FEDERAL GOVERNMENT OF SOMALIA

MINISTRY OF FISHERIES AND BLUE ECONOMY(MFBE)
FEDERAL REPUBLIC OF SOMALIA

SOMALIA FISHERIES DEVELOPMENT PROJECT (BADMAAL)
AT WARSHEIKH

SOMALIA

ARCHITECTURAL DESIGN DRAWINGS

THE WORLD BANK
IBRD • IDA | WORLD BANK GROUP

Badmaal
Somali Sustainable Fisheries Development Project

ARCHITECTURAL DESIGN DRAWINGS

CLIENT

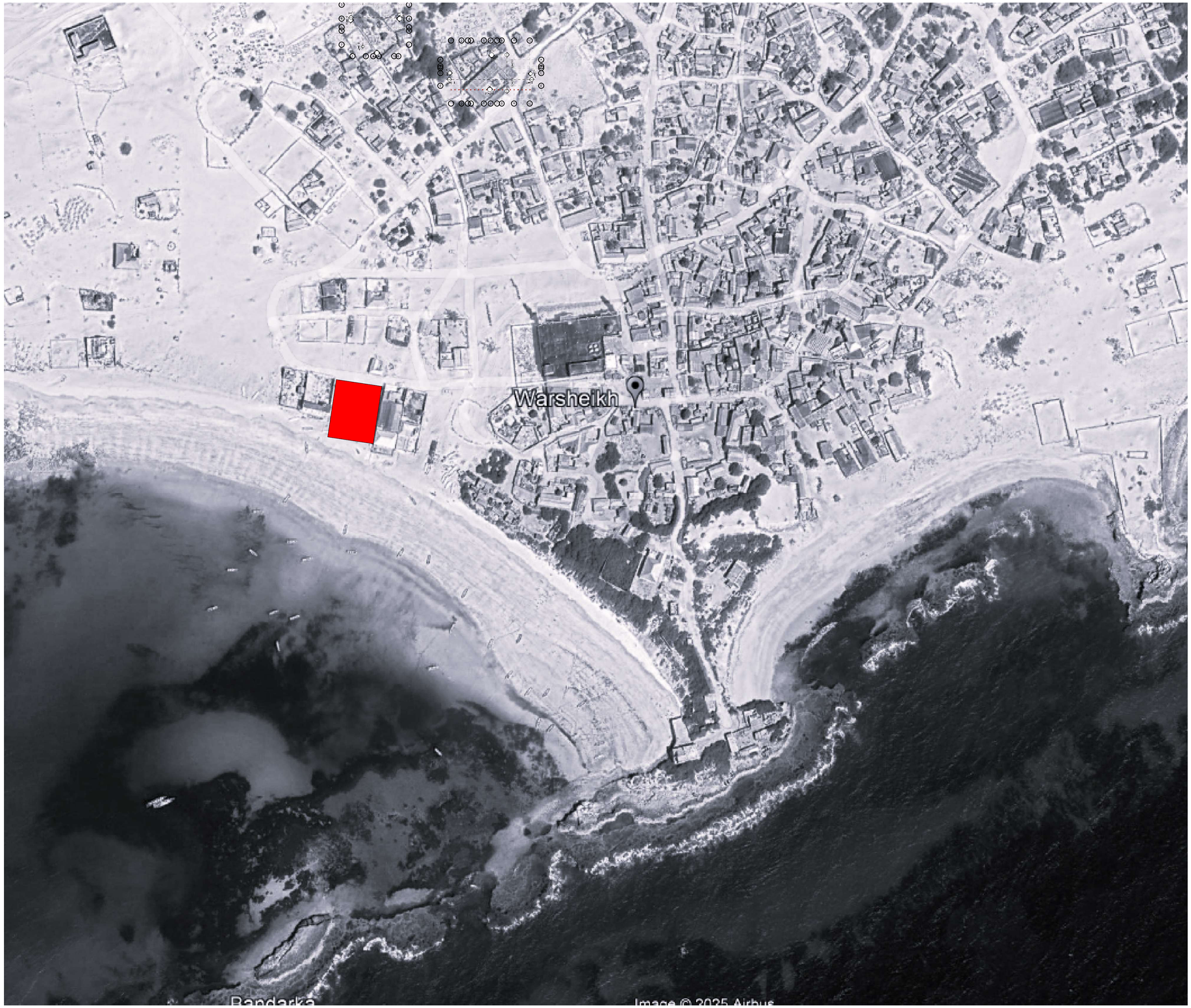
FEDERAL GOVERNMENT OF SOMALIA

MINISTRY OF FISHERIES AND BLUE ECONOMY(MFBE)
FEDERAL REPUBLIC OF SOMALIA

PROJECT

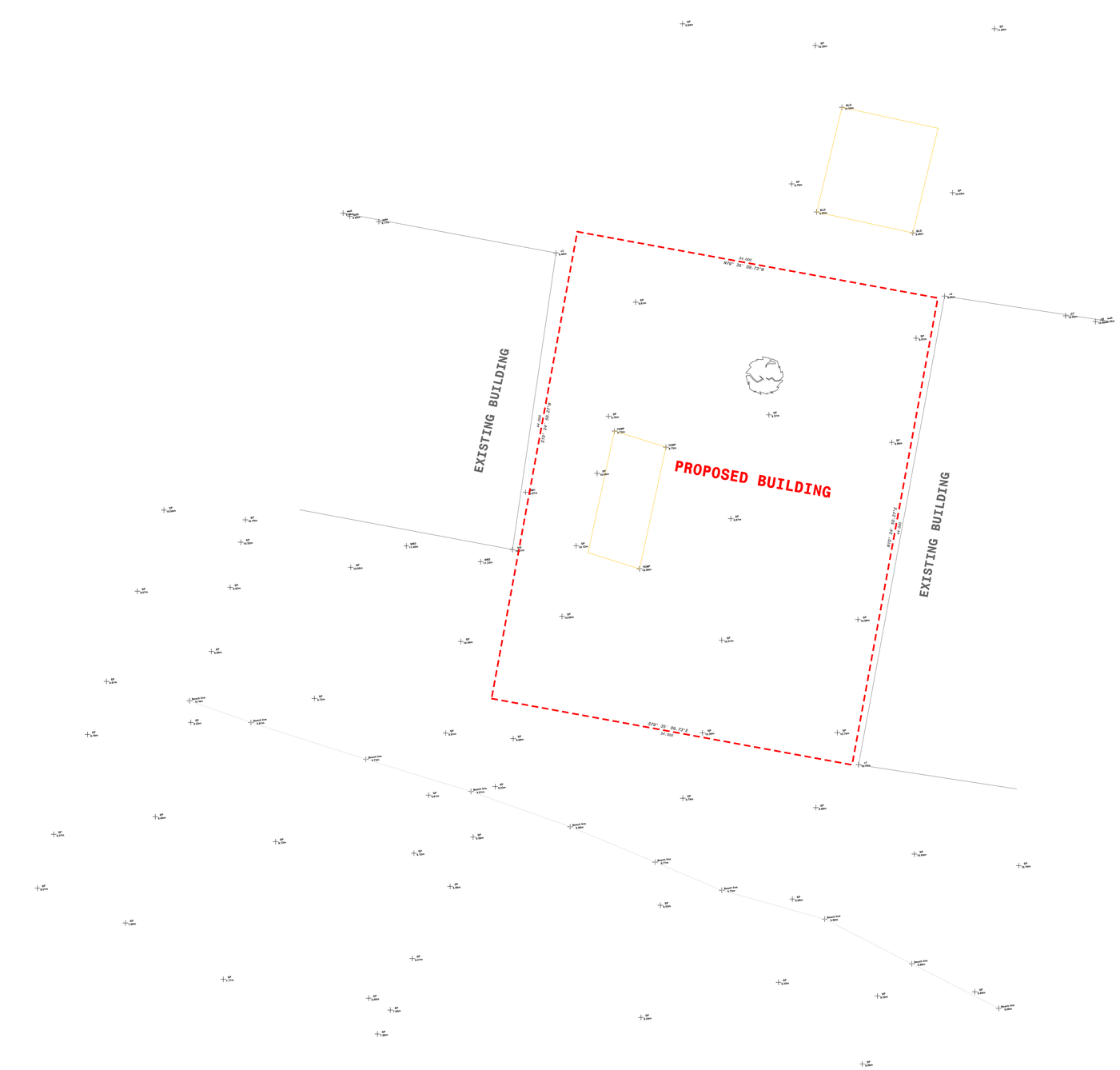
SOMALIA FISHERIES DEVELOPMENT PROJECT (BADMAAL) AT WARSHEIKH

SOMALIA



Architects	**Project Title**		**Revisions**	Scale	Drawing No. & Title	
Badmaal Somali Sustainable Fisheries Development Project	**Somali Sustainable Fisheries Development Project (BADMAAL)**	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	No. / Description / Date	**1:50**	**WARSHEIKH Location Plan**	
	Client			Date	Sheet No.	
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia		NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.	**10-03-2026**	**A1**	**Project No: P178032**
				Drawn By	Designed By	Approved By.
				Eng. Mohammed Saahid	**Gerald Nyanjua Amolo**	J.A. Sciortino

Architects	Project Title			Revisions			Scale	Drawing No. & Title	
Badmaal Somali Sustainable Fisheries Development Project	Somali Sustainable Fisheries Development Project (BADMAAL)		THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	No.	Description	Date	1:50	WARSHEIKH Plot Parcel layout	
	Client						Date	Sheet No.	
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia						10-03-2026	A1	Project No: P178032
				NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.			Drawn By	Designed By	Approved By.
							Gerald Nyanjua Amolo	Mohamed Abdi Ahmed Saahid	J.A. Sciortino



LEGEND AND ABBREVIATIONS

- PROPOSED BUILDING
- EXISTING BUILDING
- BEECH LINE
- TEMPORARY STRUCTURES

Architects	**Project Title**		
Badmaal Somali Sustainable Fisheries Development Project	**Somali Sustainable Fisheries Development Project (BADMAAL)**		
	Client		
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia		

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Revisions

No.	Description	Date

NB:
1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing.
2. The contractor must check and verify all levels and dimensions before commencing any work.

Scale	Drawing No. & Title	
1:50	**WARSHEIKH Proposed Parcel layout**	
Date	Sheet No.	
10-03-2026	**A1**	**Project No: P178032**
Drawn By	Designed By	Approved By.
Gerald Nyanjua Amolo	**Mohamed Abdi Ahmed Saahid**	**J.A. Sciortino**

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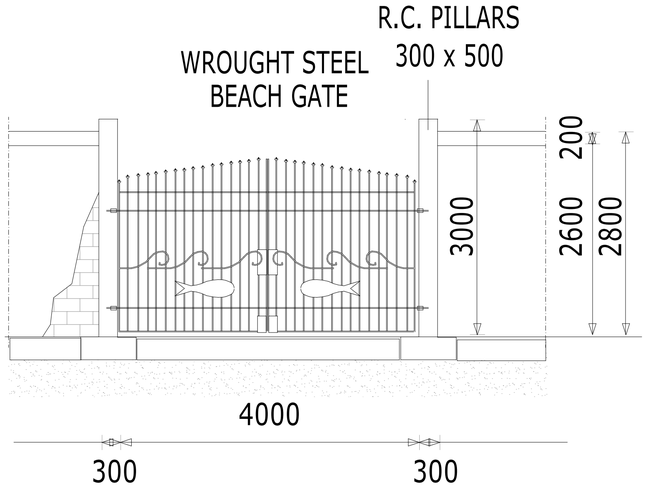
W E

S

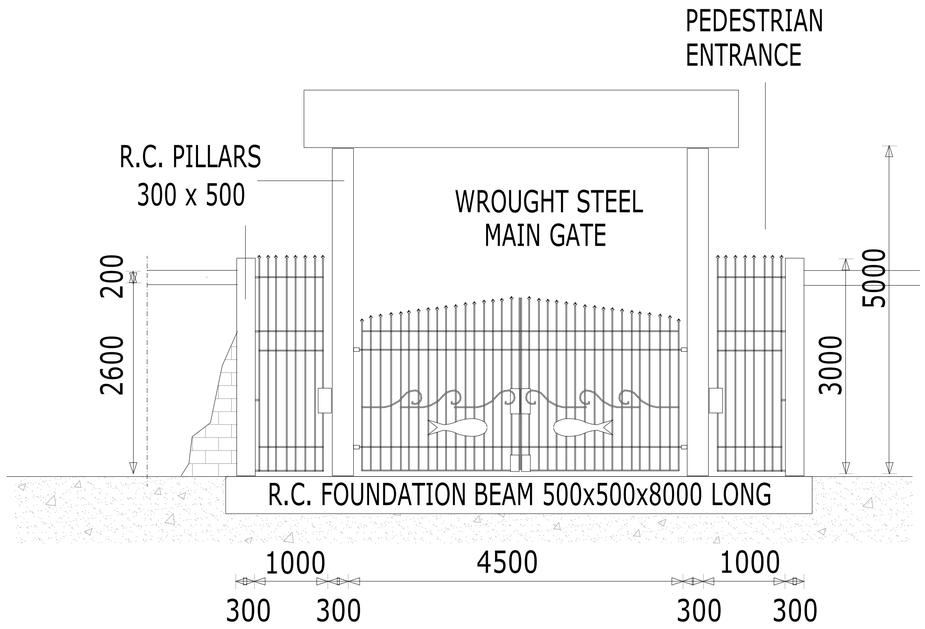
LEGEND AND ABBREVIATIONS

- PROPOSED BUILDING
- EXISTING BUILDING
- BEECH LINE
- TEMPORARY STRUCTURES

Architects	**Project Title**		**Revisions**	Scale	Drawing No. & Title
Badmaal Somali Sustainable Fisheries Development Project	**Somali Sustainable Fisheries Development Project (BADMAAL)**	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	No. | Description | Date	**1:50**	**WARSHEIKH Proposed Parcel layout Elevations**
	Client			Date	Sheet No.
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia		NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.	**10-03-2026**	**A1** **Project No:** P178032
				Drawn By	Designed By | Approved By.
				Gerald Nyanjua Amolo	**Mohamed Abdi Ahmed Saahid** | **J.A. Sciortino**

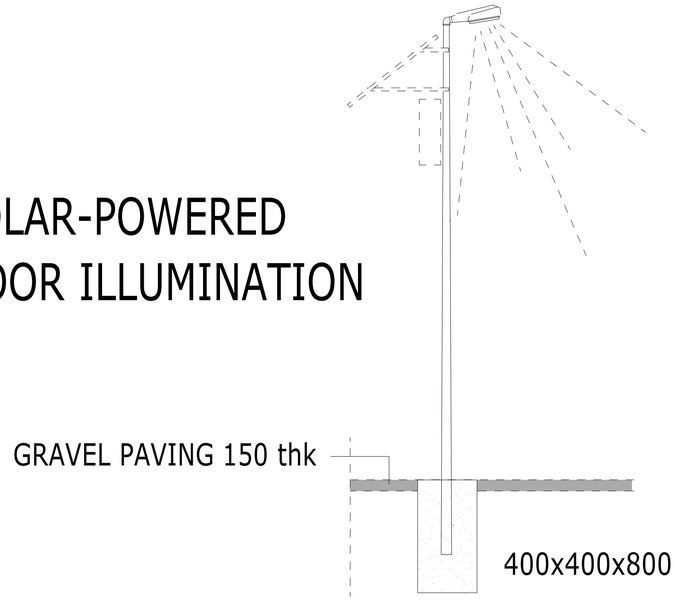


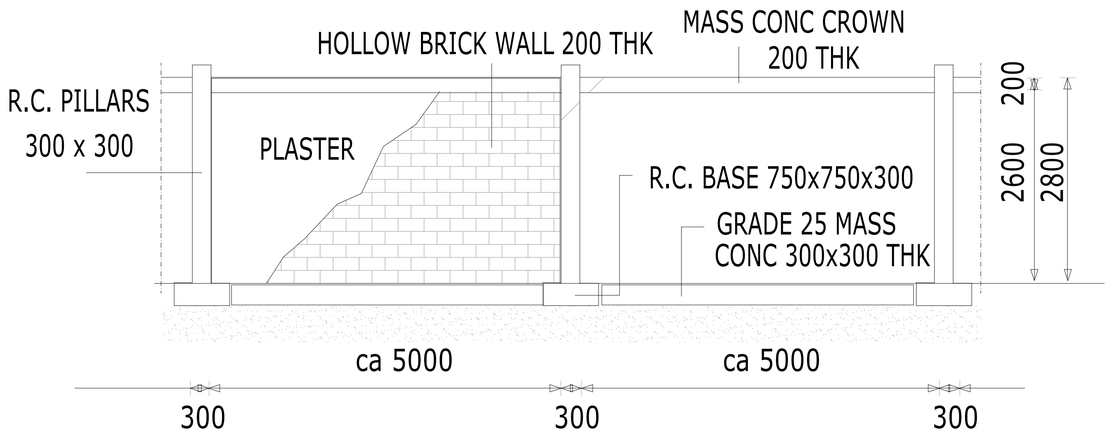
BEACH ENTRANCE



MAIN GATE AND ACCESS CONTROL

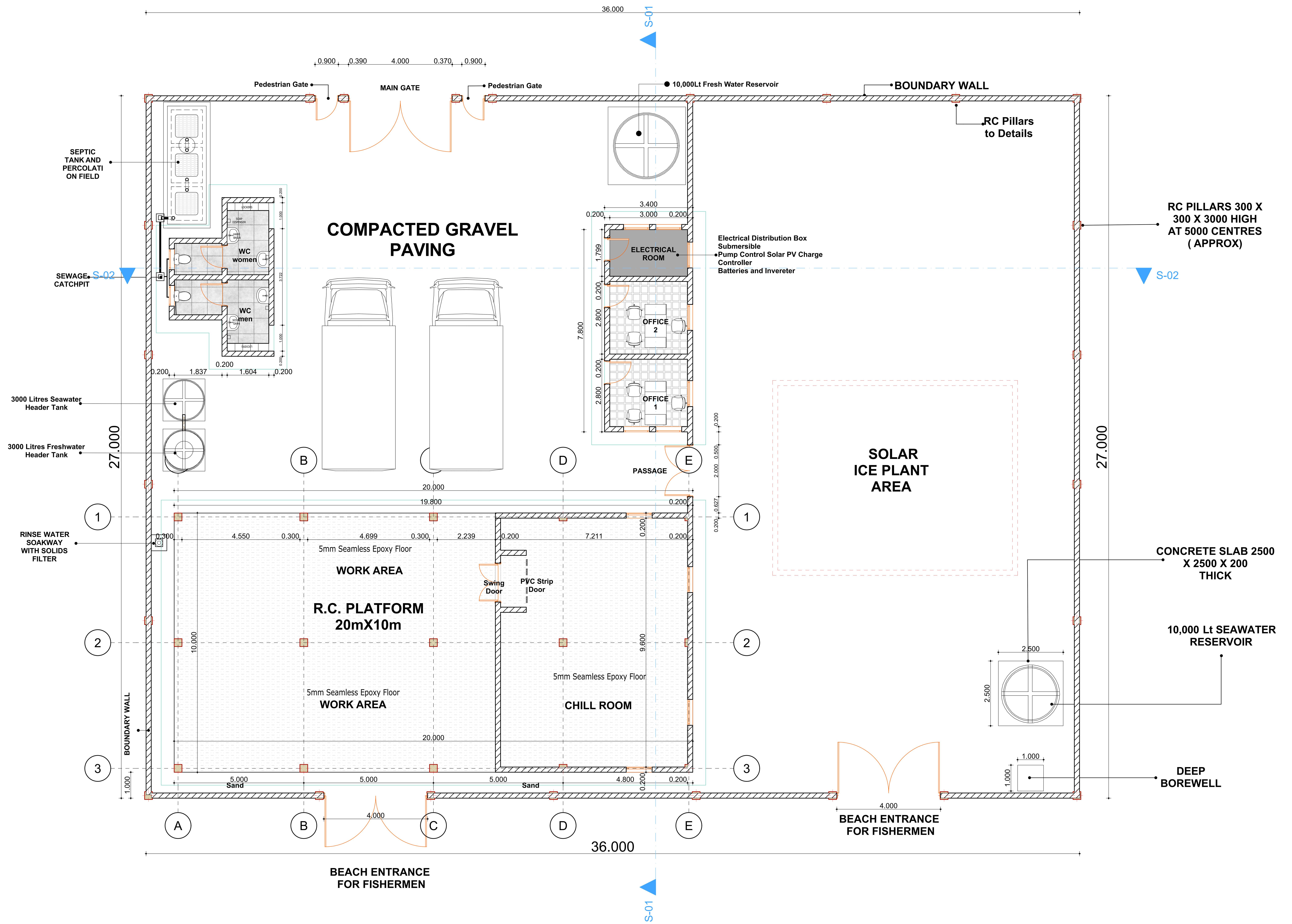
SOLAR-POWERED OUTDOOR ILLUMINATION





BOUNDARY WALL

Architects	**Project Title**		**Revisions**			Scale	Drawing No. & Title
Badmaal Somali Sustainable Fisheries Development Project	**Somali Sustainable Fisheries Development Project (BADMAAL)**		No.	Description	Date	**1:50**	**WARSHEIKH** **Perimeter Details**
	Client	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP				Date	Sheet No.
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia					**10-03-2026**	**A1** **Project No:** P178032
			NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.			Drawn By	Designed By Approved By.
						J.A. Sciortino	**Mohamed Abdi Ahmed Saahid**



Architects	Project Title
Badmaal Somali Sustainable Fisheries Development Project	Somali Sustainable Fisheries Development Project (BADMAAL)
	Client
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia

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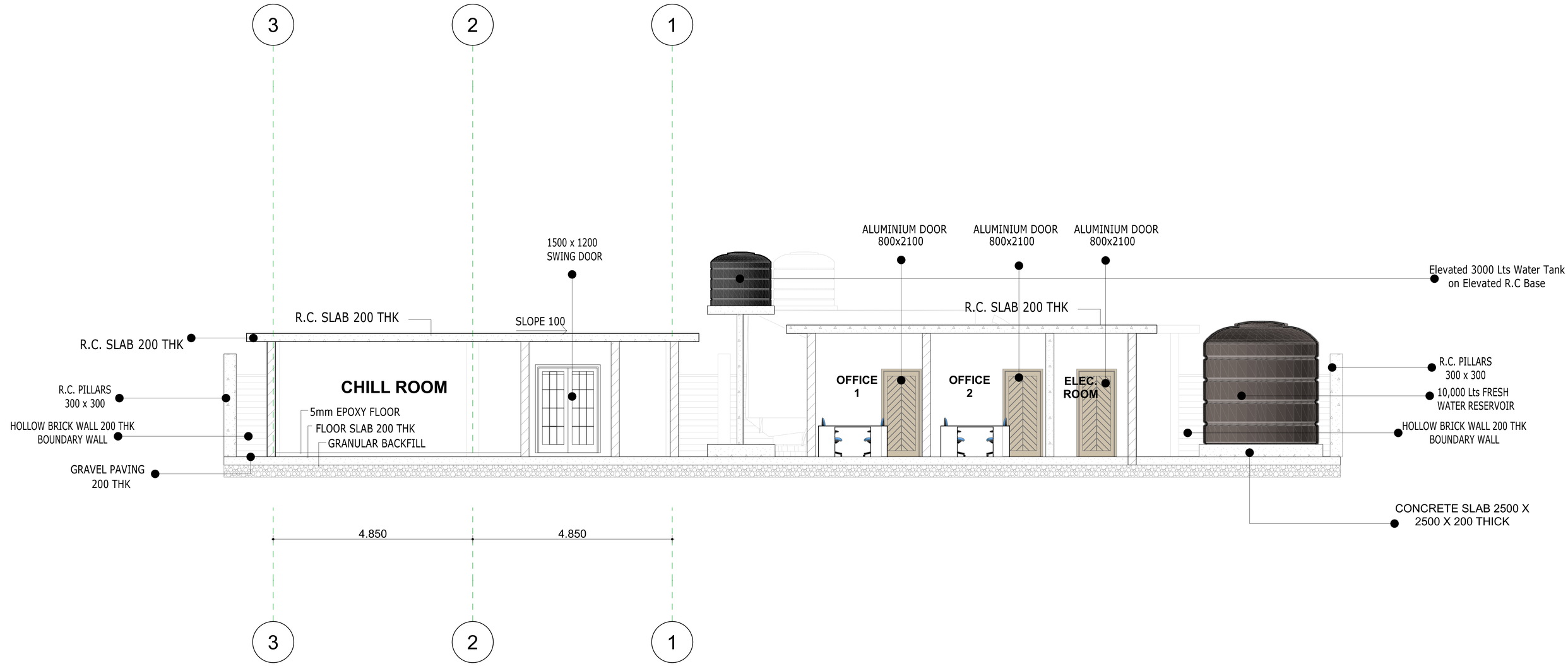
Revisions

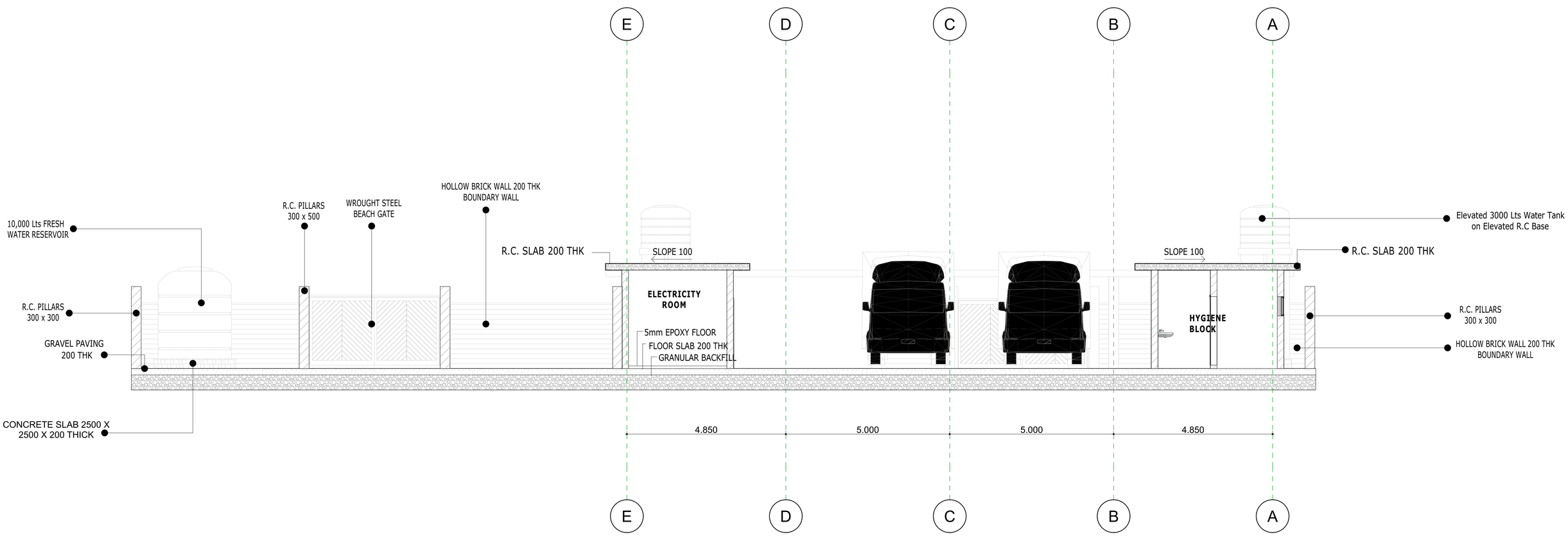
No.	Description	Date

NB:
1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing.
2. The contractor must check and verify all levels and dimensions before commencing any work.

Scale	Drawing No. & Title	
1:50	WARSHEIKH	Ground Floor Plan
Date	Sheet No.	
25-03-2026	A1	Project No: P178032
Drawn By	Designed By	Approved By.
[illegible] Njanjua Amolo	Mohamed Abdi Ahmed Saahid	

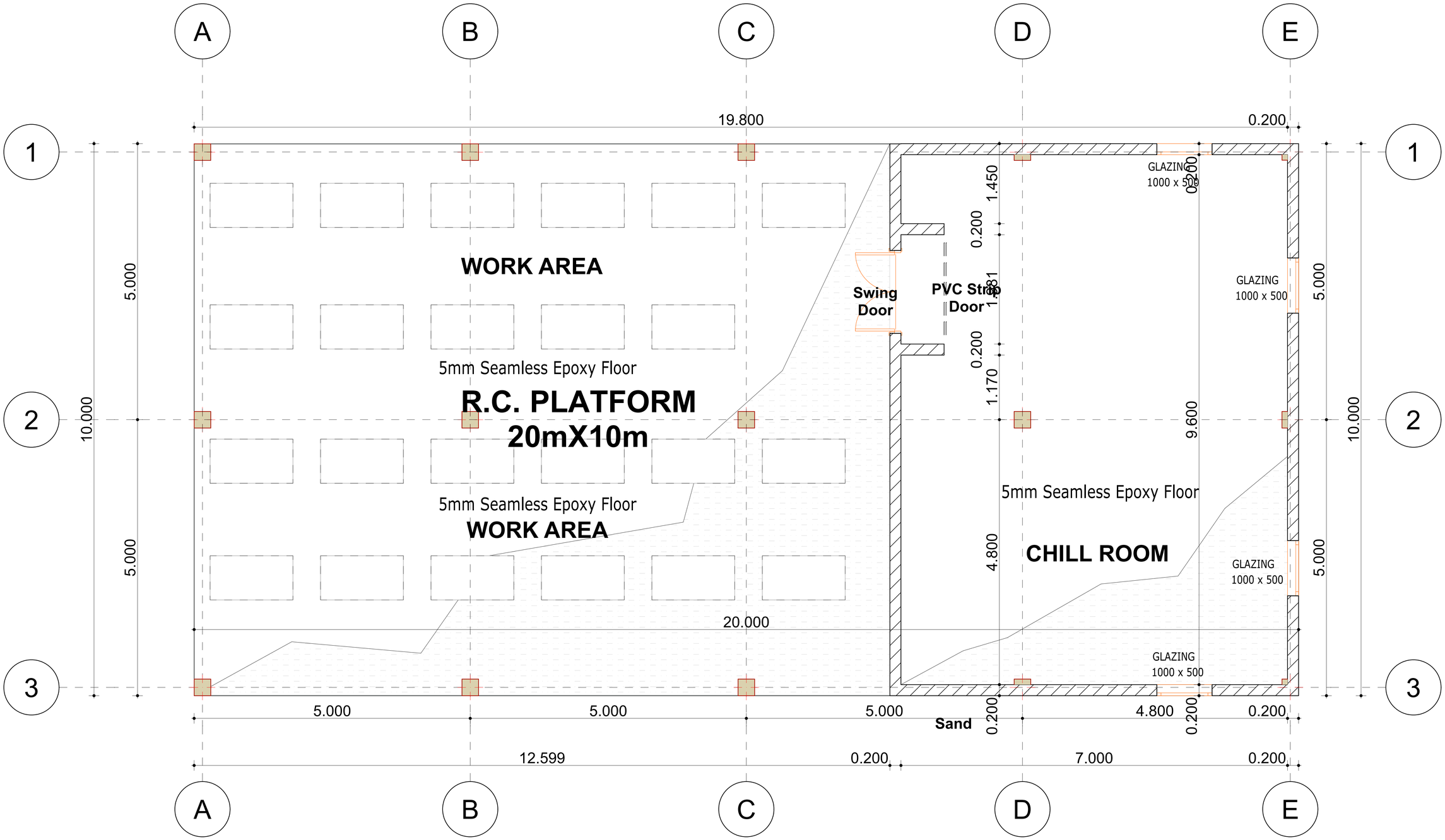


Architects	Project Title		Revisions			Scale	Drawing No. & Title	
Badmaal Somali Sustainable Fisheries Development Project	Somali Sustainable Fisheries Development Project (BADMAAL)	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	No.	Description	Date	1:50	WARSHEIKH	Landscape Sections 1, 2
	Client					Date	Sheet No.	
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia					10-03-2026	A1	Project No: P178032
			NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.			Drawn By	Designed By	Approved By.
						J.A. Sciortino	Mohamed Abdi Ahmed Saahid	

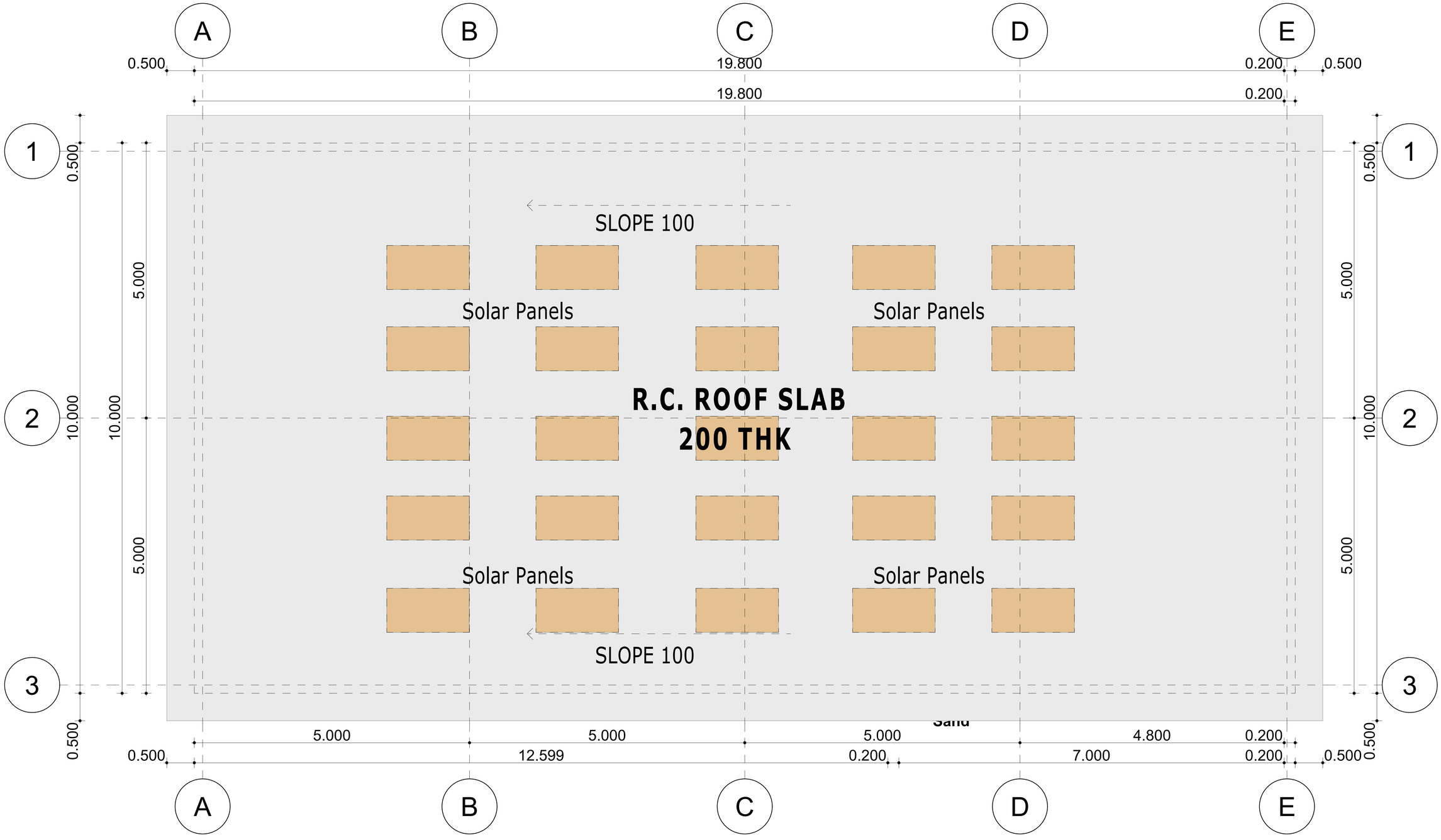


Architects	Project Title			Revisions			Scale	Drawing No. & Title	
Badmaal Somali Sustainable Fisheries Development Project	Somali Sustainable Fisheries Development Project (BADMAAL)		THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	No.	Description	Date	1:50	WARSHEIKH	Landscape Sections 1, 2
	Client						Date	Sheet No.	
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia						10-03-2026	A1	Project No: P178032
							Drawn By	Designed By	Approved By.
							J.A. Sciortino	Mohamed Abdi Ahmed Saahid	

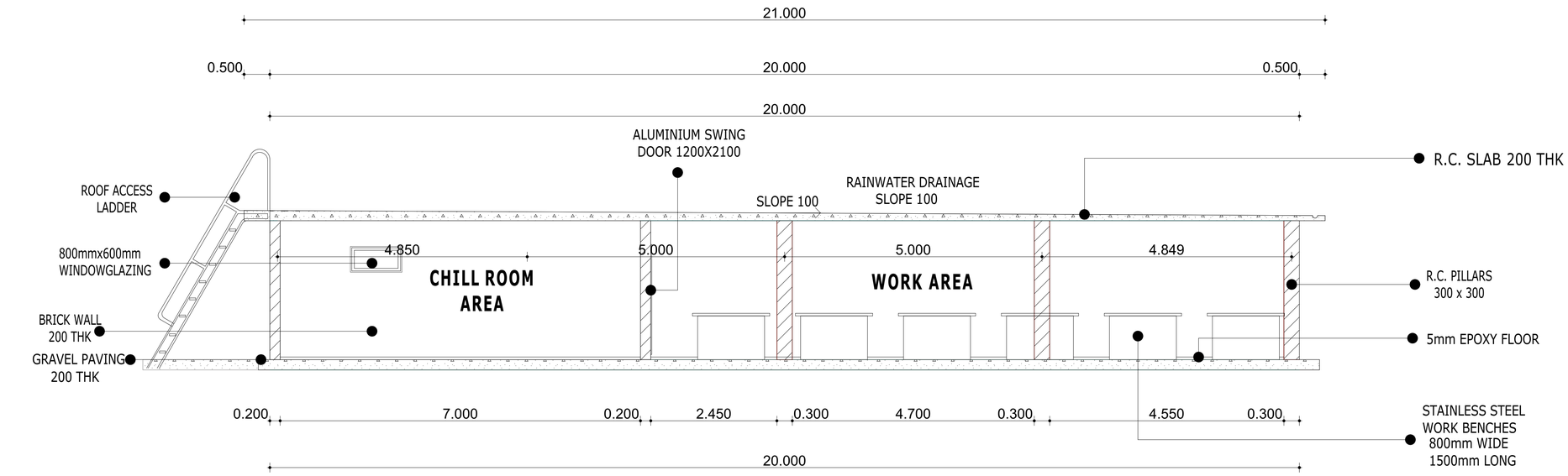
NB:
1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing.
2. The contractor must check and verify all levels and dimensions before commencing any work.

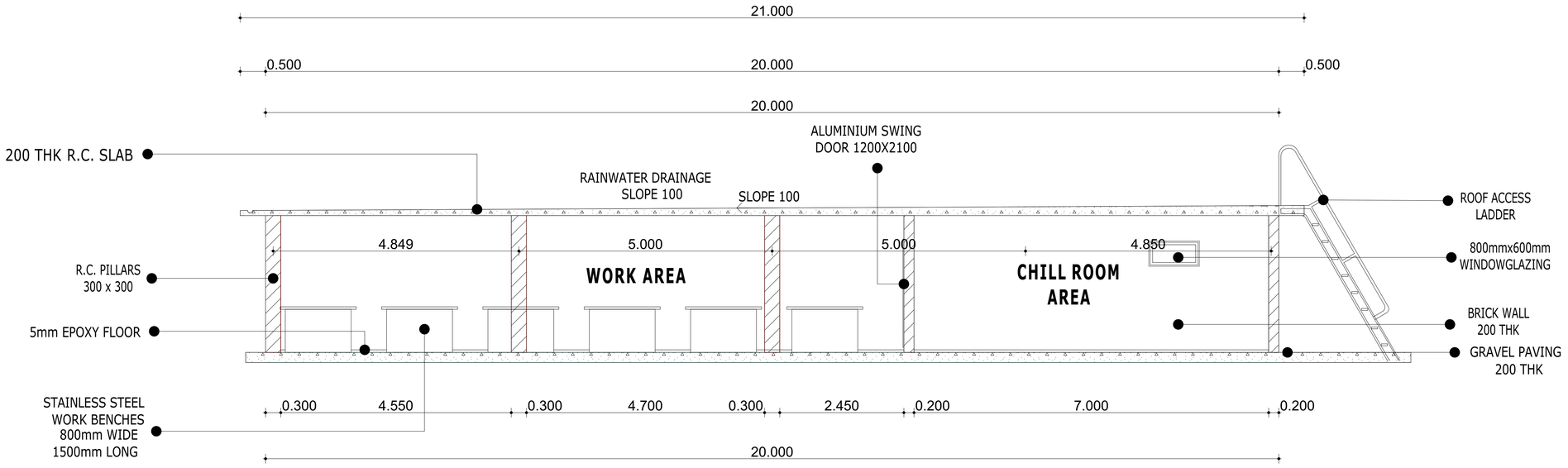


Architects	**Project Title**		**Revisions**	Scale	Drawing No. & Title
Badmaal Somali Sustainable Fisheries Development Project	**Somali Sustainable Fisheries Development Project (BADMAAL)**		No. / Description / Date	**1:50**	**WARSHEIKH** **R.C. Plattform Plan**
	Client	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.	Date	Sheet No.
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia			**10-03-2026**	**A1** **Project No:** P178032
				Drawn By	Designed By / Approved By.
				J.A. Sciortino	**Mohamed Abdi Ahmed Saahid**

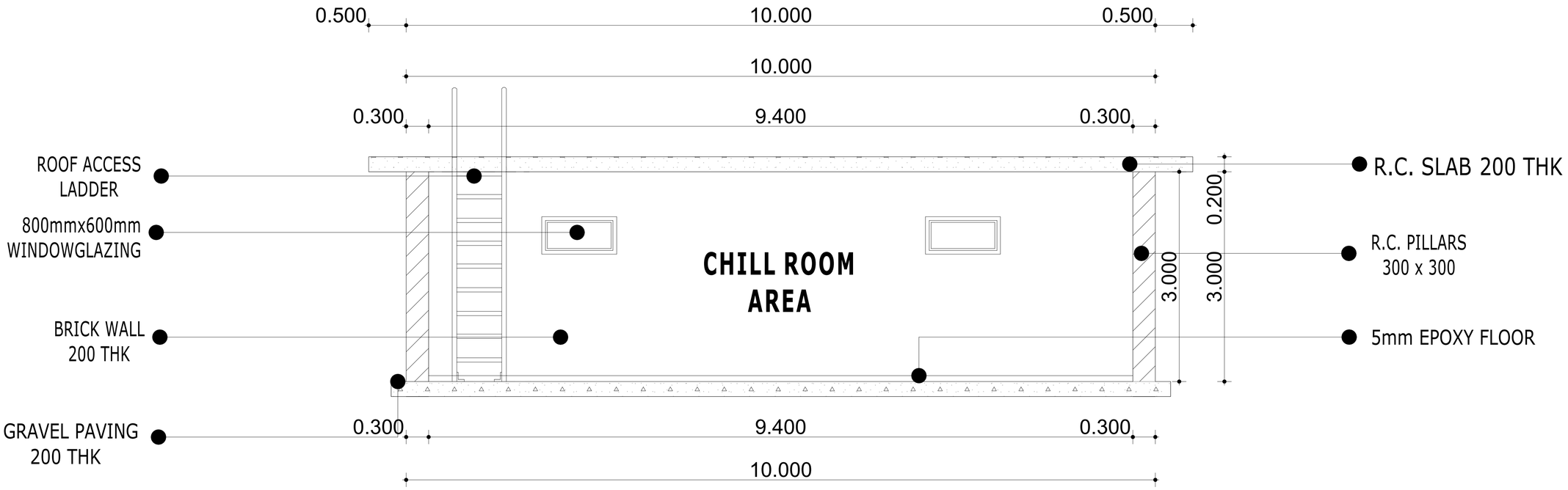


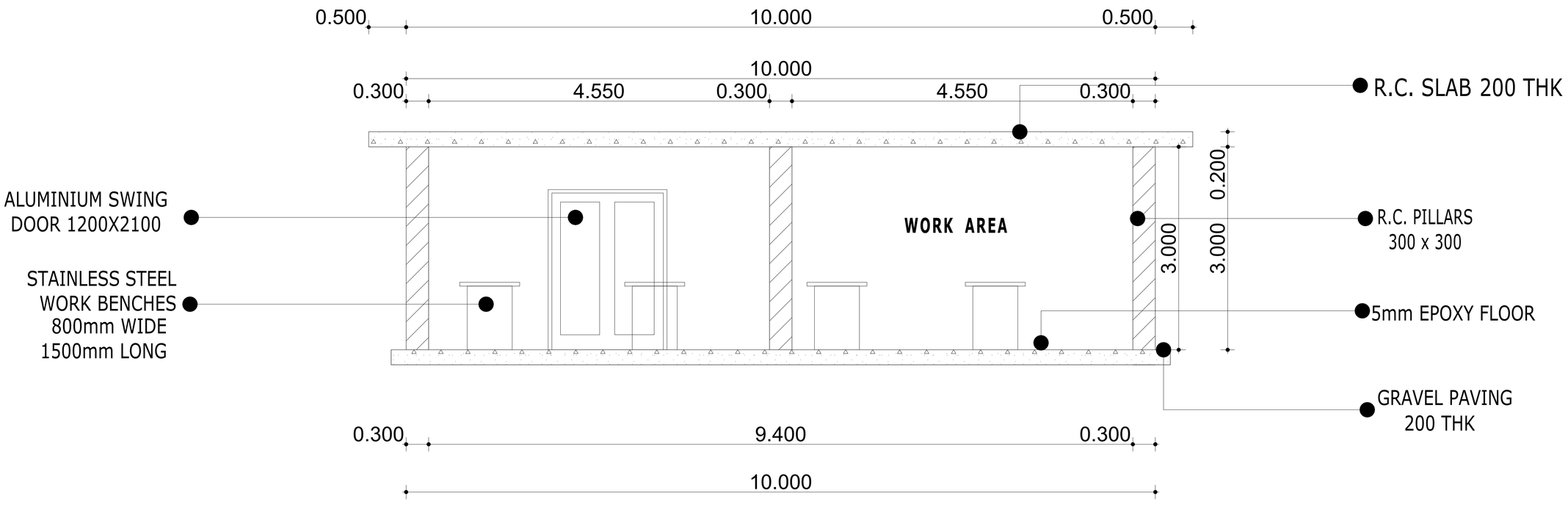
Architects	**Project Title**		**Revisions**	Scale	Drawing No. & Title
Badmaal Somali Sustainable Fisheries Development Project	**Somali Sustainable Fisheries Development Project (BADMAAL)**	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	No. | Description | Date	**1:50**	**WARSHEIKH** **R.C. Platform Roof**
	Client			Date	Sheet No.
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia		NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.	**10-03-2026**	**A1** **Project No:** P178032
				Drawn By	Designed By Approved By.
				J.A. Sciortino	**Mohamed Abdi Ahmed Saahid**





Architects	**Project Title**		**Revisions**	Scale	Drawing No. & Title
Badmaal Somali Sustainable Fisheries Development Project	**Somali Sustainable Fisheries Development Project (BADMAAL)**	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	No. / Description / Date	**1:50**	**WARSHEIKH R.C Plattform North, South Elevation**
	Client			Date	Sheet No.
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia		NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.	**11-03-2026**	**A1** **Project No: P178032**
				Drawn By	Designed By / Approved By.
				J.A. Sciortino	**Mohamed Abdi Ahmed Saahid**

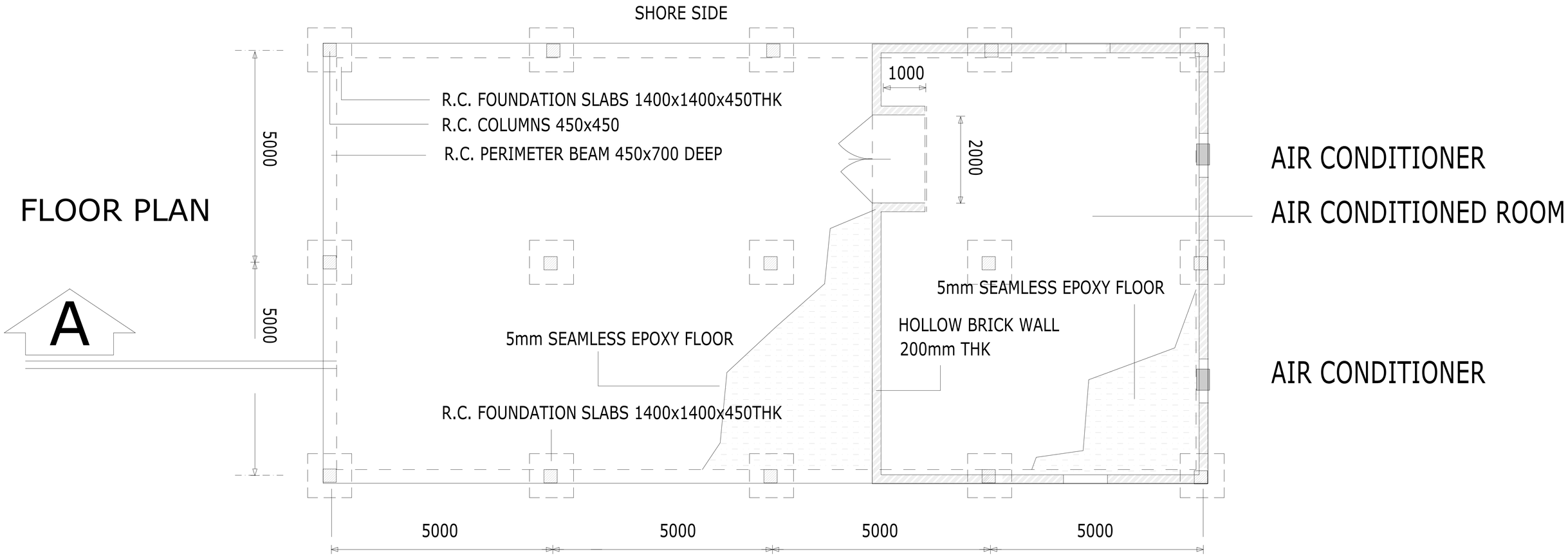




Architects	**Project Title**		**Revisions**	Scale	Drawing No. & Title
Badmaal Somali Sustainable Fisheries Development Project	**Somali Sustainable Fisheries Development Project (BADMAAL)**	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	No. | Description | Date	**1:50**	**WARSHEIKH R.C Plattform East, West Elevation**
	Client		NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.	Date	Sheet No.
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia			**11-03-2026**	**A1** **Project No:** P178032
				Drawn By	Designed By Approved By.
				J.A. Sciortino	**Mohamed Abdi Ahmed Saahid**

FLOOR PLAN

A



0 1 2 3 4 5 10m

SCALE 1:100

NOTES

ALL CONCRETE GRADE 35

SOLAR PV PANELS TO BE INSTALLED

ON ROOF OF PLATFORM

Architects	**Project Title**		Scale	Drawing No. & Title	
Badmaal Somali Sustainable Fisheries Development Project	**Somali Sustainable Fisheries Development Project (BADMAAL)**	**Revisions**	**1:50**	**WARSHEIKH**	**R.C. Platform Details**
	Client	No. / Description / Date	Date	Sheet No.	
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia		**10-03-2026**	**A1**	**Project No:** P178032
		NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.	Drawn By: **J.A. Sciortino**	Designed By: **Mohamed Abdi Ahmed Saahid**	Approved By.

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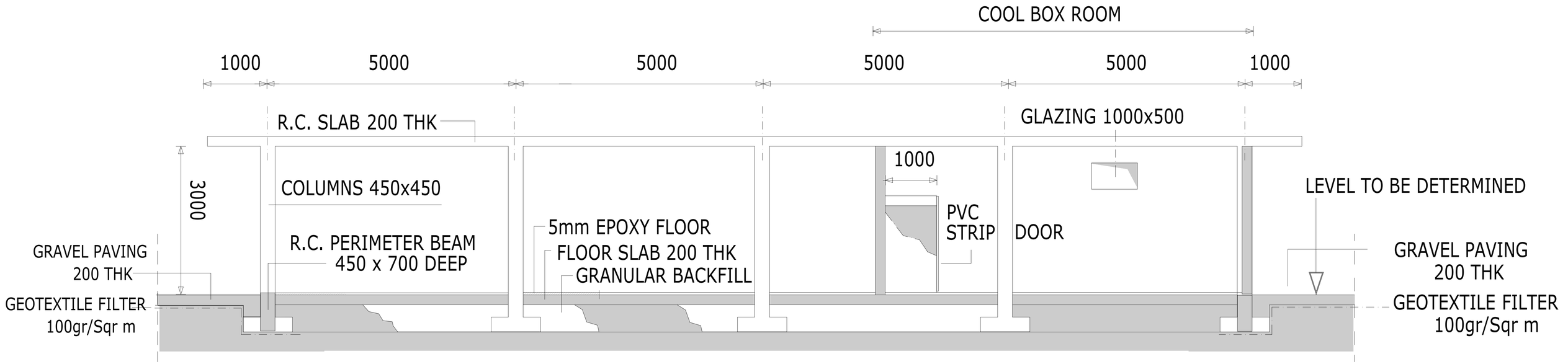
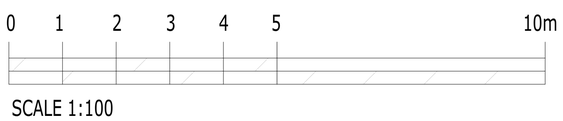
SECTION A





SCALE 1:100

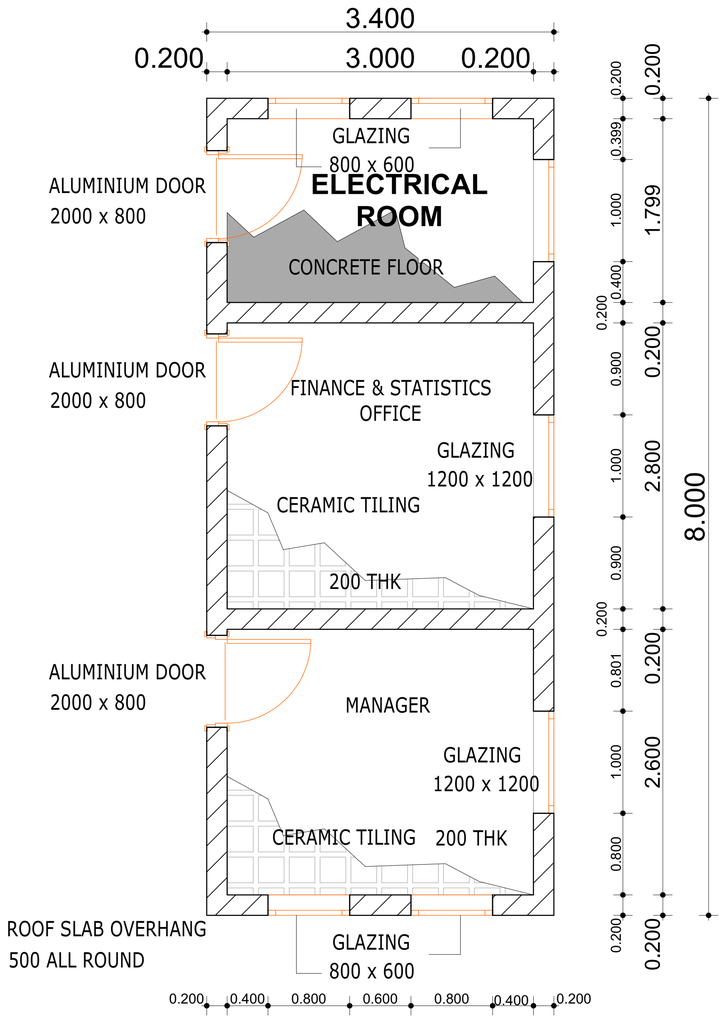
NOTES

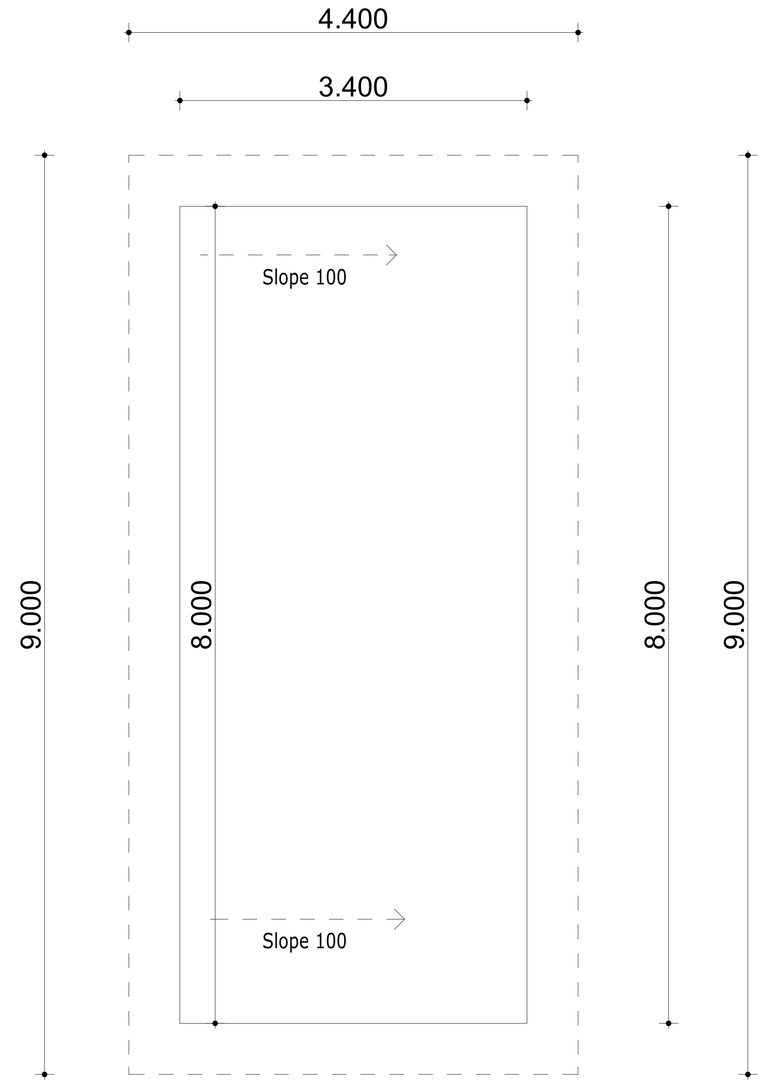
ALL CONCRETE GRADE 35

SOLAR PV PANELS TO BE INSTALLED

ON ROOF OF PLATFORM

Architects	**Project Title**		**Revisions**	Scale	Drawing No. & Title
Badmaal Somali Sustainable Fisheries Development Project	**Somali Sustainable Fisheries Development Project (BADMAAL)**		No. / Description / Date	**1:50**	**WARSHEIKH R.C. Platform Details Section**
	Client	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.	Date	Sheet No.
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia			**10-03-2026**	**A1** **Project No: P178032**
				Drawn By	Designed By / Approved By.
				J.A. Sciortino	**Mohamed Abdi Ahmed Saahid**

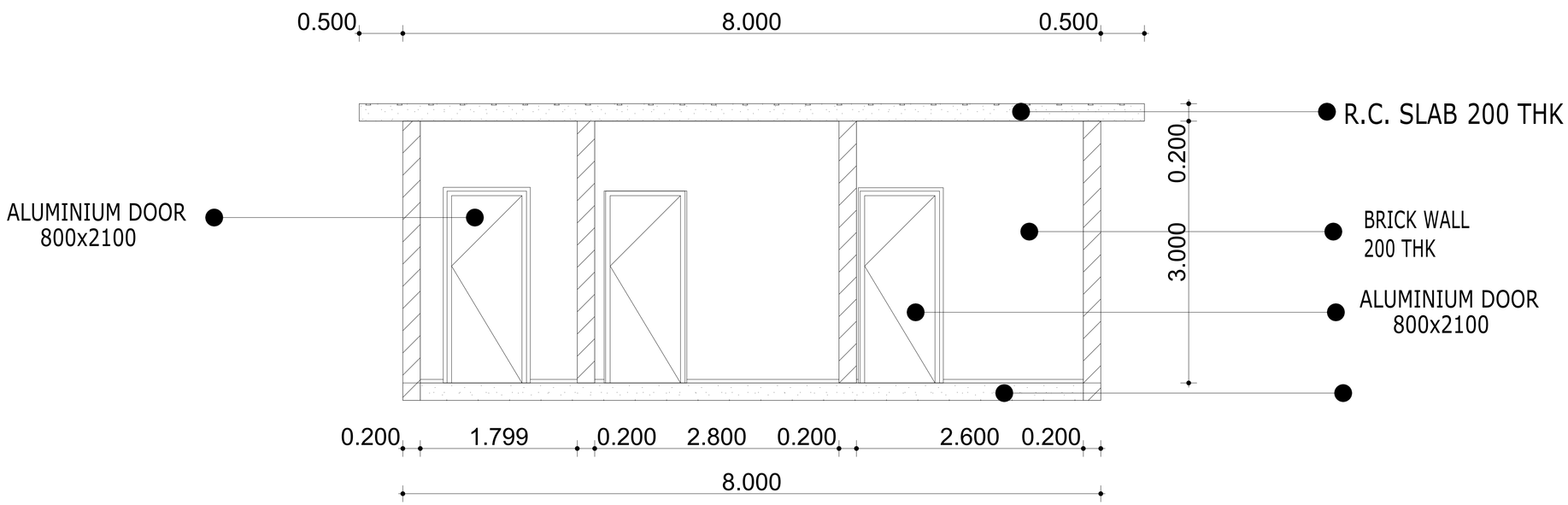


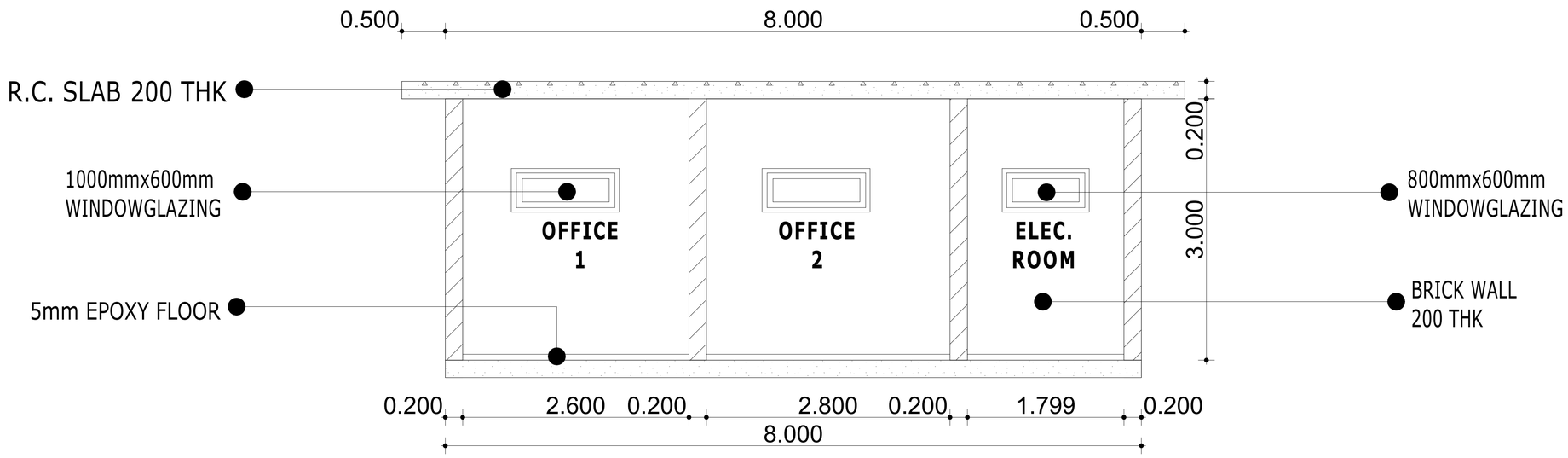


NOTES

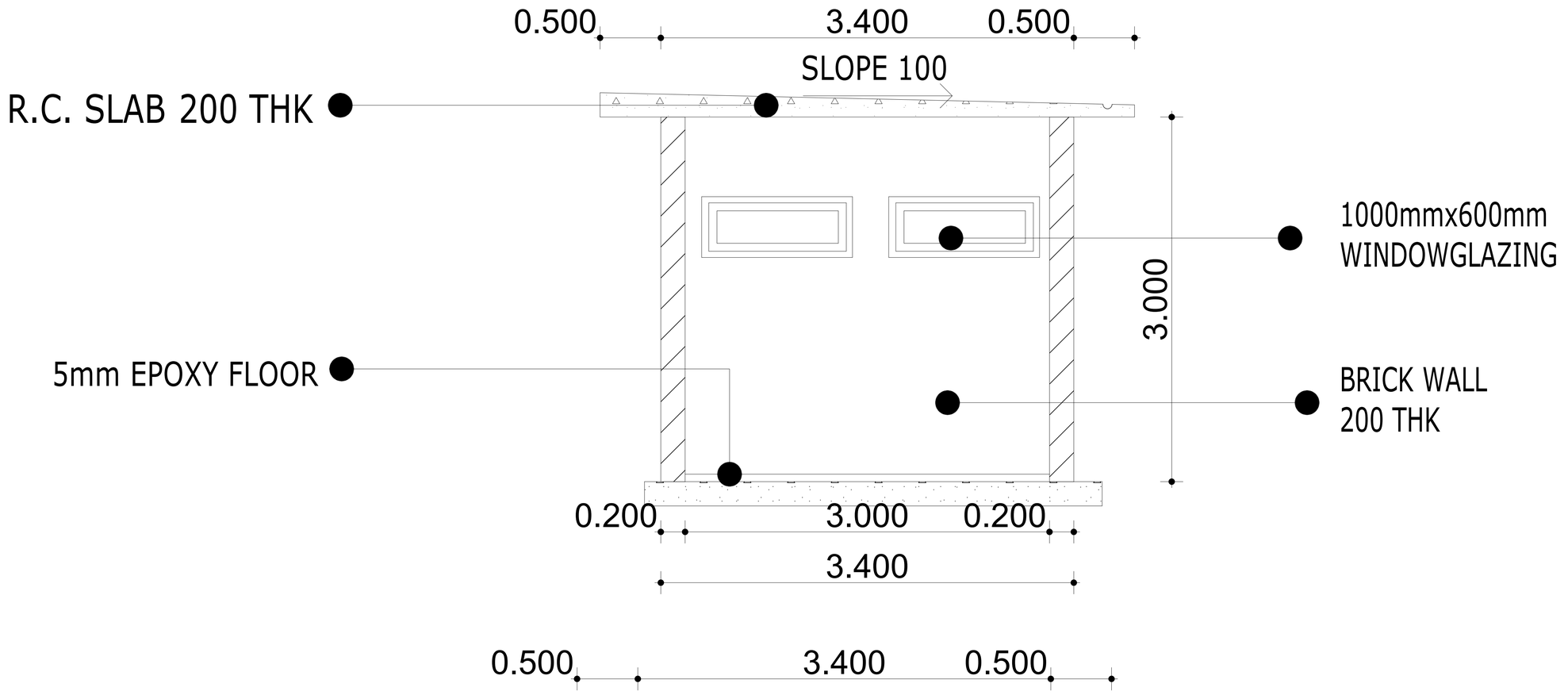
All dimensions are in mm.
All concrete Grade 35
All reinforcement to be hot-rolled HYS deformed bars type 2 to BS 4449
All welded steel fabric to BS 4483:1969
Minimum lap length to be 32 times bar diameter
Minimum cover to reinforcement to be 50 mm unlessotherwise stated
10:12:301:100 denotes 10 nos HYS 12mm bars mark 301 at 100 mm c/c

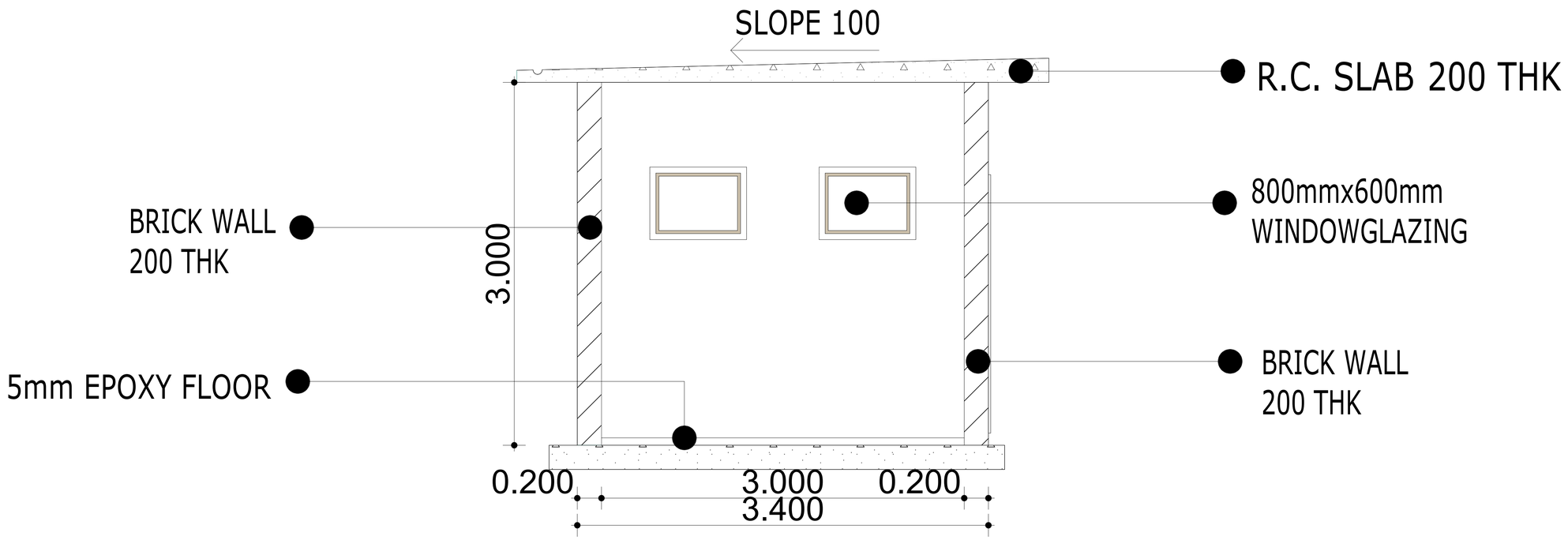
Architects	**Project Title**		**Revisions**	Scale	Drawing No. & Title
Badmaal Somali Sustainable Fisheries Development Project	**Somali Sustainable Fisheries Development Project (BADMAAL)**	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	No. / Description / Date	**1:50**	**WARSHEIKH Staff Offices Block Layout**
	Client			Date	Sheet No.
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia		NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.	**10-03-2026**	**A1** **Project No: P178032**
				Drawn By	Designed By / Approved By.
				J.A. Sciortino	**Mohamed Abdi Ahmed Saahid**



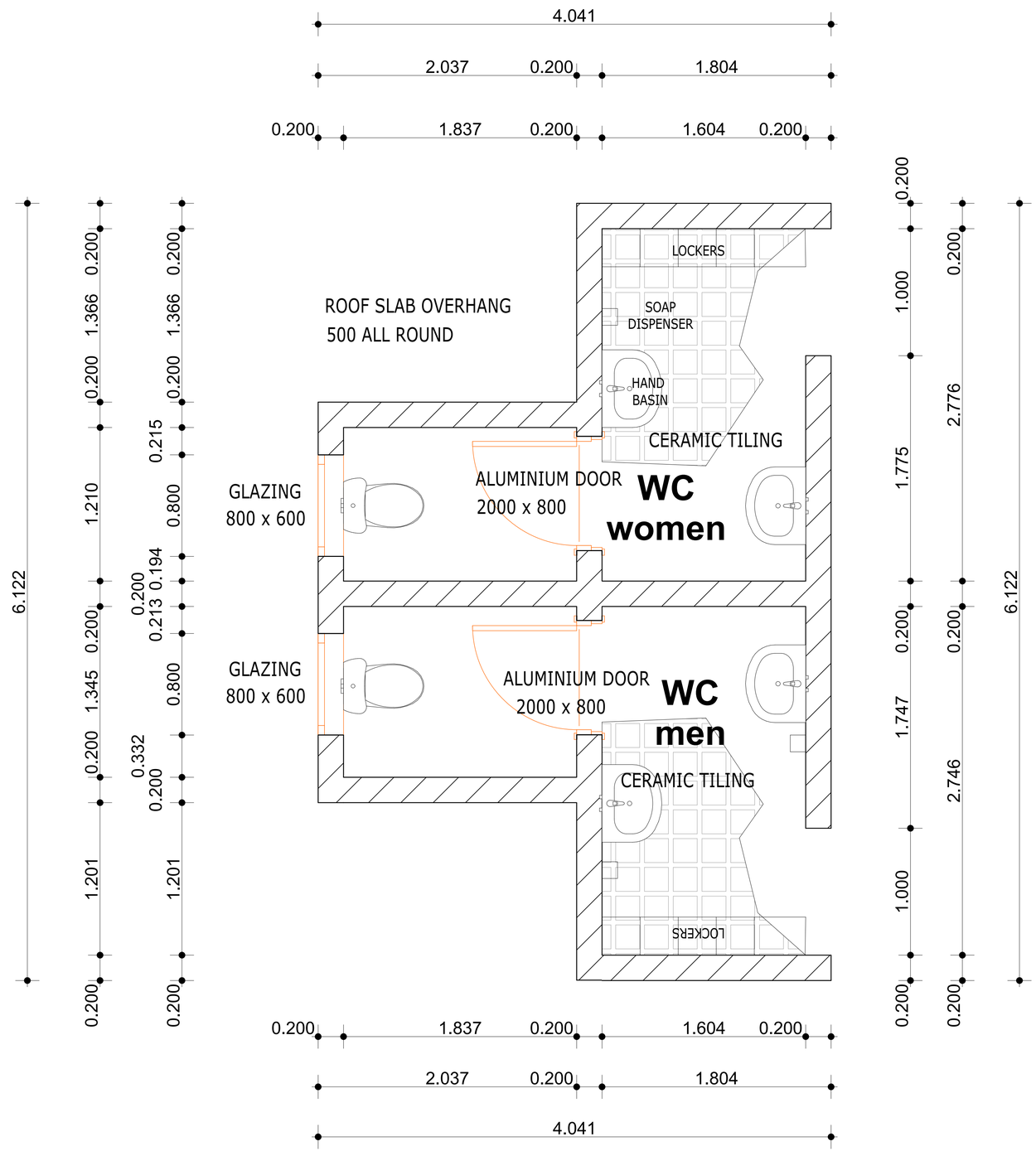


Architects	**Project Title**		**Revisions**	Scale	Drawing No. & Title
Badmaal Somali Sustainable Fisheries Development Project	**Somali Sustainable Fisheries Development Project (BADMAAL)**	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	No. / Description / Date	**1:50**	**WARSHEIKH Staff Offices East, West Elevations**
	Client			Date	Sheet No.
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia		NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.	**10-03-2026**	**A1** — **Project No:** P178032
				Drawn By	Designed By — Approved By.
				J.A. Sciortino	**Mohamed Abdi Ahmed Saahid**





Architects	**Project Title**		**Revisions**	Scale	Drawing No. & Title
Badmaal Somali Sustainable Fisheries Development Project	**Somali Sustainable Fisheries Development Project (BADMAAL)**	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	No. / Description / Date	**1:50**	**WARSHEIKH Staff Offices North, South Elevations**
	Client			Date	Sheet No.
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia			**10-03-2026**	**A1** — **Project No:** P178032
			NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.	Drawn By: **J.A. Sciortino**	Designed By: **Mohamed Abdi Ahmed Saahid** — Approved By.



NOTES

All dimensions are in mm.

All reinforcement to be hot-rolled HYS deformed bars type 2 to BS 4449

Minimum cover to reinforcement to be 50 mm unlessotherwise stated

Minimum lap length to be 32 times bar diameter

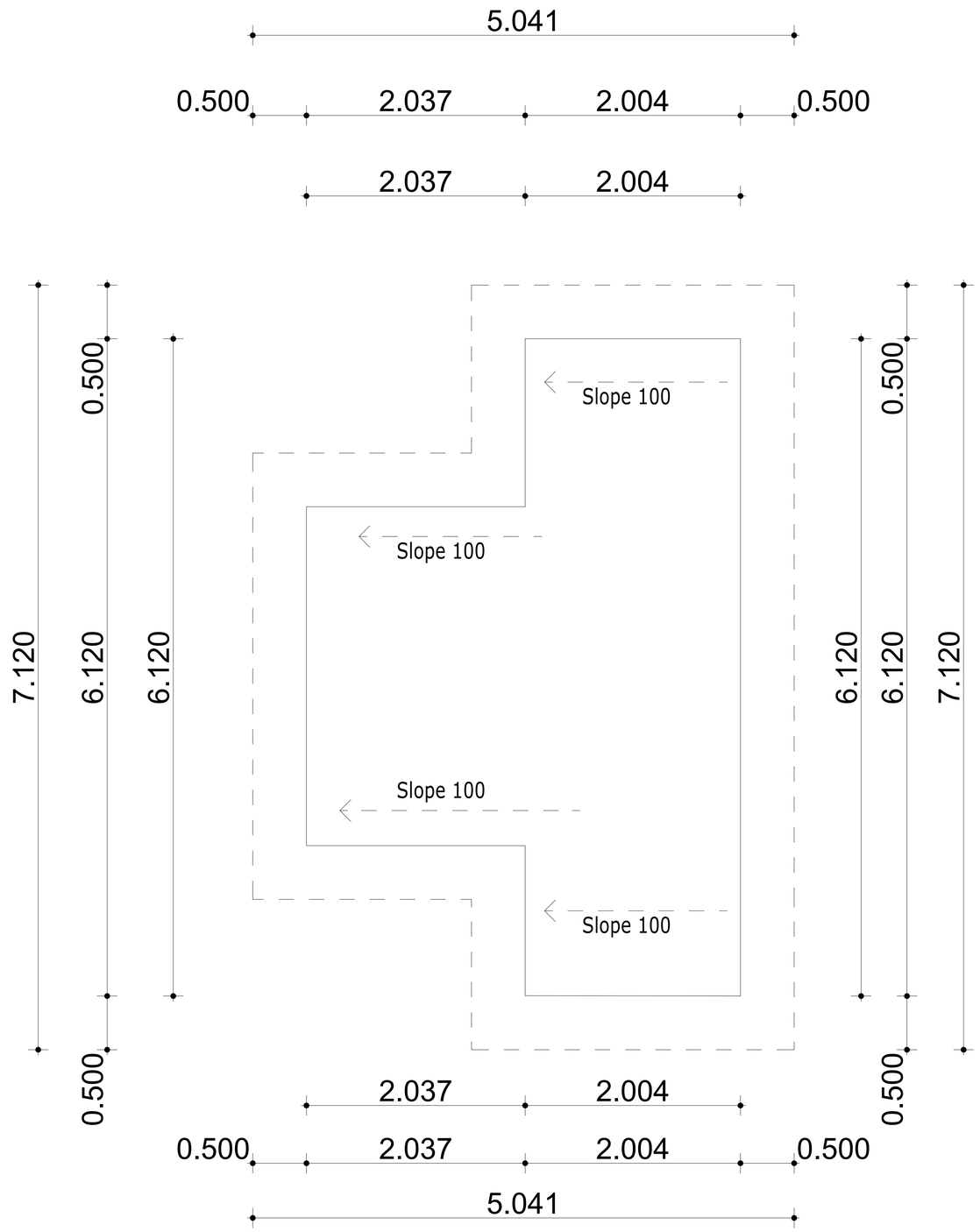
10:12:301:100 denotes 10 nos HYS 12mm bars mark 301 at 100 mm c/c

All welded steel fabric to BS 4483:1969

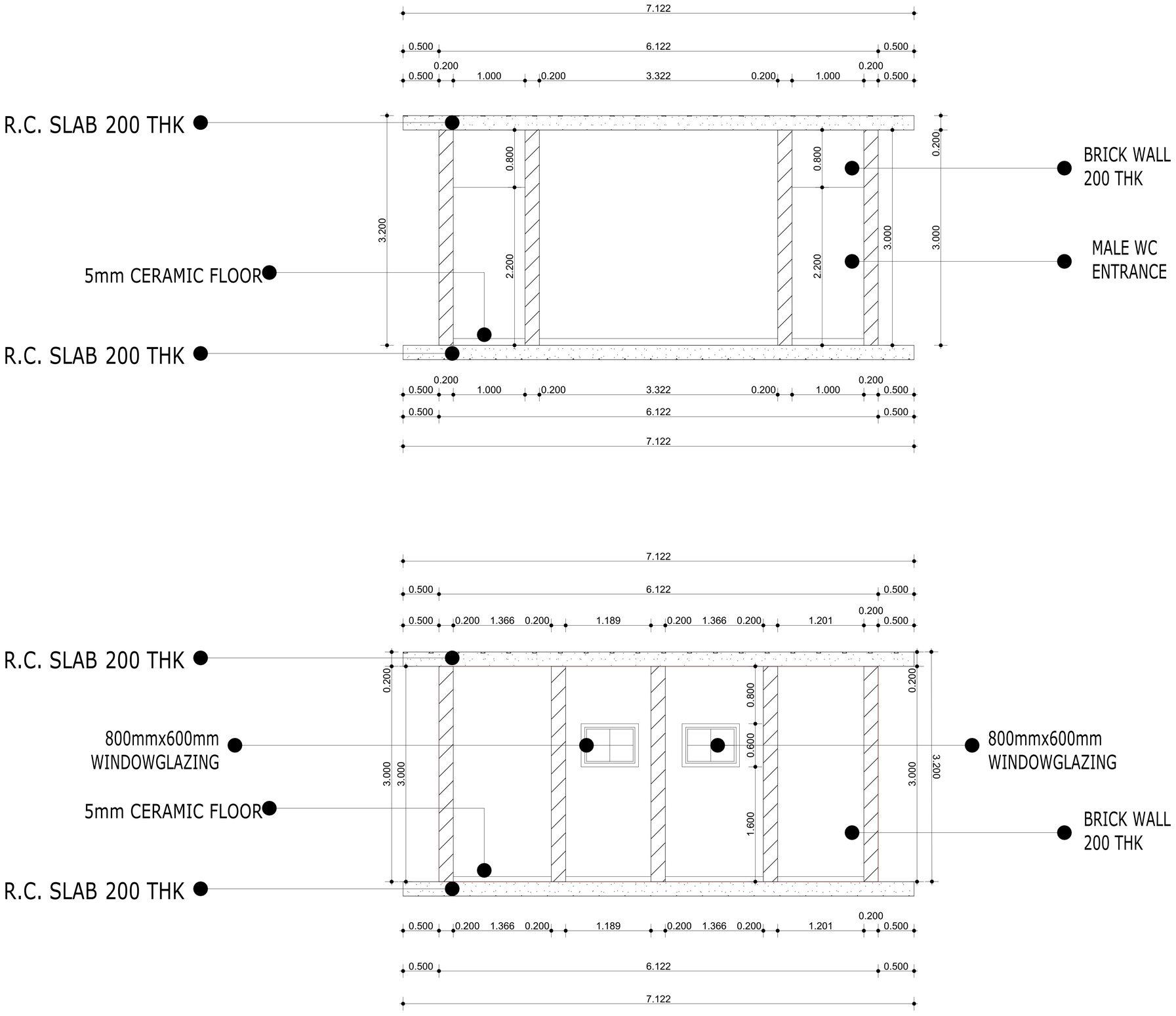
All concrete Grade 35

Architects	Project Title		Revisions			Scale	Drawing No. & Title	
Badmaal Somali Sustainable Fisheries Development Project	Somali Sustainable Fisheries Development Project (BADMAAL)		No.	Description	Date	1:30	WARSHEIKH Staff Hygiene Block Plan	
	Client	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP				Date	Sheet No.	
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia					25-03-2026	A1	Project No: P178032
						Drawn By	Designed By	Approved By.
						J.A. Sciortino	Mohamed Abdi Ahmed Saahid	

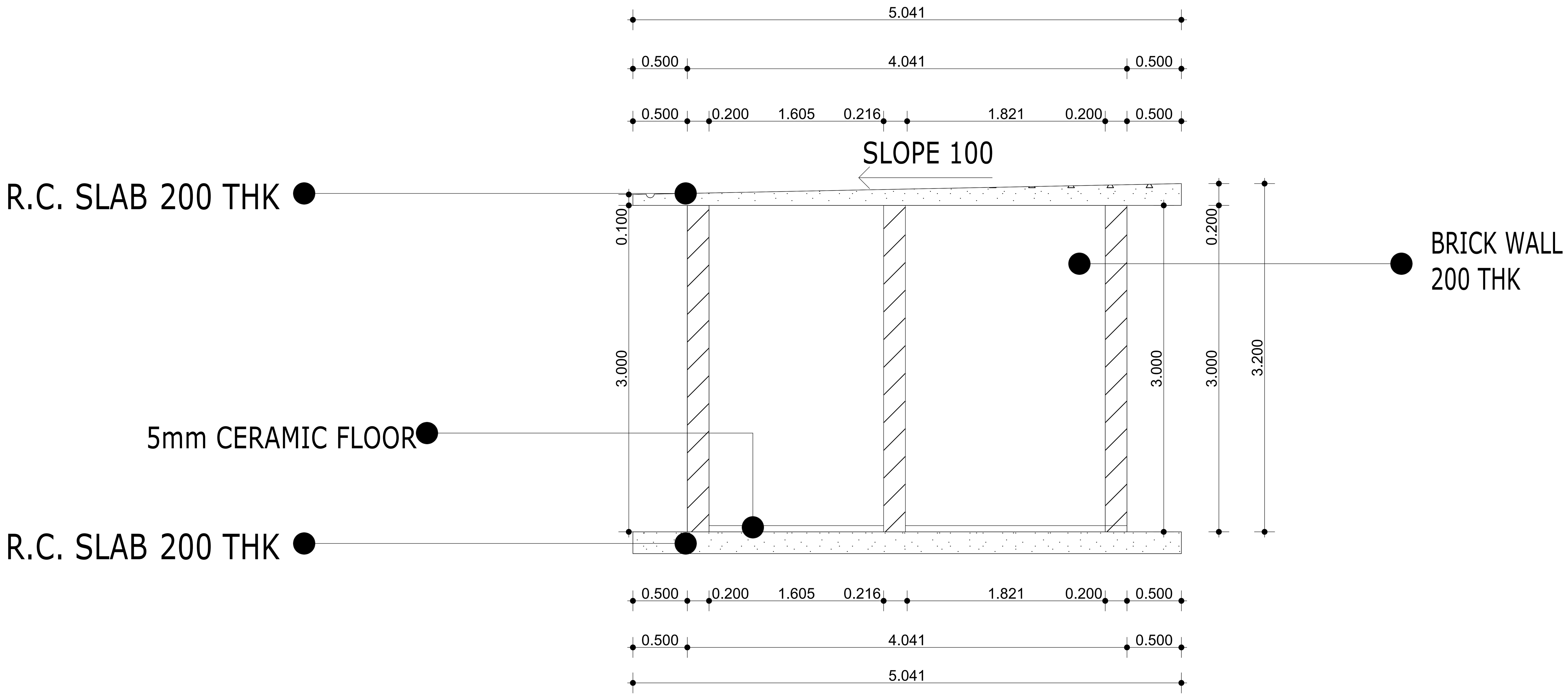
NB:
1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing.
2. The contractor must check and verify all levels and dimensions before commencing any work.

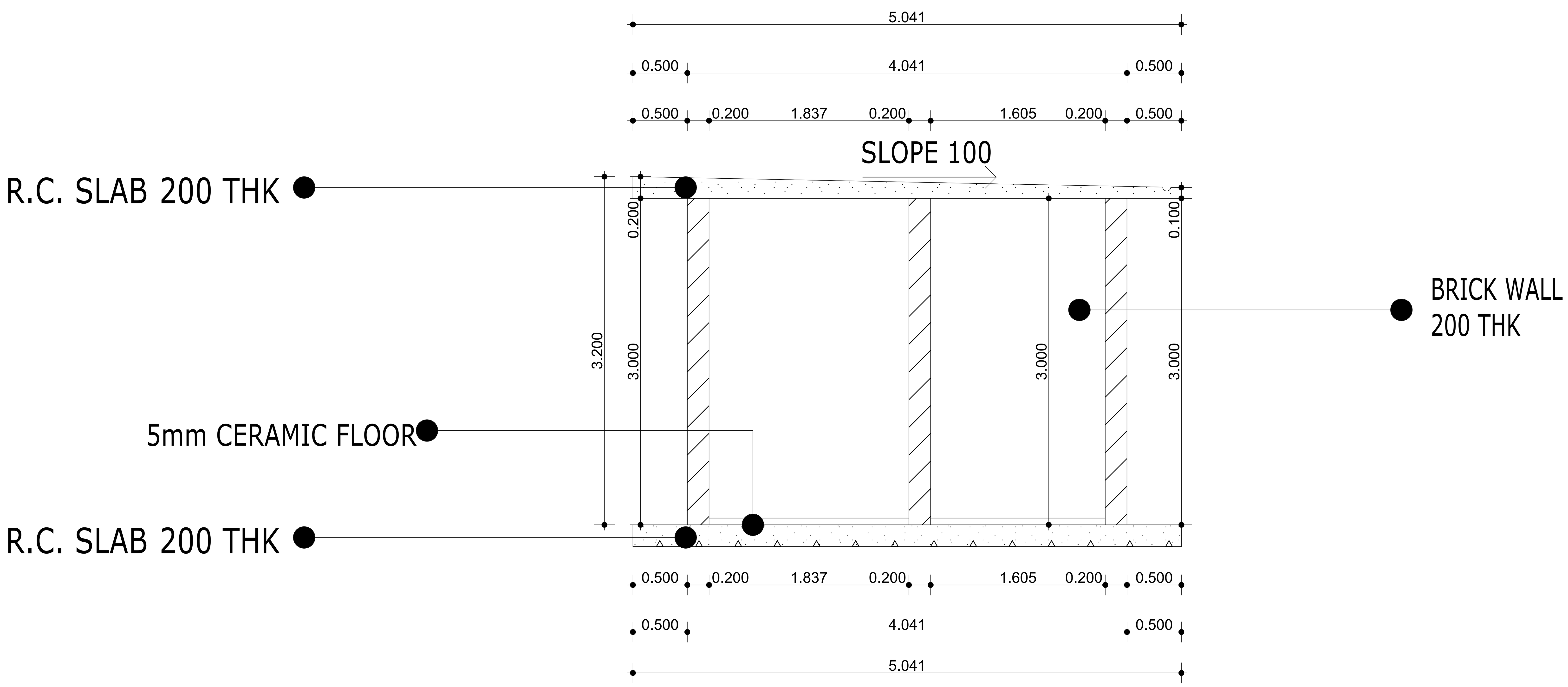


Architects	**Project Title**		**Revisions**		Scale	Drawing No. & Title
Badmaal Somali Sustainable Fisheries Development Project	**Somali Sustainable Fisheries Development Project (BADMAAL)**	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	No. / Description / Date		**1:30**	**WARSHEIKH Staff Hygiene Block Roof Plan**
	Client				Date	Sheet No.
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia		NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.		**25-03-2026**	**A1** **Project No:** P178032
					Drawn By	Designed By / Approved By.
					J.A. Sciortino	**Mohamed Abdi Ahmed Saahid**



Architects	**Project Title**		**Revisions**	Scale	Drawing No. & Title
Badmaal Somali Sustainable Fisheries Development Project	**Somali Sustainable Fisheries Development Project (BADMAAL)**	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	No. / Description / Date	**1:30**	**WARSHEIKH Staff Hygiene Block North, South Elevation**
	Client			Date	Sheet No.
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia		NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.	**25-03-2026**	**A1** — **Project No:** P178032
				Drawn By	Designed By — Approved By.
				J.A. Sciortino	**Mohamed Abdi Ahmed Saahid**





Architects	Project Title	Revisions	Scale	Drawing No. & Title	
Badmaal – Somali Sustainable Fisheries Development Project	Somali Sustainable Fisheries Development Project (BADMAAL)	No. / Description / Date	1:30	WARSHEIKH Staff Hygiene Block East, West Elevation	
	Client		Date	Sheet No.	
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia		25-03-2026	A1	Project No: P178032
			Drawn By	Designed By	Approved By.
			[illegible] Nyanjua Amolo	Mohamed Abdi Ahmed Saahid	

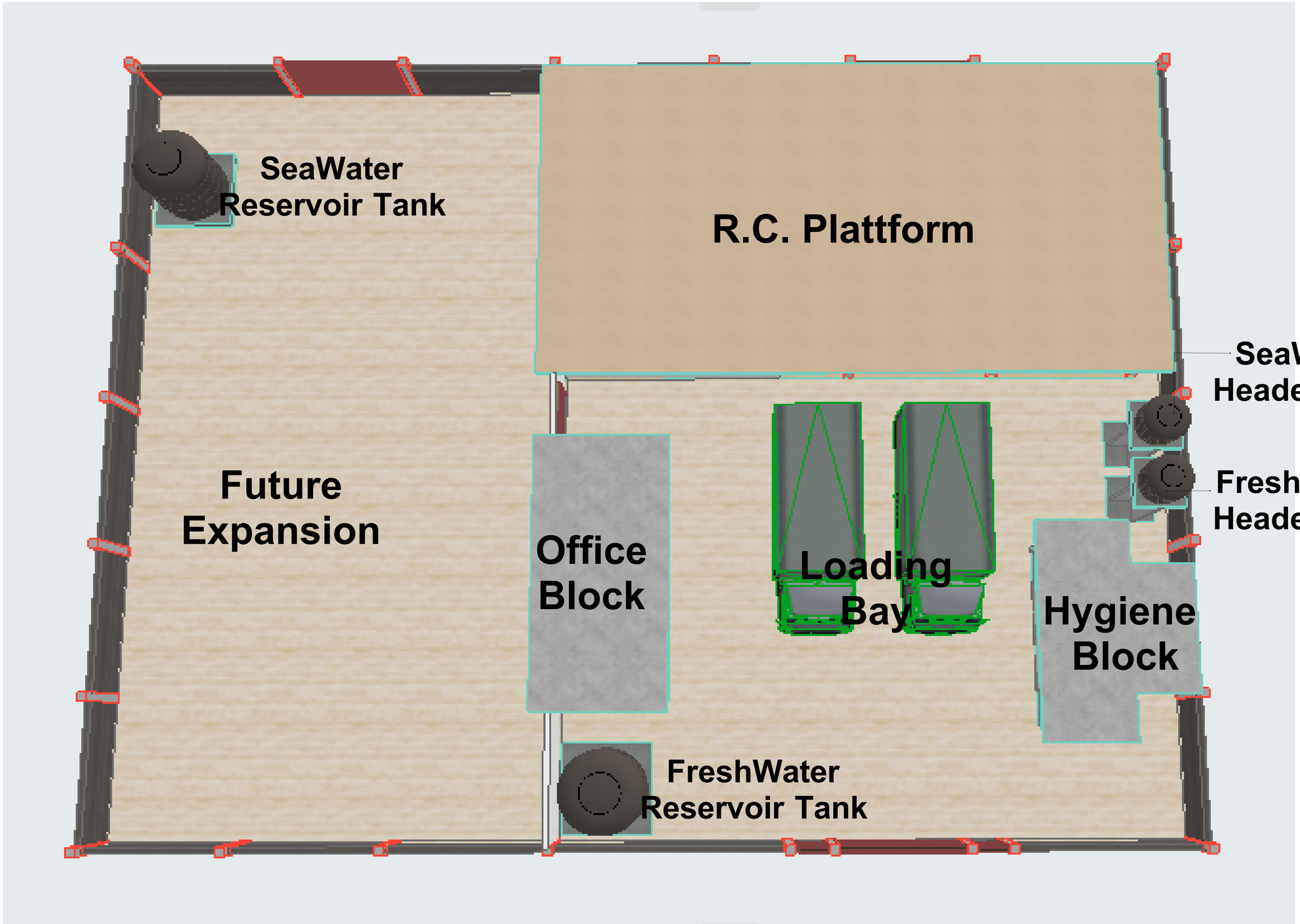
THE WORLD BANK
IBRD • IDA | WORLD BANK GROUP

NB:
1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing.
2. The contractor must check and verify all levels and dimensions before commencing any work.

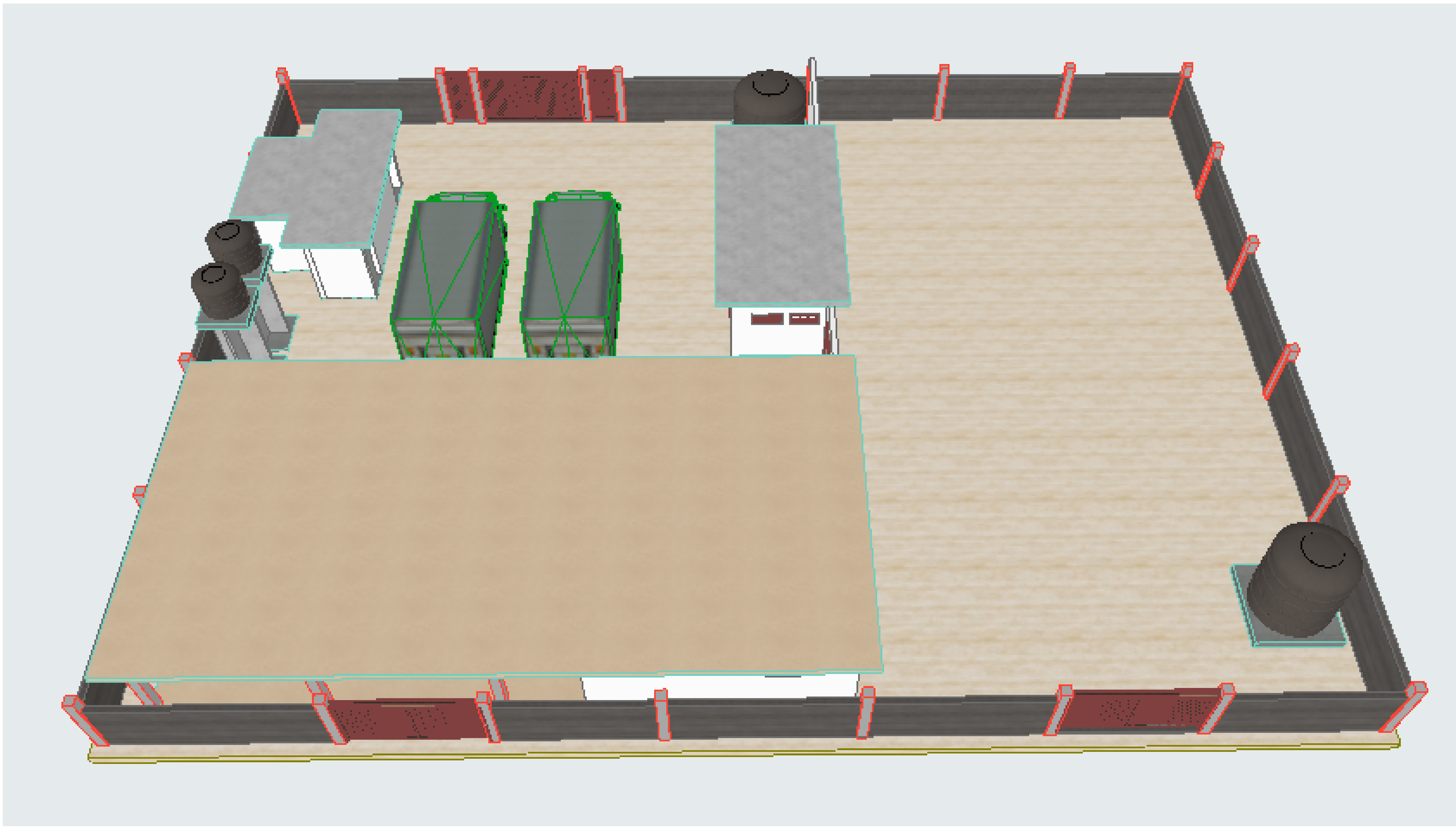
Architects	Project Title			Revisions			Scale	Drawing No. & Title	
Badmaal Somali Sustainable Fisheries Development Project	Somali Sustainable Fisheries Development Project (BADMAAL)		THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	No.	Description	Date	NA	WARSHEIKH Landscape 3D Projections	
	Client						Date	Sheet No.	
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia						10-03-2026	A1	Project No: P178032
				NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.			Drawn By	Designed By	Approved By.
							J.A. Sciortino	Mohamed Abdi Ahmed Saahid	

Architects	Project Title			Revisions			Scale	Drawing No. & Title	
Badmaal Somali Sustainable Fisheries Development Project	Somali Sustainable Fisheries Development Project (BADMAAL)		THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	No.	Description	Date	NA	WARSHEIKH Landscape 3D Projections	
	Client						Date	Sheet No.	
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia						10-03-2026	A1	Project No: P178032
				NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.			Drawn By	Designed By	Approved By.

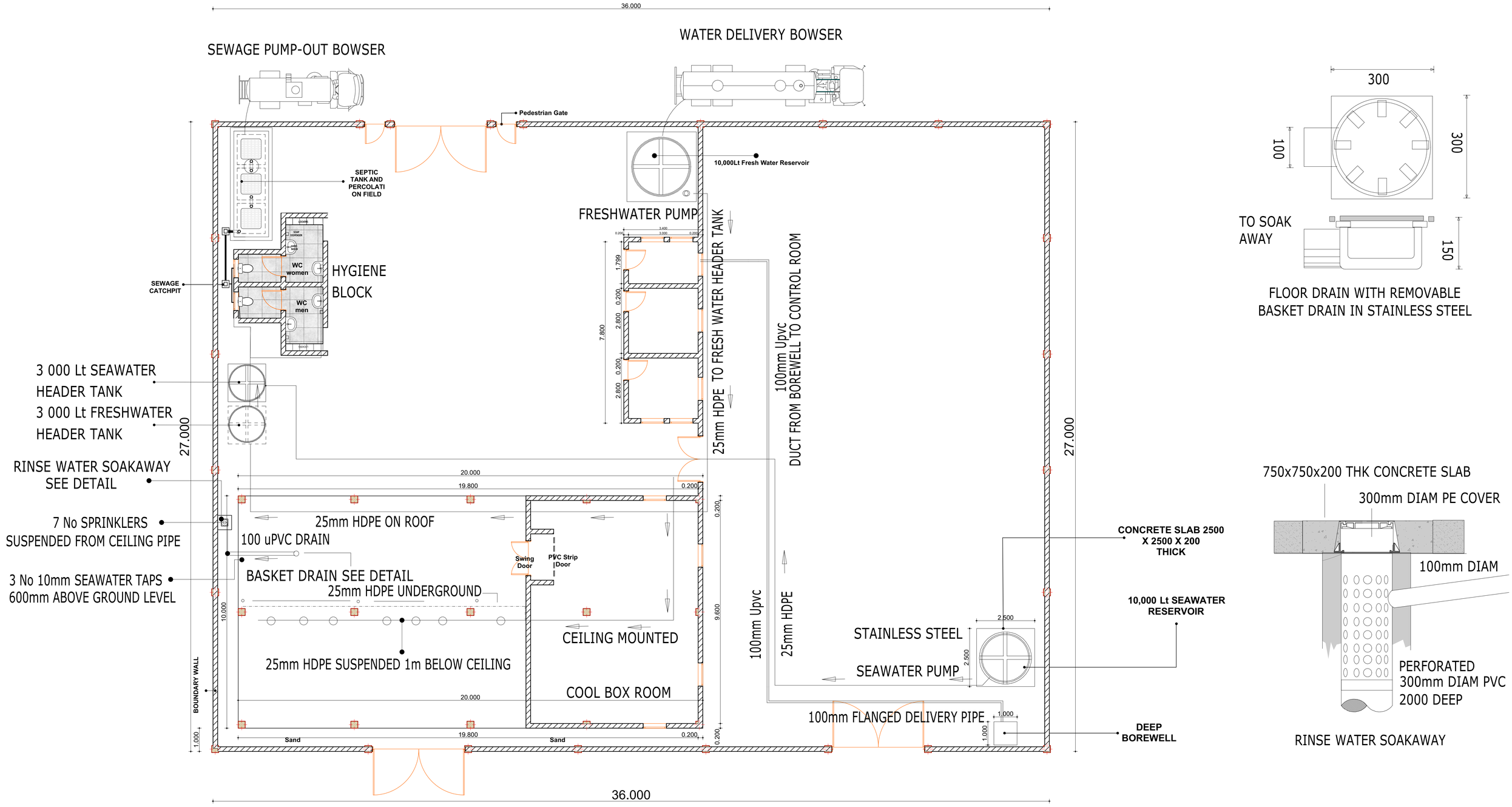
Architects	Project Title		Revisions			Scale	Drawing No. & Title	
Badmaal Somali Sustainable Fisheries Development Project	Somali Sustainable Fisheries Development Project (BADMAAL)		No.	Description	Date	NA	WARSHEIKH 3D Landscape Projections	
	Client					Date	Sheet No.	
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.			25-03-2026	A1	Project No: P178032
						Drawn By	Designed By	Approved By.
						J.A. Sciortino	Mohamed Abdi Ahmed Saahid	



Architects	Project Title		Revisions			Scale	Drawing No. & Title	
Badmaal Somali Sustainable Fisheries Development Project	Somali Sustainable Fisheries Development Project (BADMAAL)		No.	Description	Date	NA	WARSHEIKH 3D Landscape Projections	
	Client	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP				Date	Sheet No.	
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia					25-03-2026	A1	Project No: P178032
			NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.			Drawn By	Designed By	Approved By.
						J.A. Sciortino	Mohamed Abdi Ahmed Saahid	



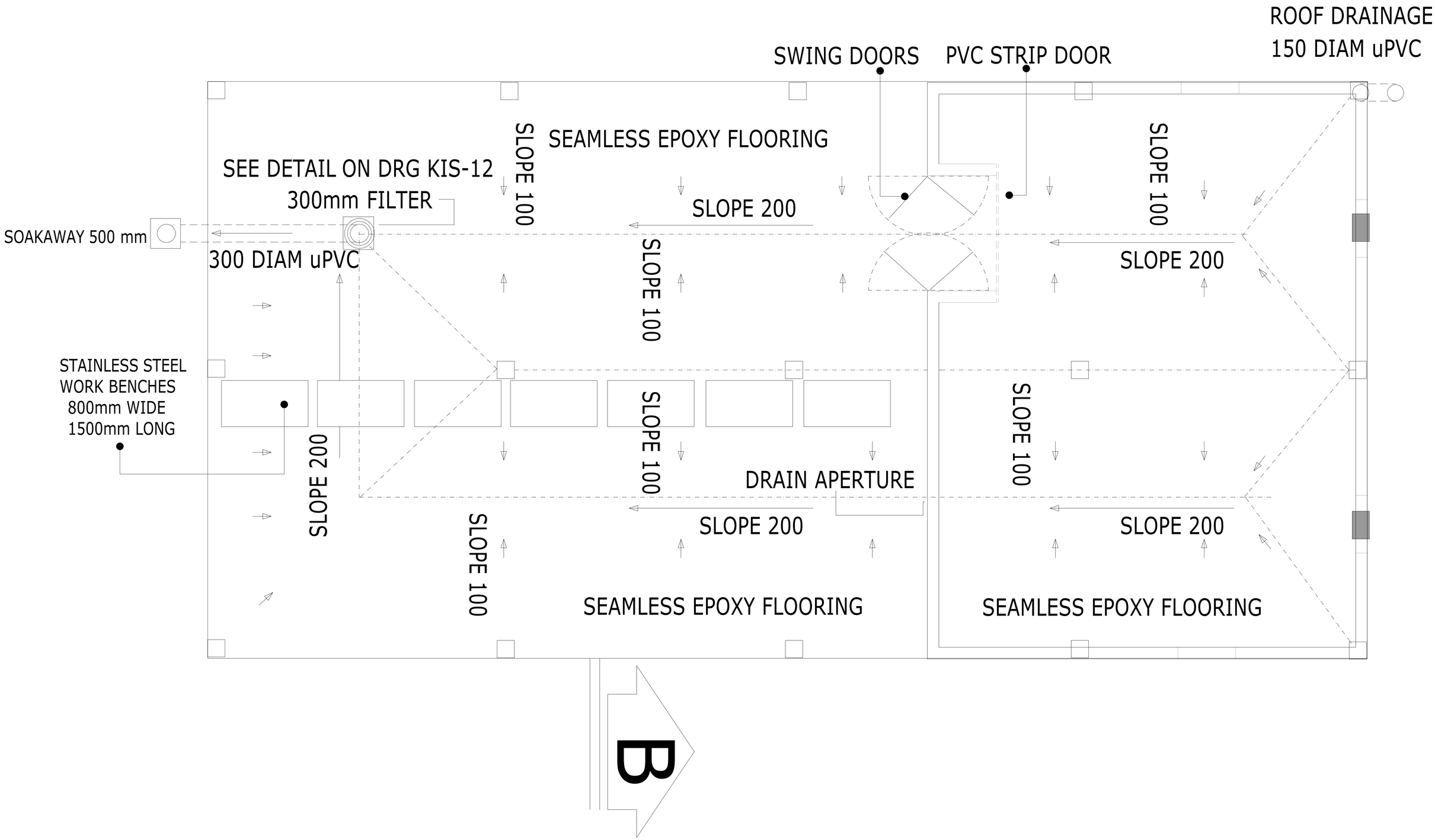
Architects	Project Title		Revisions			Scale	Drawing No. & Title	
Badmaal Somali Sustainable Fisheries Development Project	Somali Sustainable Fisheries Development Project (BADMAAL)		No.	Description	Date	NA	WARSHEIKH 3D Landscape Projections	
	Client	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP				Date	Sheet No.	
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia					25-03-2026	A1	Project No: P178032
			NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.			Drawn By	Designed By	Approved By.
						J.A. Sciortino	Mohamed Abdi Ahmed Saahid	



FLOOR DRAIN WITH REMOVABLE BASKET DRAIN IN STAINLESS STEEL

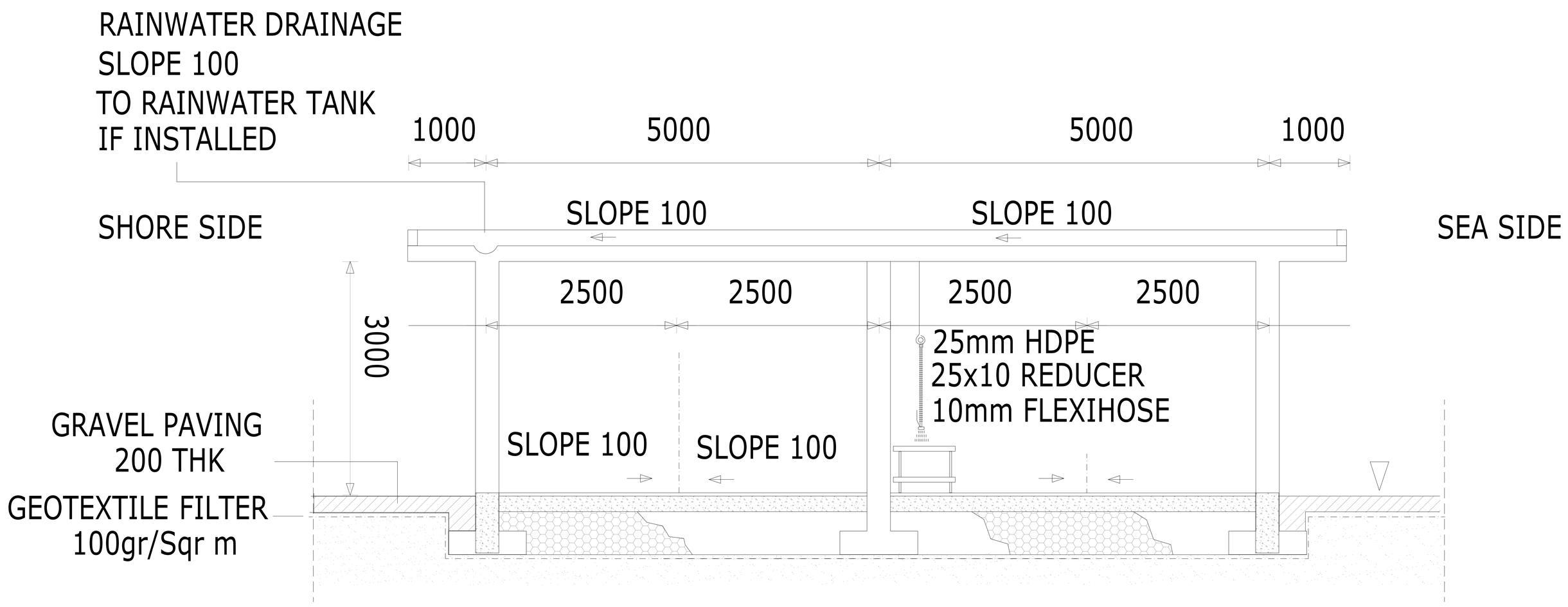
RINSE WATER SOAKAWAY

Architects	**Project Title**		**Revisions**	Scale	Drawing No. & Title
Badmaal Somali Sustainable Fisheries Development Project	**Somali Sustainable Fisheries Development Project (BADMAAL)**	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	No. / Description / Date	**1: 50**	**WARSHEIKH Reticulation Plan**
	Client			Date	Sheet No.
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia		NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.	**25-03-2026**	**A1** **Project No:** P178032
				Drawn By	Designed By / Approved By.
				J.A. Sciortino	**Mohamed Abdi Ahmed Saahid**



Architects	**Project Title**		**Revisions**		Scale	Drawing No. & Title
Badmaal Somali Sustainable Fisheries Development Project	**Somali Sustainable Fisheries Development Project (BADMAAL)**	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	No. / Description / Date		**1:50**	**WARSHEIKH** **Floor Drainage Plan**
	Client				Date	Sheet No.
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia				**10-03-2026**	**A1** **Project No:** P178032
			NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.		Drawn By: **J.A. Sciortino**	Designed By: **Mohamed Abdi Ahmed Saahid** Approved By.

SECTION B



0 1 2 3 4 5 10m

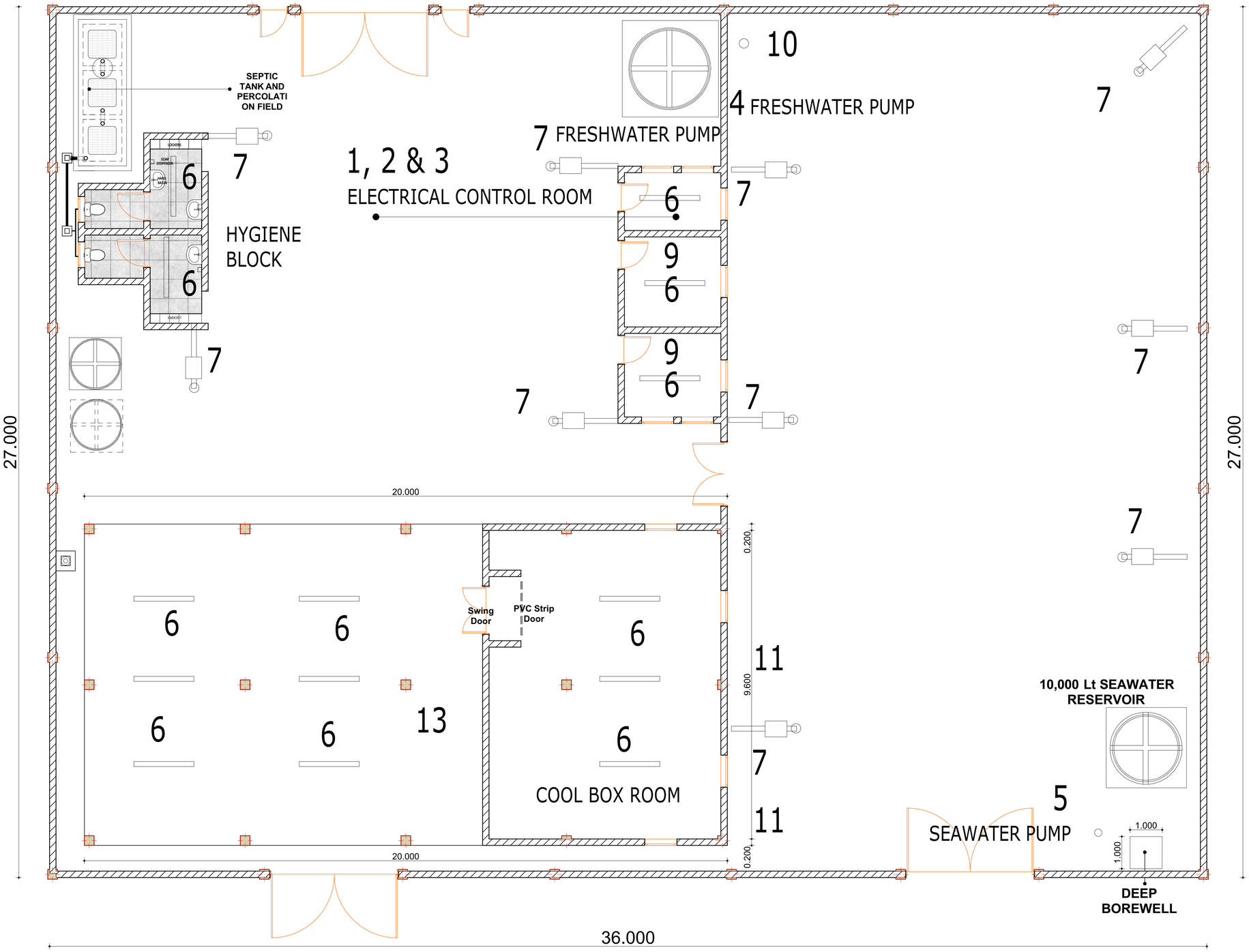
SCALE 1:100

NOTES

ALL CONCRETE GRADE 35

SOLAR PV PANELS TO BE INSTALLED ON ROOF OF PLATFORM

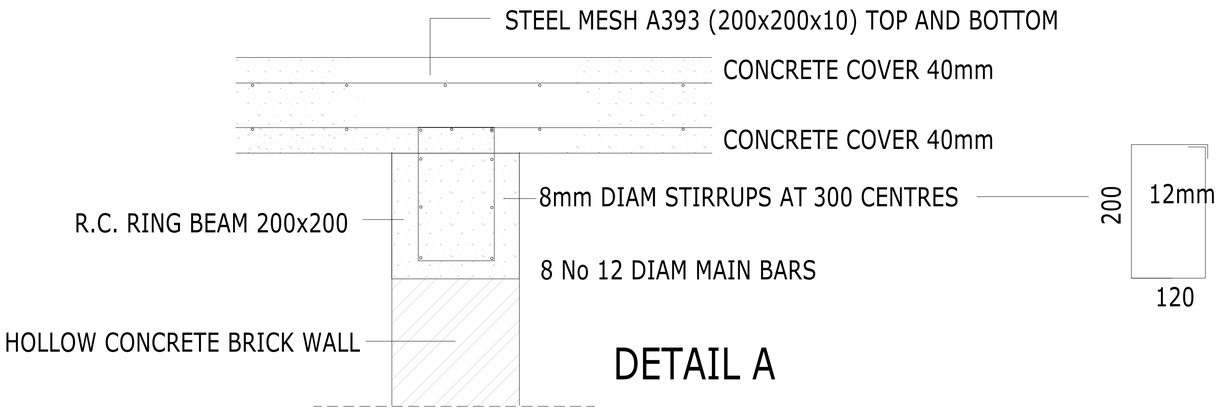
Architects	**Project Title**		**Revisions**	Scale	Drawing No. & Title
Badmaal Somali Sustainable Fisheries Development Project	**Somali Sustainable Fisheries Development Project (BADMAAL)**	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	No. / Description / Date	**1:50**	**WARSHEIKH** **Floor Drainage Section B**
	Client			Date	Sheet No.
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia		NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.	**10-03-2026**	**A1** **Project No:** P178032
				Drawn By	Designed By / Approved By.
				J.A. Sciortino	**Mohamed Abdi Ahmed Saahid**



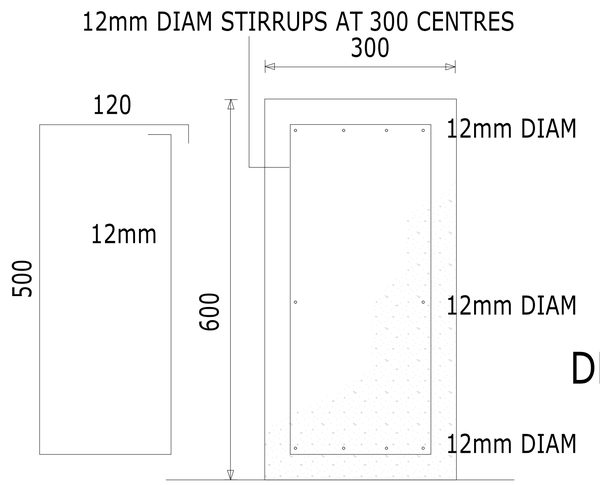
NOTES

DISTRIBUTION BOX INSIDE CONTROL ROOM
PV INVERTER AND BATTERIES
SUBMERSIBLE PUMP CONTROL PANEL
FRESHWATER HEADER TANK PUMP (1/2 HP)
SEAWATER HEADER TANK PUMP (1/2HP)
STRIP LIGHTS - SOLAR+BATTERY POWERED
EXTERNAL POLE MOUNTED SOLAR LIGHTING
SOLAR POWERED SUBMERSIBLE PUMP - 2 kW
EACH OFFICE 1 CEILING FAN
+
2x13 Amp SOCKETS
EQUIPMENT GROUNDING CONDUCTOR
AIR CONDITIONERS

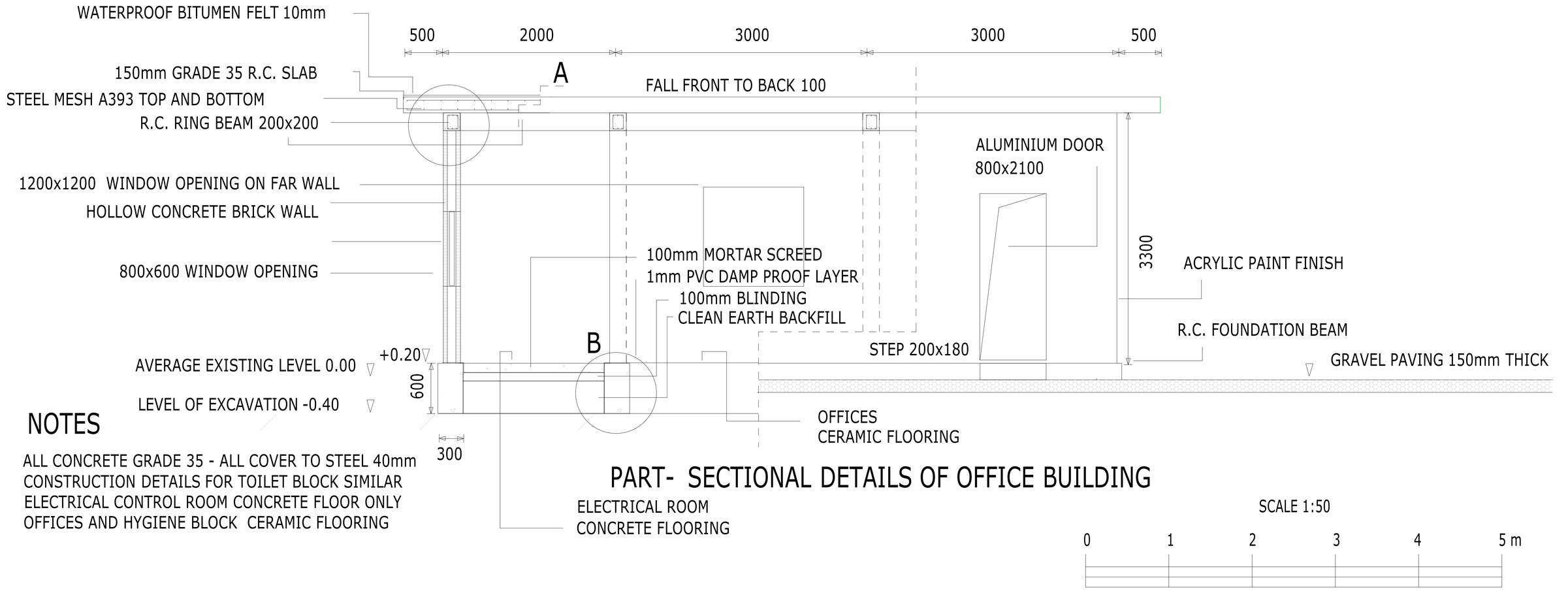
Architects	**Project Title**		**Revisions**	Scale	Drawing No. & Title
Badmaal Somali Sustainable Fisheries Development Project	**Somali Sustainable Fisheries Development Project (BADMAAL)**		No. / Description / Date	**1: 50**	**WARSHEIKH Electrical Plan**
	Client			Date	Sheet No.
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.	**25-03-2026**	**A1** **Project No: P178032**
				Drawn By	Designed By / Approved By.
				J.A. Sciortino	**Mohamed Abdi Ahmed Saahid**



DETAIL A



DETAIL B



PART- SECTIONAL DETAILS OF OFFICE BUILDING

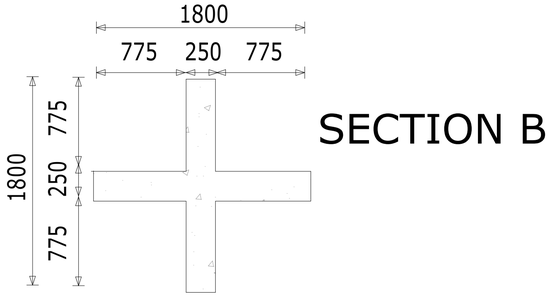
SCALE 1:50

0 1 2 3 4 5 m

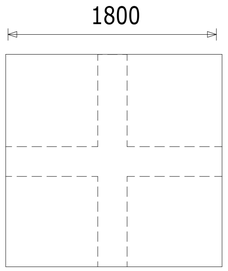
NOTES

ALL CONCRETE GRADE 35 - ALL COVER TO STEEL 40mm
CONSTRUCTION DETAILS FOR TOILET BLOCK SIMILAR
ELECTRICAL CONTROL ROOM CONCRETE FLOOR ONLY
OFFICES AND HYGIENE BLOCK CERAMIC FLOORING

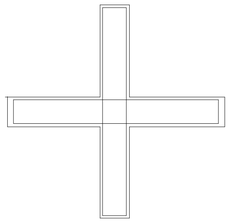
Architects	Project Title		Revisions			Scale	Drawing No. & Title	
Badmaal Somali Sustainable Fisheries Development Project	Somali Sustainable Fisheries Development Project (BADMAAL)	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	No.	Description	Date	1:50	WARSHEIKH	Building Details
	Client					Date	Sheet No.	
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia					10-03-2026	A1	Project No: P178032
			NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.			Drawn By: J.A. Sciortino	Designed By: Mohamed Abdi Ahmed Saahid	Approved By:



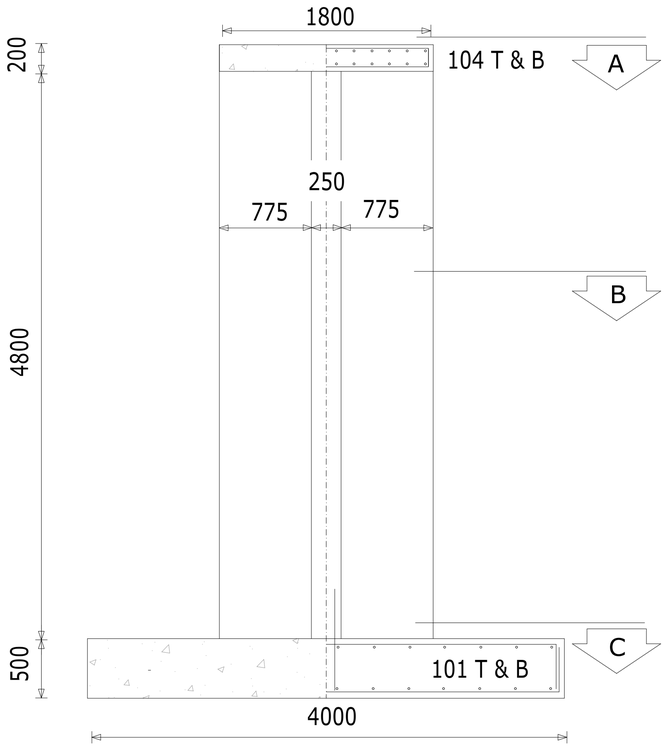
SECTION B

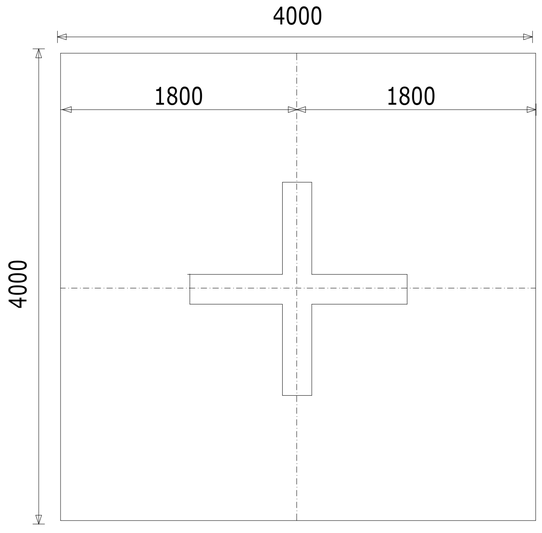


SECTION A

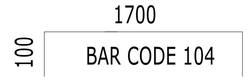


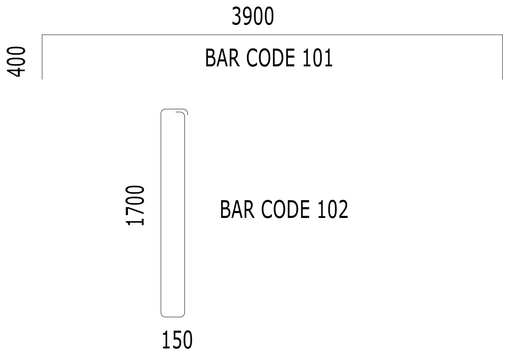
SECTION B





SECTION C



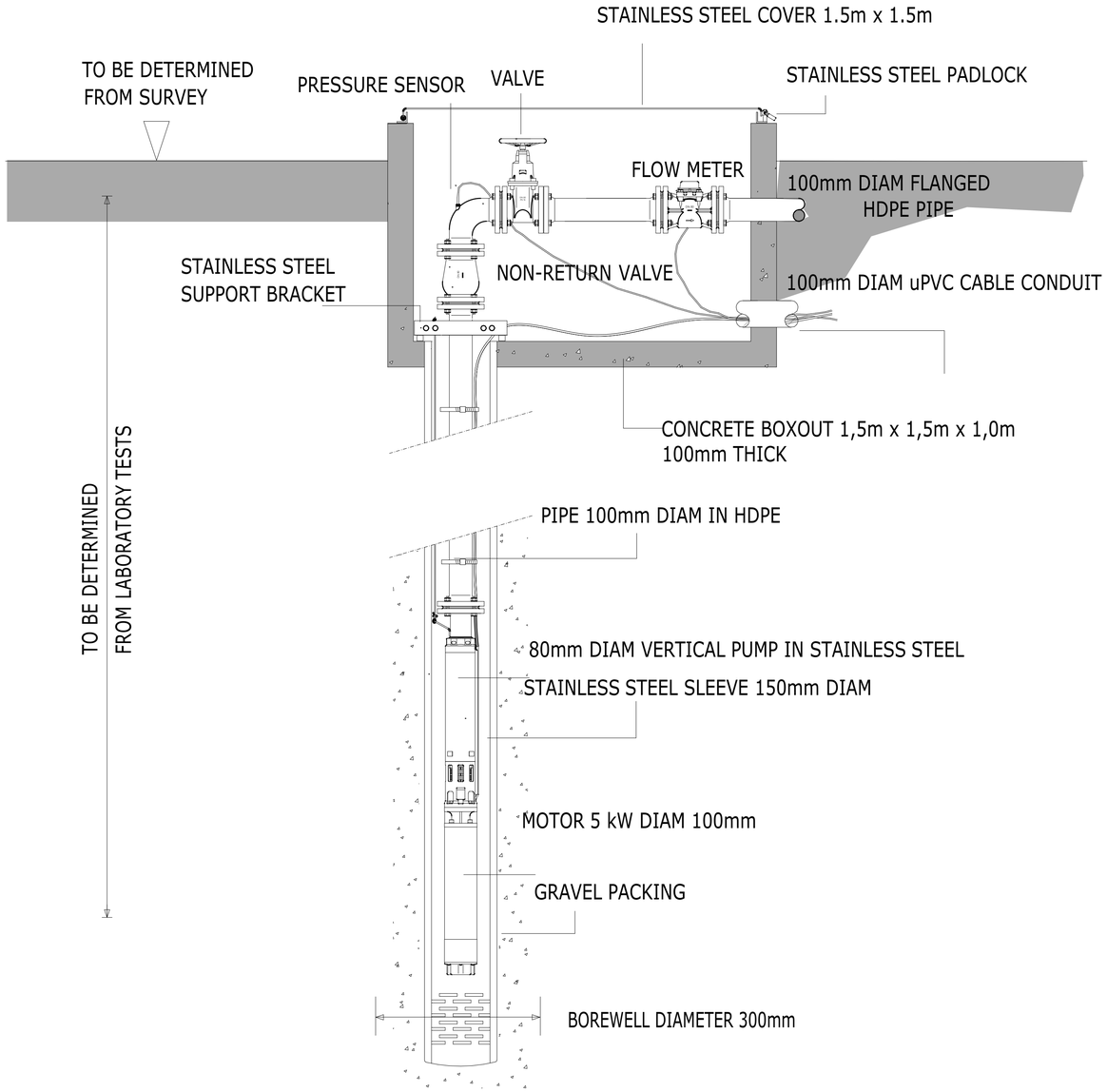


NOTES

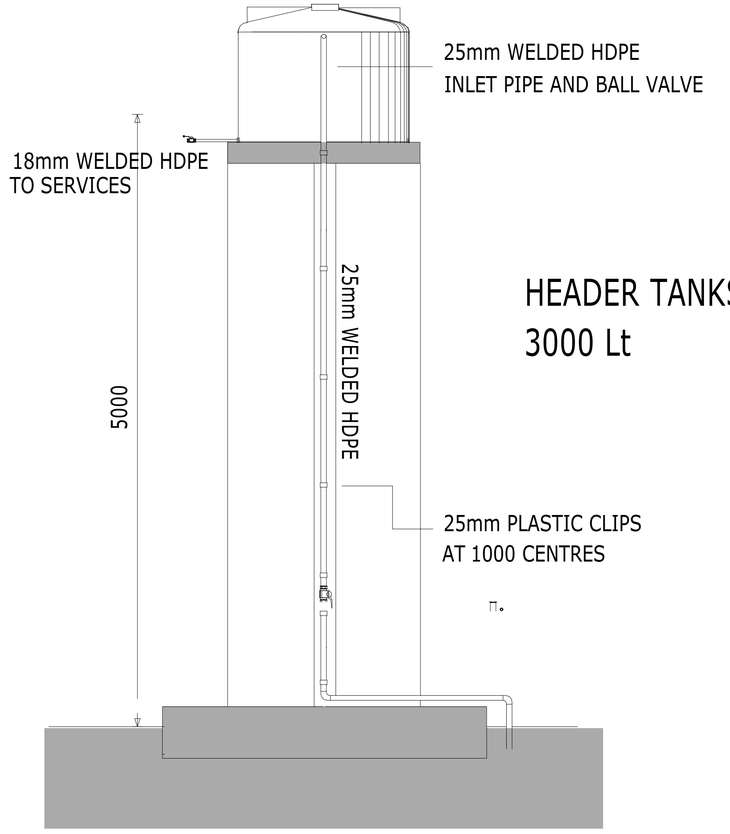
All dimensions are in mm.
All concrete Grade 35
All reinforcement to be hot-rolled HYS deformed bars type 2 to BS 4449
All welded steel fabric to BS 4483:1969
Minimum cover to reinforcement to be 50 mm unlessotherwise stated
Minimum lap length to be 32 times bar diameter
10:12:301:100 denotes 10 nos HYS 12mm bars mark 301 at 100 mm c/c

BAR CODE	BAR DIAMETER	UNIT WEIGHT	BAR LENGTH	NUMBER OF BARS	WEIGHT OF STEEL	REMARKS
101	18mm					
102	12					
103	12					STRAIGHT
104	12					
					1,200 Kg	

Architects	**Project Title**		**Revisions**	Scale	Drawing No. & Title
Badmaal Somali Sustainable Fisheries Development Project	**Somali Sustainable Fisheries Development Project (BADMAAL)**	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	No. / Description / Date	**1:50**	**WARSHEIKH** **R.C. Header Tank Details**
	Client			Date	Sheet No.
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia		NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.	**10-03-2026**	**A1** **Project No:** P178032
				Drawn By	Designed By Approved By.
				J.A. Sciortino	**Mohamed Abdi Ahmed Saahid**

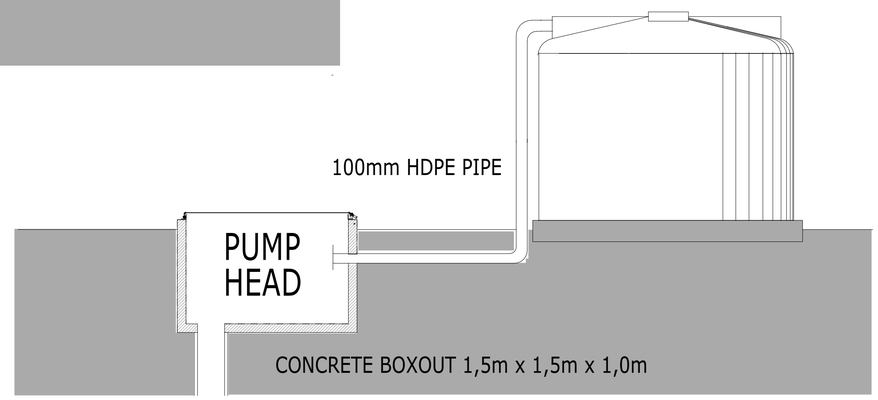


SEAWATER SUBMERSIBLE PUMP

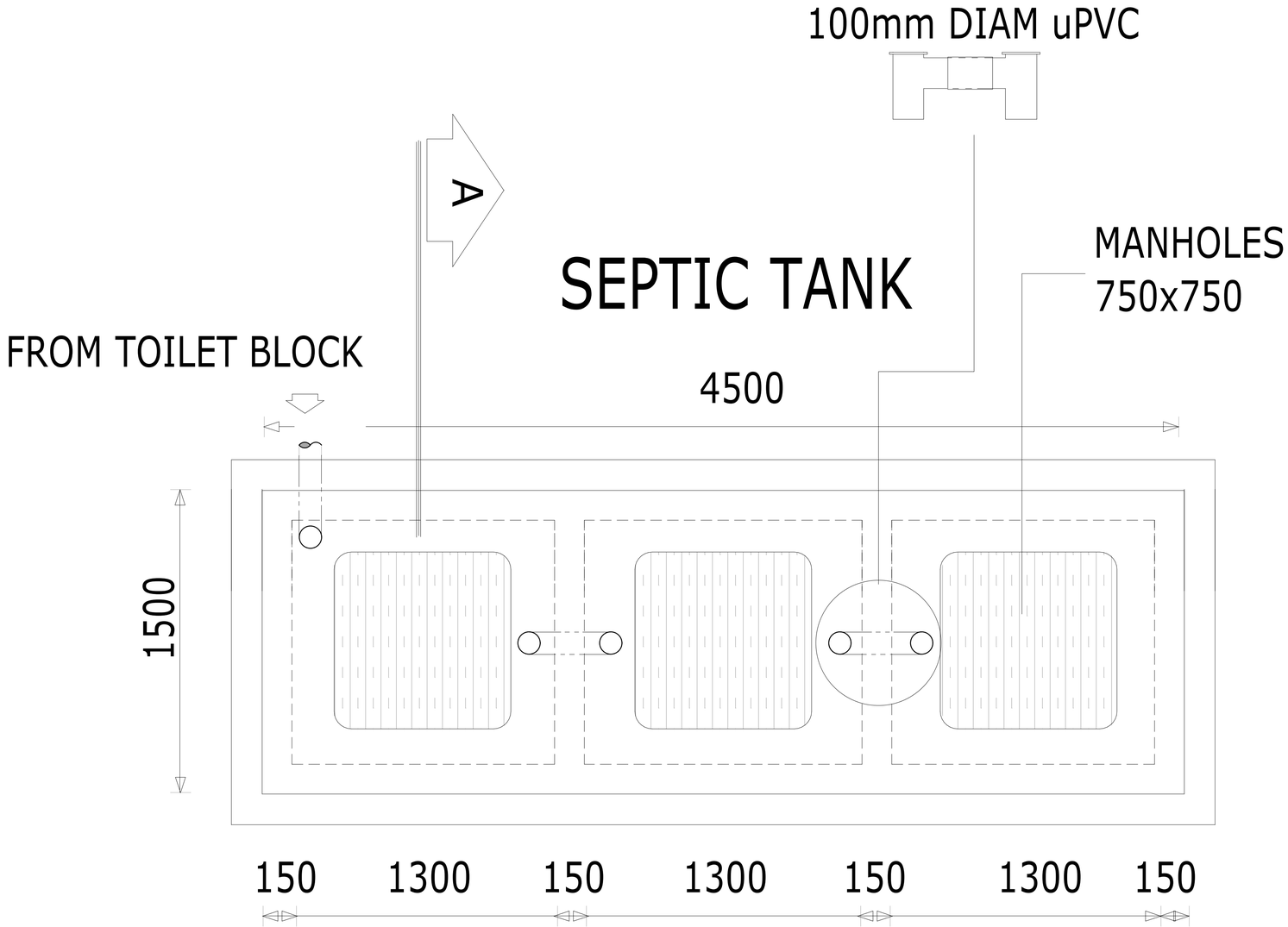


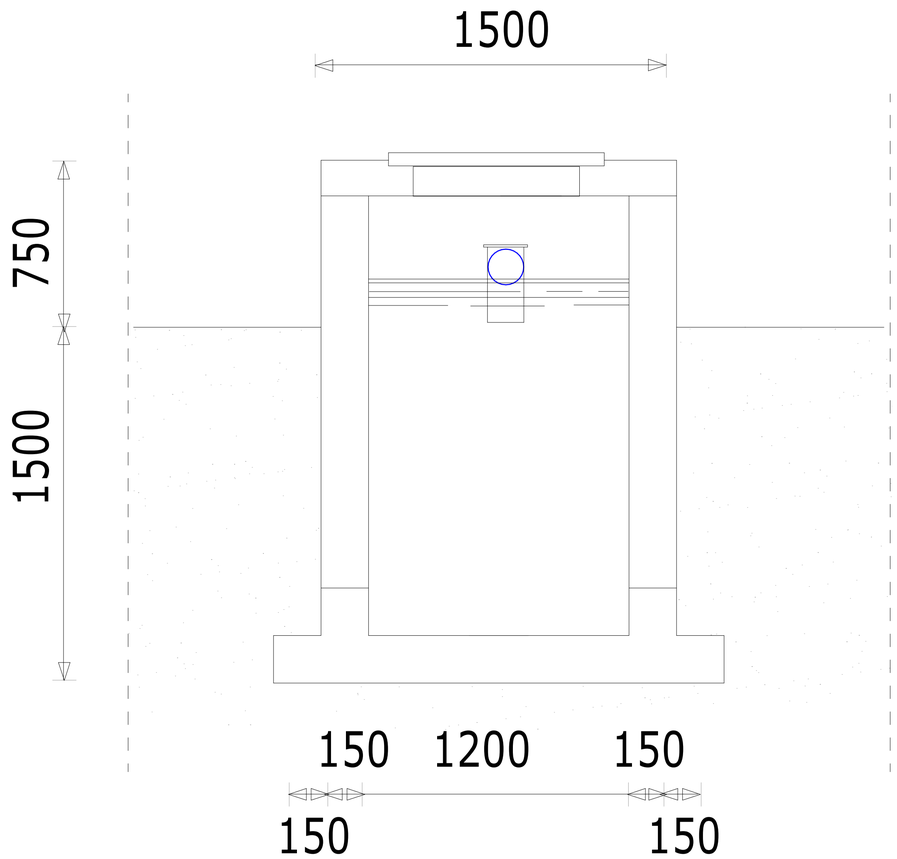
HEADER TANKS
3000 Lt

RESERVOIR
10 000 Lt



Architects	Project Title			Revisions			Scale	Drawing No. & Title	
Badmaal Somali Sustainable Fisheries Development Project	Somali Sustainable Fisheries Development Project (BADMAAL)		THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	No.	Description	Date	1:50	WARSHEIKH	Sea Water Systems
	Client						Date	Sheet No.	
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia						10-03-2026	A1	Project No: P178032
				NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.			Drawn By	Designed By	Approved By.
							J.A. Sciortino	Mohamed Abdi Ahmed Saahid	



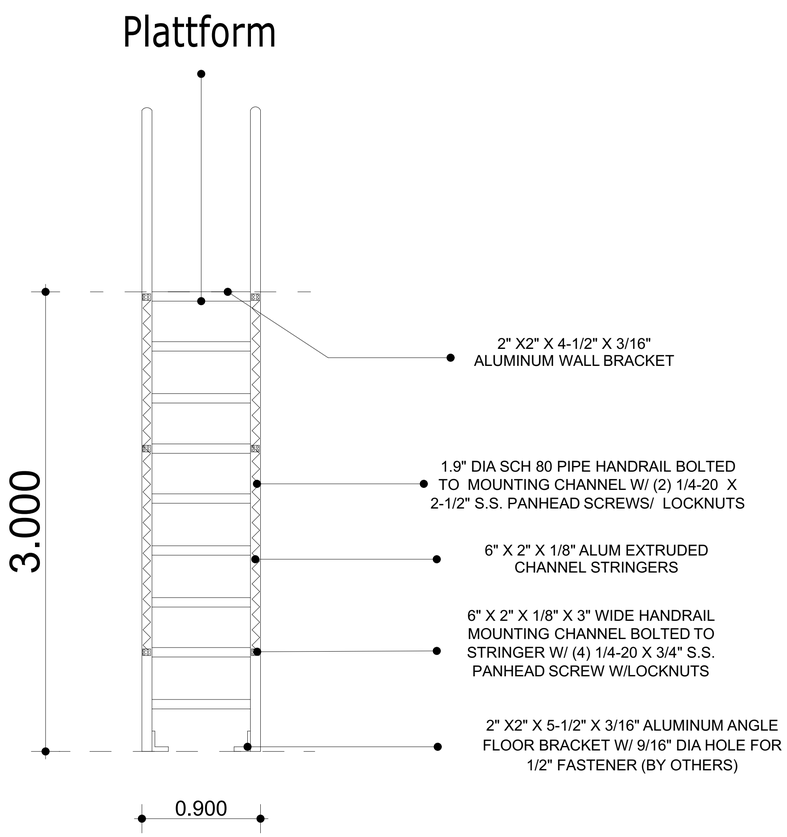


NOTES

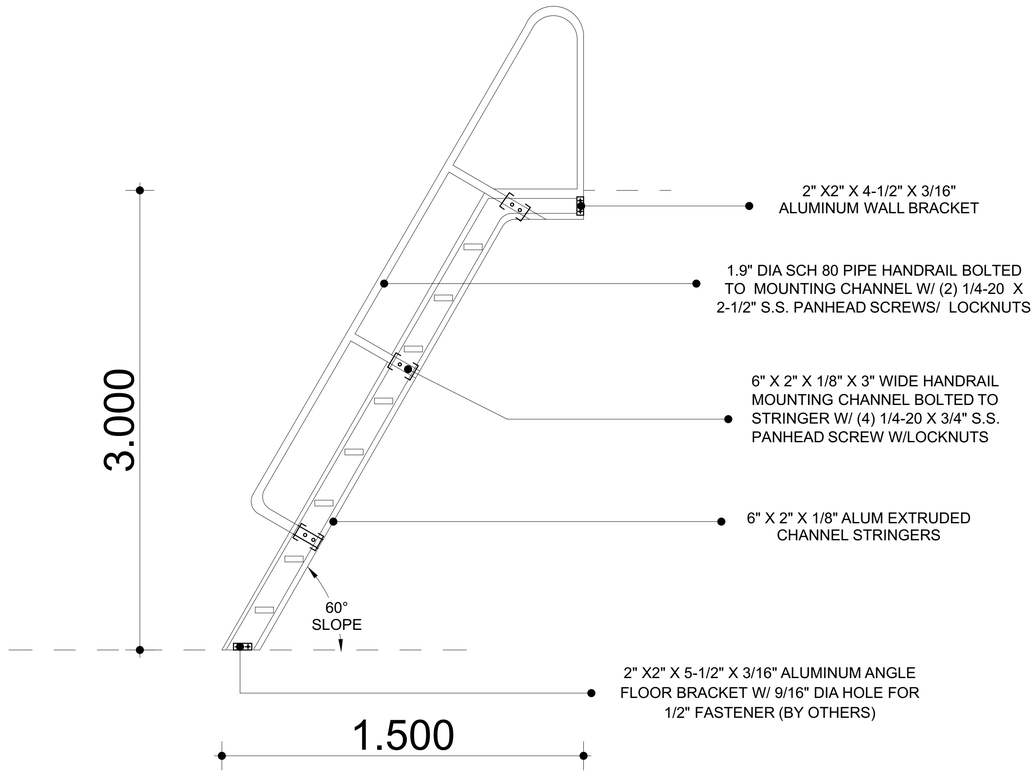
UNLESS OTHERWISE STATED, ALL CONCRETE GRADE 35

Architects	**Project Title**		**Revisions**	Scale	Drawing No. & Title
Badmaal Somali Sustainable Fisheries Development Project	**Somali Sustainable Fisheries Development Project (BADMAAL)**	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	No. | Description | Date	**1:50**	**WARSHEIKH** **Septic Tank Details**
	Client			Date	Sheet No.
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia		NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.	**10-03-2026**	**A1** **Project No:** P178032
				Drawn By	Designed By | Approved By.
				J.A. Sciortino	**Mohamed Abdi Ahmed Saahid**

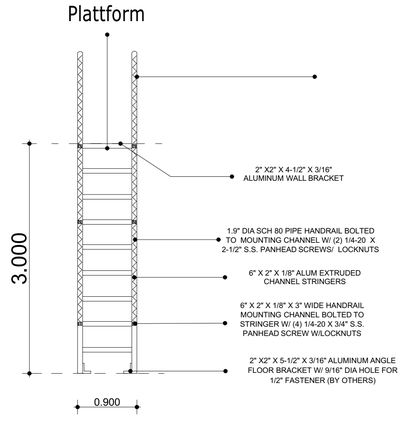
PLAN VIEW



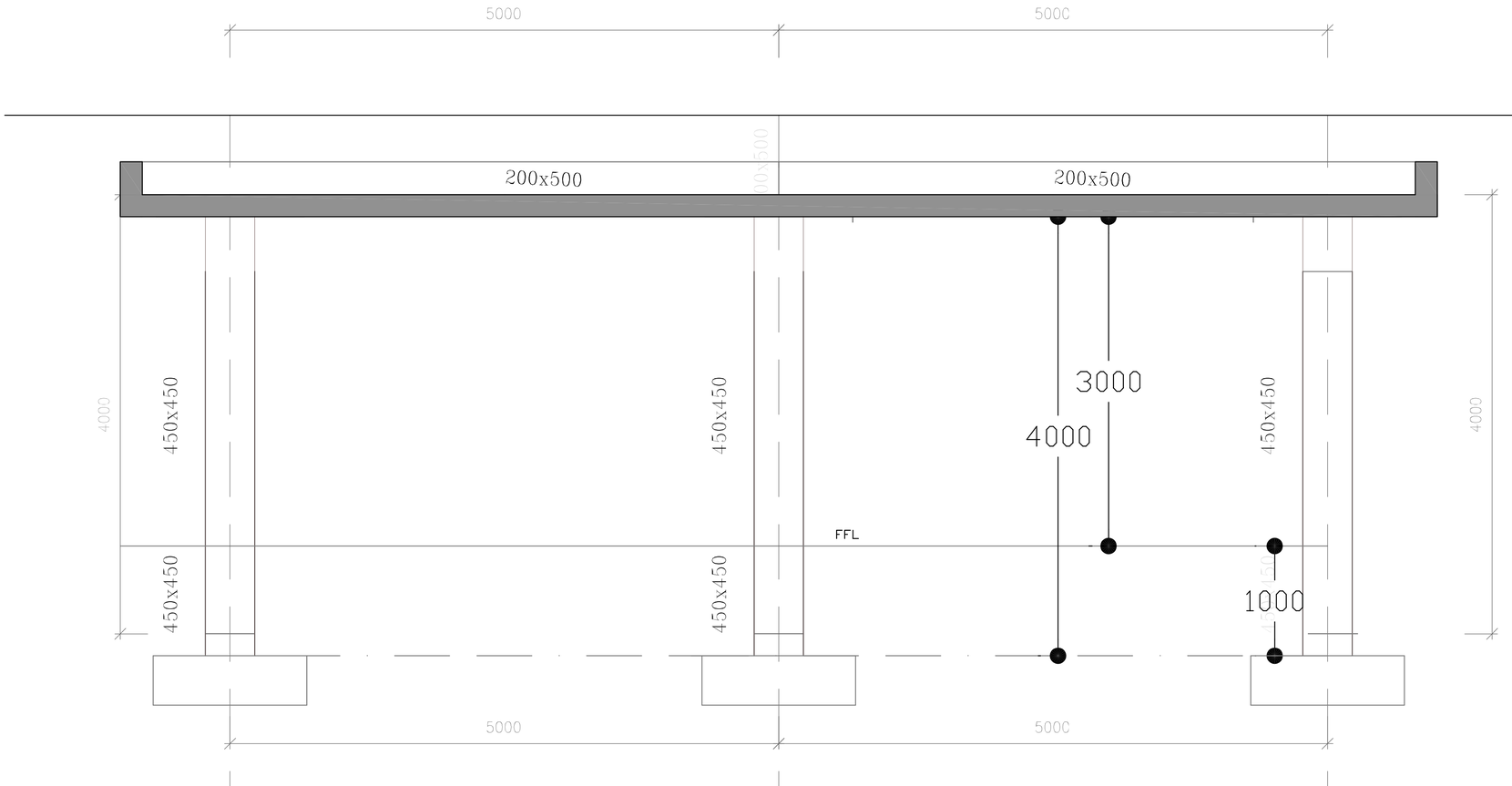
SIDE ELEVATION



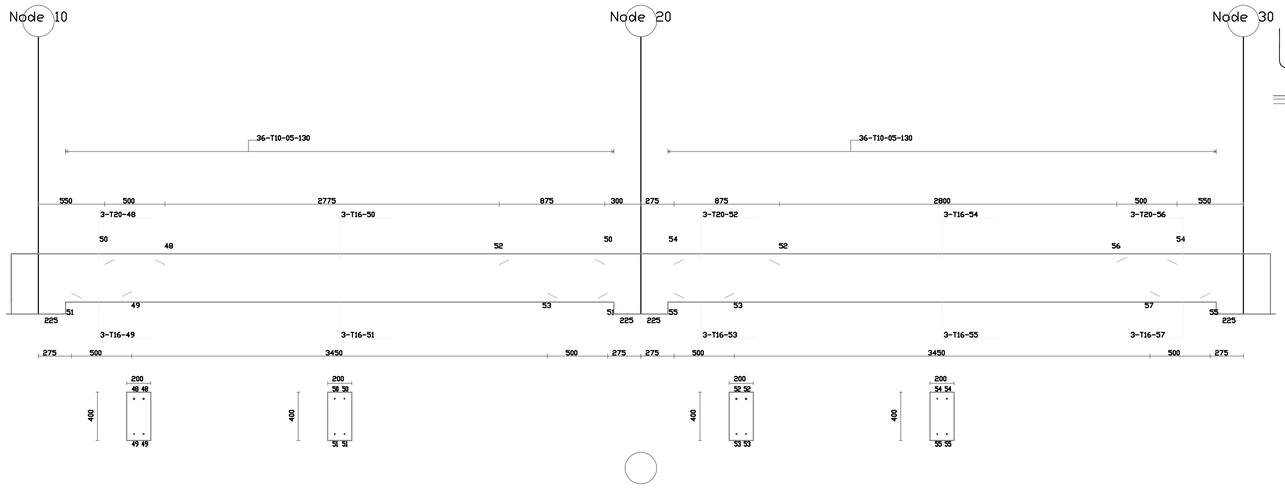
FRONT ELEVATION

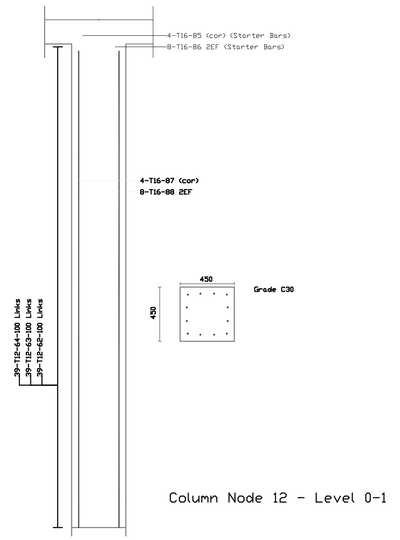


Architects	**Project Title**		**Revisions**	Scale	Drawing No. & Title
Badmaal Somali Sustainable Fisheries Development Project	**Somali Sustainable Fisheries Development Project (BADMAAL)**		No. / Description / Date	**1:50**	**WARSHEIKH Access Ladder Details**
	Client	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP		Date	Sheet No.
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia		NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.	**11-03-2026**	**A1** **Project No: P178032**
				Drawn By	Designed By / Approved By.
					Mohamed Abdi Ahmed Saahid

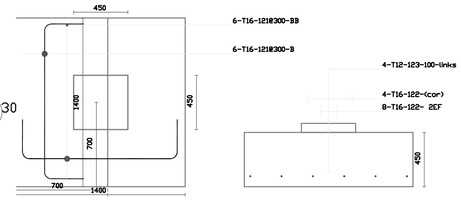


East Elevation



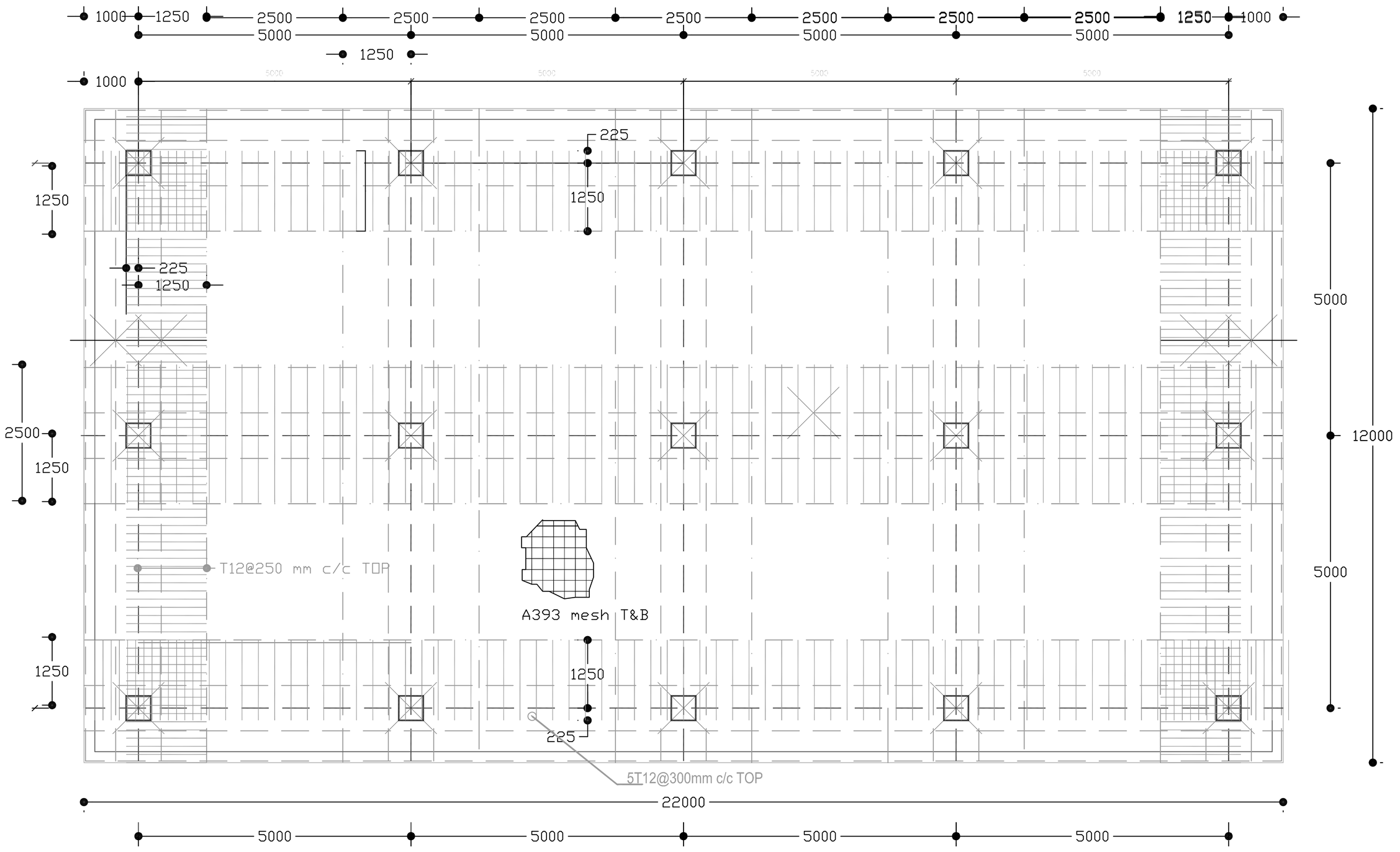


Column Node 12 - Level 0-1



Pad @ Node 4

Architects	**Project Title**		**Revisions**	Scale	Drawing No. & Title
Badmaal Somali Sustainable Fisheries Development Project	**Somali Sustainable Fisheries Development Project (BADMAAL)**	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	No. / Description / Date	**1:25**	**JAZEERA** **Preliminary Sections Detals**
	Client			Date	Sheet No.
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia		NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.	**12-03-2026**	**A1** **Project No:** P178032
				Drawn By	Designed By / Approved By.
				J.A. Sciortino	**Mohamed Abdi Ahmed Saahid**



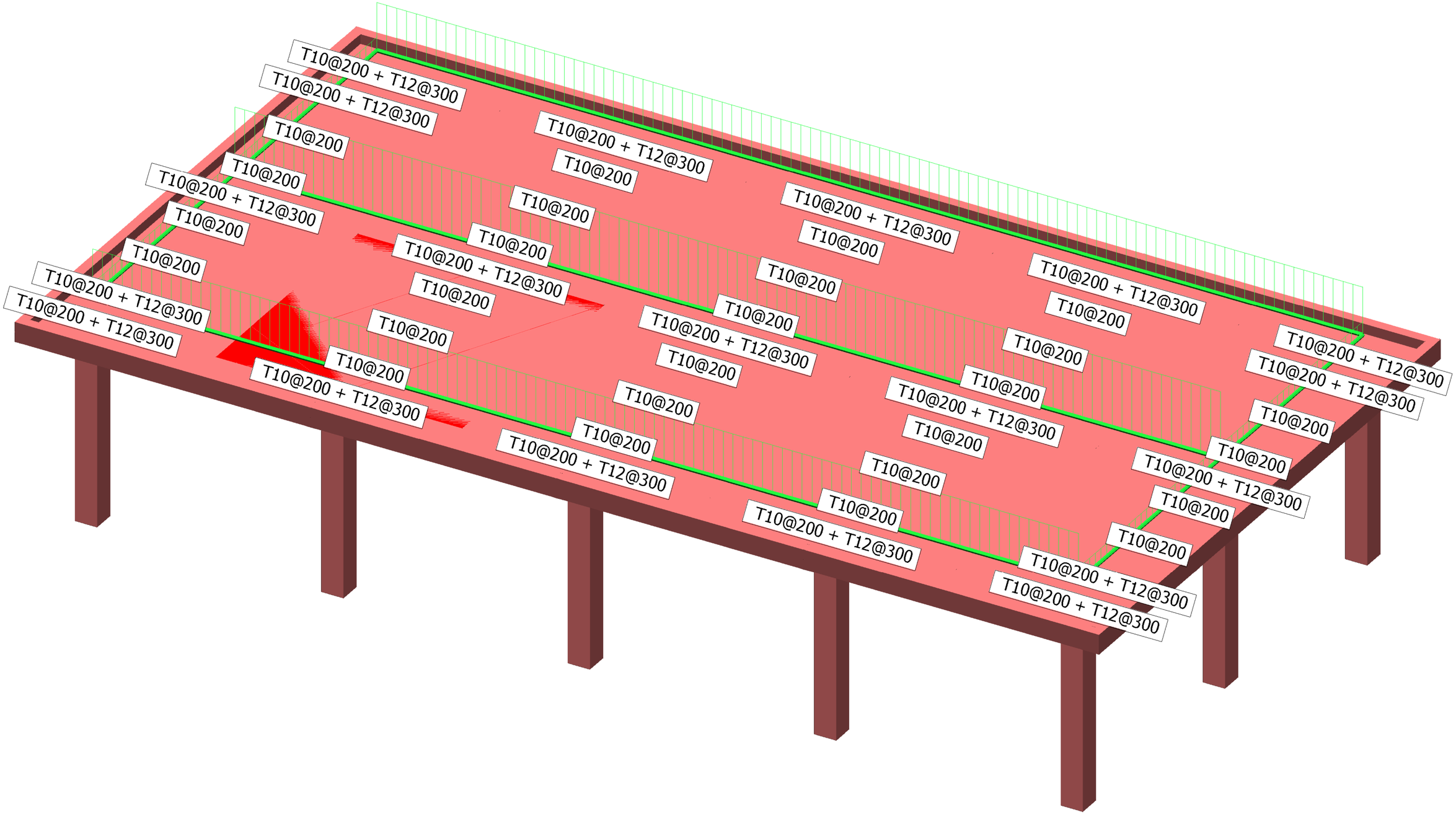
Floor Plan showing additional steel in addition to basic steel [A393 T&B]

Architects	**Project Title**		**Revisions**	Scale	Drawing No. & Title
Badmaal Somali Sustainable Fisheries Development Project	**Somali Sustainable Fisheries Development Project (BADMAAL)**		No. / Description / Date	**1:25**	**JAZEERA** **Additional Rebar Plan**
	Client			Date	Sheet No.
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.	**12-03-2026**	**A1** **Project No:** P178032
				Drawn By	Designed By / Approved By.
				J.A. Sciortino	**Mohamed Abdi Ahmed Saahid**

PORT KISMAYO Rev B

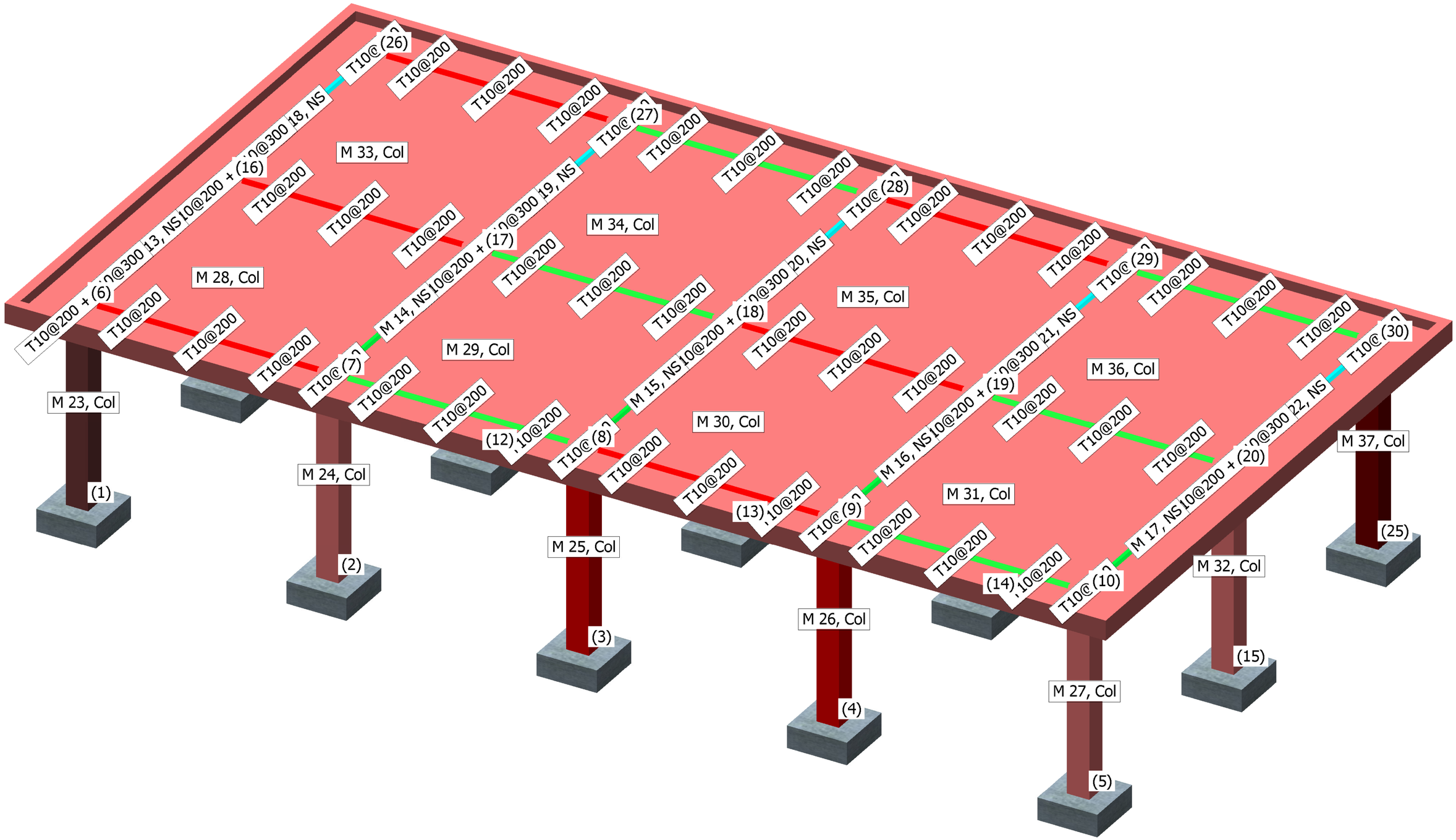
Description	Qty	Concrete								Actual Steel	
		L	B	H	Volume per Element	Total Volume				Calculated Steel Qty	TotaL Steel in structure
Column Bases	15	1.40	1.40	0.45	0.88	**13.23**				150.00	**2250.00**
Columns	15	0.45	0.45	3.50	0.71	10.63	lapping allowance			258.00	**3870.00**
Slab 200mm Thick [A393 Top & Bottom-6.16kg/m2]+ Additional Steel	1	22.00	12.00	0.20	52.80	52.80	1.35			4390.85	4390.85
		Grid Qty:	length	No of bars	Type	Spacing	Wt Per Linear Meter	Lapping allowance	Total Kg		
N-S Additional Steel	1	3	2.50	40.00	T12	@300mm	0.888	1.25	333.00	333.00	333.00
N-S Additional Steel [Edges]	1	2	1.48	80.00	T12	@150mm	0.888	1.25	261.96	261.96	261.96
E-W additional steel	1	1	2.50	73.33	T12	@300mm	0.888	1.25	203.50	203.50	203.50
N-S Additional Steel[Edge]	1	2	1.48	146.67	T12	@150mm	0.888	1.25	480.26	480.26	480.26
Allow for spacers, U-Bars etc. say	1										500.00
											6169.57
Edge Beam	1	0.30	0.20	68.00	4.08	4.08				20.68	**1406.36**
						80.74					**18086.78**
						m3					**Kg**

Architects	Project Title		Revisions			Scale	Drawing No. & Title	
Badmaal Somali Sustainable Fisheries Development Project	Somali Sustainable Fisheries Development Project (BADMAAL)	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	No.	Description	Date	1:25	JAZEERA Rebar Estimate	
	Client					Date	Sheet No.	
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia					12-03-2026	A1	Project No: P178032
			NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.			Drawn By	Designed By	Approved By.
						J.A. Sciortino	Mohamed Abdi Ahmed Saahid	



39-E-W All Top Rebar 1:0.21

Architects	**Project Title**		**Revisions**		Scale	Drawing No. & Title
Badmaal Somali Sustainable Fisheries Development Project	**Somali Sustainable Fisheries Development Project (BADMAAL)**		No. / Description / Date		**1:25**	**JAZEERA** East, West Top Total Steel Reinforcement Load Diagram
	Client				Date	Sheet No.
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.		**12-03-2026**	**A1** **Project No:** P178032
					Drawn By	Designed By / Approved By.
					J.A. Sciortino	**Mohamed Abdi Ahmed Saahid**



Architects

Badmaal
Somali Sustainable Fisheries Development Project

Project Title

Somali Sustainable Fisheries Development Project (BADMAAL)

Client

Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia

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Revisions

No.	Description	Date

NB:
1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing.
2. The contractor must check and verify all levels and dimensions before commencing any work.

Scale
1:25

Date
12-03-2026

Drawn By
J.A. Sciortino

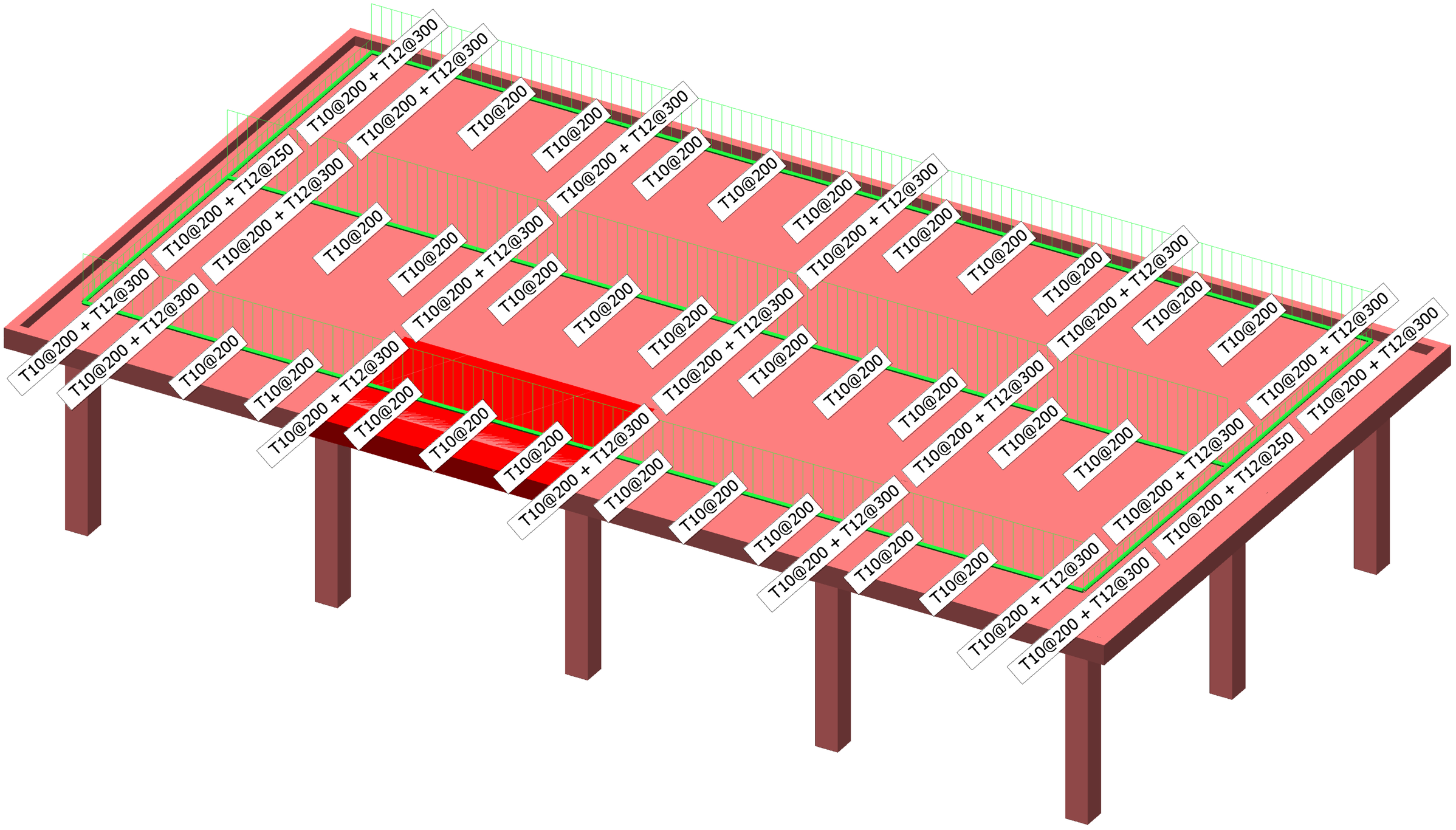
Drawing No. & Title
JAZEERA **North South Top Total Steel Reinforcement**

Sheet No.
A1

Designed By
Mohamed Abdi Ahmed Saahid

Project No: P178032

Approved By.



Architects	**Project Title**		**Revisions**		Scale	Drawing No. & Title
Badmaal Somali Sustainable Fisheries Development Project	**Somali Sustainable Fisheries Development Project (BADMAAL)**	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	No. / Description / Date		**1:25**	**JAZEERA** North South Top Total Steel Reinforcement Load Diagram
	Client				Date	Sheet No.
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia		NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.		**12-03-2026**	**A1** **Project No:** P178032
					Drawn By	Designed By / Approved By.
					J.A. Sciortino	**Mohamed Abdi Ahmed Saahid**

MasterFrame : Flat Slab
Design Moments

Member Number	Elastic Moments End 1	Elastic Moments End 2	Effective Column Head End 1	Effective Column Head End 2	Limiting Moment	Reduced Moments End 1	Reduced Moments End 2	Positive Moment
1	87.09	107.30	0.508	0.508	132.17	64.54	83.12	58.34
2	102.58	100.81	0.508	0.508	132.17	77.52	75.90	55.46
3	100.81	102.59	0.508	0.508	132.17	75.89	77.52	55.46
4	107.30	87.10	0.508	0.508	132.17	83.11	64.55	58.34
5	98.66	156.34	0.508	0.508	183.60	62.34	114.39	95.24
6	146.67	138.06	0.508	0.508	183.60	105.49	97.75	84.72
7	138.06	146.68	0.508	0.508	183.60	97.75	105.49	84.72
8	156.34	98.67	0.508	0.508	183.60	114.38	62.34	95.24
9	87.09	107.30	0.508	0.508	132.17	64.54	83.12	58.34
10	102.58	100.81	0.508	0.508	132.17	77.52	75.90	55.46
11	100.81	102.59	0.508	0.508	132.17	75.89	77.52	55.46
12	107.30	87.10	0.508	0.508	132.17	83.11	64.55	58.34
13	86.77	108.37	0.508	0.508	132.17	64.14	83.98	58.11
14	97.23	161.52	0.508	0.508	183.60	60.46	118.35	94.19
15	97.27	161.49	0.508	0.508	183.60	60.47	118.28	94.23
16	97.23	161.52	0.508	0.508	183.60	60.46	118.35	94.19
17	86.77	108.37	0.508	0.508	132.17	64.14	83.98	58.11
18	108.37	86.78	0.508	0.508	132.17	83.97	64.14	58.11
19	161.52	97.23	0.508	0.508	183.60	118.35	60.47	94.19
20	161.48	97.27	0.508	0.508	183.60	118.28	60.47	94.23
21	161.52	97.23	0.508	0.508	183.60	118.35	60.47	94.19
22	108.37	86.78	0.508	0.508	132.17	83.97	64.14	58.11

East-West Bottom Steel Table

East-West Bottom Steel in Panel Node 26-C1-Node 7-Node 6 - Level 1

From 1.000 North to 1.250 m South of grid line C	T10@200	393 mm² >	260 mm²	OK
From 1.250 to 3.750 m North of grid line B	T10@200	393 mm² >	260 mm²	OK
From 1.250 North to 1.250 m South of grid line B	T10@200	393 mm² >	296 mm²	OK
From 1.250 to 3.750 m North of member 1	T10@200	393 mm² >	260 mm²	OK
From 1.250 North to 1.000 m South of member 1	T10@200	393 mm² >	260 mm²	OK

East-West Bottom Steel Table

East-West Bottom Steel in Panel C1-C2-Node 8-Node 7 - Level 1

From 1.000 North to 1.250 m South of grid line C	T10@200	393 mm² >	260 mm²	OK
From 1.250 to 3.750 m North of grid line B	T10@200	393 mm² >	260 mm²	OK
From 1.250 North to 1.250 m South of grid line B	T10@200	393 mm² >	263 mm²	OK
From 1.250 to 3.750 m North of member 2	T10@200	393 mm² >	260 mm²	OK
From 1.250 North to 1.000 m South of member 2	T10@200	393 mm² >	260 mm²	OK

East-West Bottom Steel Table

East-West Bottom Steel in Panel C2-C3-Node 9-Node 8 - Level 1

From 1.000 North to 1.250 m South of grid line C	T10@200	393 mm² >	260 mm²	OK
From 1.250 to 3.750 m North of grid line B	T10@200	393 mm² >	260 mm²	OK
From 1.250 North to 1.250 m South of grid line B	T10@200	393 mm² >	263 mm²	OK
From 1.250 to 3.750 m North of member 3	T10@200	393 mm² >	260 mm²	OK
From 1.250 North to 1.000 m South of member 3	T10@200	393 mm² >	260 mm²	OK

East-West Bottom Steel Table

East-West Bottom Steel in Panel C3-C4-A4-Node 9 - Level 1

From 1.000 North to 1.250 m South of grid line C	T10@200	393 mm² >	260 mm²	OK
From 1.250 to 3.750 m North of grid line B	T10@200	393 mm² >	260 mm²	OK
From 1.250 North to 1.250 m South of grid line B	T10@200	393 mm² >	296 mm²	OK
From 1.250 to 3.750 m North of member 4	T10@200	393 mm² >	260 mm²	OK
From 1.250 North to 1.000 m South of member 4	T10@200	393 mm² >	260 mm²	OK

North-South Bottom Steel Table

North-South Bottom Steel in Panel Node 6-Node 16-B4-A4 - Level 1

From 1.000 West to 1.250 m East of member 13	T10@200	393 mm² >	267 mm²	OK
From 1.250 to 3.750 m East of member 13	T10@200	393 mm² >	260 mm²	OK
From 1.250 West to 1.250 m East of grid line 1	T10@200	393 mm² >	315 mm²	OK
From 1.250 to 3.750 m East of grid line 1	T10@200	393 mm² >	260 mm²	OK
From 1.250 West to 1.250 m East of grid line 2	T10@200	393 mm² >	315 mm²	OK
From 1.250 to 3.750 m East of grid line 2	T10@200	393 mm² >	260 mm²	OK
From 1.250 West to 1.250 m East of grid line 3	T10@200	393 mm² >	315 mm²	OK
From 1.250 to 3.750 m East of grid line 3	T10@200	393 mm² >	260 mm²	OK
From 1.250 West to 1.000 m East of grid line 4	T10@200	393 mm² >	267 mm²	OK

North-South Bottom Steel Table

North-South Bottom Steel in Panel Node 16-Node 26-C4-B4 - Level 1

From 1.000 West to 1.250 m East of member 18	T10@200	393 mm² >	267 mm²	OK
From 1.250 to 3.750 m East of member 18	T10@200	393 mm² >	260 mm²	OK
From 1.250 West to 1.250 m East of grid line 1	T10@200	393 mm² >	315 mm²	OK
From 1.250 to 3.750 m East of grid line 1	T10@200	393 mm² >	260 mm²	OK
From 1.250 West to 1.250 m East of grid line 2	T10@200	393 mm² >	315 mm²	OK

Architects	Project Title	Revisions	Scale
Badmaal Somali Sustainable Fisheries Development Project	Somali Sustainable Fisheries Development Project (BADMAAL)	No. / Description / Date	1:25
	Client		Date
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia		12-03-2026
			Drawn By
			J.A. Sciortino

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Drawing No. & Title	JAZEERA Preliminary Calculations
Sheet No.	A1
Project No: P178032	
Designed By	Mohamed Abdi Ahmed Saahid
Approved By.	

From 1.250 to 3.750 m along Member 20 (B2-C2)	T10@200	393 mm² >	260 mm²	OK
From 1.250 North to 1.250 m South of Column Centre				
Middle ½ of Column Strip @ B2	T10@200 + T12@300	770 mm² >	556 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	278 mm²	OK
From 1.250 to 3.750 m along Member 15	T10@200	393 mm² >	260 mm²	OK
From 1.250 North to 0.225 m South of Column Centre				
Middle ½ of Column Strip @ Node 8	T10@200 + T12@300	770 mm² >	693 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	347 mm²	OK

East-West Top Steel Table

East-West Top Steel along Grid Line C3-Node 9 - Level 1

From 0.225 North to 1.250 m South of Column Centre				
Middle ½ of Column Strip @ C3	T10@200 + T12@300	770 mm² >	759 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	379 mm²	OK
From 1.250 to 3.750 m along Member 21 (B3-C3)	T10@200	393 mm² >	260 mm²	OK
From 1.250 North to 1.250 m South of Column Centre				
Middle ½ of Column Strip @ B3	T10@200 + T12@300	770 mm² >	651 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	325 mm²	OK
From 1.250 to 3.750 m along Member 16	T10@200	393 mm² >	260 mm²	OK
From 1.250 North to 0.225 m South of Column Centre				
Middle ½ of Column Strip @ Node 9	T10@200 + T12@300	770 mm² >	759 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	379 mm²	OK

East-West Top Steel Table

East-West Top Steel along Grid Line C4-A4 - Level 1

From 0.225 North to 1.250 m South of Column Centre				
Middle ½ of Column Strip @ C4	T10@200 + T12@300	770 mm² >	589 mm²	OK
Outer ½ of Column Strip	T10@200 + T12@300	770 mm² >	442 mm²	OK
From 0.838 to 4.163 m along Member 22 (B4-C4)	T10@200	393 mm² >	261 mm²	OK
From 0.838 North to 0.838 m South of Column Centre				
Middle ½ of Column Strip @ B4	T10@200 + T12@300	770 mm² >	471 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	353 mm²	OK
From 0.838 to 4.163 m along Member 17 (A4-B4)	T10@200	393 mm² >	261 mm²	OK
From 1.250 North to 0.225 m South of Column Centre				
Middle ½ of Column Strip @ A4	T10@200 + T12@300	770 mm² >	589 mm²	OK
Outer ½ of Column Strip	T10@200 + T12@300	770 mm² >	442 mm²	OK

From 1.250 to 3.750 m East of grid line 2	T10@200	393 mm² >	260 mm²	OK
From 1.250 West to 1.250 m East of grid line 3	T10@200	393 mm² >	315 mm²	OK
From 1.250 to 3.750 m East of grid line 3	T10@200	393 mm² >	260 mm²	OK
From 1.250 West to 1.000 m East of grid line 4	T10@200	393 mm² >	267 mm²	OK

East-West Top Steel Table

East-West Top Steel along Grid Line Node 26-Node 6 - Level 1

From 0.225 North to 1.250 m South of Column Centre				
Middle ½ of Column Strip @ Node 26	T10@200 + T12@300	770 mm² >	589 mm²	OK
Outer ½ of Column Strip	T10@200 + T12@300	770 mm² >	442 mm²	OK
From 0.838 to 4.163 m along Member 18	T10@200	393 mm² >	261 mm²	OK
From 0.838 North to 0.838 m South of Column Centre				
Middle ½ of Column Strip @ Node 16	T10@200 + T12@300	770 mm² >	471 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	353 mm²	OK
From 0.838 to 4.163 m along Member 13	T10@200	393 mm² >	261 mm²	OK
From 1.250 North to 0.225 m South of Column Centre				
Middle ½ of Column Strip @ Node 6	T10@200 + T12@300	770 mm² >	589 mm²	OK
Outer ½ of Column Strip	T10@200 + T12@300	770 mm² >	442 mm²	OK

East-West Top Steel Table

East-West Top Steel along Grid Line C1-Node 7 - Level 1

From 0.225 North to 1.250 m South of Column Centre				
Middle ½ of Column Strip @ C1	T10@200 + T12@300	770 mm² >	759 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	379 mm²	OK
From 1.250 to 3.750 m along Member 19 (B1-C1)	T10@200	393 mm² >	260 mm²	OK
From 1.250 North to 1.250 m South of Column Centre				
Middle ½ of Column Strip @ B1	T10@200 + T12@300	770 mm² >	651 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	325 mm²	OK
From 1.250 to 3.750 m along Member 14	T10@200	393 mm² >	260 mm²	OK
From 1.250 North to 0.225 m South of Column Centre				
Middle ½ of Column Strip @ Node 7	T10@200 + T12@300	770 mm² >	759 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	379 mm²	OK

East-West Top Steel Table

East-West Top Steel along Grid Line C2-Node 8 - Level 1

From 0.225 North to 1.250 m South of Column Centre				
Middle ½ of Column Strip @ C2	T10@200 + T12@300	770 mm² >	693 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	347 mm²	OK

Architects	Project Title		Scale	Drawing No. & Title
Badmaal Somali Sustainable Fisheries Development Project	Somali Sustainable Fisheries Development Project (BADMAAL)	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	1:25	JAZEERA Preliminary Calculations
	Client		Date	Sheet No.
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia		12-03-2026	A1 Project No: P178032
			Drawn By	Designed By / Approved By.
			J.A. Sciortino	Mohamed Abdi Ahmed Saahid

Revisions

No.	Description	Date

NB:
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North-South Top Steel Table

North-South Top Steel along Grid Line Node 6-A4 - Level 1

From 0.225 West to 1.250 m East of Column Centre				
Middle ½ of Column Strip @ Node 6	T10@200 + T12@300	770 mm² >	631 mm²	OK
Outer ½ of Column Strip	T10@200 + T12@300	770 mm² >	473 mm²	OK
From 0.838 to 4.163 m along Member 1	T10@200	393 mm² >	279 mm²	OK
From 0.838 West to 0.838 m East of Column Centre				
Middle ½ of Column Strip @ Node 7	T10@200 + T12@300	770 mm² >	492 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	369 mm²	OK
From 0.838 to 4.163 m along Member 2	T10@200	393 mm² >	260 mm²	OK
From 0.838 West to 0.838 m East of Column Centre				
Middle ½ of Column Strip @ Node 8	T10@200 + T12@300	770 mm² >	492 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	369 mm²	OK
From 0.838 to 4.163 m along Member 3	T10@200	393 mm² >	260 mm²	OK
From 0.838 West to 0.838 m East of Column Centre				
Middle ½ of Column Strip @ Node 9	T10@200 + T12@300	770 mm² >	492 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	369 mm²	OK
From 0.838 to 4.162 m along Member 4	T10@200	393 mm² >	279 mm²	OK
From 1.250 West to 0.225 m East of Column Centre				
Middle ½ of Column Strip @ A4	T10@200 + T12@300	770 mm² >	631 mm²	OK
Outer ½ of Column Strip	T10@200 + T12@300	770 mm² >	473 mm²	OK

North-South Top Steel Table

North-South Top Steel along Grid Line Node 16-B4 - Level 1

From 0.225 West to 1.250 m East of Column Centre				
Middle ½ of Column Strip @ Node 16	T10@200 + T12@250	845 mm² >	831 mm²	OK
Outer ½ of Column Strip	T10@200 + T12@300	770 mm² >	415 mm²	OK
From 1.250 to 3.750 m along Member 5	T10@200	393 mm² >	260 mm²	OK
From 1.250 West to 1.250 m East of Column Centre				
Middle ½ of Column Strip @ B1	T10@200 + T12@300	770 mm² >	724 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	362 mm²	OK
From 1.250 to 3.750 m along Member 6 (B1-B2)	T10@200	393 mm² >	260 mm²	OK
From 1.250 West to 1.250 m East of Column Centre				
Middle ½ of Column Strip @ B2	T10@200 + T12@300	770 mm² >	724 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	362 mm²	OK
From 1.250 to 3.750 m along Member 7 (B2-B3)	T10@200	393 mm² >	260 mm²	OK
From 1.250 West to 1.250 m East of Column Centre				
Middle ½ of Column Strip @ B3	T10@200 + T12@300	770 mm² >	724 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	362 mm²	OK
From 1.250 to 3.750 m along Member 8 (B3-B4)	T10@200	393 mm² >	260 mm²	OK
From 1.250 West to 0.225 m East of Column Centre				
Middle ½ of Column Strip @ B4	T10@200 + T12@250	845 mm² >	831 mm²	OK
Outer ½ of Column Strip	T10@200 + T12@300	770 mm² >	415 mm²	OK

North-South Top Steel Table

North-South Top Steel along Grid Line Node 26-C4 - Level 1

From 0.225 West to 1.250 m East of Column Centre				
Middle ½ of Column Strip @ Node 26	T10@200 + T12@300	770 mm² >	631 mm²	OK
Outer ½ of Column Strip	T10@200 + T12@300	770 mm² >	473 mm²	OK
From 0.838 to 4.163 m along Member 9	T10@200	393 mm² >	279 mm²	OK
From 0.838 West to 0.838 m East of Column Centre				
Middle ½ of Column Strip @ C1	T10@200 + T12@300	770 mm² >	492 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	369 mm²	OK
From 0.838 to 4.163 m along Member 10 (C1-C2)	T10@200	393 mm² >	260 mm²	OK
From 0.838 West to 0.838 m East of Column Centre				
Middle ½ of Column Strip @ C2	T10@200 + T12@300	770 mm² >	492 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	369 mm²	OK
From 0.838 to 4.163 m along Member 11 (C2-C3)	T10@200	393 mm² >	260 mm²	OK
From 0.838 West to 0.838 m East of Column Centre				
Middle ½ of Column Strip @ C3	T10@200 + T12@300	770 mm² >	492 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	369 mm²	OK
From 0.838 to 4.162 m along Member 12 (C3-C4)	T10@200	393 mm² >	279 mm²	OK
From 1.250 West to 0.225 m East of Column Centre				
Middle ½ of Column Strip @ C4	T10@200 + T12@300	770 mm² >	631 mm²	OK
Outer ½ of Column Strip	T10@200 + T12@300	770 mm² >	473 mm²	OK

Architects	**Project Title**		**Revisions**	Scale
Badmaal Somali Sustainable Fisheries Development Project	**Somali Sustainable Fisheries Development Project (BADMAAL)**		No. | Description | Date	**1:25**
	Client			Date
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.	**12-03-2026**
				Drawn By: **J.A. Sciortino**

Drawing No. & Title		
JAZEERA	**Preliminary Calculations**	
Sheet No.		
A1		**Project No:** P178032
Designed By: **Mohamed Abdi Ahmed Saahid**		Approved By.

East-West Bottom Steel Table

East-West Bottom Steel in Panel C2-C3-Node 9-Node 8 - Level 1

From 1.000 North to 1.250 m South of grid line C	T10@200	393 mm² >	260 mm²	OK
From 1.250 to 3.750 m North of grid line B	T10@200	393 mm² >	260 mm²	OK
From 1.250 North to 1.250 m South of grid line B	T10@200	393 mm² >	263 mm²	OK
From 1.250 to 3.750 m North of member 3	T10@200	393 mm² >	260 mm²	OK
From 1.250 North to 1.000 m South of member 3	T10@200	393 mm² >	260 mm²	OK

East-West Bottom Steel Table

East-West Bottom Steel in Panel C3-C4-A4-Node 9 - Level 1

From 1.000 North to 1.250 m South of grid line C	T10@200	393 mm² >	260 mm²	OK
From 1.250 to 3.750 m North of grid line B	T10@200	393 mm² >	260 mm²	OK
From 1.250 North to 1.250 m South of grid line B	T10@200	393 mm² >	296 mm²	OK
From 1.250 to 3.750 m North of member 4	T10@200	393 mm² >	260 mm²	OK
From 1.250 North to 1.000 m South of member 4	T10@200	393 mm² >	260 mm²	OK

North-South Bottom Steel Table

North-South Bottom Steel in Panel Node 6-Node 16-B4-A4 - Level 1

From 1.000 West to 1.250 m East of member 13	T10@200	393 mm² >	267 mm²	OK
From 1.250 to 3.750 m East of member 13	T10@200	393 mm² >	260 mm²	OK
From 1.250 West to 1.250 m East of grid line 1	T10@200	393 mm² >	315 mm²	OK
From 1.250 to 3.750 m East of grid line 1	T10@200	393 mm² >	260 mm²	OK
From 1.250 West to 1.250 m East of grid line 2	T10@200	393 mm² >	315 mm²	OK
From 1.250 to 3.750 m East of grid line 2	T10@200	393 mm² >	260 mm²	OK
From 1.250 West to 1.250 m East of grid line 3	T10@200	393 mm² >	315 mm²	OK
From 1.250 to 3.750 m East of grid line 3	T10@200	393 mm² >	260 mm²	OK
From 1.250 West to 1.000 m East of grid line 4	T10@200	393 mm² >	267 mm²	OK

North-South Bottom Steel Table

North-South Bottom Steel in Panel Node 16-Node 26-C4-B4 - Level 1

From 1.000 West to 1.250 m East of member 18	T10@200	393 mm² >	267 mm²	OK
From 1.250 to 3.750 m East of member 18	T10@200	393 mm² >	260 mm²	OK
From 1.250 West to 1.250 m East of grid line 1	T10@200	393 mm² >	315 mm²	OK
From 1.250 to 3.750 m East of grid line 1	T10@200	393 mm² >	260 mm²	OK
From 1.250 West to 1.250 m East of grid line 2	T10@200	393 mm² >	315 mm²	OK

MasterFrame : Flat Slab
Design Moments

Member Number	Elastic Moments End 1	Elastic Moments End 2	Effective Column Head End 1	Effective Column Head End 2	Limiting Moment	Reduced Moments End 1	Reduced Moments End 2	Positive Moment
1	87.09	107.30	0.508	0.508	132.17	64.54	83.12	58.34
2	102.58	100.81	0.508	0.508	132.17	77.52	75.90	55.46
3	100.81	102.59	0.508	0.508	132.17	75.89	77.52	55.46
4	107.30	87.10	0.508	0.508	132.17	83.11	64.55	58.34
5	98.66	156.34	0.508	0.508	183.60	62.34	114.39	95.24
6	146.67	138.06	0.508	0.508	183.60	105.49	97.75	84.72
7	138.06	146.68	0.508	0.508	183.60	97.75	105.49	84.72
8	156.34	98.67	0.508	0.508	183.60	114.38	62.34	95.24
9	87.09	107.30	0.508	0.508	132.17	64.54	83.12	58.34
10	102.58	100.81	0.508	0.508	132.17	77.52	75.90	55.46
11	100.81	102.59	0.508	0.508	132.17	75.89	77.52	55.46
12	107.30	87.10	0.508	0.508	132.17	83.11	64.55	58.34
13	86.77	108.37	0.508	0.508	132.17	64.14	83.98	58.11
14	97.23	161.52	0.508	0.508	183.60	60.46	118.35	94.19
15	97.27	161.49	0.508	0.508	183.60	60.47	118.28	94.23
16	97.23	161.52	0.508	0.508	183.60	60.46	118.35	94.19
17	86.77	108.37	0.508	0.508	132.17	64.14	83.98	58.11
18	108.37	86.78	0.508	0.508	132.17	83.97	64.14	58.11
19	161.52	97.23	0.508	0.508	183.60	118.35	60.47	94.19
20	161.48	97.27	0.508	0.508	183.60	118.28	60.47	94.23
21	161.52	97.23	0.508	0.508	183.60	118.35	60.47	94.19
22	108.37	86.78	0.508	0.508	132.17	83.97	64.14	58.11

East-West Bottom Steel Table

East-West Bottom Steel in Panel Node 26-C1-Node 7-Node 6 - Level 1

From 1.000 North to 1.250 m South of grid line C	T10@200	393 mm² >	260 mm²	OK
From 1.250 to 3.750 m North of grid line B	T10@200	393 mm² >	260 mm²	OK
From 1.250 North to 1.250 m South of grid line B	T10@200	393 mm² >	296 mm²	OK
From 1.250 to 3.750 m North of member 1	T10@200	393 mm² >	260 mm²	OK
From 1.250 North to 1.000 m South of member 1	T10@200	393 mm² >	260 mm²	OK

East-West Bottom Steel Table

East-West Bottom Steel in Panel C1-C2-Node 8-Node 7 - Level 1

From 1.000 North to 1.250 m South of grid line C	T10@200	393 mm² >	260 mm²	OK
From 1.250 to 3.750 m North of grid line B	T10@200	393 mm² >	260 mm²	OK
From 1.250 North to 1.250 m South of grid line B	T10@200	393 mm² >	263 mm²	OK
From 1.250 to 3.750 m North of member 2	T10@200	393 mm² >	260 mm²	OK
From 1.250 North to 1.000 m South of member 2	T10@200	393 mm² >	260 mm²	OK

Architects

Badmaal
Somali Sustainable Fisheries Development Project

Project Title

Somali Sustainable Fisheries Development Project (BADMAAL)

Client

Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia

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Revisions

No.	Description	Date

NB:
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2. The contractor must check and verify all levels and dimensions before commencing any work.

Scale	Drawing No. & Title	
1:25	JAZEERA Preliminary Detailed Calculations	
Date	Sheet No.	
12-03-2026	A1	Project No: P178032
Drawn By	Designed By	Approved By.
J.A. Sciortino	Mohamed Abdi Ahmed Saahid	

From 1.250 to 3.750 m along Member 20 (B2-C2)	T10@200	393 mm² >	260 mm²	OK
From 1.250 North to 1.250 m South of Column Centre				
Middle ½ of Column Strip @ B2	T10@200 + T12@300	770 mm² >	556 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	278 mm²	OK
From 1.250 to 3.750 m along Member 15	T10@200	393 mm² >	260 mm²	OK
From 1.250 North to 0.225 m South of Column Centre				
Middle ½ of Column Strip @ Node 8	T10@200 + T12@300	770 mm² >	693 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	347 mm²	OK

East-West Top Steel Table

East-West Top Steel along Grid Line C3-Node 9 - Level 1

From 0.225 North to 1.250 m South of Column Centre				
Middle ½ of Column Strip @ C3	T10@200 + T12@300	770 mm² >	759 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	379 mm²	OK
From 1.250 to 3.750 m along Member 21 (B3-C3)	T10@200	393 mm² >	260 mm²	OK
From 1.250 North to 1.250 m South of Column Centre				
Middle ½ of Column Strip @ B3	T10@200 + T12@300	770 mm² >	651 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	325 mm²	OK
From 1.250 to 3.750 m along Member 16	T10@200	393 mm² >	260 mm²	OK
From 1.250 North to 0.225 m South of Column Centre				
Middle ½ of Column Strip @ Node 9	T10@200 + T12@300	770 mm² >	759 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	379 mm²	OK

East-West Top Steel Table

East-West Top Steel along Grid Line C4-A4 - Level 1

From 0.225 North to 1.250 m South of Column Centre				
Middle ½ of Column Strip @ C4	T10@200 + T12@300	770 mm² >	589 mm²	OK
Outer ½ of Column Strip	T10@200 + T12@300	770 mm² >	442 mm²	OK
From 0.838 to 4.163 m along Member 22 (B4-C4)	T10@200	393 mm² >	261 mm²	OK
From 0.838 North to 0.838 m South of Column Centre				
Middle ½ of Column Strip @ B4	T10@200 + T12@300	770 mm² >	471 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	353 mm²	OK
From 0.838 to 4.163 m along Member 17 (A4-B4)	T10@200	393 mm² >	261 mm²	OK
From 1.250 North to 0.225 m South of Column Centre				
Middle ½ of Column Strip @ A4	T10@200 + T12@300	770 mm² >	589 mm²	OK
Outer ½ of Column Strip	T10@200 + T12@300	770 mm² >	442 mm²	OK

From 1.250 to 3.750 m East of grid line 2	T10@200	393 mm² >	260 mm²	OK
From 1.250 West to 1.250 m East of grid line 3	T10@200	393 mm² >	315 mm²	OK
From 1.250 to 3.750 m East of grid line 3	T10@200	393 mm² >	260 mm²	OK
From 1.250 West to 1.000 m East of grid line 4	T10@200	393 mm² >	267 mm²	OK

East-West Top Steel Table

East-West Top Steel along Grid Line Node 26-Node 6 - Level 1

From 0.225 North to 1.250 m South of Column Centre				
Middle ½ of Column Strip @ Node 26	T10@200 + T12@300	770 mm² >	589 mm²	OK
Outer ½ of Column Strip	T10@200 + T12@300	770 mm² >	442 mm²	OK
From 0.838 to 4.163 m along Member 18	T10@200	393 mm² >	261 mm²	OK
From 0.838 North to 0.838 m South of Column Centre				
Middle ½ of Column Strip @ Node 16	T10@200 + T12@300	770 mm² >	471 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	353 mm²	OK
From 0.838 to 4.163 m along Member 13	T10@200	393 mm² >	261 mm²	OK
From 1.250 North to 0.225 m South of Column Centre				
Middle ½ of Column Strip @ Node 6	T10@200 + T12@300	770 mm² >	589 mm²	OK
Outer ½ of Column Strip	T10@200 + T12@300	770 mm² >	442 mm²	OK

East-West Top Steel Table

East-West Top Steel along Grid Line C1-Node 7 - Level 1

From 0.225 North to 1.250 m South of Column Centre				
Middle ½ of Column Strip @ C1	T10@200 + T12@300	770 mm² >	759 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	379 mm²	OK
From 1.250 to 3.750 m along Member 19 (B1-C1)	T10@200	393 mm² >	260 mm²	OK
From 1.250 North to 1.250 m South of Column Centre				
Middle ½ of Column Strip @ B1	T10@200 + T12@300	770 mm² >	651 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	325 mm²	OK
From 1.250 to 3.750 m along Member 14	T10@200	393 mm² >	260 mm²	OK
From 1.250 North to 0.225 m South of Column Centre				
Middle ½ of Column Strip @ Node 7	T10@200 + T12@300	770 mm² >	759 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	379 mm²	OK

East-West Top Steel Table

East-West Top Steel along Grid Line C2-Node 8 - Level 1

From 0.225 North to 1.250 m South of Column Centre				
Middle ½ of Column Strip @ C2	T10@200 + T12@300	770 mm² >	693 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	347 mm²	OK

Architects	**Project Title**	**Revisions**	Scale
Badmaal Somali Sustainable Fisheries Development Project	**Somali Sustainable Fisheries Development Project (BADMAAL)**	No. / Description / Date	**1:25**
	Client		Date
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia		**12-03-2026**
			Drawn By
			J.A. Sciortino

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Drawing No. & Title		
JAZEERA	**Preliminary Detailed Calculations**	
Sheet No.		
A1		**Project No: P178032**
Designed By		Approved By.
Mohamed Abdi Ahmed Saahid		

From 1.250 West to 0.225 m East of Column Centre				
Middle ½ of Column Strip @ B4	T10@200 + T12@250	845 mm² >	831 mm²	OK
Outer ½ of Column Strip	T10@200 + T12@300	770 mm² >	415 mm²	OK

North-South Top Steel Table

North-South Top Steel along Grid Line Node 26-C4 - Level 1

From 0.225 West to 1.250 m East of Column Centre				
Middle ½ of Column Strip @ Node 26	T10@200 + T12@300	770 mm² >	631 mm²	OK
Outer ½ of Column Strip	T10@200 + T12@300	770 mm² >	473 mm²	OK
From 0.838 to 4.163 m along Member 9	T10@200	393 mm² >	279 mm²	OK
From 0.838 West to 0.838 m East of Column Centre				
Middle ½ of Column Strip @ C1	T10@200 + T12@300	770 mm² >	492 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	369 mm²	OK
From 0.838 to 4.163 m along Member 10 (C1-C2)	T10@200	393 mm² >	260 mm²	OK
From 0.838 West to 0.838 m East of Column Centre				
Middle ½ of Column Strip @ C2	T10@200 + T12@300	770 mm² >	492 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	369 mm²	OK
From 0.838 to 4.163 m along Member 11 (C2-C3)	T10@200	393 mm² >	260 mm²	OK
From 0.838 West to 0.838 m East of Column Centre				
Middle ½ of Column Strip @ C3	T10@200 + T12@300	770 mm² >	492 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	369 mm²	OK
From 0.838 to 4.162 m along Member 12 (C3-C4)	T10@200	393 mm² >	279 mm²	OK
From 1.250 West to 0.225 m East of Column Centre				
Middle ½ of Column Strip @ C4	T10@200 + T12@300	770 mm² >	631 mm²	OK
Outer ½ of Column Strip	T10@200 + T12@300	770 mm² >	473 mm²	OK

Steel Design In the Region of East-West Member 1 @ Level 1

East-West Column Strip Along Member 1 @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 3.5 m	2.250 m	
Column Strip Moment	0.9x58.342/3.500+0.1x58.342/2.250	17.595 kN.m/m	
Design for Column Strip Positive Moment along Member 1 @ Level 1			
Area Covered	From 1.250 North to 1.000 m South of member 1	2.250 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 17.595, h 200, d 170, fcu 35, fy 460, x/d 0.05	260 mm²	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15	OK

North-South Middle Strip At Right Angle to Member 1 @ Level 1 (Top Steel)

Column Strip Width @ Node 6	Panel Width 3.5 m (Full 86.774 kN.m)	1.675 m
Middle Strip Moment	1.000x64.139/3.500	18.325 kN.m/m

North-South Top Steel Table

North-South Top Steel along Grid Line Node 6-A4 - Level 1

From 0.225 West to 1.250 m East of Column Centre				
Middle ½ of Column Strip @ Node 6	T10@200 + T12@300	770 mm² >	631 mm²	OK
Outer ½ of Column Strip	T10@200 + T12@300	770 mm² >	473 mm²	OK
From 0.838 to 4.163 m along Member 1	T10@200	393 mm² >	279 mm²	OK
From 0.838 West to 0.838 m East of Column Centre				
Middle ½ of Column Strip @ Node 7	T10@200 + T12@300	770 mm² >	492 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	369 mm²	OK
From 0.838 to 4.163 m along Member 2	T10@200	393 mm² >	260 mm²	OK
From 0.838 West to 0.838 m East of Column Centre				
Middle ½ of Column Strip @ Node 8	T10@200 + T12@300	770 mm² >	492 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	369 mm²	OK
From 0.838 to 4.163 m along Member 3	T10@200	393 mm² >	260 mm²	OK
From 0.838 West to 0.838 m East of Column Centre				
Middle ½ of Column Strip @ Node 9	T10@200 + T12@300	770 mm² >	492 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	369 mm²	OK
From 0.838 to 4.162 m along Member 4	T10@200	393 mm² >	279 mm²	OK
From 1.250 West to 0.225 m East of Column Centre				
Middle ½ of Column Strip @ A4	T10@200 + T12@300	770 mm² >	631 mm²	OK
Outer ½ of Column Strip	T10@200 + T12@300	770 mm² >	473 mm²	OK

North-South Top Steel Table

North-South Top Steel along Grid Line Node 16-B4 - Level 1

From 0.225 West to 1.250 m East of Column Centre				
Middle ½ of Column Strip @ Node 16	T10@200 + T12@250	845 mm² >	831 mm²	OK
Outer ½ of Column Strip	T10@200 + T12@300	770 mm² >	415 mm²	OK
From 1.250 to 3.750 m along Member 5	T10@200	393 mm² >	260 mm²	OK
From 1.250 West to 1.250 m East of Column Centre				
Middle ½ of Column Strip @ B1	T10@200 + T12@300	770 mm² >	724 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	362 mm²	OK
From 1.250 to 3.750 m along Member 6 (B1-B2)	T10@200	393 mm² >	260 mm²	OK
From 1.250 West to 1.250 m East of Column Centre				
Middle ½ of Column Strip @ B2	T10@200 + T12@300	770 mm² >	724 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	362 mm²	OK
From 1.250 to 3.750 m along Member 7 (B2-B3)	T10@200	393 mm² >	260 mm²	OK
From 1.250 West to 1.250 m East of Column Centre				
Middle ½ of Column Strip @ B3	T10@200 + T12@300	770 mm² >	724 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	362 mm²	OK
From 1.250 to 3.750 m along Member 8 (B3-B4)	T10@200	393 mm² >	260 mm²	OK

Architects	Project Title		Revisions	Scale	Drawing No. & Title
Badmaal Somali Sustainable Fisheries Development Project	Somali Sustainable Fisheries Development Project (BADMAAL)	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	No. / Description / Date	1:25	JAZEERA Preliminary Detailed Calculations
	Client			Date	Sheet No.
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia		NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.	12-03-2026	A1 Project No: P178032
				Drawn By: J.A. Sciortino	Designed By: Mohamed Abdi Ahmed Saahid / Approved By.

Middle Strip Moment	0.9x55.464/3.500	14.262 kN.m/m	
Middle Strip Width for Member 6	Panel Width 5 m	2.500 m	
Column Strip Moment	0.9x84.719/5.000	15.249 kN.m/m	
Design for Middle Strip Positive Moment North of Member 2			
Area Covered	From 1.250 to 3.750 m North of member 2	2.500 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 15.249, h 200, d 170, fcu 35, fy 460, x/d 0.04	260 mm²	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15	OK

Steel Design In the Region of East-West Member 3 @ Level 1

East-West Column Strip Along Member 3 @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 3.5 m	2.250 m	
Column Strip Moment	0.9x55.464/3.500+0.1x55.464/2.250	16.727 kN.m/m	
Design for Column Strip Positive Moment along Member 3 @ Level 1			
Area Covered	From 1.250 North to 1.000 m South of member 3	2.250 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 16.727, h 200, d 170, fcu 35, fy 460, x/d 0.04	260 mm²	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15	OK

North-South Middle Strip At Right Angle to Member 3 @ Level 1 (Top Steel)

Column Strip Width @ Node 8	Panel Width 5 m (Full 97.27 kN.m)	1.675 m	
Middle Strip Moment	1.000x60.471/5.000	12.094 kN.m/m	
Column Strip Width @ Node 9	Panel Width 5 m (Full 97.227 kN.m)	1.675 m	
Middle Strip Moment	1.000x60.464/5.000	12.093 kN.m/m	
Design for Negative Moment Over Support Member 3			
Area Covered	From 0.838 to 4.163 m along Member 3	3.325 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 12.094, h 200, d 158, fcu 35, fy 460, x/d 0.04	260 mm²	OK

Middle Strip Between Members 3 and 7 (B2-B3) @ Level 1 (Bottom Steel)

Column Strip Width for Member 3	Panel Width 3.5 m	2.250 m	
Middle Strip Moment	0.9x55.464/3.500	14.262 kN.m/m	
Middle Strip Width for Member 7	Panel Width 5 m	2.500 m	
Column Strip Moment	0.9x84.719/5.000	15.249 kN.m/m	
Design for Middle Strip Positive Moment North of Member 3			
Area Covered	From 1.250 to 3.750 m North of member 3	2.500 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 15.249, h 200, d 170, fcu 35, fy 460, x/d 0.04	260 mm²	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15	OK

Column Strip Width @ Node 7	Panel Width 5 m (Full 97.227 kN.m)	1.675 m	
Middle Strip Moment	1.000x60.464/5.000	12.093 kN.m/m	
Design for Negative Moment Over Support Member 1			
Area Covered	From 0.838 to 4.163 m along Member 1	3.325 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 18.325, h 200, d 158, fcu 35, fy 460, x/d 0.06	279 mm²	OK

Middle Strip Between Members 1 and 5 @ Level 1 (Bottom Steel)

Column Strip Width for Member 1	Panel Width 3.5 m	2.250 m	
Middle Strip Moment	0.9x58.342/3.500	15.002 kN.m/m	
Middle Strip Width for Member 5	Panel Width 5 m	2.500 m	
Column Strip Moment	0.9x95.238/5.000	17.143 kN.m/m	
Design for Middle Strip Positive Moment North of Member 1			
Area Covered	From 1.250 to 3.750 m North of member 1	2.500 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 17.143, h 200, d 170, fcu 35, fy 460, x/d 0.05	260 mm²	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15	OK

Steel Design In the Region of East-West Member 2 @ Level 1

East-West Column Strip Along Member 2 @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 3.5 m	2.250 m	
Column Strip Moment	0.9x55.464/3.500+0.1x55.464/2.250	16.727 kN.m/m	
Design for Column Strip Positive Moment along Member 2 @ Level 1			
Area Covered	From 1.250 North to 1.000 m South of member 2	2.250 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 16.727, h 200, d 170, fcu 35, fy 460, x/d 0.04	260 mm²	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15	OK

North-South Middle Strip At Right Angle to Member 2 @ Level 1 (Top Steel)

Column Strip Width @ Node 7	Panel Width 5 m (Full 97.227 kN.m)	1.675 m	
Middle Strip Moment	1.000x60.464/5.000	12.093 kN.m/m	
Column Strip Width @ Node 8	Panel Width 5 m (Full 97.27 kN.m)	1.675 m	
Middle Strip Moment	1.000x60.471/5.000	12.094 kN.m/m	
Design for Negative Moment Over Support Member 2			
Area Covered	From 0.838 to 4.163 m along Member 2	3.325 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 12.094, h 200, d 158, fcu 35, fy 460, x/d 0.04	260 mm²	OK

Middle Strip Between Members 2 and 6 (B1-B2) @ Level 1 (Bottom Steel)

Column Strip Width for Member 2	Panel Width 3.5 m	2.250 m

Architects	Project Title		Revisions			Scale	Drawing No. & Title	
Badmaal Somali Sustainable Fisheries Development Project	Somali Sustainable Fisheries Development Project (BADMAAL)	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	No.	Description	Date	1:25	JAZEERA Preliminary Detailed Calculations	
	Client					Date	Sheet No.	
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia					12-03-2026	A1	Project No: P178032
			NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.			Drawn By	Designed By	Approved By.
						J.A. Sciortino	Mohamed Abdi Ahmed Saahid	

North-South Middle Strip At Right Angle to Member 5 @ Level 1 (Top Steel)

Column Strip Width @ Node 16	Panel Width 3.5 m (Full 108.37 kN.m)	2.250 m	
Middle Strip Moment	0.500x83.976/3.500	11.997 kN.m/m	
Column Strip Width @ B1	Panel Width 5 m (Full 161.52 kN.m)	2.500 m	
Middle Strip Moment	0.500x118.35/5.000	11.835 kN.m/m	
Design for Negative Moment Over Support Member 5			
Area Covered	From 1.250 to 3.750 m along Member 5	2.500 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 11.997, h 200, d 158, fcu 35, fy 460, x/d 0.04	260 mm²	OK

Middle Strip Between Members 5 and 9 @ Level 1 (Bottom Steel)

Column Strip Width for Member 5	Panel Width 5 m	2.500 m	
Middle Strip Moment	0.9x95.238/5.000	17.143 kN.m/m	
Middle Strip Width for Member 9	Panel Width 3.5 m	2.250 m	
Column Strip Moment	0.9x58.342/3.500	15.002 kN.m/m	
Design for Middle Strip Positive Moment North of Member 5			
Area Covered	From 1.250 to 3.750 m North of grid line B	2.500 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 17.143, h 200, d 170, fcu 35, fy 460, x/d 0.05	260 mm²	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15	OK

Steel Design In the Region of East-West Member 6 (B1-B2) @ Level 1

East-West Column Strip Along Member 6 (B1-B2) @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 5 m	2.500 m	
Column Strip Moment	0.9x84.719/5.000+0.1x84.719/2.500	18.638 kN.m/m	
Design for Column Strip Positive Moment along Member 6 (B1-B2) @ Level 1			
Area Covered	From 1.250 North to 1.250 m South of grid line B	2.500 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 18.638, h 200, d 170, fcu 35, fy 460, x/d 0.05	263 mm²	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15	OK

North-South Middle Strip At Right Angle to Member 6 (B1-B2) @ Level 1 (Top Steel)

Column Strip Width @ B1	Panel Width 5 m (Full 161.52 kN.m)	2.500 m	
Middle Strip Moment	0.500x118.35/5.000	11.835 kN.m/m	
Column Strip Width @ B2	Panel Width 5 m (Full 161.49 kN.m)	2.500 m	
Middle Strip Moment	0.500x118.28/5.000	11.828 kN.m/m	
Design for Negative Moment Over Support Member 6			
Area Covered	From 1.250 to 3.750 m along Member 6 (B1-B2)	2.500 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 11.835, h 200, d 158, fcu 35, fy 460, x/d 0.04	260 mm²	OK

Steel Design In the Region of East-West Member 4 @ Level 1

East-West Column Strip Along Member 4 @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 3.5 m	2.250 m	
Column Strip Moment	0.9x58.342/3.500+0.1x58.342/2.250	17.595 kN.m/m	
Design for Column Strip Positive Moment along Member 4 @ Level 1			
Area Covered	From 1.250 North to 1.000 m South of member 4	2.250 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 17.595, h 200, d 170, fcu 35, fy 460, x/d 0.05	260 mm²	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15	OK

North-South Middle Strip At Right Angle to Member 4 @ Level 1 (Top Steel)

Column Strip Width @ Node 9	Panel Width 5 m (Full 97.227 kN.m)	1.675 m	
Middle Strip Moment	1.000x60.464/5.000	12.093 kN.m/m	
Column Strip Width @ A4	Panel Width 3.5 m (Full 86.774 kN.m)	1.675 m	
Middle Strip Moment	1.000x64.139/3.500	18.326 kN.m/m	
Design for Negative Moment Over Support Member 4			
Area Covered	From 0.838 to 4.162 m along Member 4	3.325 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 18.326, h 200, d 158, fcu 35, fy 460, x/d 0.06	279 mm²	OK

Middle Strip Between Members 4 and 8 (B3-B4) @ Level 1 (Bottom Steel)

Column Strip Width for Member 4	Panel Width 3.5 m	2.250 m	
Middle Strip Moment	0.9x58.342/3.500	15.002 kN.m/m	
Middle Strip Width for Member 8	Panel Width 5 m	2.500 m	
Column Strip Moment	0.9x95.238/5.000	17.143 kN.m/m	
Design for Middle Strip Positive Moment North of Member 4			
Area Covered	From 1.250 to 3.750 m North of member 4	2.500 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 17.143, h 200, d 170, fcu 35, fy 460, x/d 0.05	260 mm²	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15	OK

Steel Design In the Region of East-West Member 5 @ Level 1

East-West Column Strip Along Member 5 @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 5 m	2.500 m	
Column Strip Moment	0.9x95.238/5.000+0.1x95.238/2.500	20.952 kN.m/m	
Design for Column Strip Positive Moment along Member 5 @ Level 1			
Area Covered	From 1.250 North to 1.250 m South of grid line B	2.500 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 20.952, h 200, d 170, fcu 35, fy 460, x/d 0.06	296 mm²	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x1.81x1.07	45.42	OK

Architects	Project Title		Revisions			Scale	Drawing No. & Title	
Badmaal Somali Sustainable Fisheries Development Project	Somali Sustainable Fisheries Development Project (BADMAAL)		No.	Description	Date	1:25	JAZEERA Preliminary Detailed Calculations	
	Client					Date	Sheet No.	
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.			12-03-2026	A1	Project No: P178032
						Drawn By	Designed By	Approved By.
						J.A. Sciortino	Mohamed Abdi Ahmed Saahid	

Steel Required	M 15.249, h 200, d 170, fcu 35, fy 460, x/d 0.04	260 mm²	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15	OK

Steel Design In the Region of East-West Member 8 (B3-B4) @ Level 1

East-West Column Strip Along Member 8 (B3-B4) @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 5 m	2.500 m	
Column Strip Moment	0.9x95.238/5.000+0.1x95.238/2.500	20.952 kN.m/m	
Design for Column Strip Positive Moment along Member 8 (B3-B4) @ Level 1			
Area Covered	From 1.250 North to 1.250 m South of grid line B	2.500 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 20.952, h 200, d 170, fcu 35, fy 460, x/d 0.06	296 mm²	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x1.81x1.07	45.42	OK

North-South Middle Strip At Right Angle to Member 8 (B3-B4) @ Level 1 (Top Steel)

Column Strip Width @ B3	Panel Width 5 m (Full 161.52 kN.m)	2.500 m	
Middle Strip Moment	0.500x118.35/5.000	11.835 kN.m/m	
Column Strip Width @ B4	Panel Width 3.5 m (Full 108.37 kN.m)	2.250 m	
Middle Strip Moment	0.500x83.976/3.500	11.997 kN.m/m	
Design for Negative Moment Over Support Member 8			
Area Covered	From 1.250 to 3.750 m along Member 8 (B3-B4)	2.500 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 11.997, h 200, d 158, fcu 35, fy 460, x/d 0.04	260 mm²	OK

Middle Strip Between Members 8 (B3-B4) and 12 (C3-C4) @ Level 1 (Bottom Steel)

Column Strip Width for Member 8	Panel Width 5 m	2.500 m	
Middle Strip Moment	0.9x95.238/5.000	17.143 kN.m/m	
Middle Strip Width for Member 12	Panel Width 3.5 m	2.250 m	
Column Strip Moment	0.9x58.342/3.500	15.002 kN.m/m	
Design for Middle Strip Positive Moment North of Member 8			
Area Covered	From 1.250 to 3.750 m North of grid line B	2.500 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 17.143, h 200, d 170, fcu 35, fy 460, x/d 0.05	260 mm²	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15	OK

Steel Design In the Region of East-West Member 9 @ Level 1

East-West Column Strip Along Member 9 @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 3.5 m	2.250 m	
Column Strip Moment	0.9x58.342/3.500+0.1x58.342/2.250	17.595 kN.m/m	
Design for Column Strip Positive Moment along Member 9 @ Level 1			

Middle Strip Between Members 6 (B1-B2) and 10 (C1-C2) @ Level 1 (Bottom Steel)

Column Strip Width for Member 6	Panel Width 5 m	2.500 m	
Middle Strip Moment	0.9x84.719/5.000	15.249 kN.m/m	
Middle Strip Width for Member 10	Panel Width 3.5 m	2.250 m	
Column Strip Moment	0.9x55.464/3.500	14.262 kN.m/m	
Design for Middle Strip Positive Moment North of Member 6			
Area Covered	From 1.250 to 3.750 m North of grid line B	2.500 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 15.249, h 200, d 170, fcu 35, fy 460, x/d 0.04	260 mm²	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15	OK

Steel Design In the Region of East-West Member 7 (B2-B3) @ Level 1

East-West Column Strip Along Member 7 (B2-B3) @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 5 m	2.500 m	
Column Strip Moment	0.9x84.719/5.000+0.1x84.719/2.500	18.638 kN.m/m	
Design for Column Strip Positive Moment along Member 7 (B2-B3) @ Level 1			
Area Covered	From 1.250 North to 1.250 m South of grid line B	2.500 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 18.638, h 200, d 170, fcu 35, fy 460, x/d 0.05	263 mm²	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15	OK

North-South Middle Strip At Right Angle to Member 7 (B2-B3) @ Level 1 (Top Steel)

Column Strip Width @ B2	Panel Width 5 m (Full 161.49 kN.m)	2.500 m	
Middle Strip Moment	0.500x118.28/5.000	11.828 kN.m/m	
Column Strip Width @ B3	Panel Width 5 m (Full 161.52 kN.m)	2.500 m	
Middle Strip Moment	0.500x118.35/5.000	11.835 kN.m/m	
Design for Negative Moment Over Support Member 7			
Area Covered	From 1.250 to 3.750 m along Member 7 (B2-B3)	2.500 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 11.835, h 200, d 158, fcu 35, fy 460, x/d 0.04	260 mm²	OK

Middle Strip Between Members 7 (B2-B3) and 11 (C2-C3) @ Level 1 (Bottom Steel)

Column Strip Width for Member 7	Panel Width 5 m	2.500 m	
Middle Strip Moment	0.9x84.719/5.000	15.249 kN.m/m	
Middle Strip Width for Member 11	Panel Width 3.5 m	2.250 m	
Column Strip Moment	0.9x55.464/3.500	14.262 kN.m/m	
Design for Middle Strip Positive Moment North of Member 7			
Area Covered	From 1.250 to 3.750 m North of grid line B	2.500 m	
Steel Provided	T10@200	393 mm²	

Steel Design In the Region of East-West Member 11 (C2-C3) @ Level 1

East-West Column Strip Along Member 11 (C2-C3) @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 3.5 m	2.250 m	
Column Strip Moment	0.9x55.464/3.500+0.1x55.464/2.250	16.727 kN.m/m	
Design for Column Strip Positive Moment along Member 11 (C2-C3) @ Level 1			
Area Covered	From 1.000 North to 1.250 m South of grid line C	2.250 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 16.727, h 200, d 170, fcu 35, fy 460, x/d 0.04	260 mm²	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15	OK

North-South Middle Strip At Right Angle to Member 11 (C2-C3) @ Level 1 (Top Steel)

Column Strip Width @ C2	Panel Width 5 m (Full 97.27 kN.m)	1.675 m	
Middle Strip Moment	1.000x60.473/5.000	12.095 kN.m/m	
Column Strip Width @ C3	Panel Width 5 m (Full 97.228 kN.m)	1.675 m	
Middle Strip Moment	1.000x60.466/5.000	12.093 kN.m/m	
Design for Negative Moment Over Support Member 11			
Area Covered	From 0.838 to 4.163 m along Member 11 (C2-C3)	3.325 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 12.095, h 200, d 158, fcu 35, fy 460, x/d 0.04	260 mm²	OK

Steel Design In the Region of East-West Member 12 (C3-C4) @ Level 1

East-West Column Strip Along Member 12 (C3-C4) @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 3.5 m	2.250 m	
Column Strip Moment	0.9x58.342/3.500+0.1x58.342/2.250	17.595 kN.m/m	
Design for Column Strip Positive Moment along Member 12 (C3-C4) @ Level 1			
Area Covered	From 1.000 North to 1.250 m South of grid line C	2.250 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 17.595, h 200, d 170, fcu 35, fy 460, x/d 0.05	260 mm²	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15	OK

North-South Middle Strip At Right Angle to Member 12 (C3-C4) @ Level 1 (Top Steel)

Column Strip Width @ C3	Panel Width 5 m (Full 97.228 kN.m)	1.675 m	
Middle Strip Moment	1.000x60.466/5.000	12.093 kN.m/m	
Column Strip Width @ C4	Panel Width 3.5 m (Full 86.778 kN.m)	1.675 m	
Middle Strip Moment	1.000x64.142/3.500	18.326 kN.m/m	
Design for Negative Moment Over Support Member 12			
Area Covered	From 0.838 to 4.162 m along Member 12 (C3-C4)	3.325 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 18.326, h 200, d 158, fcu 35, fy 460, x/d 0.06	279 mm²	OK
Area Covered	From 1.000 North to 1.250 m South of grid line C	2.250 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 17.595, h 200, d 170, fcu 35, fy 460, x/d 0.05	260 mm²	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15	OK

North-South Middle Strip At Right Angle to Member 9 @ Level 1 (Top Steel)

Column Strip Width @ Node 26	Panel Width 3.5 m (Full 86.78 kN.m)	1.675 m	
Middle Strip Moment	1.000x64.143/3.500	18.326 kN.m/m	
Column Strip Width @ C1	Panel Width 5 m (Full 97.228 kN.m)	1.675 m	
Middle Strip Moment	1.000x60.466/5.000	12.093 kN.m/m	
Design for Negative Moment Over Support Member 9			
Area Covered	From 0.838 to 4.163 m along Member 9	3.325 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 18.326, h 200, d 158, fcu 35, fy 460, x/d 0.06	279 mm²	OK

Steel Design In the Region of East-West Member 10 (C1-C2) @ Level 1

East-West Column Strip Along Member 10 (C1-C2) @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 3.5 m	2.250 m	
Column Strip Moment	0.9x55.464/3.500+0.1x55.464/2.250	16.727 kN.m/m	
Design for Column Strip Positive Moment along Member 10 (C1-C2) @ Level 1			
Area Covered	From 1.000 North to 1.250 m South of grid line C	2.250 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 16.727, h 200, d 170, fcu 35, fy 460, x/d 0.04	260 mm²	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15	OK

North-South Middle Strip At Right Angle to Member 10 (C1-C2) @ Level 1 (Top Steel)

Column Strip Width @ C1	Panel Width 5 m (Full 97.228 kN.m)	1.675 m	
Middle Strip Moment	1.000x60.466/5.000	12.093 kN.m/m	
Column Strip Width @ C2	Panel Width 5 m (Full 97.27 kN.m)	1.675 m	
Middle Strip Moment	1.000x60.473/5.000	12.095 kN.m/m	
Design for Negative Moment Over Support Member 10			
Area Covered	From 0.838 to 4.163 m along Member 10 (C1-C2)	3.325 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 12.095, h 200, d 158, fcu 35, fy 460, x/d 0.04	260 mm²	OK

Architects	**Project Title**		**Revisions**	Scale
Badmaal Somali Sustainable Fisheries Development Project	**Somali Sustainable Fisheries Development Project (BADMAAL)**	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	No. / Description / Date	**1:25**
	Client			Date
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia		NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.	**12-03-2026**
				Drawn By: **J.A. Sciortino**

Drawing No. & Title		
JAZEERA	**Preliminary Detailed Calculations**	
Sheet No.		
A1	**Project No:** P178032	
Designed By: **Mohamed Abdi Ahmed Saahid**	Approved By.	

Steel Design In the Region of North-South Member 13 @ Level 1

North-South Column Strip Along Member 13 @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 3.5 m	2.250 m	
Column Strip Moment	0.9x58.114/3.500+0.1x58.114/2.250	17.526 kN.m/m	
Design for Column Strip Positive Moment along Member 13 @ Level 1			
Area Covered	From 1.000 West to 1.250 m East of member 13	2.250 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 17.526, h 200, d 158, fcu 35, fy 460, x/d 0.05	267 mm²	OK
Span/effective depth ratio	Actual=5000/158=31.65, Allowed=26x0.90x1.95x1.08	49.06	OK

East-West Middle Strip At Right Angle to Member 13 @ Level 1 (Top Steel)

Column Strip Width @ Node 6	Panel Width 3.5 m (Full 87.094 kN.m)	1.675 m	
Middle Strip Moment	1.000x64.544/3.500	18.441 kN.m/m	
Column Strip Width @ Node 16	Panel Width 5 m (Full 98.663 kN.m)	1.675 m	
Middle Strip Moment	1.000x62.339/5.000	12.468 kN.m/m	
Design for Negative Moment Over Support Member 13			
Area Covered	From 0.838 to 4.163 m along Member 13	3.325 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 18.441, h 200, d 170, fcu 35, fy 460, x/d 0.05	261 mm²	OK

Middle Strip Between Members 13 and 14 @ Level 1 (Bottom Steel)

Column Strip Width for Member 13	Panel Width 3.5 m	2.250 m	
Middle Strip Moment	0.9x58.114/3.500	14.944 kN.m/m	
Middle Strip Width for Member 14	Panel Width 5 m	2.500 m	
Column Strip Moment	0.9x94.194/5.000	16.955 kN.m/m	
Design for Middle Strip Positive Moment East of Member 13			
Area Covered	From 1.250 to 3.750 m East of member 13	2.500 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 16.955, h 200, d 158, fcu 35, fy 460, x/d 0.05	260 mm²	OK
Span/effective depth ratio	Actual=5000/158=31.65, Allowed=26x0.90x2.00x1.08	50.29	OK

Steel Design In the Region of North-South Member 14 @ Level 1

North-South Column Strip Along Member 14 @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 5 m	2.500 m	
Column Strip Moment	0.9x94.194/5.000+0.1x94.194/2.500	20.723 kN.m/m	
Design for Column Strip Positive Moment along Member 14 @ Level 1			
Area Covered	From 1.250 West to 1.250 m East of grid line 1	2.500 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 20.723, h 200, d 158, fcu 35, fy 460, x/d 0.06	315 mm²	OK
Span/effective depth ratio	Actual=5000/158=31.65, Allowed=26x0.90x1.66x1.08	41.91	OK

East-West Middle Strip At Right Angle to Member 14 @ Level 1 (Top Steel)

Column Strip Width @ Node 7	Panel Width 3.5 m (Full 107.3 kN.m)	2.250 m	
Middle Strip Moment	0.500x83.115/3.500	11.874 kN.m/m	
Column Strip Width @ B1	Panel Width 5 m (Full 156.34 kN.m)	2.500 m	
Middle Strip Moment	0.500x114.39/5.000	11.439 kN.m/m	
Design for Negative Moment Over Support Member 14			
Area Covered	From 1.250 to 3.750 m along Member 14	2.500 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 11.874, h 200, d 170, fcu 35, fy 460, x/d 0.03	260 mm²	OK

Middle Strip Between Members 14 and 15 @ Level 1 (Bottom Steel)

Column Strip Width for Member 14	Panel Width 5 m	2.500 m	
Middle Strip Moment	0.9x94.194/5.000	16.955 kN.m/m	
Middle Strip Width for Member 15	Panel Width 5 m	2.500 m	
Column Strip Moment	0.9x94.226/5.000	16.961 kN.m/m	
Design for Middle Strip Positive Moment East of Member 14			
Area Covered	From 1.250 to 3.750 m East of grid line 1	2.500 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 16.961, h 200, d 158, fcu 35, fy 460, x/d 0.05	260 mm²	OK
Span/effective depth ratio	Actual=5000/158=31.65, Allowed=26x0.90x2.00x1.08	50.29	OK

Steel Design In the Region of North-South Member 15 @ Level 1

North-South Column Strip Along Member 15 @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 5 m	2.500 m	
Column Strip Moment	0.9x94.226/5.000+0.1x94.226/2.500	20.730 kN.m/m	
Design for Column Strip Positive Moment along Member 15 @ Level 1			
Area Covered	From 1.250 West to 1.250 m East of grid line 2	2.500 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 20.73, h 200, d 158, fcu 35, fy 460, x/d 0.06	315 mm²	OK
Span/effective depth ratio	Actual=5000/158=31.65, Allowed=26x0.90x1.66x1.08	41.90	OK

East-West Middle Strip At Right Angle to Member 15 @ Level 1 (Top Steel)

Column Strip Width @ Node 8	Panel Width 3.5 m (Full 100.81 kN.m)	2.250 m	
Middle Strip Moment	0.500x75.897/3.500	10.842 kN.m/m	
Column Strip Width @ B2	Panel Width 5 m (Full 138.06 kN.m)	2.500 m	
Middle Strip Moment	0.500x97.75/5.000	9.775 kN.m/m	
Design for Negative Moment Over Support Member 15			
Area Covered	From 1.250 to 3.750 m along Member 15	2.500 m	
Steel Provided	T10@200	393 mm²	

Architects	Project Title		Revisions	Scale	Drawing No. & Title
Badmaal Somali Sustainable Fisheries Development Project	Somali Sustainable Fisheries Development Project (BADMAAL)	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	No. / Description / Date	1:25	JAZEERA Preliminary Detailed Calculations
	Client			Date	Sheet No.
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia		NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.	12-03-2026	A1 Project No: P178032
				Drawn By: J.A. Sciortino	Designed By: Mohamed Abdi Ahmed Saahid / Approved By.

Steel Required	M 10.842, h 200, d 170, fcu 35, fy 460, x/d 0.03	260 mm²	OK

Middle Strip Between Members 15 and 16 @ Level 1 (Bottom Steel)

Column Strip Width for Member 15	Panel Width 5 m	2.500 m	
Middle Strip Moment	0.9x94.226/5.000	16.961 kN.m/m	
Middle Strip Width for Member 16	Panel Width 5 m	2.500 m	
Column Strip Moment	0.9x94.194/5.000	16.955 kN.m/m	
Design for Middle Strip Positive Moment East of Member 15			
Area Covered	From 1.250 to 3.750 m East of grid line 2	2.500 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 16.961, h 200, d 158, fcu 35, fy 460, x/d 0.05	260 mm²	OK
Span/effective depth ratio	Actual=5000/158=31.65, Allowed=26x0.90x2.00x1.08	50.29	OK

Steel Design In the Region of North-South Member 16 @ Level 1

North-South Column Strip Along Member 16 @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 5 m	2.500 m	
Column Strip Moment	0.9x94.194/5.000+0.1x94.194/2.500	20.723 kN.m/m	
Design for Column Strip Positive Moment along Member 16 @ Level 1			
Area Covered	From 1.250 West to 1.250 m East of grid line 3	2.500 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 20.723, h 200, d 158, fcu 35, fy 460, x/d 0.06	315 mm²	OK
Span/effective depth ratio	Actual=5000/158=31.65, Allowed=26x0.90x1.66x1.08	41.91	OK

East-West Middle Strip At Right Angle to Member 16 @ Level 1 (Top Steel)

Column Strip Width @ Node 9	Panel Width 3.5 m (Full 107.3 kN.m)	2.250 m	
Middle Strip Moment	0.500x83.112/3.500	11.873 kN.m/m	
Column Strip Width @ B3	Panel Width 5 m (Full 156.34 kN.m)	2.500 m	
Middle Strip Moment	0.500x114.38/5.000	11.438 kN.m/m	
Design for Negative Moment Over Support Member 16			
Area Covered	From 1.250 to 3.750 m along Member 16	2.500 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 11.873, h 200, d 170, fcu 35, fy 460, x/d 0.03	260 mm²	OK

Middle Strip Between Members 16 and 17 (A4-B4) @ Level 1 (Bottom Steel)

Column Strip Width for Member 16	Panel Width 5 m	2.500 m	
Middle Strip Moment	0.9x94.194/5.000	16.955 kN.m/m	
Middle Strip Width for Member 17	Panel Width 3.5 m	2.250 m	
Column Strip Moment	0.9x58.114/3.500	14.944 kN.m/m	
Design for Middle Strip Positive Moment East of Member 16			
Area Covered	From 1.250 to 3.750 m East of grid line 3	2.500 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 16.955, h 200, d 158, fcu 35, fy 460, x/d 0.05	260 mm²	OK
Span/effective depth ratio	Actual=5000/158=31.65, Allowed=26x0.90x2.00x1.08	50.29	OK

Steel Design In the Region of North-South Member 17 (A4-B4) @ Level 1

North-South Column Strip Along Member 17 (A4-B4) @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 3.5 m	2.250 m	
Column Strip Moment	0.9x58.114/3.500+0.1x58.114/2.250	17.526 kN.m/m	
Design for Column Strip Positive Moment along Member 17 (A4-B4) @ Level 1			
Area Covered	From 1.250 West to 1.000 m East of grid line 4	2.250 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 17.526, h 200, d 158, fcu 35, fy 460, x/d 0.05	267 mm²	OK
Span/effective depth ratio	Actual=5000/158=31.65, Allowed=26x0.90x1.95x1.08	49.06	OK

East-West Middle Strip At Right Angle to Member 17 (A4-B4) @ Level 1 (Top Steel)

Column Strip Width @ A4	Panel Width 3.5 m (Full 87.095 kN.m)	1.675 m	
Middle Strip Moment	1.000x64.547/3.500	18.442 kN.m/m	
Column Strip Width @ B4	Panel Width 5 m (Full 98.668 kN.m)	1.675 m	
Middle Strip Moment	1.000x62.343/5.000	12.469 kN.m/m	
Design for Negative Moment Over Support Member 17			
Area Covered	From 0.838 to 4.163 m along Member 17 (A4-B4)	3.325 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 18.442, h 200, d 170, fcu 35, fy 460, x/d 0.05	261 mm²	OK

Steel Design In the Region of North-South Member 18 @ Level 1

North-South Column Strip Along Member 18 @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 3.5 m	2.250 m	
Column Strip Moment	0.9x58.114/3.500+0.1x58.114/2.250	17.526 kN.m/m	
Design for Column Strip Positive Moment along Member 18 @ Level 1			
Area Covered	From 1.000 West to 1.250 m East of member 18	2.250 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 17.526, h 200, d 158, fcu 35, fy 460, x/d 0.05	267 mm²	OK
Span/effective depth ratio	Actual=5000/158=31.65, Allowed=26x0.90x1.95x1.08	49.06	OK

East-West Middle Strip At Right Angle to Member 18 @ Level 1 (Top Steel)

Column Strip Width @ Node 16	Panel Width 5 m (Full 98.663 kN.m)	1.675 m	
Middle Strip Moment	1.000x62.339/5.000	12.468 kN.m/m	
Column Strip Width @ Node 26	Panel Width 3.5 m (Full 87.094 kN.m)	1.675 m	
Middle Strip Moment	1.000x64.544/3.500	18.441 kN.m/m	

Architects	Project Title		Scale	Drawing No. & Title
Badmaal Somali Sustainable Fisheries Development Project	Somali Sustainable Fisheries Development Project (BADMAAL)	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	1:25	JAZEERA Preliminary Detailed Calculations
	Client		Date	Sheet No.
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia		12-03-2026	A1 Project No: P178032
			Drawn By	Designed By / Approved By.
			J.A. Sciortino	Mohamed Abdi Ahmed Saahid

Revisions

No.	Description	Date

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Design for Negative Moment Over Support Member 18			
Area Covered	From 0.838 to 4.163 m along Member 18	3.325 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 18.441, h 200, d 170, fcu 35, fy 460, x/d 0.05	261 mm²	OK

Middle Strip Between Members 18 and 19 (B1-C1) @ Level 1 (Bottom Steel)

Column Strip Width for Member 18	Panel Width 3.5 m	2.250 m	
Middle Strip Moment	0.9x58.114/3.500	14.944 kN.m/m	
Middle Strip Width for Member 19	Panel Width 5 m	2.500 m	
Column Strip Moment	0.9x94.194/5.000	16.955 kN.m/m	
Design for Middle Strip Positive Moment East of Member 18			
Area Covered	From 1.250 to 3.750 m East of member 18	2.500 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 16.955, h 200, d 158, fcu 35, fy 460, x/d 0.05	260 mm²	OK
Span/effective depth ratio	Actual=5000/158=31.65, Allowed=26x0.90x2.00x1.08	50.29	OK

Steel Design In the Region of North-South Member 19 (B1-C1) @ Level 1

North-South Column Strip Along Member 19 (B1-C1) @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 5 m	2.500 m	
Column Strip Moment	0.9x94.194/5.000+0.1x94.194/2.500	20.723 kN.m/m	
Design for Column Strip Positive Moment along Member 19 (B1-C1) @ Level 1			
Area Covered	From 1.250 West to 1.250 m East of grid line 1	2.500 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 20.723, h 200, d 158, fcu 35, fy 460, x/d 0.06	315 mm²	OK
Span/effective depth ratio	Actual=5000/158=31.65, Allowed=26x0.90x1.66x1.08	41.91	OK

East-West Middle Strip At Right Angle to Member 19 (B1-C1) @ Level 1 (Top Steel)

Column Strip Width @ B1	Panel Width 5 m (Full 156.34 kN.m)	2.500 m	
Middle Strip Moment	0.500x114.39/5.000	11.439 kN.m/m	
Column Strip Width @ C1	Panel Width 3.5 m (Full 107.3 kN.m)	2.250 m	
Middle Strip Moment	0.500x83.115/3.500	11.874 kN.m/m	
Design for Negative Moment Over Support Member 19			
Area Covered	From 1.250 to 3.750 m along Member 19 (B1-C1)	2.500 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 11.874, h 200, d 170, fcu 35, fy 460, x/d 0.03	260 mm²	OK

Middle Strip Between Members 19 (B1-C1) and 20 (B2-C2) @ Level 1 (Bottom Steel)

Column Strip Width for Member 19	Panel Width 5 m	2.500 m	
Middle Strip Moment	0.9x94.194/5.000	16.955 kN.m/m	
Middle Strip Width for Member 20	Panel Width 5 m	2.500 m	
Column Strip Moment	0.9x94.226/5.000	16.961 kN.m/m	
Design for Middle Strip Positive Moment East of Member 19			
Area Covered	From 1.250 to 3.750 m East of grid line 1	2.500 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 16.961, h 200, d 158, fcu 35, fy 460, x/d 0.05	260 mm²	OK
Span/effective depth ratio	Actual=5000/158=31.65, Allowed=26x0.90x2.00x1.08	50.29	OK

Steel Design In the Region of North-South Member 20 (B2-C2) @ Level 1

North-South Column Strip Along Member 20 (B2-C2) @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 5 m	2.500 m	
Column Strip Moment	0.9x94.226/5.000+0.1x94.226/2.500	20.730 kN.m/m	
Design for Column Strip Positive Moment along Member 20 (B2-C2) @ Level 1			
Area Covered	From 1.250 West to 1.250 m East of grid line 2	2.500 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 20.73, h 200, d 158, fcu 35, fy 460, x/d 0.06	315 mm²	OK
Span/effective depth ratio	Actual=5000/158=31.65, Allowed=26x0.90x1.66x1.08	41.90	OK

East-West Middle Strip At Right Angle to Member 20 (B2-C2) @ Level 1 (Top Steel)

Column Strip Width @ B2	Panel Width 5 m (Full 138.06 kN.m)	2.500 m	
Middle Strip Moment	0.500x97.75/5.000	9.775 kN.m/m	
Column Strip Width @ C2	Panel Width 3.5 m (Full 100.81 kN.m)	2.250 m	
Middle Strip Moment	0.500x75.897/3.500	10.842 kN.m/m	
Design for Negative Moment Over Support Member 20			
Area Covered	From 1.250 to 3.750 m along Member 20 (B2-C2)	2.500 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 10.842, h 200, d 170, fcu 35, fy 460, x/d 0.03	260 mm²	OK

Middle Strip Between Members 20 (B2-C2) and 21 (B3-C3) @ Level 1 (Bottom Steel)

Column Strip Width for Member 20	Panel Width 5 m	2.500 m	
Middle Strip Moment	0.9x94.226/5.000	16.961 kN.m/m	
Middle Strip Width for Member 21	Panel Width 5 m	2.500 m	
Column Strip Moment	0.9x94.194/5.000	16.955 kN.m/m	
Design for Middle Strip Positive Moment East of Member 20			
Area Covered	From 1.250 to 3.750 m East of grid line 2	2.500 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 16.961, h 200, d 158, fcu 35, fy 460, x/d 0.05	260 mm²	OK
Span/effective depth ratio	Actual=5000/158=31.65, Allowed=26x0.90x2.00x1.08	50.29	OK

Steel Design In the Region of North-South Member 21 (B3-C3) @ Level 1

North-South Column Strip Along Member 21 (B3-C3) @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 5 m	2.500 m	
Column Strip Moment	0.9x94.194/5.000+0.1x94.194/2.500	20.723 kN.m/m	
Design for Column Strip Positive Moment along Member 21 (B3-C3) @ Level 1			
Area Covered	From 1.250 West to 1.250 m East of grid line 3	2.500 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 20.723, h 200, d 158, fcu 35, fy 460, x/d 0.06	315 mm²	OK
Span/effective depth ratio	Actual=5000/158=31.65, Allowed=26x0.90x1.66x1.08	41.91	OK

East-West Middle Strip At Right Angle to Member 21 (B3-C3) @ Level 1 (Top Steel)

Column Strip Width @ B3	Panel Width 5 m (Full 156.34 kN.m)	2.500 m	
Middle Strip Moment	0.500x114.38/5.000	11.438 kN.m/m	
Column Strip Width @ C3	Panel Width 3.5 m (Full 107.3 kN.m)	2.250 m	
Middle Strip Moment	0.500x83.112/3.500	11.873 kN.m/m	
Design for Negative Moment Over Support Member 21			
Area Covered	From 1.250 to 3.750 m along Member 21 (B3-C3)	2.500 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 11.873, h 200, d 170, fcu 35, fy 460, x/d 0.03	260 mm²	OK

Middle Strip Between Members 21 (B3-C3) and 22 (B4-C4) @ Level 1 (Bottom Steel)

Column Strip Width for Member 21	Panel Width 5 m	2.500 m	
Middle Strip Moment	0.9x94.194/5.000	16.955 kN.m/m	
Middle Strip Width for Member 22	Panel Width 3.5 m	2.250 m	
Column Strip Moment	0.9x58.114/3.500	14.944 kN.m/m	
Design for Middle Strip Positive Moment East of Member 21			
Area Covered	From 1.250 to 3.750 m East of grid line 3	2.500 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 16.955, h 200, d 158, fcu 35, fy 460, x/d 0.05	260 mm²	OK
Span/effective depth ratio	Actual=5000/158=31.65, Allowed=26x0.90x2.00x1.08	50.29	OK

Steel Design In the Region of North-South Member 22 (B4-C4) @ Level 1

North-South Column Strip Along Member 22 (B4-C4) @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 3.5 m	2.250 m	
Column Strip Moment	0.9x58.114/3.500+0.1x58.114/2.250	17.526 kN.m/m	
Design for Column Strip Positive Moment along Member 22 (B4-C4) @ Level 1			
Area Covered	From 1.250 West to 1.000 m East of grid line 4	2.250 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 17.526, h 200, d 158, fcu 35, fy 460, x/d 0.05	267 mm²	OK
Span/effective depth ratio	Actual=5000/158=31.65, Allowed=26x0.90x1.95x1.08	49.06	OK

East-West Middle Strip At Right Angle to Member 22 (B4-C4) @ Level 1 (Top Steel)

Column Strip Width @ B4	Panel Width 5 m (Full 98.668 kN.m)	1.675 m	
Middle Strip Moment	1.000x62.343/5.000	12.469 kN.m/m	
Column Strip Width @ C4	Panel Width 3.5 m (Full 87.096 kN.m)	1.675 m	
Middle Strip Moment	1.000x64.547/3.500	18.442 kN.m/m	
Design for Negative Moment Over Support Member 22			
Area Covered	From 0.838 to 4.163 m along Member 22 (B4-C4)	3.325 m	
Steel Provided	T10@200	393 mm²	
Steel Required	M 18.442, h 200, d 170, fcu 35, fy 460, x/d 0.05	261 mm²	OK

Steel Design Around Column Head @ Node 6 - Level 1

East-West Steel Over Column Head (Top Steel) @ Node 6 - Level 1

Column Strip Width @ Node 6	Panel Width 3.5 m (Full 87.094 kN.m)	1.475 m	
Column Strip Moment	0.5x64.544/1.475+0.5x64.544/3.500 be 1.675 m, Mt.max 251.2 kN.m	31.100 kN.m/m	OK
Design for East-West Top Steel			
Area Covered	From 1.250 North to 0.225 m South of Column Centre	1.475 m	
Steel Required (Average)	M 31.1, h 200, d 169, fcu 35, fy 460, x/d 0.08	442 mm²	
Steel Required (Middle ½)	1.33 Average Steel Required	589 mm²	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm²	OK
Steel Required (Outer ½)	1.00 Average Steel Required	442 mm²	
Steel Provided (Outer ½)	T10@200 + T12@300	770 mm²	OK

North-South Steel Over Column Head (Top Steel) @ Node 6 - Level 1

Column Strip Width @ Node 6	Panel Width 3.5 m (Full 86.774 kN.m)	1.475 m	
Column Strip Moment	0.5x64.139/1.475+0.5x64.139/3.500 be 1.675 m, Mt.max 216.8 kN.m	30.905 kN.m/m	OK
Design for North-South Top Steel			
Area Covered	From 0.225 West to 1.250 m East of Column Centre	1.475 m	
Steel Required (Average)	M 30.905, h 200, d 157, fcu 35, fy 460, x/d 0.10	473 mm²	
Steel Required (Middle ½)	1.33 Average Steel Required	631 mm²	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm²	OK
Steel Required (Outer ½)	1.00 Average Steel Required	473 mm²	
Steel Provided (Outer ½)	T10@200 + T12@300	770 mm²	OK

Punching Shear Around Column Head @ Node 6 - Level 1

Maximum Effective Shear Force		
East-West Frame in Case 2	Mt 86.6 kN.m, Vt 118.8 kN, x 0.450 m	148.5 kN
North-South Frame in Case 5	Mt 85.2 kN.m, Vt 118.1 kN, x 0.450 m	147.6 kN

Architects	Project Title		Scale	Drawing No. & Title
Badmaal Somali Sustainable Fisheries Development Project	Somali Sustainable Fisheries Development Project (BADMAAL)		1:25	JAZEERA Preliminary Detailed Calculations
	Client		Date	Sheet No.
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia		12-03-2026	A1 Project No: P178032
			Drawn By	Designed By / Approved By.
			J.A. Sciortino	Mohamed Abdi Ahmed Saahid

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Revisions

No.	Description	Date

NB:
1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing.
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01	0.122	0.695	0.695	316.8	310.3	2.778	163	0.69	1.26	OK
02	0.245	0.939	0.939	314.9	303.0	3.756	163	0.49	0.63	OK

Steel Design Around Column Head @ Node 8 - Level 1

East-West Steel Over Column Head (Top Steel) @ Node 8 - Level 1

Column Strip Width @ Node 8	Panel Width 3.5 m (Full 100.81 kN.m)	1.475 m	
Column Strip Moment	0.5x75.897/1.475+0.5x75.897/3.500	36.570 kN.m/m	OK
Design for East-West Top Steel			
Area Covered	From 1.250 North to 0.225 m South of Column Centre	1.475 m	
Steel Required (Average)	M 36.57, h 200, d 169, fcu 35, fy 460, x/d 0.10	520 mm²	
Steel Required (Middle ½)	1.33 Average Steel Required	693 mm²	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm²	OK
Steel Required (Outer ½)	0.67 Average Steel Required	347 mm²	
Steel Provided (Outer ½)	T10@200	393 mm²	OK

North-South Steel Over Column Head (Top Steel) @ Node 8 - Level 1

Column Strip Width @ Node 8	Panel Width 5 m (Full 97.27 kN.m)	1.675 m	
Column Strip Moment	0.5x60.471/1.675+0.5x60.471/5.000 be 1.675 m, Mt.max 216.8 kN.m	24.098 kN.m/m	OK
Design for North-South Top Steel			
Area Covered	From 0.838 West to 0.838 m East of Column Centre	1.675 m	
Steel Required (Average)	M 24.098, h 200, d 157, fcu 35, fy 460, x/d 0.07	369 mm²	
Steel Required (Middle ½)	1.33 Average Steel Required	492 mm²	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm²	OK
Steel Required (Outer ½)	1.00 Average Steel Required	369 mm²	
Steel Provided (Outer ½)	T10@200	393 mm²	OK

Punching Shear Around Column Head @ Node 8 - Level 1

Maximum Effective Shear Force		
East-West Frame in Case 2	Mt 37.4 kN.m, Vt 183.0 kN, x 0.450 m	315.9 kN
North-South Frame in Case 5	Mt 91.9 kN.m, Vt 158.6 kN, x 0.450 m	198.3 kN
Permissible Shear Stress	As 582 mm²/m, d 163 mm, fcu 35 N/mm²	0.63 N/mm²

Shear @ Failure Zones (No Shear Reinforcement is Required)

Zone	X (m)	x-EW	x-NS	Veff	Vapp	u (m)	d (mm)	v	vc	
00	0.000	0.450	0.450	315.9	313.2	1.800	163	1.07	4.73	OK
01	0.122	0.695	0.695	303.3	296.7	2.778	163	0.66	1.26	OK
02	0.245	0.939	0.939	303.3	291.3	3.756	163	0.48	0.63	OK
Permissible Shear Stress				As 770 mm²/m, d 163 mm, fcu 35 N/mm²					0.69 N/mm²	

Shear @ Failure Zones (No Shear Reinforcement is Required)

Zone	X (m)	x-EW	x-NS	Veff	Vapp	u (m)	d (mm)	v	vc	
00	0.000	0.450	0.450	148.5	145.7	0.900	163	0.99	4.73	OK
01	0.122	0.695	0.695	148.5	142.0	1.389	163	0.63	1.38	OK
02	0.245	0.939	0.939	148.5	136.6	1.878	163	0.45	0.69	OK

Steel Design Around Column Head @ Node 7 - Level 1

East-West Steel Over Column Head (Top Steel) @ Node 7 - Level 1

Column Strip Width @ Node 7	Panel Width 3.5 m (Full 107.3 kN.m)	1.475 m	
Column Strip Moment	0.5x83.115/1.475+0.5x83.115/3.500	40.048 kN.m/m	OK
Design for East-West Top Steel			
Area Covered	From 1.250 North to 0.225 m South of Column Centre	1.475 m	
Steel Required (Average)	M 40.048, h 200, d 169, fcu 35, fy 460, x/d 0.11	569 mm²	
Steel Required (Middle ½)	1.33 Average Steel Required	759 mm²	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm²	OK
Steel Required (Outer ½)	0.67 Average Steel Required	379 mm²	
Steel Provided (Outer ½)	T10@200	393 mm²	OK

North-South Steel Over Column Head (Top Steel) @ Node 7 - Level 1

Column Strip Width @ Node 7	Panel Width 5 m (Full 97.227 kN.m)	1.675 m	
Column Strip Moment	0.5x60.464/1.675+0.5x60.464/5.000 be 1.675 m, Mt.max 216.8 kN.m	24.095 kN.m/m	OK
Design for North-South Top Steel			
Area Covered	From 0.838 West to 0.838 m East of Column Centre	1.675 m	
Steel Required (Average)	M 24.095, h 200, d 157, fcu 35, fy 460, x/d 0.07	369 mm²	
Steel Required (Middle ½)	1.33 Average Steel Required	492 mm²	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm²	OK
Steel Required (Outer ½)	1.00 Average Steel Required	369 mm²	
Steel Provided (Outer ½)	T10@200	393 mm²	OK

Punching Shear Around Column Head @ Node 7 - Level 1

Maximum Effective Shear Force		
East-West Frame in Case 2	Mt 44.7 kN.m, Vt 186.2 kN, x 0.450 m	337.2 kN
North-South Frame in Case 5	Mt 91.9 kN.m, Vt 158.6 kN, x 0.450 m	198.3 kN
Permissible Shear Stress	As 582 mm²/m, d 163 mm, fcu 35 N/mm²	0.63 N/mm²

Shear @ Failure Zones (No Shear Reinforcement is Required)

Zone	X (m)	x-EW	x-NS	Veff	Vapp	u (m)	d (mm)	v	vc	
00	0.000	0.450	0.450	337.2	334.4	1.800	163	1.14	4.73	OK

Architects	Project Title		Revisions	Scale	Drawing No. & Title
Badmaal Somali Sustainable Fisheries Development Project	Somali Sustainable Fisheries Development Project (BADMAAL)	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	No. / Description / Date	1:25	JAZEERA Preliminary Detailed Calculations
	Client			Date	Sheet No.
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia		NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.	12-03-2026	A1 / Project No: P178032
				Drawn By: J.A. Sciortino	Designed By: Mohamed Abdi Ahmed Saahid / Approved By:

01	0.122	0.695	0.695	316.8	310.3	2.778	163	0.69	1.26	OK
02	0.245	0.939	0.939	314.9	303.0	3.756	163	0.49	0.63	OK

Steel Design Around Column Head @ Node 8 - Level 1

East-West Steel Over Column Head (Top Steel) @ Node 8 - Level 1

Column Strip Width @ Node 8	Panel Width 3.5 m (Full 100.81 kN.m)	1.475 m	
Column Strip Moment	0.5x75.897/1.475+0.5x75.897/3.500	36.570 kN.m/m	OK
Design for East-West Top Steel			
Area Covered	From 1.250 North to 0.225 m South of Column Centre	1.475 m	
Steel Required (Average)	M 36.57, h 200, d 169, fcu 35, fy 460, x/d 0.10	520 mm²	
Steel Required (Middle ½)	1.33 Average Steel Required	693 mm²	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm²	OK
Steel Required (Outer ½)	0.67 Average Steel Required	347 mm²	
Steel Provided (Outer ½)	T10@200	393 mm²	OK

North-South Steel Over Column Head (Top Steel) @ Node 8 - Level 1

Column Strip Width @ Node 8	Panel Width 5 m (Full 97.27 kN.m)	1.675 m	
Column Strip Moment	0.5x60.471/1.675+0.5x60.471/5.000 be 1.675 m, Mt.max 216.8 kN.m	24.098 kN.m/m	OK
Design for North-South Top Steel			
Area Covered	From 0.838 West to 0.838 m East of Column Centre	1.675 m	
Steel Required (Average)	M 24.098, h 200, d 157, fcu 35, fy 460, x/d 0.07	369 mm²	
Steel Required (Middle ½)	1.33 Average Steel Required	492 mm²	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm²	OK
Steel Required (Outer ½)	1.00 Average Steel Required	369 mm²	
Steel Provided (Outer ½)	T10@200	393 mm²	OK

Punching Shear Around Column Head @ Node 8 - Level 1

Maximum Effective Shear Force		
East-West Frame in Case 2	Mt 37.4 kN.m, Vt 183.0 kN, x 0.450 m	315.9 kN
North-South Frame in Case 5	Mt 91.9 kN.m, Vt 158.6 kN, x 0.450 m	198.3 kN
Permissible Shear Stress	As 582 mm²/m, d 163 mm, fcu 35 N/mm²	0.63 N/mm²

Shear @ Failure Zones (No Shear Reinforcement is Required)

Zone	X (m)	x-EW	x-NS	Veff	Vapp	u (m)	d (mm)	v	vc	
00	0.000	0.450	0.450	315.9	313.2	1.800	163	1.07	4.73	OK
01	0.122	0.695	0.695	303.3	296.7	2.778	163	0.66	1.26	OK
02	0.245	0.939	0.939	303.3	291.3	3.756	163	0.48	0.63	OK

Permissible Shear Stress	As 770 mm²/m, d 163 mm, fcu 35 N/mm²	0.69 N/mm²

Shear @ Failure Zones (No Shear Reinforcement is Required)

Zone	X (m)	x-EW	x-NS	Veff	Vapp	u (m)	d (mm)	v	vc	
00	0.000	0.450	0.450	148.5	145.7	0.900	163	0.99	4.73	OK
01	0.122	0.695	0.695	148.5	142.0	1.389	163	0.63	1.38	OK
02	0.245	0.939	0.939	148.5	136.6	1.878	163	0.45	0.69	OK

Steel Design Around Column Head @ Node 7 - Level 1

East-West Steel Over Column Head (Top Steel) @ Node 7 - Level 1

Column Strip Width @ Node 7	Panel Width 3.5 m (Full 107.3 kN.m)	1.475 m	
Column Strip Moment	0.5x83.115/1.475+0.5x83.115/3.500	40.048 kN.m/m	OK
Design for East-West Top Steel			
Area Covered	From 1.250 North to 0.225 m South of Column Centre	1.475 m	
Steel Required (Average)	M 40.048, h 200, d 169, fcu 35, fy 460, x/d 0.11	569 mm²	
Steel Required (Middle ½)	1.33 Average Steel Required	759 mm²	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm²	OK
Steel Required (Outer ½)	0.67 Average Steel Required	379 mm²	
Steel Provided (Outer ½)	T10@200	393 mm²	OK

North-South Steel Over Column Head (Top Steel) @ Node 7 - Level 1

Column Strip Width @ Node 7	Panel Width 5 m (Full 97.227 kN.m)	1.675 m	
Column Strip Moment	0.5x60.464/1.675+0.5x60.464/5.000 be 1.675 m, Mt.max 216.8 kN.m	24.095 kN.m/m	OK
Design for North-South Top Steel			
Area Covered	From 0.838 West to 0.838 m East of Column Centre	1.675 m	
Steel Required (Average)	M 24.095, h 200, d 157, fcu 35, fy 460, x/d 0.07	369 mm²	
Steel Required (Middle ½)	1.33 Average Steel Required	492 mm²	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm²	OK
Steel Required (Outer ½)	1.00 Average Steel Required	369 mm²	
Steel Provided (Outer ½)	T10@200	393 mm²	OK

Punching Shear Around Column Head @ Node 7 - Level 1

Maximum Effective Shear Force		
East-West Frame in Case 2	Mt 44.7 kN.m, Vt 186.2 kN, x 0.450 m	337.2 kN
North-South Frame in Case 5	Mt 91.9 kN.m, Vt 158.6 kN, x 0.450 m	198.3 kN
Permissible Shear Stress	As 582 mm²/m, d 163 mm, fcu 35 N/mm²	0.63 N/mm²

Shear @ Failure Zones (No Shear Reinforcement is Required)

Zone	X (m)	x-EW	x-NS	Veff	Vapp	u (m)	d (mm)	v	vc	
00	0.000	0.450	0.450	337.2	334.4	1.800	163	1.14	4.73	OK

Architects	**Project Title**		**Revisions**	Scale	Drawing No. & Title
Badmaal Somali Sustainable Fisheries Development Project	**Somali Sustainable Fisheries Development Project (BADMAAL)**	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	No. / Description / Date	**1:25**	**JAZEERA** **Preliminary Detailed Calculations**
	Client			Date	Sheet No.
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia		NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.	**12-03-2026**	**A1** **Project No:** P178032
				Drawn By	Designed By / Approved By.
				J.A. Sciortino	**Mohamed Abdi Ahmed Saahid**

Steel Design Around Column Head @ A4 - Level 1

East-West Steel Over Column Head (Top Steel) @ A4 - Level 1

Column Strip Width @ A4	Panel Width 3.5 m (Full 87.095 kN.m)	1.475 m	
Column Strip Moment	0.5x64.547/1.475+0.5x64.547/3.500 be 1.675 m, Mt.max 251.2 kN.m	31.101 kN.m/m	OK
Design for East-West Top Steel			
Area Covered	From 1.250 North to 0.225 m South of Column Centre	1.475 m	
Steel Required (Average)	M 31.101, h 200, d 169, fcu 35, fy 460, x/d 0.08	442 mm²	
Steel Required (Middle ½)	1.33 Average Steel Required	589 mm²	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm²	OK
Steel Required (Outer ½)	1.00 Average Steel Required	442 mm²	
Steel Provided (Outer ½)	T10@200 + T12@300	770 mm²	OK

North-South Steel Over Column Head (Top Steel) @ A4 - Level 1

Column Strip Width @ A4	Panel Width 3.5 m (Full 86.774 kN.m)	1.475 m	
Column Strip Moment	0.5x64.139/1.475+0.5x64.139/3.500 be 1.675 m, Mt.max 216.8 kN.m	30.905 kN.m/m	OK
Design for North-South Top Steel			
Area Covered	From 1.250 West to 0.225 m East of Column Centre	1.475 m	
Steel Required (Average)	M 30.905, h 200, d 157, fcu 35, fy 460, x/d 0.10	473 mm²	
Steel Required (Middle ½)	1.33 Average Steel Required	631 mm²	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm²	OK
Steel Required (Outer ½)	1.00 Average Steel Required	473 mm²	
Steel Provided (Outer ½)	T10@200 + T12@300	770 mm²	OK

Punching Shear Around Column Head @ A4 - Level 1

Maximum Effective Shear Force			
East-West Frame in Case 3	Mt 86.6 kN.m, Vt 118.8 kN, x 0.450 m	148.5 kN	
North-South Frame in Case 5	Mt 85.2 kN.m, Vt 118.1 kN, x 0.450 m	147.6 kN	
Permissible Shear Stress	As 770 mm²/m, d 163 mm, fcu 35 N/mm²	0.69 N/mm²	

Shear @ Failure Zones (No Shear Reinforcement is Required)

Zone	X (m)	x-EW	x-NS	Veff	Vapp	u (m)	d (mm)	v	vc	
00	0.000	0.450	0.450	148.5	145.7	0.900	163	0.99	4.73	OK
01	0.122	0.695	0.695	148.5	142.0	1.389	163	0.63	1.38	OK
02	0.245	0.939	0.939	148.5	136.6	1.878	163	0.45	0.69	OK

Steel Design Around Column Head @ Node 9 - Level 1

East-West Steel Over Column Head (Top Steel) @ Node 9 - Level 1

Column Strip Width @ Node 9	Panel Width 3.5 m (Full 107.3 kN.m)	1.475 m	
Column Strip Moment	0.5x83.112/1.475+0.5x83.112/3.500	40.047 kN.m/m	OK
Design for East-West Top Steel			
Area Covered	From 1.250 North to 0.225 m South of Column Centre	1.475 m	
Steel Required (Average)	M 40.047, h 200, d 169, fcu 35, fy 460, x/d 0.11	569 mm²	
Steel Required (Middle ½)	1.33 Average Steel Required	759 mm²	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm²	OK
Steel Required (Outer ½)	0.67 Average Steel Required	379 mm²	
Steel Provided (Outer ½)	T10@200	393 mm²	OK

North-South Steel Over Column Head (Top Steel) @ Node 9 - Level 1

Column Strip Width @ Node 9	Panel Width 5 m (Full 97.227 kN.m)	1.675 m	
Column Strip Moment	0.5x60.464/1.675+0.5x60.464/5.000 be 1.675 m, Mt.max 216.8 kN.m	24.095 kN.m/m	OK
Design for North-South Top Steel			
Area Covered	From 0.838 West to 0.838 m East of Column Centre	1.675 m	
Steel Required (Average)	M 24.095, h 200, d 157, fcu 35, fy 460, x/d 0.07	369 mm²	
Steel Required (Middle ½)	1.33 Average Steel Required	492 mm²	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm²	OK
Steel Required (Outer ½)	1.00 Average Steel Required	369 mm²	
Steel Provided (Outer ½)	T10@200	393 mm²	OK

Punching Shear Around Column Head @ Node 9 - Level 1

Maximum Effective Shear Force			
East-West Frame in Case 3	Mt 44.7 kN.m, Vt 186.2 kN, x 0.450 m	337.2 kN	
North-South Frame in Case 5	Mt 91.9 kN.m, Vt 158.6 kN, x 0.450 m	198.3 kN	
Permissible Shear Stress	As 582 mm²/m, d 163 mm, fcu 35 N/mm²	0.63 N/mm²	

Shear @ Failure Zones (No Shear Reinforcement is Required)

Zone	X (m)	x-EW	x-NS	Veff	Vapp	u (m)	d (mm)	v	vc	
00	0.000	0.450	0.450	337.2	334.4	1.800	163	1.14	4.73	OK
01	0.122	0.695	0.695	316.8	310.3	2.778	163	0.69	1.26	OK
02	0.245	0.939	0.939	314.9	303.0	3.756	163	0.49	0.63	OK

Architects	**Project Title**		**Revisions**	Scale	Drawing No. & Title
Badmaal Somali Sustainable Fisheries Development Project	**Somali Sustainable Fisheries Development Project (BADMAAL)**		No. / Description / Date	1:25	**JAZEERA** Preliminary Detailed Calculations
	Client	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP		Date	Sheet No.
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia		NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.	**12-03-2026**	**A1** **Project No:** P178032
				Drawn By	Designed By / Approved By.
				J.A. Sciortino	**Mohamed Abdi Ahmed Saahid**

Steel Design Around Column Head @ B1 - Level 1

East-West Steel Over Column Head (Top Steel) @ B1 - Level 1

Column Strip Width @ B1	Panel Width 5 m (Full 156.34 kN.m)	2.500 m	
Column Strip Moment	0.5x114.39/2.500+0.5x114.39/5.000	34.316 kN.m/m	OK
Design for East-West Top Steel			
Area Covered	From 1.250 North to 1.250 m South of Column Centre	2.500 m	
Steel Required (Average)	M 34.316, h 200, d 169, fcu 35, fy 460, x/d 0.09	488 mm²	
Steel Required (Middle ½)	1.33 Average Steel Required	651 mm²	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm²	OK
Steel Required (Outer ½)	0.67 Average Steel Required	325 mm²	
Steel Provided (Outer ½)	T10@200	393 mm²	OK

North-South Steel Over Column Head (Top Steel) @ B1 - Level 1

Column Strip Width @ B1	Panel Width 5 m (Full 161.52 kN.m)	2.500 m	
Column Strip Moment	0.5x118.35/2.500+0.5x118.35/5.000	35.505 kN.m/m	OK
Design for North-South Top Steel			
Area Covered	From 1.250 West to 1.250 m East of Column Centre	2.500 m	
Steel Required (Average)	M 35.505, h 200, d 157, fcu 35, fy 460, x/d 0.11	543 mm²	
Steel Required (Middle ½)	1.33 Average Steel Required	724 mm²	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm²	OK
Steel Required (Outer ½)	0.67 Average Steel Required	362 mm²	
Steel Provided (Outer ½)	T10@200	393 mm²	OK

Punching Shear Around Column Head @ B1 - Level 1

Maximum Effective Shear Force		
East-West Frame in Case 2	Mt 49.7 kN.m, Vt 262.8 kN, x 0.450 m	378.7 kN
North-South Frame in Case 5	Mt 45.2 kN.m, Vt 273.2 kN, x 0.450 m	378.6 kN
Permissible Shear Stress	As 582 mm²/m, d 163 mm, fcu 35 N/mm²	0.63 N/mm²

Shear @ Failure Zones (No Shear Reinforcement is Required)

Zone	X (m)	x-EW	x-NS	Veff	Vapp	u (m)	d (mm)	v	vc	
00	0.000	0.450	0.450	378.7	375.9	1.800	163	1.28	4.73	OK
01	0.122	0.695	0.695	365.9	359.3	2.778	163	0.79	1.26	OK
02	0.245	0.939	0.939	363.7	351.8	3.756	163	0.57	0.63	OK

Steel Design Around Column Head @ Node 16 - Level 1

East-West Steel Over Column Head (Top Steel) @ Node 16 - Level 1

Column Strip Width @ Node 16	Panel Width 5 m (Full 98.663 kN.m)	1.675 m	
Column Strip Moment	0.5x62.339/1.675+0.5x62.339/5.000 be 1.675 m, Mt.max 251.2 kN.m	24.843 kN.m/m	OK
Design for East-West Top Steel			
Area Covered	From 0.838 North to 0.838 m South of Column Centre	1.675 m	
Steel Required (Average)	M 24.843, h 200, d 169, fcu 35, fy 460, x/d 0.07	353 mm²	
Steel Required (Middle ½)	1.33 Average Steel Required	471 mm²	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm²	OK
Steel Required (Outer ½)	1.00 Average Steel Required	353 mm²	
Steel Provided (Outer ½)	T10@200	393 mm²	OK

North-South Steel Over Column Head (Top Steel) @ Node 16 - Level 1

Column Strip Width @ Node 16	Panel Width 3.5 m (Full 108.37 kN.m)	1.475 m	
Column Strip Moment	0.5x83.976/1.475+0.5x83.976/3.500	40.463 kN.m/m	OK
Design for North-South Top Steel			
Area Covered	From 0.225 West to 1.250 m East of Column Centre	1.475 m	
Steel Required (Average)	M 40.463, h 200, d 157, fcu 35, fy 460, x/d 0.13	623 mm²	
Steel Required (Middle ½)	1.33 Average Steel Required	831 mm²	
Steel Provided (Middle ½)	T10@200 + T12@250	845 mm²	OK
Steel Required (Outer ½)	0.67 Average Steel Required	415 mm²	
Steel Provided (Outer ½)	T10@200 + T12@300	770 mm²	OK

Punching Shear Around Column Head @ Node 16 - Level 1

Maximum Effective Shear Force		
East-West Frame in Case 2	Mt 95.3 kN.m, Vt 160.5 kN, x 0.450 m	200.6 kN
North-South Frame in Case 6	Mt 42.5 kN.m, Vt 190.0 kN, x 0.450 m	336.6 kN
Permissible Shear Stress	As 695 mm²/m, d 163 mm, fcu 35 N/mm²	0.67 N/mm²

Shear @ Failure Zones (No Shear Reinforcement is Required)

Zone	X (m)	x-EW	x-NS	Veff	Vapp	u (m)	d (mm)	v	vc	
00	0.000	0.450	0.450	336.6	333.8	1.800	163	1.14	4.73	OK
01	0.122	0.695	0.695	314.9	308.4	2.778	163	0.68	1.33	OK
02	0.245	0.939	0.939	314.9	303.0	3.756	163	0.49	0.67	OK

Architects	Project Title		Revisions	Scale	Drawing No. & Title
Badmaal Somali Sustainable Fisheries Development Project	Somali Sustainable Fisheries Development Project (BADMAAL)	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	No. / Description / Date	1:25	JAZEERA Preliminary Detailed Calculations
	Client			Date	Sheet No.
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia		NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.	12-03-2026	A1 Project No: P178032
				Drawn By	Designed By / Approved By.
				J.A. Sciortino	Mohamed Abdi Ahmed Saahid

Steel Design Around Column Head @ C3 - Level 1

East-West Steel Over Column Head (Top Steel) @ C3 - Level 1

Column Strip Width @ C3	Panel Width 3.5 m (Full 107.3 kN.m)	1.475 m	
Column Strip Moment	0.5x83.112/1.475+0.5x83.112/3.500	40.047 kN.m/m	OK
Design for East-West Top Steel			
Area Covered	From 0.225 North to 1.250 m South of Column Centre	1.475 m	
Steel Required (Average)	M 40.047, h 200, d 169, fcu 35, fy 460, x/d 0.11	569 mm²	
Steel Required (Middle ½)	1.33 Average Steel Required	759 mm²	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm²	OK
Steel Required (Outer ½)	0.67 Average Steel Required	379 mm²	
Steel Provided (Outer ½)	T10@200	393 mm²	OK

North-South Steel Over Column Head (Top Steel) @ C3 - Level 1

Column Strip Width @ C3	Panel Width 5 m (Full 97.228 kN.m)	1.675 m	
Column Strip Moment	0.5x60.466/1.675+0.5x60.466/5.000 be 1.675 m, Mt.max 216.8 kN.m	24.096 kN.m/m	OK
Design for North-South Top Steel			
Area Covered	From 0.838 West to 0.838 m East of Column Centre	1.675 m	
Steel Required (Average)	M 24.096, h 200, d 157, fcu 35, fy 460, x/d 0.07	369 mm²	
Steel Required (Middle ½)	1.33 Average Steel Required	492 mm²	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm²	OK
Steel Required (Outer ½)	1.00 Average Steel Required	369 mm²	
Steel Provided (Outer ½)	T10@200	393 mm²	OK

Punching Shear Around Column Head @ C3 - Level 1

Maximum Effective Shear Force		
East-West Frame in Case 3	Mt 44.7 kN.m, Vt 186.2 kN, x 0.450 m	337.2 kN
North-South Frame in Case 6	Mt 91.9 kN.m, Vt 158.6 kN, x 0.450 m	198.3 kN
Permissible Shear Stress	As 582 mm²/m, d 163 mm, fcu 35 N/mm²	0.63 N/mm²

Shear @ Failure Zones (No Shear Reinforcement is Required)

Zone	X (m)	x-EW	x-NS	Veff	Vapp	u (m)	d (mm)	v	vc	
00	0.000	0.450	0.450	337.2	334.4	1.800	163	1.14	4.73	OK
01	0.122	0.695	0.695	316.8	310.3	2.778	163	0.69	1.26	OK
02	0.245	0.939	0.939	314.9	303.0	3.756	163	0.49	0.63	OK

Steel Design Around Column Head @ C2 - Level 1

East-West Steel Over Column Head (Top Steel) @ C2 - Level 1

Column Strip Width @ C2	Panel Width 3.5 m (Full 100.81 kN.m)	1.475 m	
Column Strip Moment	0.5x75.897/1.475+0.5x75.897/3.500	36.570 kN.m/m	OK
Design for East-West Top Steel			
Area Covered	From 0.225 North to 1.250 m South of Column Centre	1.475 m	
Steel Required (Average)	M 36.57, h 200, d 169, fcu 35, fy 460, x/d 0.10	520 mm²	
Steel Required (Middle ½)	1.33 Average Steel Required	693 mm²	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm²	OK
Steel Required (Outer ½)	0.67 Average Steel Required	347 mm²	
Steel Provided (Outer ½)	T10@200	393 mm²	OK

North-South Steel Over Column Head (Top Steel) @ C2 - Level 1

Column Strip Width @ C2	Panel Width 5 m (Full 97.27 kN.m)	1.675 m	
Column Strip Moment	0.5x60.473/1.675+0.5x60.473/5.000 be 1.675 m, Mt.max 216.8 kN.m	24.099 kN.m/m	OK
Design for North-South Top Steel			
Area Covered	From 0.838 West to 0.838 m East of Column Centre	1.675 m	
Steel Required (Average)	M 24.099, h 200, d 157, fcu 35, fy 460, x/d 0.07	369 mm²	
Steel Required (Middle ½)	1.33 Average Steel Required	492 mm²	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm²	OK
Steel Required (Outer ½)	1.00 Average Steel Required	369 mm²	
Steel Provided (Outer ½)	T10@200	393 mm²	OK

Punching Shear Around Column Head @ C2 - Level 1

Maximum Effective Shear Force		
East-West Frame in Case 2	Mt 37.4 kN.m, Vt 183.0 kN, x 0.450 m	315.9 kN
North-South Frame in Case 6	Mt 91.9 kN.m, Vt 158.6 kN, x 0.450 m	198.3 kN
Permissible Shear Stress	As 582 mm²/m, d 163 mm, fcu 35 N/mm²	0.63 N/mm²

Shear @ Failure Zones (No Shear Reinforcement is Required)

Zone	X (m)	x-EW	x-NS	Veff	Vapp	u (m)	d (mm)	v	vc	
00	0.000	0.450	0.450	315.9	313.2	1.800	163	1.07	4.73	OK
01	0.122	0.695	0.695	303.3	296.7	2.778	163	0.66	1.26	OK
02	0.245	0.939	0.939	303.3	291.3	3.756	163	0.48	0.63	OK

Architects	**Project Title**		**Revisions**	Scale	Drawing No. & Title
Badmaal Somali Sustainable Fisheries Development Project	**Somali Sustainable Fisheries Development Project (BADMAAL)**		No. / Description / Date	**1:25**	**JAZEERA** **Preliminary Detailed Calculations**
	Client	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP		Date	Sheet No.
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia		NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.	**12-03-2026**	**A1** **Project No: P178032**
				Drawn By	Designed By / Approved By.
				J.A. Sciortino	**Mohamed Abdi Ahmed Saahid**

Steel Design Around Column Head @ B3 - Level 1

East-West Steel Over Column Head (Top Steel) @ B3 - Level 1

Column Strip Width @ B3	Panel Width 5 m (Full 156.34 kN.m)	2.500 m	
Column Strip Moment	0.5x114.38/2.500+0.5x114.38/5.000	34.315 kN.m/m	OK
Design for East-West Top Steel			
Area Covered	From 1.250 North to 1.250 m South of Column Centre	2.500 m	
Steel Required (Average)	M 34.315, h 200, d 169, fcu 35, fy 460, x/d 0.09	488 mm²	
Steel Required (Middle ½)	1.33 Average Steel Required	651 mm²	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm²	OK
Steel Required (Outer ½)	0.67 Average Steel Required	325 mm²	
Steel Provided (Outer ½)	T10@200	393 mm²	OK

North-South Steel Over Column Head (Top Steel) @ B3 - Level 1

Column Strip Width @ B3	Panel Width 5 m (Full 161.52 kN.m)	2.500 m	
Column Strip Moment	0.5x118.35/2.500+0.5x118.35/5.000	35.505 kN.m/m	OK
Design for North-South Top Steel			
Area Covered	From 1.250 West to 1.250 m East of Column Centre	2.500 m	
Steel Required (Average)	M 35.505, h 200, d 157, fcu 35, fy 460, x/d 0.11	543 mm²	
Steel Required (Middle ½)	1.33 Average Steel Required	724 mm²	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm²	OK
Steel Required (Outer ½)	0.67 Average Steel Required	362 mm²	
Steel Provided (Outer ½)	T10@200	393 mm²	OK

Punching Shear Around Column Head @ B3 - Level 1

Maximum Effective Shear Force		
East-West Frame in Case 3	Mt 49.7 kN.m, Vt 262.8 kN, x 0.450 m	378.7 kN
North-South Frame in Case 5	Mt 45.2 kN.m, Vt 273.2 kN, x 0.450 m	378.6 kN
Permissible Shear Stress	As 582 mm²/m, d 163 mm, fcu 35 N/mm²	0.63 N/mm²

Shear @ Failure Zones (No Shear Reinforcement is Required)

Zone	X (m)	x-EW	x-NS	Veff	Vapp	u (m)	d (mm)	v	vc	
00	0.000	0.450	0.450	378.7	375.9	1.800	163	1.28	4.73	OK
01	0.122	0.695	0.695	365.9	359.3	2.778	163	0.79	1.26	OK
02	0.245	0.939	0.939	363.7	351.8	3.756	163	0.57	0.63	OK

Steel Design Around Column Head @ B2 - Level 1

East-West Steel Over Column Head (Top Steel) @ B2 - Level 1

Column Strip Width @ B2	Panel Width 5 m (Full 138.06 kN.m)	2.500 m	
Column Strip Moment	0.5x97.75/2.500+0.5x97.75/5.000	29.325 kN.m/m	OK
Design for East-West Top Steel			
Area Covered	From 1.250 North to 1.250 m South of Column Centre	2.500 m	
Steel Required (Average)	M 29.325, h 200, d 169, fcu 35, fy 460, x/d 0.08	417 mm²	
Steel Required (Middle ½)	1.33 Average Steel Required	556 mm²	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm²	OK
Steel Required (Outer ½)	0.67 Average Steel Required	278 mm²	
Steel Provided (Outer ½)	T10@200	393 mm²	OK

North-South Steel Over Column Head (Top Steel) @ B2 - Level 1

Column Strip Width @ B2	Panel Width 5 m (Full 161.49 kN.m)	2.500 m	
Column Strip Moment	0.5x118.28/2.500+0.5x118.28/5.000	35.484 kN.m/m	OK
Design for North-South Top Steel			
Area Covered	From 1.250 West to 1.250 m East of Column Centre	2.500 m	
Steel Required (Average)	M 35.484, h 200, d 157, fcu 35, fy 460, x/d 0.11	543 mm²	
Steel Required (Middle ½)	1.33 Average Steel Required	724 mm²	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm²	OK
Steel Required (Outer ½)	0.67 Average Steel Required	362 mm²	
Steel Provided (Outer ½)	T10@200	393 mm²	OK

Punching Shear Around Column Head @ B2 - Level 1

Maximum Effective Shear Force		
East-West Frame in Case 1	Mt 0.0 kN.m, Vt 334.6 kN, x 0.450 m	334.6 kN
North-South Frame in Case 5	Mt 44.9 kN.m, Vt 273.1 kN, x 0.450 m	378.0 kN
Permissible Shear Stress	As 582 mm²/m, d 163 mm, fcu 35 N/mm²	0.63 N/mm²

Shear @ Failure Zones (No Shear Reinforcement is Required)

Zone	X (m)	x-EW	x-NS	Veff	Vapp	u (m)	d (mm)	v	vc	
00	0.000	0.450	0.450	378.0	375.3	1.800	163	1.28	4.73	OK
01	0.122	0.695	0.695	363.7	357.2	2.778	163	0.79	1.26	OK
02	0.245	0.939	0.939	363.7	351.8	3.756	163	0.57	0.63	OK

Architects	Project Title		Revisions	Scale	Drawing No. & Title
Badmaal Somali Sustainable Fisheries Development Project	Somali Sustainable Fisheries Development Project (BADMAAL)		No. / Description / Date	1:25	JAZEERA Preliminary Detailed Calculations
	Client	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.	Date	Sheet No.
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia			12-03-2026	A1 Project No: P178032
				Drawn By	Designed By / Approved By.
				J.A. Sciortino	Mohamed Abdi Ahmed Saahid

Steel Design Around Column Head @ Node 26 - Level 1

East-West Steel Over Column Head (Top Steel) @ Node 26 - Level 1

Column Strip Width @ Node 26	Panel Width 3.5 m (Full 87.094 kN.m)	1.475 m	
Column Strip Moment	0.5x64.544/1.475+0.5x64.544/3.500 be 1.675 m, Mt.max 251.2 kN.m	31.100 kN.m/m	OK
Design for East-West Top Steel			
Area Covered	From 0.225 North to 1.250 m South of Column Centre	1.475 m	
Steel Required (Average)	M 31.1, h 200, d 169, fcu 35, fy 460, x/d 0.08	442 mm²	
Steel Required (Middle ½)	1.33 Average Steel Required	589 mm²	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm²	OK
Steel Required (Outer ½)	1.00 Average Steel Required	442 mm²	
Steel Provided (Outer ½)	T10@200 + T12@300	770 mm²	OK

North-South Steel Over Column Head (Top Steel) @ Node 26 - Level 1

Column Strip Width @ Node 26	Panel Width 3.5 m (Full 86.78 kN.m)	1.475 m	
Column Strip Moment	0.5x64.143/1.475+0.5x64.143/3.500 be 1.675 m, Mt.max 216.8 kN.m	30.907 kN.m/m	OK
Design for North-South Top Steel			
Area Covered	From 0.225 West to 1.250 m East of Column Centre	1.475 m	
Steel Required (Average)	M 30.907, h 200, d 157, fcu 35, fy 460, x/d 0.10	473 mm²	
Steel Required (Middle ½)	1.33 Average Steel Required	631 mm²	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm²	OK
Steel Required (Outer ½)	1.00 Average Steel Required	473 mm²	
Steel Provided (Outer ½)	T10@200 + T12@300	770 mm²	OK

Punching Shear Around Column Head @ Node 26 - Level 1

Maximum Effective Shear Force			
East-West Frame in Case 2	Mt 86.6 kN.m, Vt 118.8 kN, x 0.450 m	148.5 kN	
North-South Frame in Case 6	Mt 85.2 kN.m, Vt 118.1 kN, x 0.450 m	147.6 kN	
Permissible Shear Stress	As 770 mm²/m, d 163 mm, fcu 35 N/mm²	0.69 N/mm²	

Shear @ Failure Zones (No Shear Reinforcement is Required)

Zone	X (m)	x-EW	x-NS	Veff	Vapp	u (m)	d (mm)	v	vc	
00	0.000	0.450	0.450	148.5	145.7	0.900	163	0.99	4.73	OK
01	0.122	0.695	0.695	148.5	142.0	1.389	163	0.63	1.38	OK
02	0.245	0.939	0.939	148.5	136.6	1.878	163	0.45	0.69	OK

Steel Design Around Column Head @ C1 - Level 1

East-West Steel Over Column Head (Top Steel) @ C1 - Level 1

Column Strip Width @ C1	Panel Width 3.5 m (Full 107.3 kN.m)	1.475 m	
Column Strip Moment	0.5x83.115/1.475+0.5x83.115/3.500	40.048 kN.m/m	OK
Design for East-West Top Steel			
Area Covered	From 0.225 North to 1.250 m South of Column Centre	1.475 m	
Steel Required (Average)	M 40.048, h 200, d 169, fcu 35, fy 460, x/d 0.11	569 mm²	
Steel Required (Middle ½)	1.33 Average Steel Required	759 mm²	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm²	OK
Steel Required (Outer ½)	0.67 Average Steel Required	379 mm²	
Steel Provided (Outer ½)	T10@200	393 mm²	OK

North-South Steel Over Column Head (Top Steel) @ C1 - Level 1

Column Strip Width @ C1	Panel Width 5 m (Full 97.228 kN.m)	1.675 m	
Column Strip Moment	0.5x60.466/1.675+0.5x60.466/5.000 be 1.675 m, Mt.max 216.8 kN.m	24.096 kN.m/m	OK
Design for North-South Top Steel			
Area Covered	From 0.838 West to 0.838 m East of Column Centre	1.675 m	
Steel Required (Average)	M 24.096, h 200, d 157, fcu 35, fy 460, x/d 0.07	369 mm²	
Steel Required (Middle ½)	1.33 Average Steel Required	492 mm²	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm²	OK
Steel Required (Outer ½)	1.00 Average Steel Required	369 mm²	
Steel Provided (Outer ½)	T10@200	393 mm²	OK

Punching Shear Around Column Head @ C1 - Level 1

Maximum Effective Shear Force			
East-West Frame in Case 2	Mt 44.7 kN.m, Vt 186.2 kN, x 0.450 m	337.2 kN	
North-South Frame in Case 6	Mt 91.9 kN.m, Vt 158.6 kN, x 0.450 m	198.3 kN	
Permissible Shear Stress	As 582 mm²/m, d 163 mm, fcu 35 N/mm²	0.63 N/mm²	

Shear @ Failure Zones (No Shear Reinforcement is Required)

Zone	X (m)	x-EW	x-NS	Veff	Vapp	u (m)	d (mm)	v	vc	
00	0.000	0.450	0.450	337.2	334.4	1.800	163	1.14	4.73	OK
01	0.122	0.695	0.695	316.8	310.3	2.778	163	0.69	1.26	OK
02	0.245	0.939	0.939	314.9	303.0	3.756	163	0.49	0.63	OK

Architects	**Project Title**		**Revisions**	Scale	Drawing No. & Title
Badmaal Somali Sustainable Fisheries Development Project	**Somali Sustainable Fisheries Development Project (BADMAAL)**	THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	No. / Description / Date	**1:25**	**JAZEERA** **Preliminary Detailed Calculations**
	Client			Date	Sheet No.
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia		NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.	**12-03-2026**	**A1** **Project No: P178032**
				Drawn By	Designed By / Approved By.
				J.A. Sciortino	**Mohamed Abdi Ahmed Saahid**

Steel Design Around Column Head @ C4 - Level 1

East-West Steel Over Column Head (Top Steel) @ C4 - Level 1

Column Strip Width @ C4	Panel Width 3.5 m (Full 87.096 kN.m)	1.475 m	
Column Strip Moment	0.5x64.547/1.475+0.5x64.547/3.500 be 1.675 m, Mt.max 251.2 kN.m	31.101 kN.m/m	OK
Design for East-West Top Steel			
Area Covered	From 0.225 North to 1.250 m South of Column Centre	1.475 m	
Steel Required (Average)	M 31.101, h 200, d 169, fcu 35, fy 460, x/d 0.08	442 mm²	
Steel Required (Middle ½)	1.33 Average Steel Required	589 mm²	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm²	OK
Steel Required (Outer ½)	1.00 Average Steel Required	442 mm²	
Steel Provided (Outer ½)	T10@200 + T12@300	770 mm²	OK

North-South Steel Over Column Head (Top Steel) @ C4 - Level 1

Column Strip Width @ C4	Panel Width 3.5 m (Full 86.778 kN.m)	1.475 m	
Column Strip Moment	0.5x64.142/1.475+0.5x64.142/3.500 be 1.675 m, Mt.max 216.8 kN.m	30.906 kN.m/m	OK
Design for North-South Top Steel			
Area Covered	From 1.250 West to 0.225 m East of Column Centre	1.475 m	
Steel Required (Average)	M 30.906, h 200, d 157, fcu 35, fy 460, x/d 0.10	473 mm²	
Steel Required (Middle ½)	1.33 Average Steel Required	631 mm²	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm²	OK
Steel Required (Outer ½)	1.00 Average Steel Required	473 mm²	
Steel Provided (Outer ½)	T10@200 + T12@300	770 mm²	OK

Punching Shear Around Column Head @ C4 - Level 1

Maximum Effective Shear Force		
East-West Frame in Case 3	Mt 86.6 kN.m, Vt 118.8 kN, x 0.450 m	148.5 kN
North-South Frame in Case 6	Mt 85.2 kN.m, Vt 118.1 kN, x 0.450 m	147.6 kN
Permissible Shear Stress	As 770 mm²/m, d 163 mm, fcu 35 N/mm²	0.69 N/mm²

Shear @ Failure Zones (No Shear Reinforcement is Required)

Zone	X (m)	x-EW	x-NS	Veff	Vapp	u (m)	d (mm)	v	vc	
00	0.000	0.450	0.450	148.5	145.7	0.900	163	0.99	4.73	OK
01	0.122	0.695	0.695	148.5	142.0	1.389	163	0.63	1.38	OK
02	0.245	0.939	0.939	148.5	136.6	1.878	163	0.45	0.69	OK