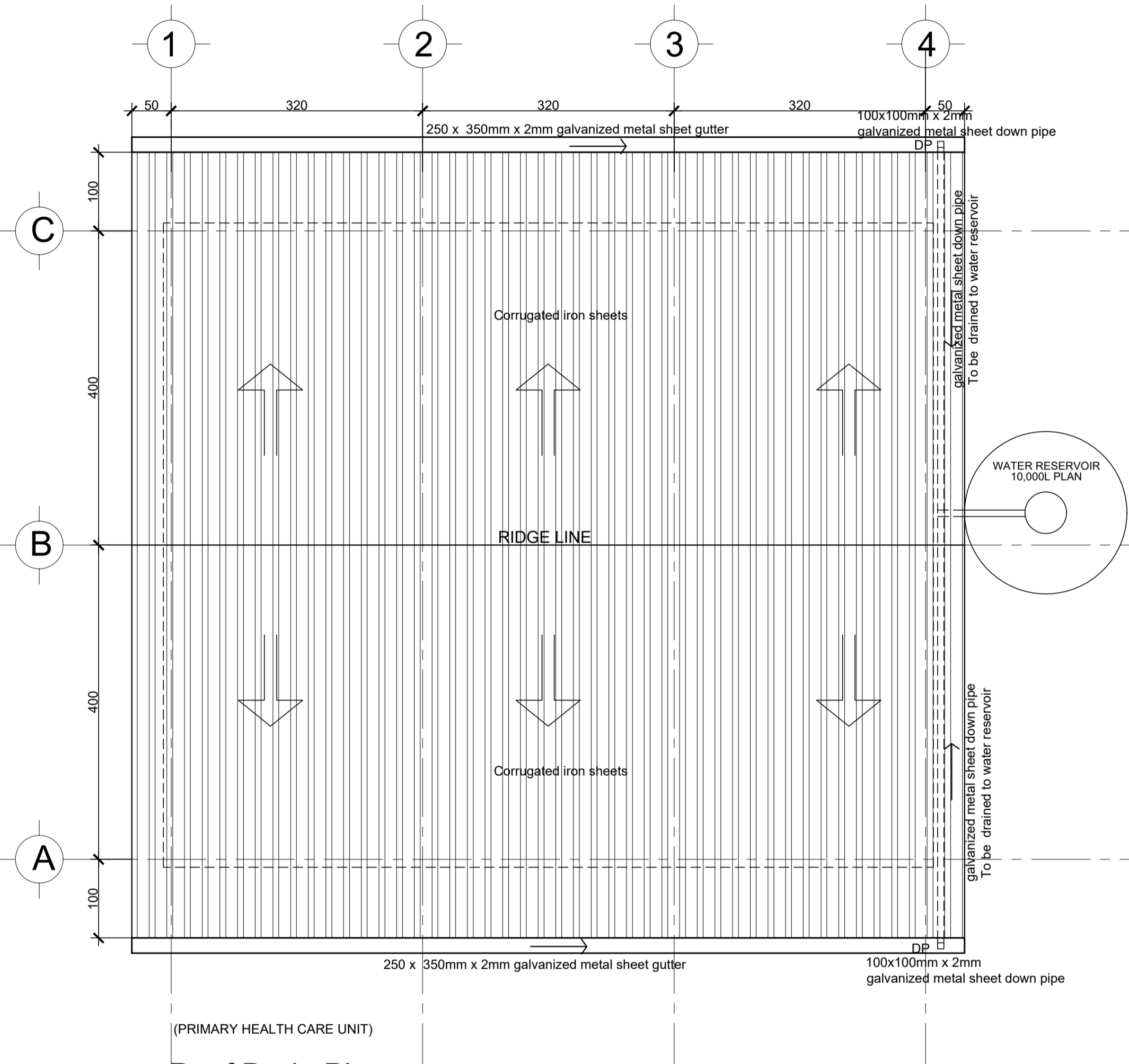


The drawings may be scaled to fit the desired paper size.

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Rev.:	Date:	Description:	Approved:

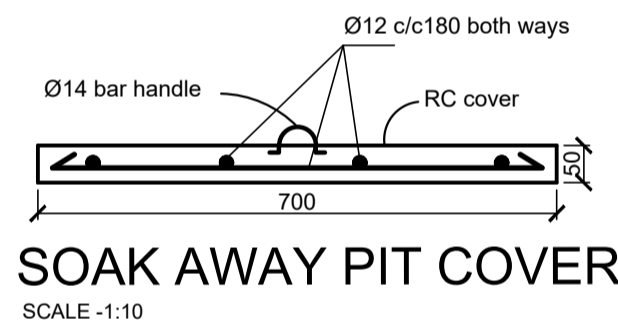
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FM	BM	SM	A1	1:50	1/ 8 /2021	0			
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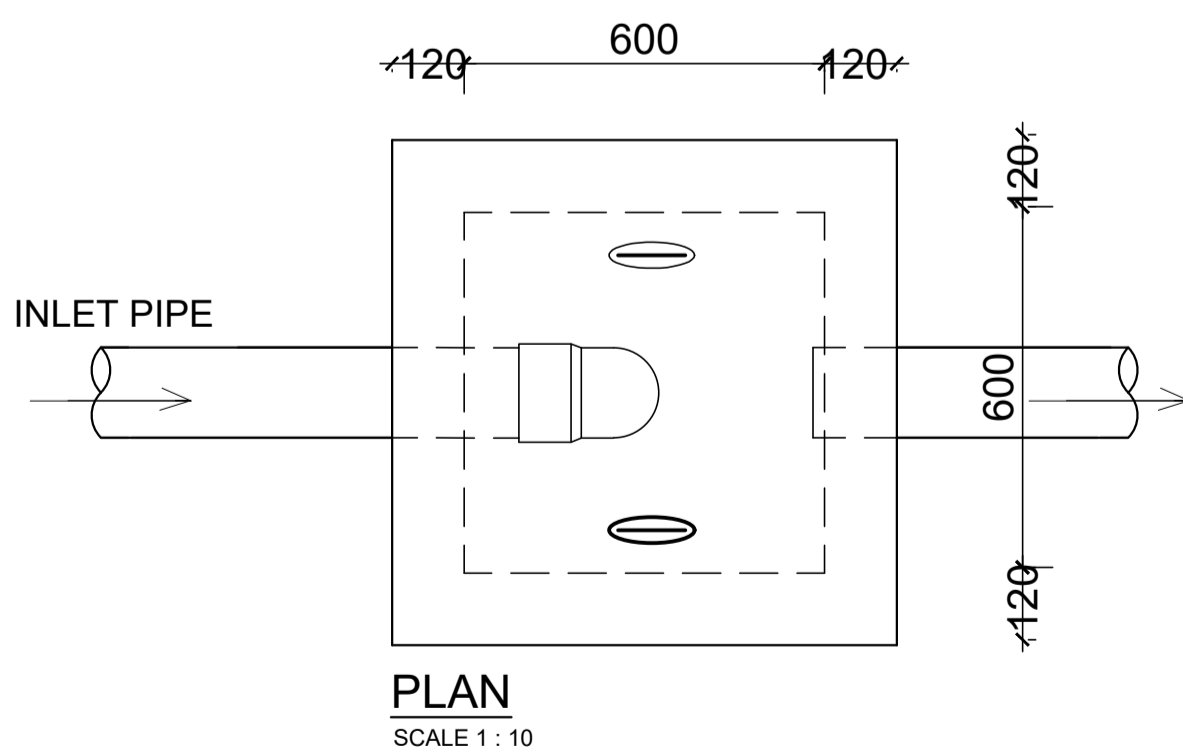


Roof Drain Plan  
sc. 1:50

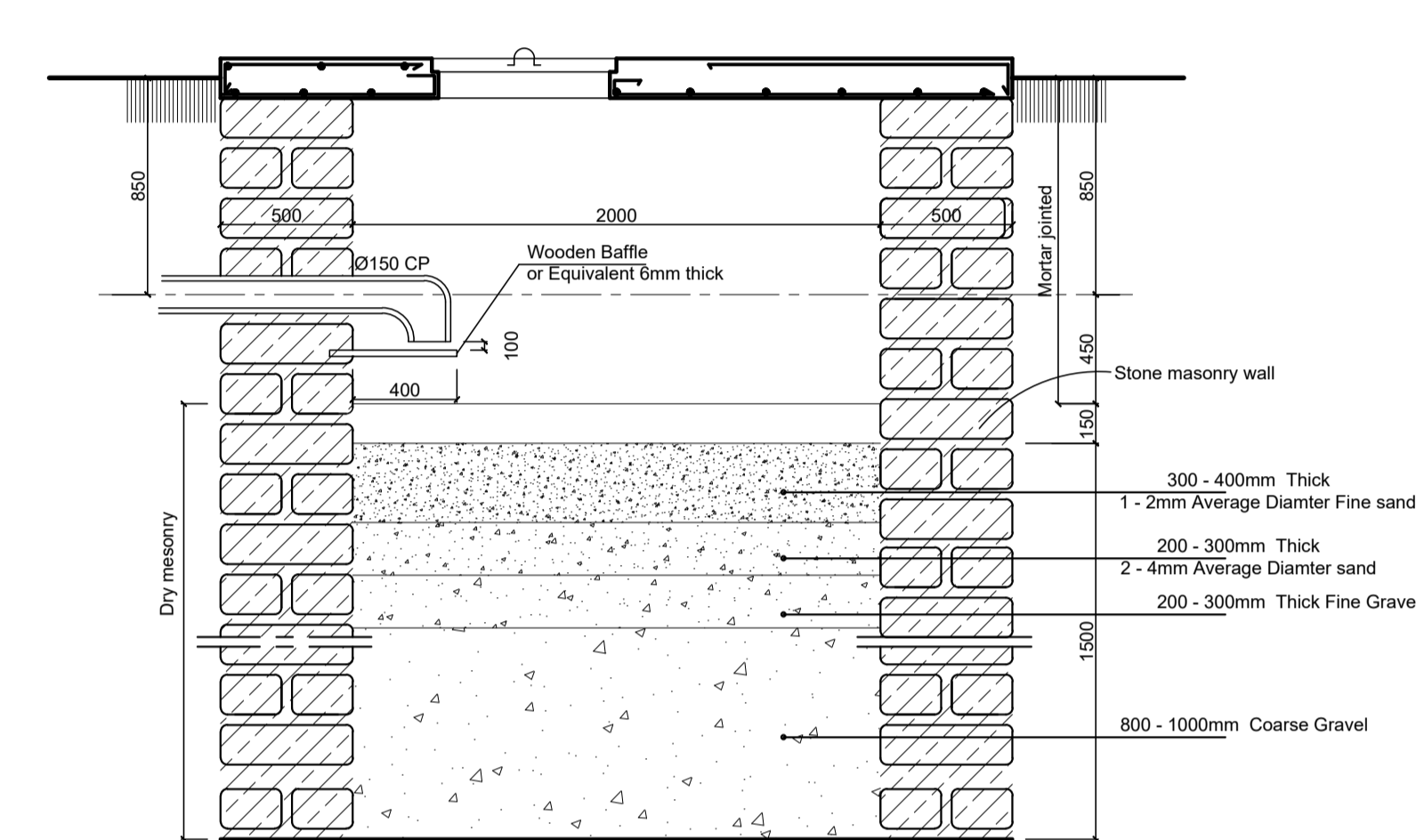
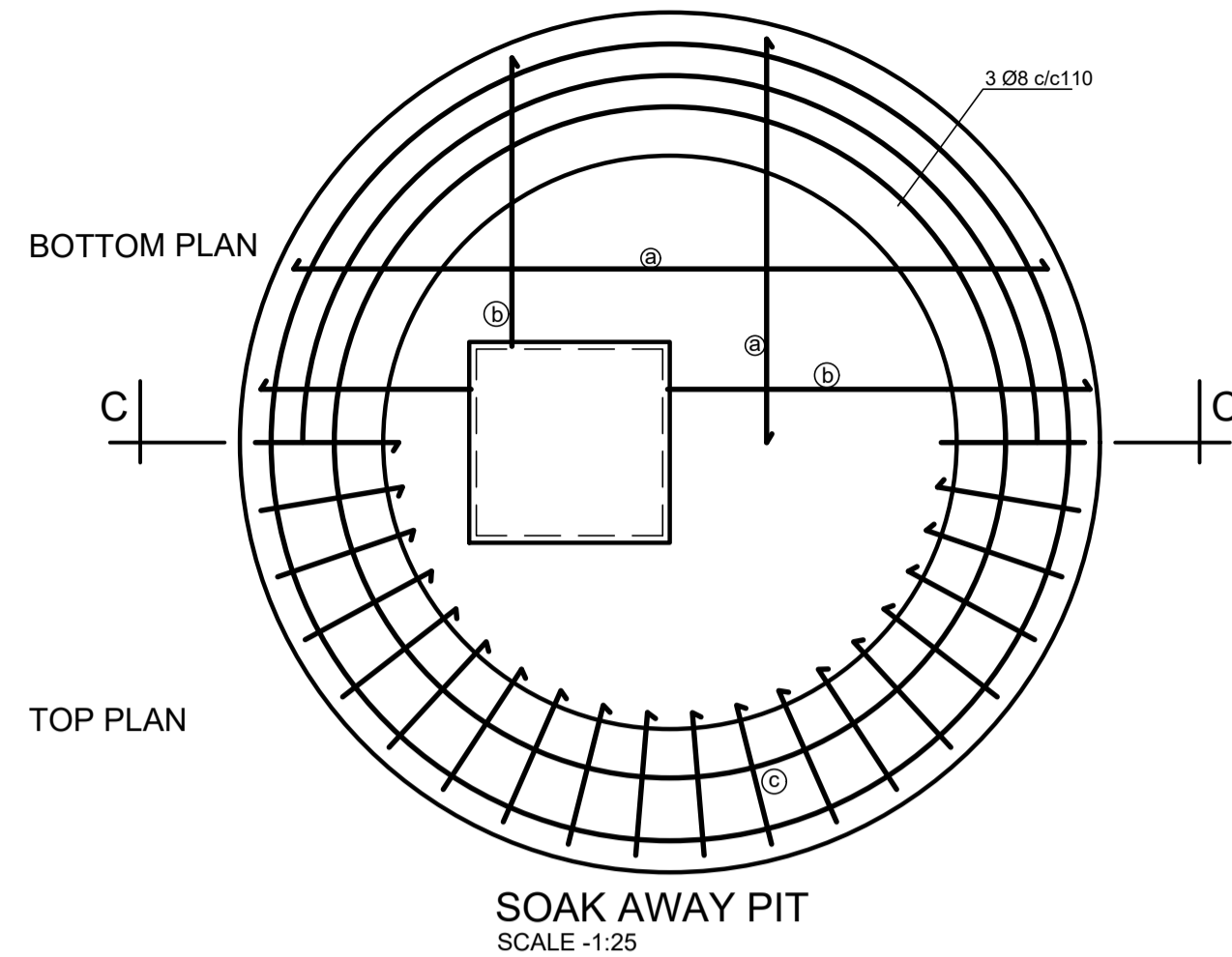
- LEGEND**
- PPR pipe for cold water  
Supply for Internal use, PN-20
  - HDPE pipe for cold water  
Supply for External use, PN-10
  - Gate valve
  - uPVC waste pipe, PN-6
  - M.H. - Manhole
  - SAP- Soak Away Pit



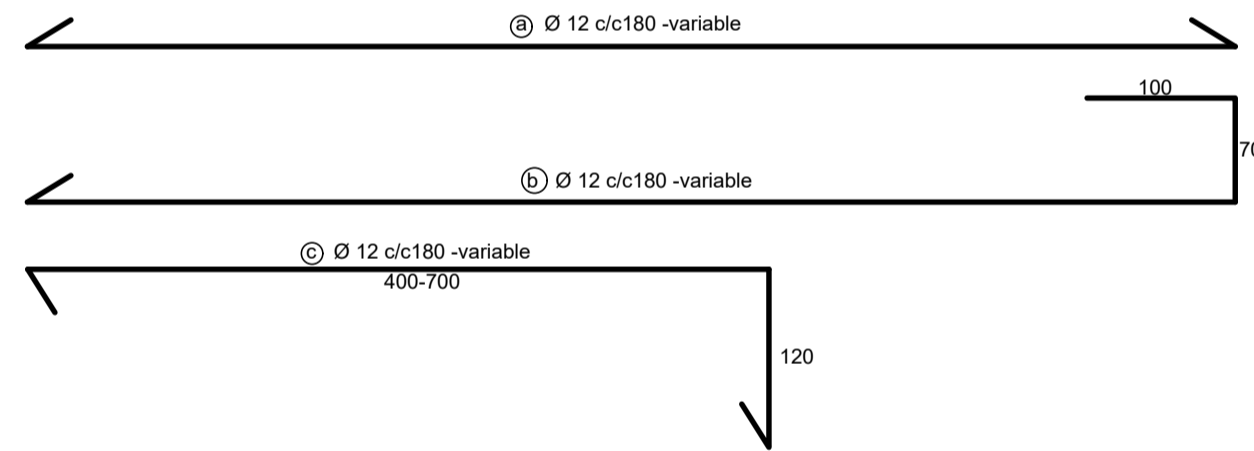
Soak Away Pit Cover  
SCALE -1:10



PLAN  
SCALE 1:10

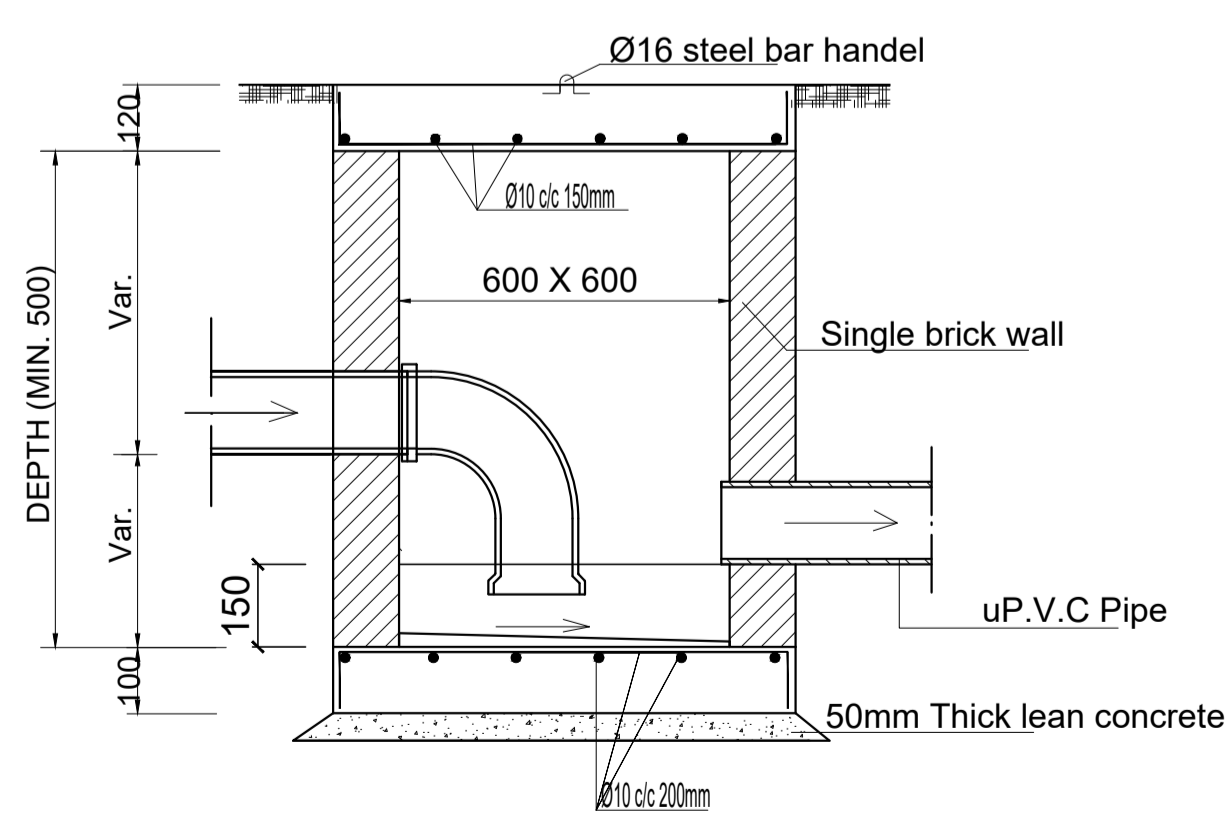


SECTION C-C  
SCALE -1:25



SCALE 1:10

SECTION OF MAN HOLE  
DETAILS OF GULLY TRAP



GENERAL NOTES:




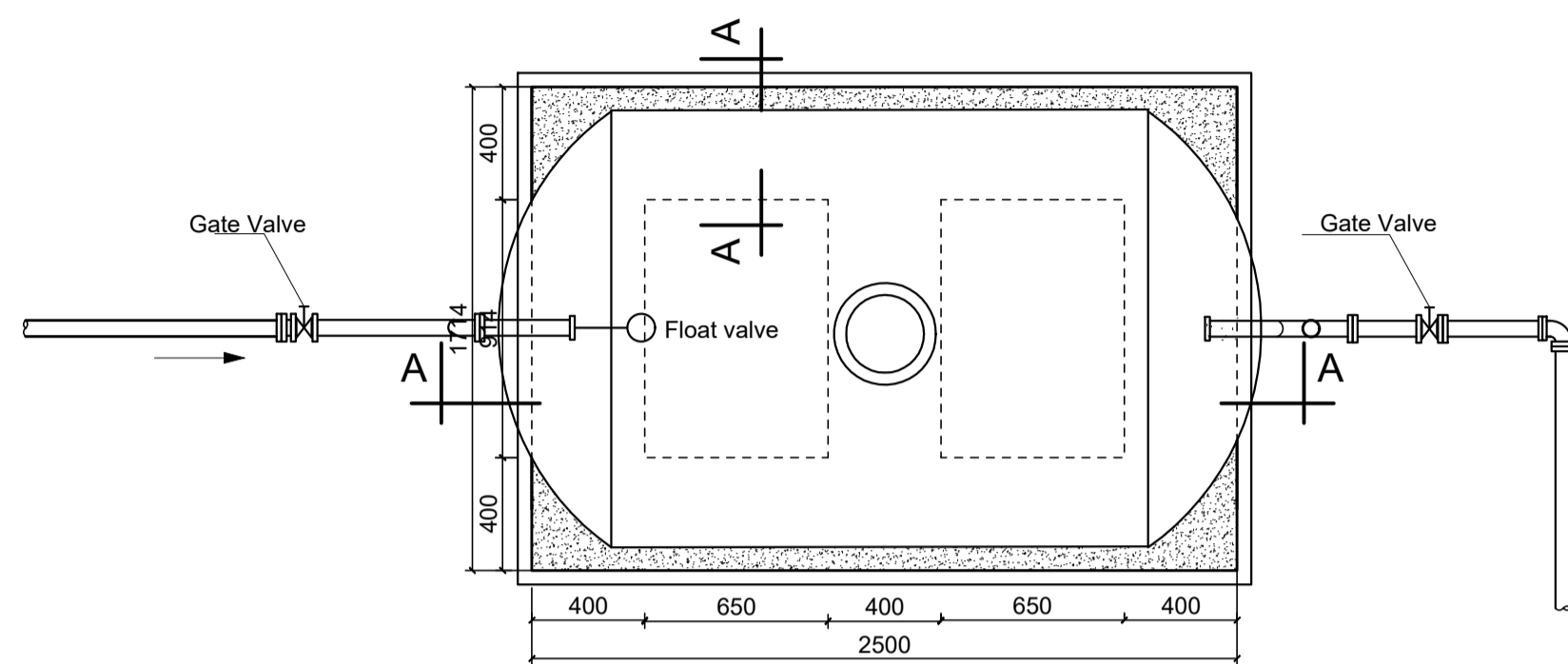
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Rev.	Date	Description	Approved
0			

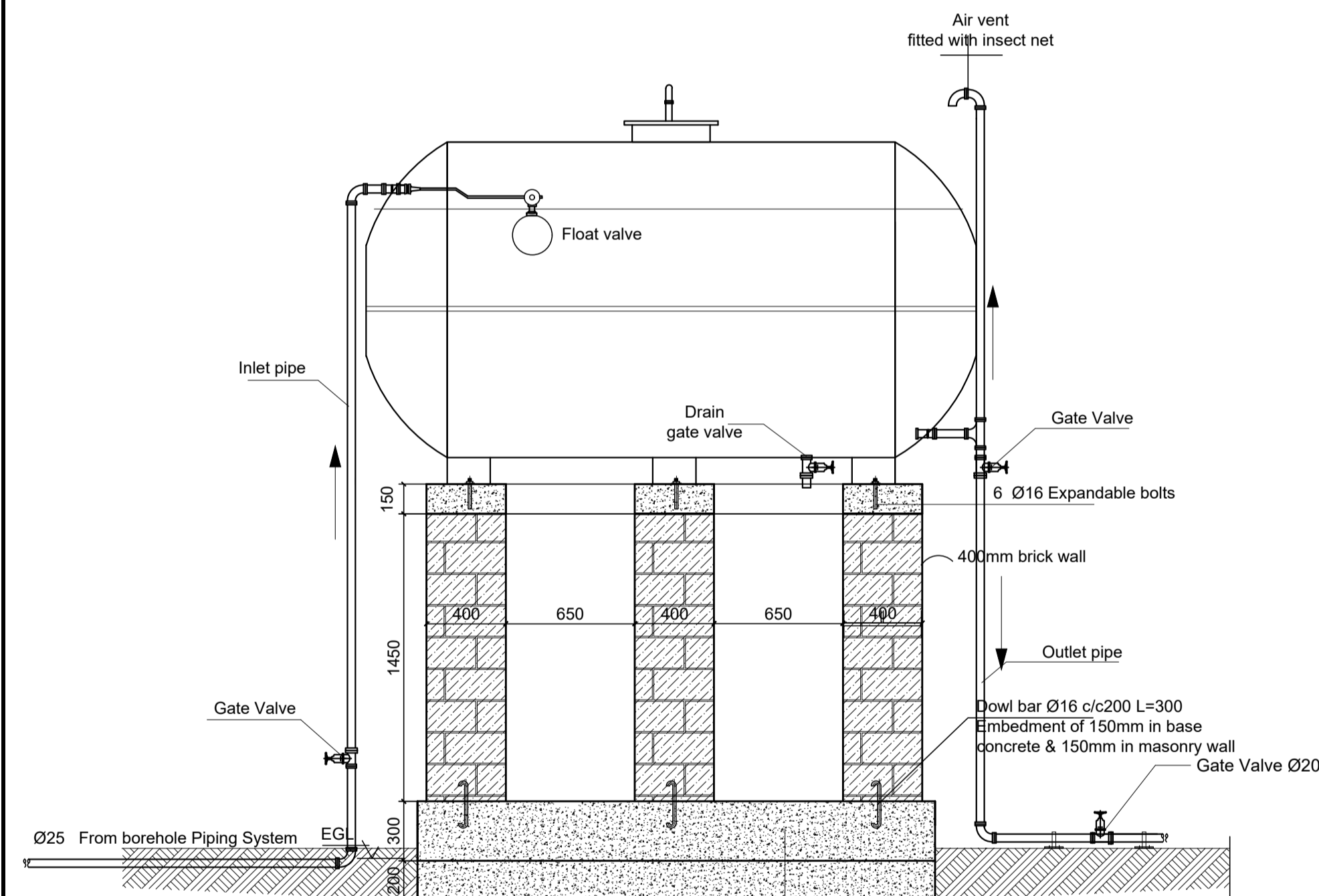
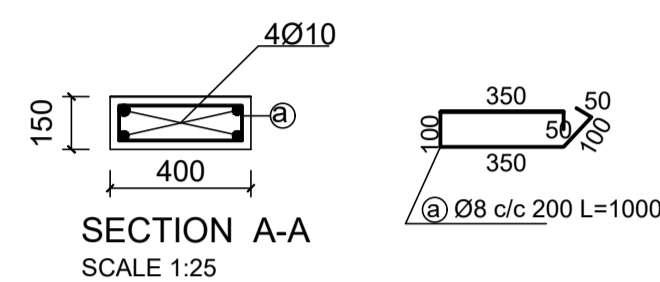
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Project Name:	Design:
PRIMARY HEALTH CARE UNIT - PHCU	UNOPS-ETOH
	



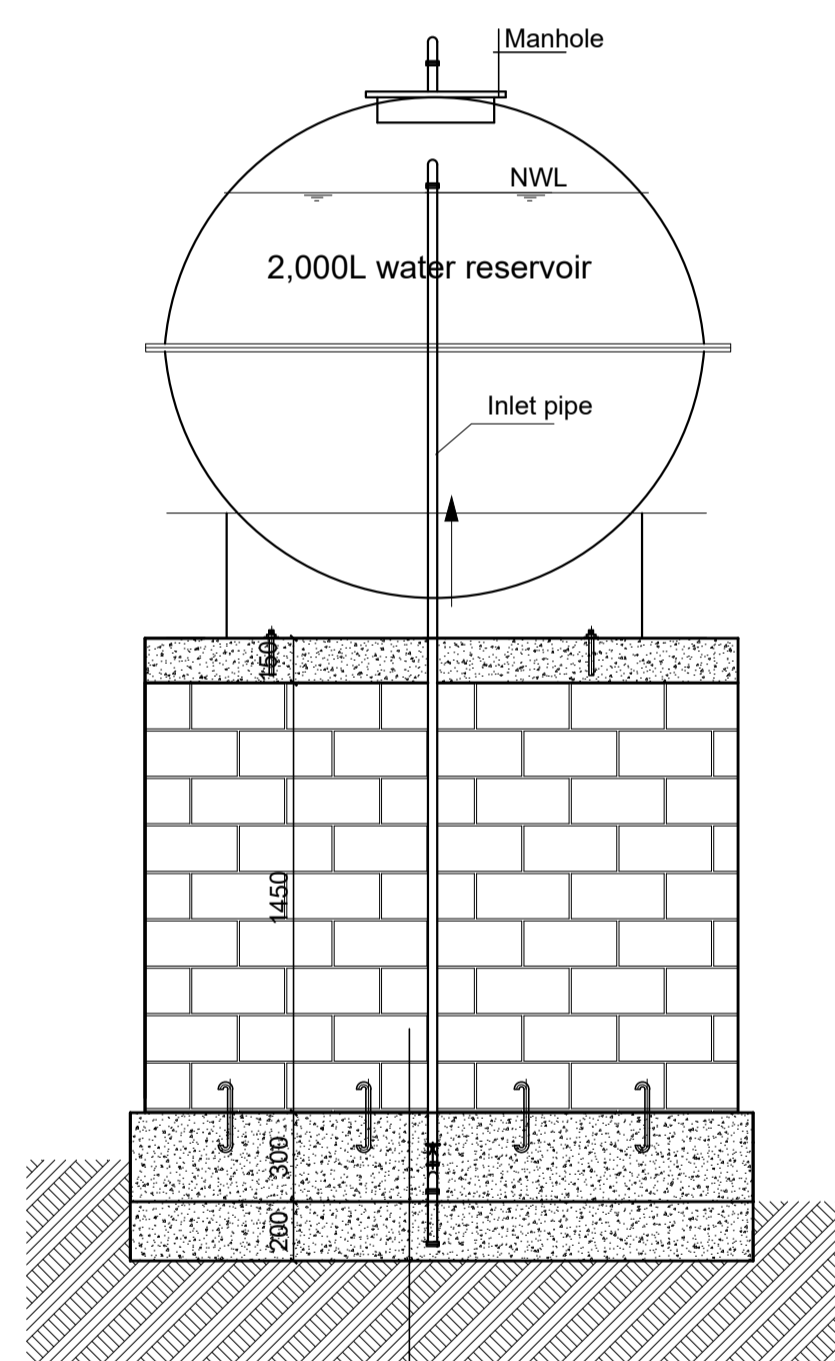
Elevated Water Tank (1.6m)2,000 L  
SCALE -1:25

WATER TANKER SUPPORT BEAM DETAILS

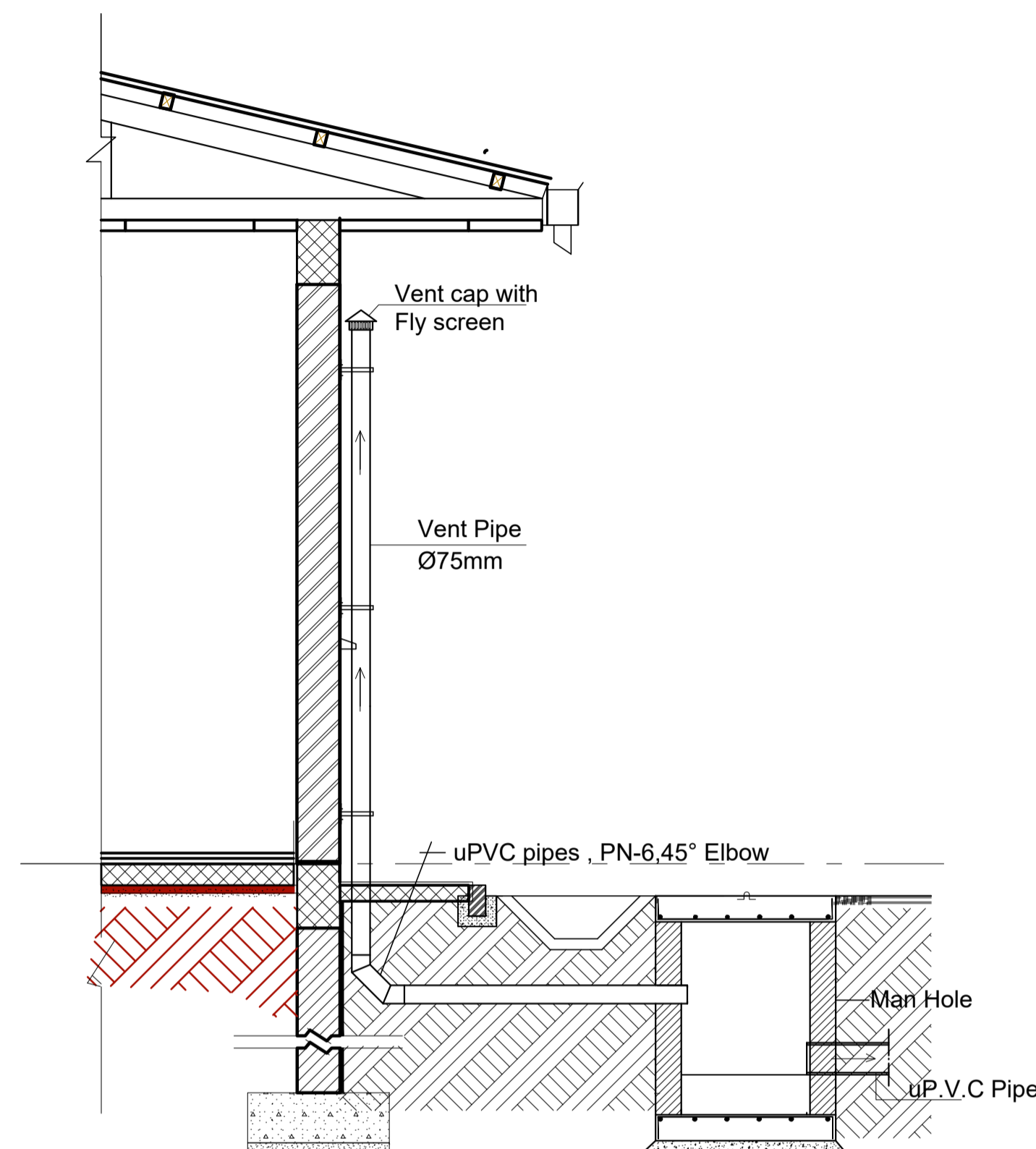


SECTION A-A  
SCALE -1:25  
WATER TANK PLINTH  
SCALE -1:25

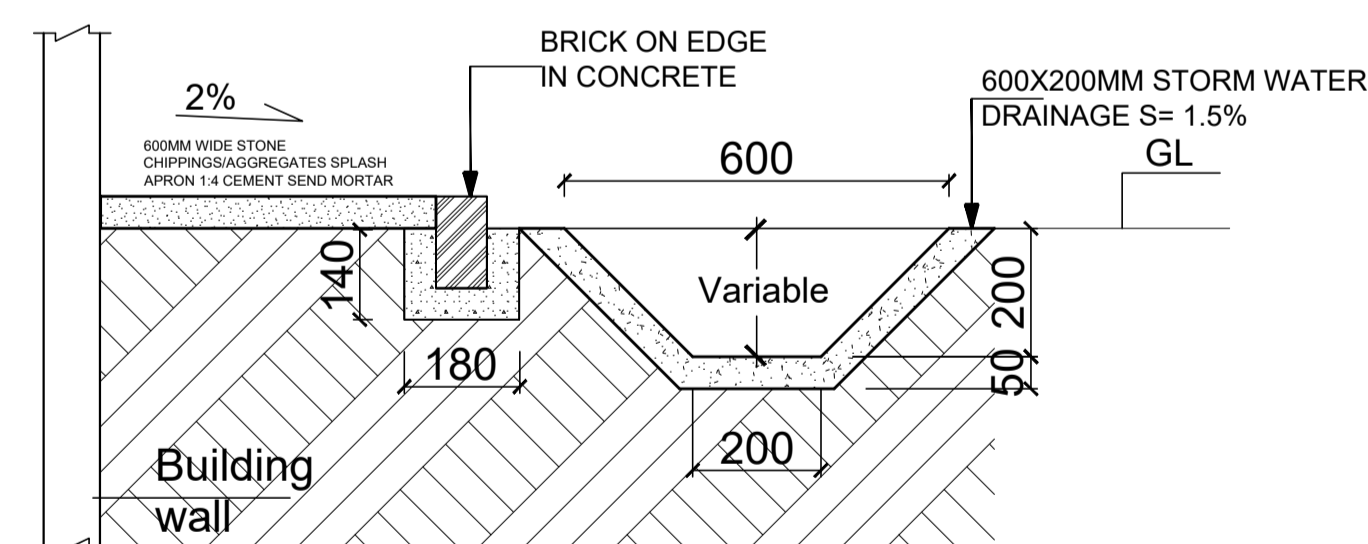
300mm thick stone boulders with cement mortar  
Min.200mm thick well compacted selected fill (95% proctor)  
Natural soil



400mm brick wall  
300mm thick stone boulders with cement mortar  
Min.200mm thick well compacted selected fill (95% proctor)  
Natural soil

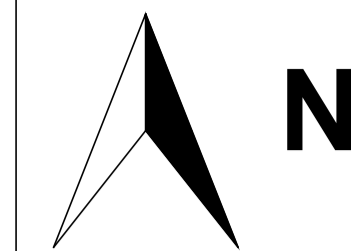


VENT PIPE DETAILS  
SCALE -1:25



STORM WATER DRAINAGE DITCH DETAIL  
Sc.1:25

## GENERAL NOTES:



All dimensions are in millimeters unless otherwise explicitly stated on the dimension.

The drawings may be scaled to fit the desired paper size.

0	Rev.	Date:	Description:	Approved
1	Rev.	Date:	Description:	Approved
2	Rev.	Date:	Description:	Approved
3	Rev.	Date:	Description:	Approved
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5	Rev.	Date:	Description:	Approved
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7	Rev.	Date:	Description:	Approved
8	Rev.	Date:	Description:	Approved
9	Rev.	Date:	Description:	Approved
10	Rev.	Date:	Description:	Approved

## KEY PLAN

Funded By:		Partner:	
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Program:		Implemented By:	
LOCAL GOVERNANCE & SERVICE DELIVERY PROJECT		UNOPS- SOUTH SUDAN	
Project Name:		Design:	
PRIMARY HEALTH CARE UNIT - PHCU		UNOPS-ETOH	
Drawing Title:		UNOPS	

## ELEVATED WATER TANKER, VENT PIPE & STORM WATER DITCH DETAILS

Designed by			Discipline:	Dr. No:	Tot. No:	Rev No:
AE			SN	03	03	R0
Drawn:	Checked:	Approved:	Size:	Scale:	Date:	Rev.:
FM	BM	SM	A1	1:25	1 / 8 / 2021	0



Designed by			Discipline:	Dr. No:	Tot. No:	Rev No:		
YG			EL	01	04	R1		
Drawn:	Checked:	Approved:	Size:	Scale:	Date:	Rev.:		
MA	YG		A1	1:50	3/ 16/ 2021	0		

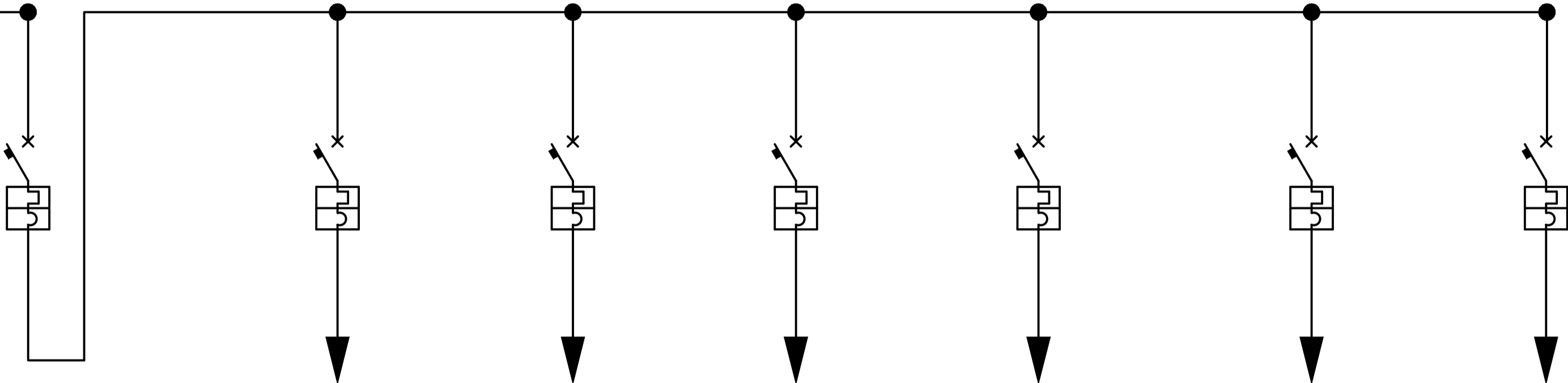
From KWHM

3x6mm2

MDB-HC

DF=0.9, Reserve=25%

I<sub>sc</sub>=6KA



CIRCUIT NUMBER		No		1	2	3	4	5	6
DESCRIPTION			Main Breaker	Lighting	Lighting	Socket	Socket	Spare	Spare
POWER		KW	3.39	0.23	0.186	1.4	1.2		
CURRENT		A							
PHASE		R/S/T	R	R	R	R	R	R	R
VOLTAGE		V	220	220	220	220	220	220	220
CIRCUIT BREAKERS	POLES		1	1	1	1	1	1	1
	INTERRUPTING RATING	A	25	10	10	16	16	16	16
CABLE SIZE		mm <sup>2</sup>	3x6	3x1.5	3x1.5	3x2.5	3x2.5	3x2.5	3x2.5

GENERAL NOTES:



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The drawings may be scaled to fit the desired paper size.

LIGHT FITTINGS SCHEDULE AND LEGEND	
	LED panel light 18w surface type included driver , 4000 K/ 1350 lm IP 20, operating voltage 220V-240V
	LED panel light 30w surface type included driver , 4000 K /3300 lm white 30,000hrs life time , IP 20, operating voltage 220V-240V ,
	LED RVAC light 12.5w Ambient ceiling type , 4200 K / 679 lm ,IP 20, operating voltage 220V-240V
	SINGLE SWITCH 220Vac 10A/1P mounted 1.4@AFFL
	Double Switch 220Vac 10A/1P mounted 1.4m@AFFL
	Two-way Switch 220VAC 10/1P mounted 1.4@AFFLWO
	16A Single Socket Outlet with 3x2.5mm2 fixed above 50cm
	16A Twin Socket Outlet 3x2.5mm2 Fixed @ 50cm above F.F.L
	Distribution Board (Flush mounted)
	Earthing Rod in Manhole
	Manhole
	6kg portable fire extinguisher

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Program:	Implemented By:
Local Governance & Service Delivery Project	UNOPS-SOUTH SUDAN
Project Name:	Design:
Primary Health Care Unit (PHCU)	UNOPS-ETOH
Drawing Title:Distribution Board Schedule	



ELECTRICAL INSTALLATION-DISTRIBUTION BOARD SCHEDULE

Designed by		Discipline:	Dr. No:	Tot. No:	Rev No:
YG		EL	02	04	R1
Drawn:	Checked:	Approved:	Size:	Scale:	Date:
MA	YG		A1	1:50	3/ 16/ 2021












The diagram illustrates the internal wiring of a 25A MDB. It features three main horizontal bars at the top: a 25A bus bar, an R (Phase) bar, and an N (Neutral) bar. A Main Switch (MCB) rated at 25A is connected to the bus bar. Below the bus bars, there are five outgoing MCBs with ratings of 10A, 16A, 16A, 16A, and 16A. These MCBs are connected to the R and N bars. Additionally, there is an Earthing bar and an outgoing connecting terminal (Viking terminal) connected to the bus bar. The diagram also shows a 3x6 sq.mm cable connected to the bus bar.


Diagram of a 6-pin DIN connector with the following labels:

- Pin 1: Light 3x1.5sq.mm
- Pin 2: Light 3x1.5sq.mm
- Pin 3: Socket 3x2.5sq.mm
- Pin 4: Socket outlet
- Pin 5: Socket 3x2.5sq.mm
- Pin 6: Socket outlet
- Spare 3x2.5sq.mm




The drawings may be scaled to fit the desired paper size.

LIGHT FITTINGS SCHEDULE AND LEGEND	
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	Double Switch 220Vac 10A/1P mounted 1.4m@AFFL
	Two-way Switch 220VAC 10/1P mounted 1.4@AFFLWO
	16A Single Socket Outlet with 3x2.5mm <sup>2</sup> fixed above 50cm
	16A Twin Socket Outlet 3x2.5mm <sup>2</sup> Fixed @ 50cm above F.F.L
	Distribution Board (Flush mounted)
	Earthing Rod in Manhole
	Manhole

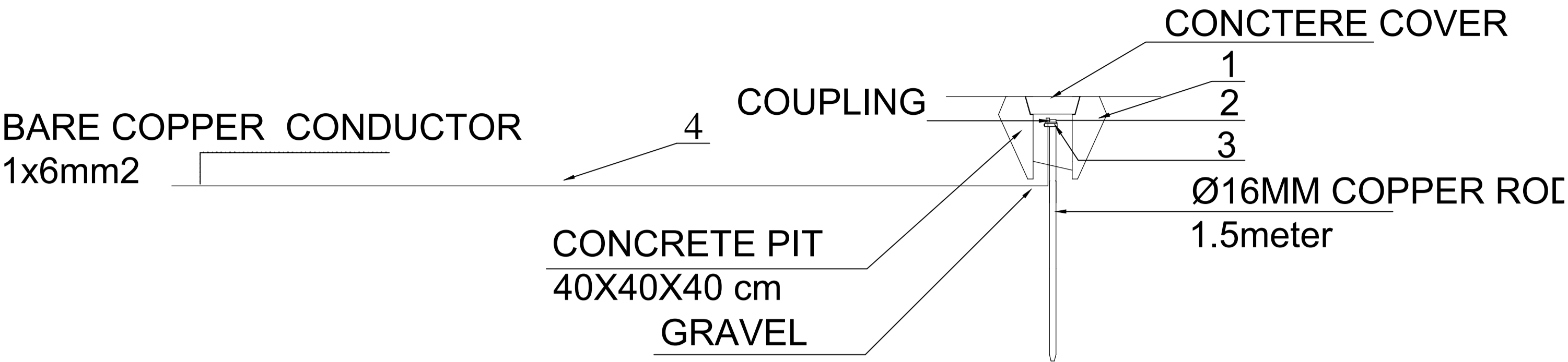
		6kg portable fire extinguisher	
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Program:	Implemented By:
Local Governance & Service Delivery Project	UNOPS-SOUTH SUDAN
Project Name:	Design:
Primary Health Care Unit (PHCU)	UNOPS-ETOH
	 <b>UNOPS</b>

Designed by				Discipline:	Dr. No:	Tot. No:	Rev No:	
YG				EL	03	04	F	
Drawn:	Checked:	Approved:	Size:	Scale:	Date:	Rev.:		
MA	YG		A1	1:50	3/ 16/ 2021	0		

EARTHING DETAIL



LEGEND TO EARTHING SYSTEM DETAIL

1	MANHOLE	400 x 400 x 400mm
2	DRIVIG STUD	
3	ROD TO TAPE CLAMP	
4	EARTH CONDUCTOR (bare)	1 x 6mmsq.

NOTE

- 1 - ALL DIMENSIONS ARE IN METERS
- 2 - DIVERSITY FACTOR CALCULATED : = 0.9
- 3 - ALL ELEVATIONS ARE REFEREED TO ABOVE FINISHED FLOOR LEVEL (A.F.F.L)
- 4 - ALL JUNCTION BOXES ARE NOT SHOWN BUT THEY ARE INSTALLED EVERY TWO BENDS
- 5- ALL CONDUITS USED FOR LIGHTING & SOCKET OUTLETS ARE PVC Ø 16MM, AND DEPENDING ON THE NUMBER OF LINES INSIDE CONDUITS FROM JUNCTION BOX TO EVERY INDIVIDUAL POINT.
- 6- INSTALLATION ELEVATIONS ABOVE F.F. ARE @1.40M FOR SWITCH, @2.00M FOR KWHM, @0.50M FOR SOCKET OUTLETS.
- 7- CABLE TYPE FOR THE WIRING TO BE USED SHALL BE NYY 0.6/1KV
- 8- 10- ILLUMINATION LEVEL FOR EACH ROOM IS MAINTAINED AS PER ETHIOPIAN BUILDING STANDARD CODE EBCS-10.

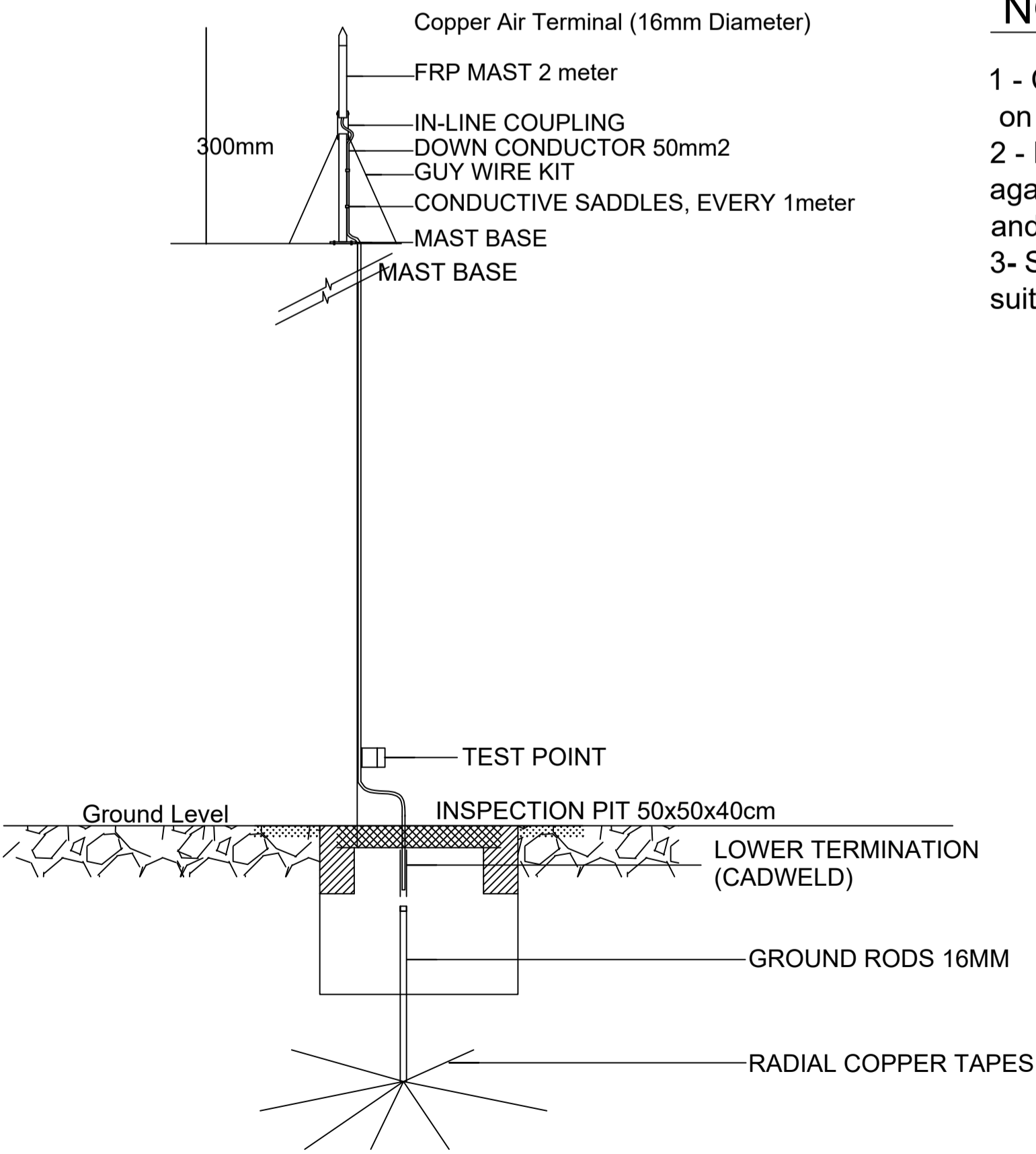
GENERAL NOTES:



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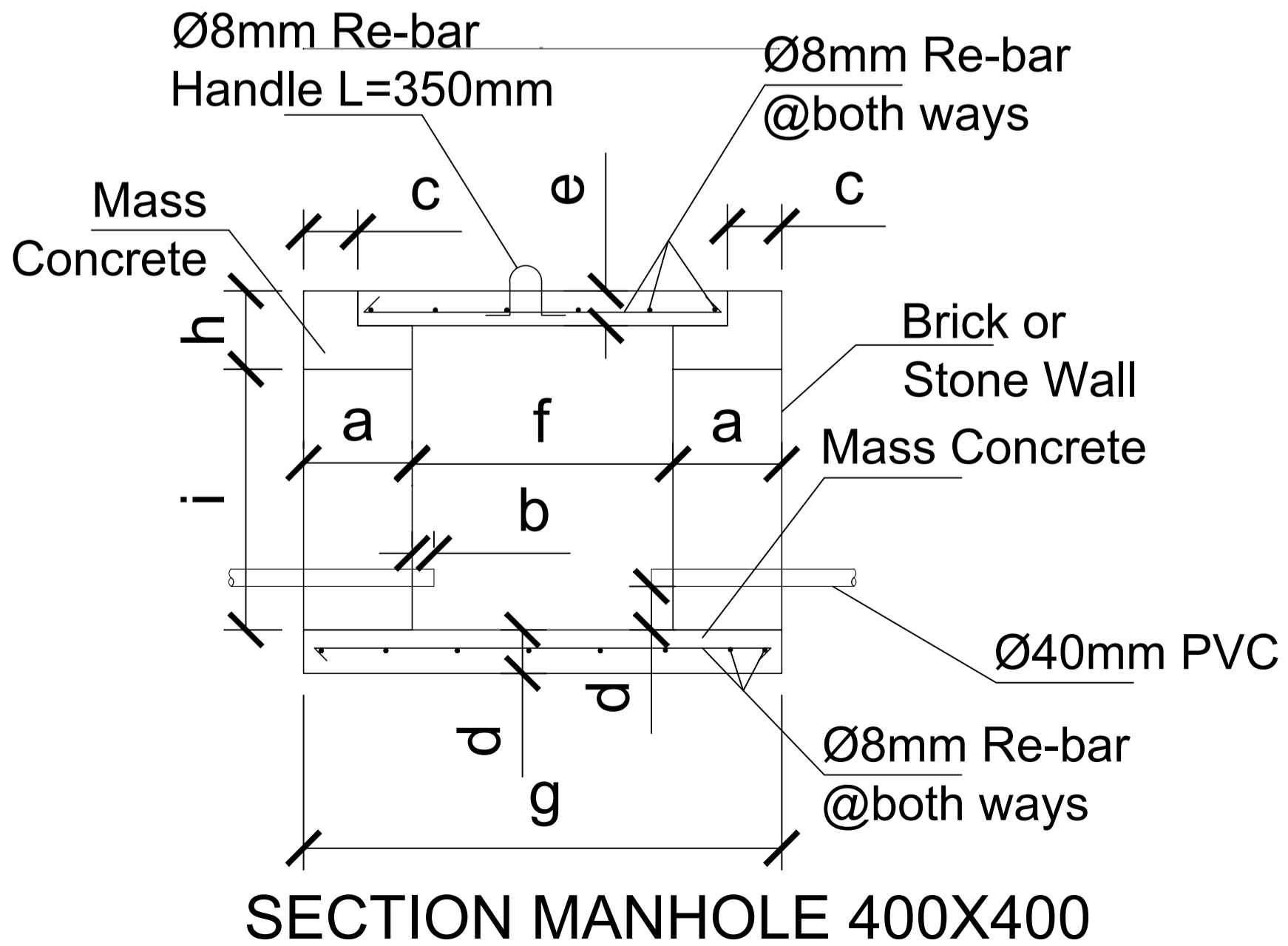
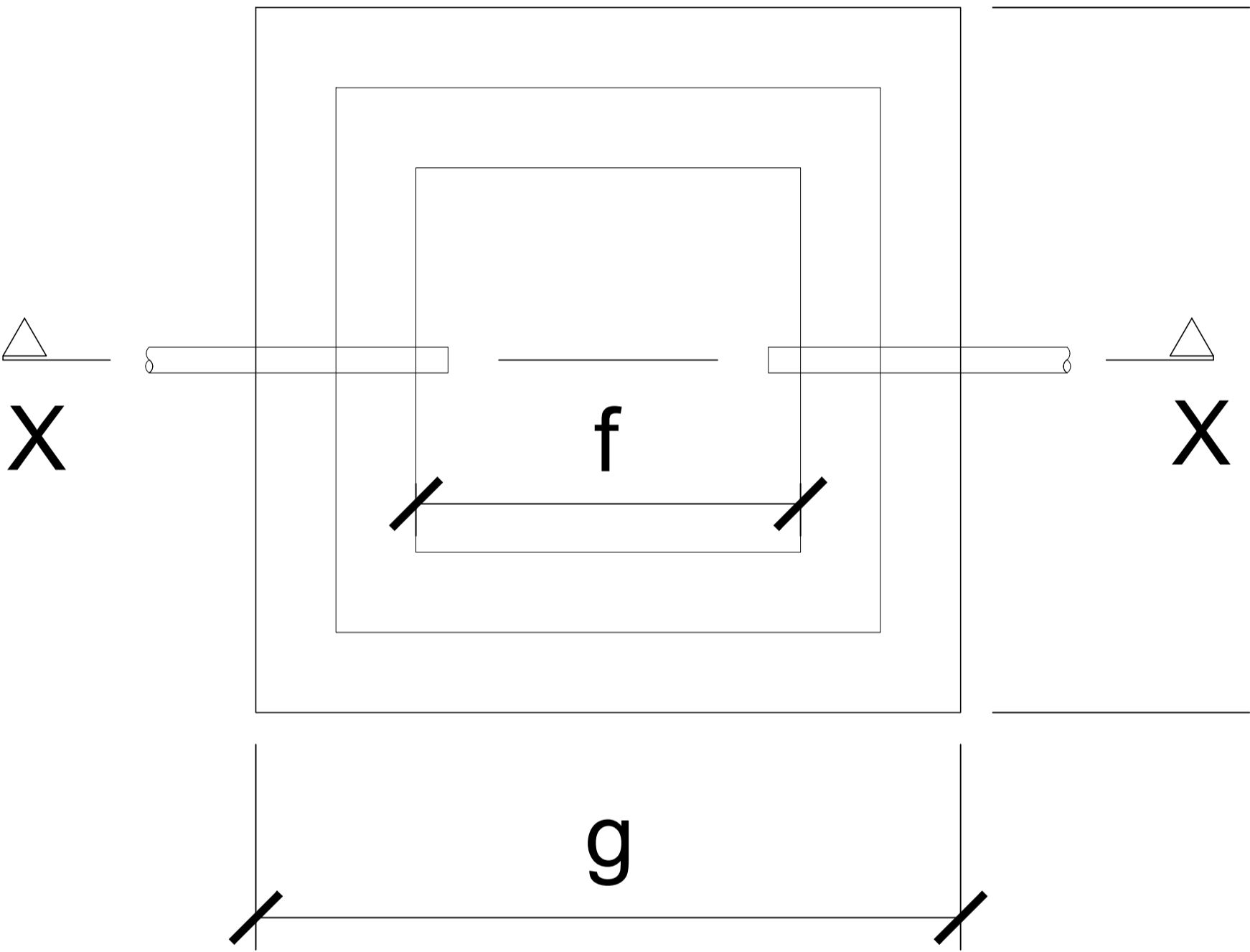
LIGHT FITTINGS SCHEDULE AND LEGEND	
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	16A Twin Socket Outlet 3x2.5mm² Fixed @ 50cm above F.F.L
	Distribution Board (Flush mounted)
	Earthing Rod in Manhole
	Manhole
	6kg portable fire extinguisher



NOTE

- 1 - Copper Lightening Protection shall not be installed directly on aluminum roofing, siding or other aluminum surfaces.
- 2 - Down conductor entering corrosive soil shall be protected against corrosion for not less than 915mm above ground level and for entire length below grade level.
- 3- Service conduit entering a building underground shall be suitably drained. keeping the slope suitable to drain.

REF.	MANHOLE OF SIZE 600x600		MANHOLE OF SIZE 400x400	
	STONE	BRICK	STONE	BRICK
a	400	250	400	250
b	50	50	50	50
c	200	125	200	125
d	100	100	100	100
e	80	80	80	80
f	600	600	400	400
g	1400	1100	1200	900
h	180	180	180	180
i	700	700	500	500



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Local Governance & Service Delivery Project	UNOPS-SOUTH SUDAN
Project Name:	Design:
Primary Health Care Unit (PHCU)	UNOPS-ETOH
Drawing Title:	

MANHOLE, LIGHTING PROTECTION AND EARTHING DETAIL

Designed by			Discipline:	Dr. No.:	Tot. No.:	Rev No.:	
YG			EL	04	04	R1	
Drawn:	Checked:	Approved:	Size:	Scale:	Date:	Rev.:	
MA	YG		A1	1:50	3/ 16/ 2021	0	