



VOLUME 3 – FINAL DRAWINGS FOR PROPOSED  
ADMINISTRATION OFFICES IN BURTINLE DISTRICT,  
NUGAL REGION

PROJECT:

Final Drawings For  
Proposed Development of  
Administration Offices  
in Burtinle District, Nugal Region.

CLIENT:



THE FEDERAL REPUBLIC  
OF SOMALIA



GOVERNMENT OF PUNTALAND STATE  
BURTINLE DISTRICT

FINANCED BY:



The World Bank

IMPLEMENTED BY:

**SFF SOMALIA**  
Special Financing Facility

CONSULTANT:



ECOTECH LIMITED

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Nairobi - Kenya

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Location: Ecotech House, Woodlands Road,  
off Lenana Road, Nairobi - Kenya

FINAL DRAWINGS FOR PROPOSED ADMINISTRATION OFFICES  
IN BURTINLE DISTRICT, NUGAL REGION

CONTRACT N<sup>o</sup>: [MOF/SFF/SERV/08](#)

SFF-LD GRANT N<sup>o</sup>: [TFOA1715](#)

OCTOBER 2017  
DRAWING INDEX

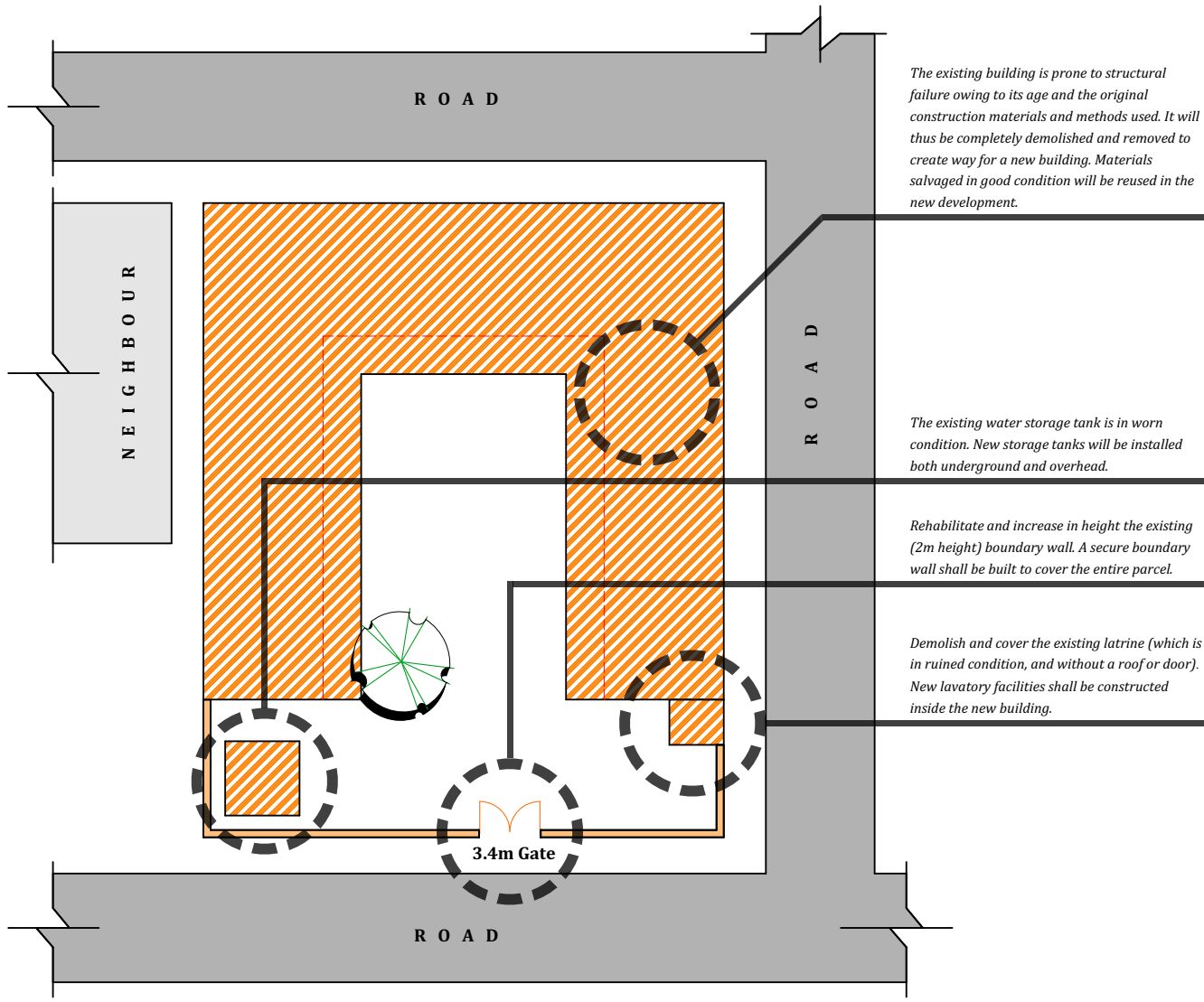


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SIGNED & STAMPED:

*Almeed Limbu*





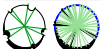
The existing building is prone to structural failure owing to its age and the original construction materials and methods used. It will thus be completely demolished and removed to create way for a new building. Materials salvaged in good condition will be reused in the new development.

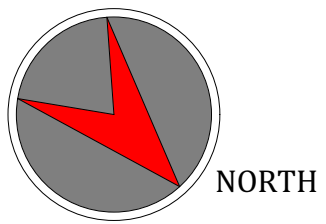
The existing water storage tank is in worn condition. New storage tanks will be installed both underground and overhead.

Rehabilitate and increase in height the existing (2m height) boundary wall. A secure boundary wall shall be built to cover the entire parcel.

Demolish and cover the existing latrine (which is in ruined condition, and without a roof or door). New lavatory facilities shall be constructed inside the new building.

**KEY:**

-  To be demolished
-  Rehabilitate/improve
-  Existing Tree



**SITE PHOTOS**



The existing building has a passageway with columns running along its front ends.



The existing building has windows opening outwards along the parcel boundary.



The ceilings are in worn condition.



The floors are in worn condition, columns and beams are chipping.



Present entrance to the mayor's office.



Present entrance of the women's organisation office.



View of the existing 2m high boundary wall.



View of the existing water storage tank.



View of the entrance gate.



External view of the main structure and boundary wall.


**NOTES:**

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2. All construction work to comply with the international standards codes practices.
3. The PV denotes permanent ventilation and must be provided above all doors and windows where indicated.
4. All walls less than 200mm thick are to be reinforced with hoop iron sheet every alternate course.
5. All reinforced concrete works to be done according to the Ecotech Structural Engineers detail drawings.


NO.	DATE	DESCRIPTION

**REVISIONS.**


FINANCED BY:



CLIENT:



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Project Title:  
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 IN BURTIKLE DISTRICT, MUGAL REGION

Drawing Title:  
**SITE ANALYSIS**

Sheet Content:  
 SITE ANALYSIS

Scale: **N.T.S (NOT TO SCALE)**  
 Date: **OCTOBER 2017**

PREPARED BY: **JEFFREY LUTZURIAGA**  
 REVIEWED & APPROVED BY:  
 ENG. AHMED KIRSHI      ENG. ALI HUSSEIN  
 Regional Director Ecotech Ltd.      Managing Director Ecotech Ltd.

Drawing No: **31371-553-**  
**SITE ANALYSIS-01**

Project No: **MOF/SFF/SERV/08**

Sheet No: **01/21**



There are many planted trees inside the compound which shall be replanted after the new development.



View of existing latrine. It has no roof or entrance door.



23no. columns, of 400X400mm, run along the corridor that serves the rooms.



View of entrance gate (beyond). There is also a flag pole with a concrete cast base.



View of the closest neighbour; the site's boundary wall is on the right.



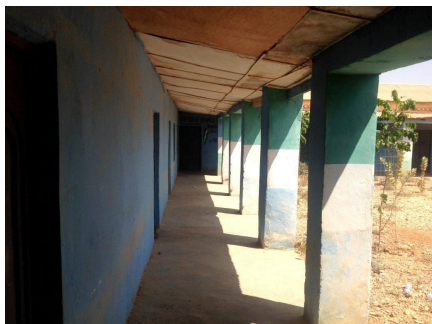
The existing structure has walls along the parcel boundary with windows opening to the outside of the compound.



There are roads on three faces of the site.



View of existing ceiling and electrical installation.



The beam above the columns along this segment is not consistent.



Columns are bent, beams are sagging.



The roof is in worn condition.



There is one mature tree on the site.

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**SITE PHOTO**

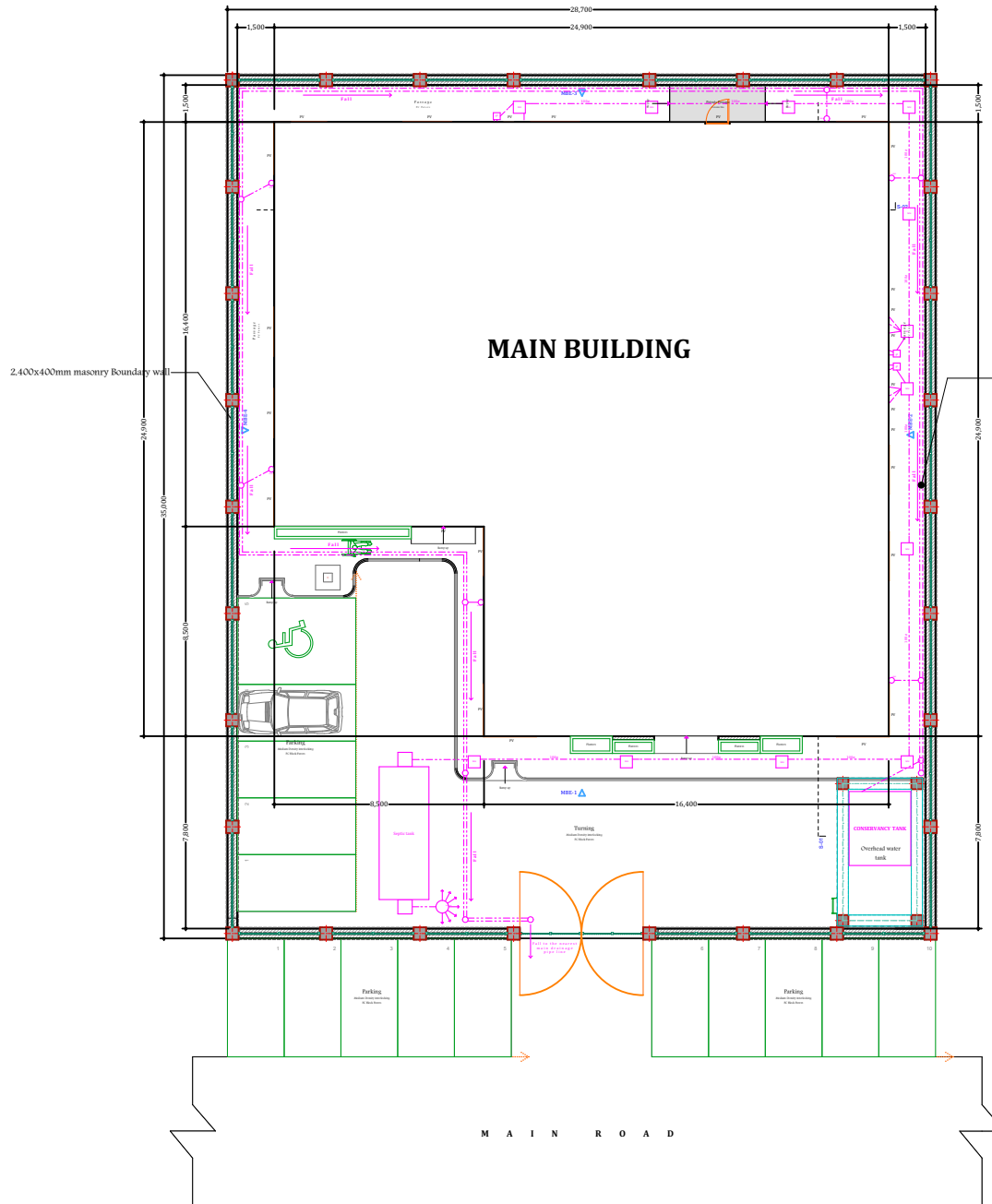
Sheet Content:  
SITE PHOTO

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PREPARED BY: **JEFFREY LUTZURIAGA**  
REVIEWED & APPROVED BY:  
ENG. AHMED KIBISHI      ENG. ALI HUSSEIN  
Regional Director Ecotech Ltd.      Managing Director Ecotech Ltd.

Drawing No:  
**81371-553-**  
**SITE PHOTO-02**

Project No:  
**MOF/SFF/SERV/08**

Sheet No:  
**02/21**  
A3



**MAIN BUILDING**

Provide storm water drainage RC 600x450mm bedded in 1.3 CS mortar laid to fall, granular backfill with FC slabs cover. Storm water reticulates from RVP through trapped gulleys to drainage channel and conservancy tank.

**MASTER PLAN**

Scale: 1:200

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Drawing Title:

**MASTER PLAN**

Sheet Content:

MASTER PLAN

Scale: **N.T.S (NOT TO SCALE)**

Date: **OCTOBER 2017**

PREPARED BY: **JEFFREY LUTZURIAGA**

REVIEWED & APPROVED BY:

ENG. AHMED KIRISH      ENG. ALI HUSSEIN  
Regional Director Ecotech Ltd.      Managing Director Ecotech Ltd.

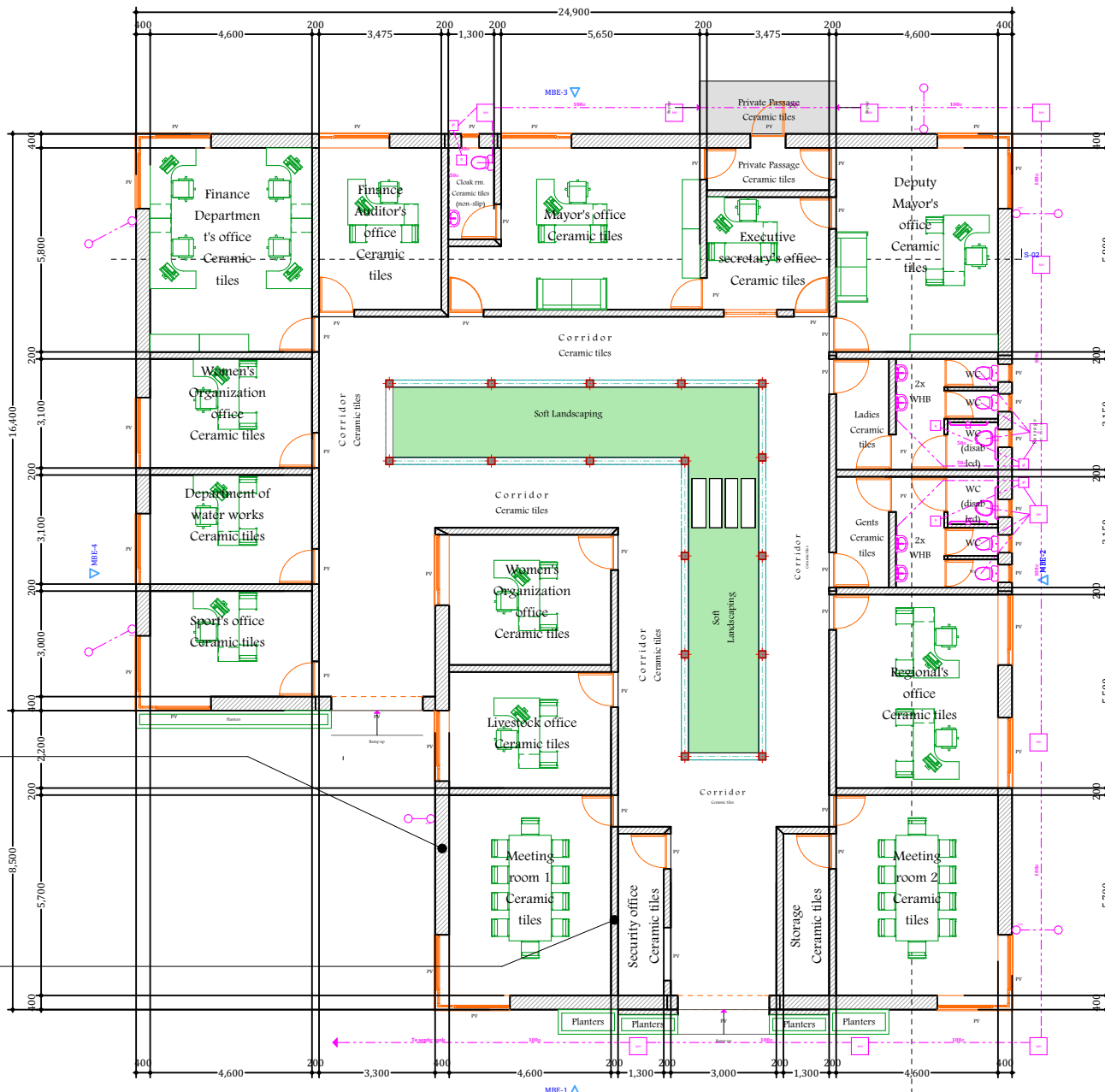
Drawing No:      Project No:

**31371-553-**      **MOF/SFF/SERV/08**  
**MASTER PLAN-03**

Sheet No:

**03/21**

A3



**FLOOR PLAN**  
Scale: 1:130


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Drawing Title:  
**FLOOR PLAN**

Sheet Content:  
FLOOR PLAN

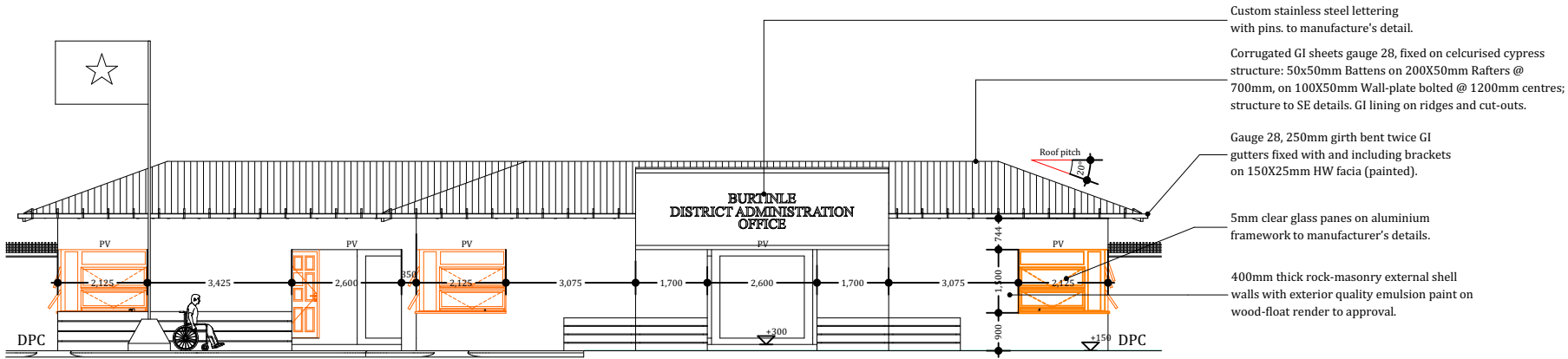
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Regional Director Ecotech Ltd.      Managing Director Ecotech Ltd.

Drawing No:  
**31371-553-  
FLOOR PLAN-04**

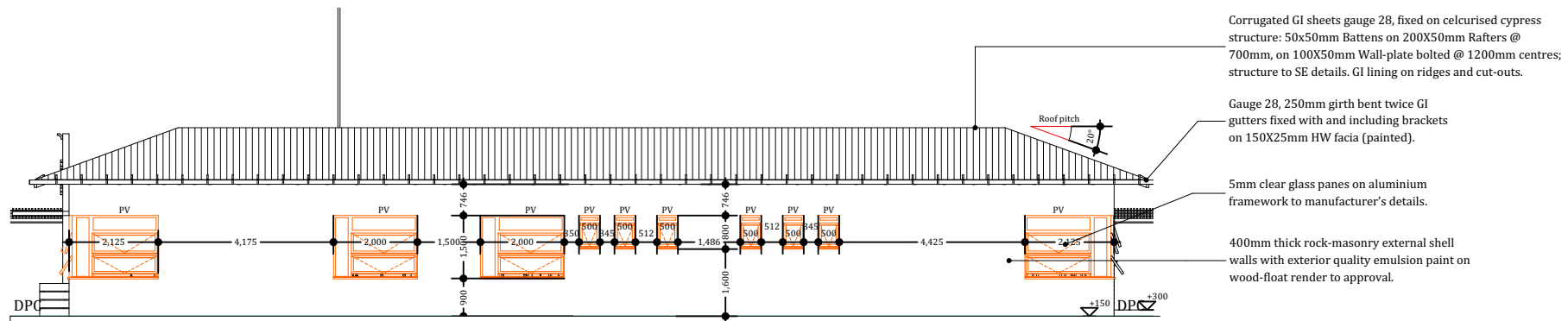
Project No:  
**MOF/SFF/SERV/08**

Sheet No:  
**04/21**  
A3



**MAIN BUILDING ELEVATION-01**

Scale: 1:110



**MAIN BUILDING ELEVATION-02**

Scale: 1:110

- Custom stainless steel lettering with pins, to manufacture's detail.
- Corrugated GI sheets gauge 28, fixed on celcurised cypress structure: 50x50mm Battens on 200X50mm Rafters @ 700mm, on 100X50mm Wall-plate bolted @ 1200mm centres; structure to SE details. GI lining on ridges and cut-outs.
- Gauge 28, 250mm girth bent twice GI gutters fixed with and including brackets on 150X25mm HW fascia (painted).
- 5mm clear glass panes on aluminium framework to manufacturer's details.
- 400mm thick rock-masonry external shell walls with exterior quality emulsion paint on wood-float render to approval.

- Corrugated GI sheets gauge 28, fixed on celcurised cypress structure: 50x50mm Battens on 200X50mm Rafters @ 700mm, on 100X50mm Wall-plate bolted @ 1200mm centres; structure to SE details. GI lining on ridges and cut-outs.
- Gauge 28, 250mm girth bent twice GI gutters fixed with and including brackets on 150X25mm HW fascia (painted).
- 5mm clear glass panes on aluminium framework to manufacturer's details.
- 400mm thick rock-masonry external shell walls with exterior quality emulsion paint on wood-float render to approval.

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Drawing Title:  
**ELEVATION PLAN**

Sheet Content:  
ELEVATION PLAN

Scale: **N.T.S (NOT TO SCALE)**  
Date: **OCTOBER 2017**

PREPARED BY: **JEFFREY LUTZURIAGA**  
REVIEWED & APPROVED BY:

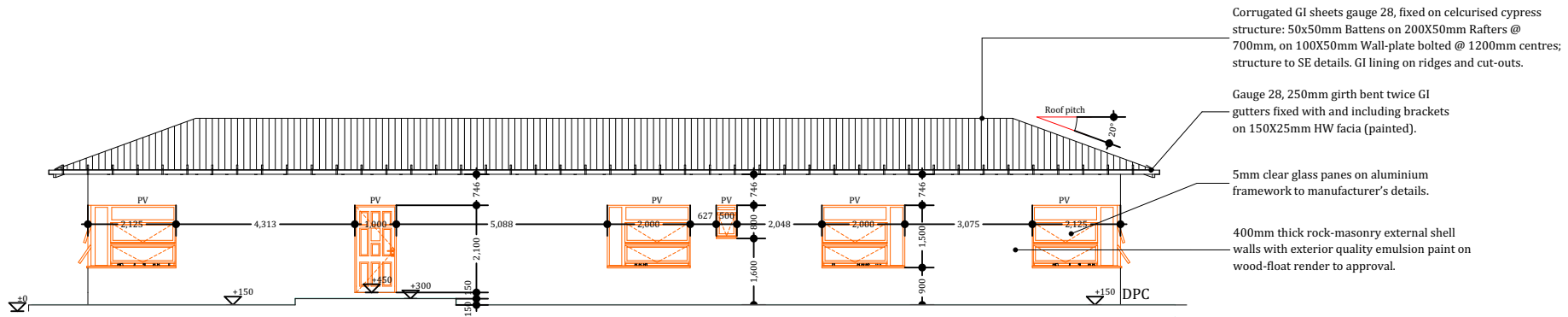
ENG. AHMED KIBISH (Regional Director Ecotech Ltd.)      ENG. ALI HUSSEIN (Managing Director Ecotech Ltd.)

Drawing No:  
**31371-553-  
ELEV.-05**

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**MOF/SFF/SERV/08**

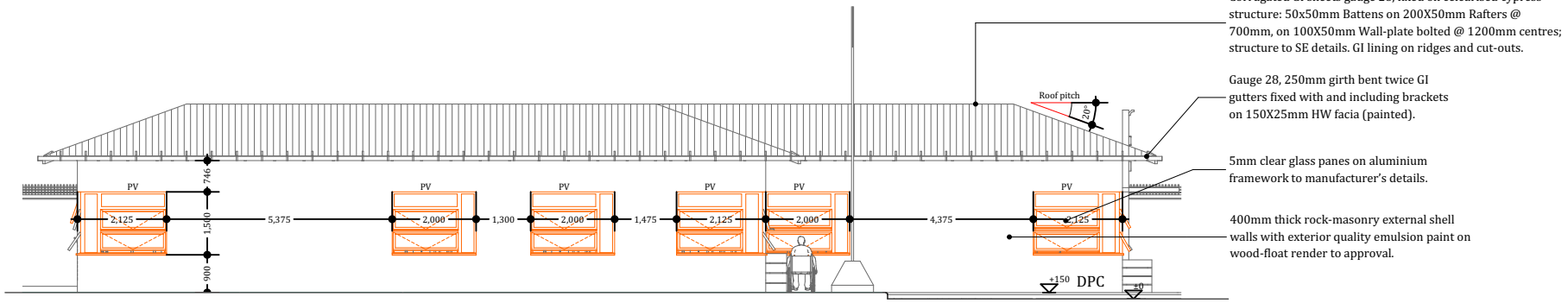
Sheet No:  
**05/21**

A3



### MAIN BUILDING ELEVATION-03

Scale: 1:110



### MAIN BUILDING ELEVATION-04

Scale: 1:110

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ELEVATION PLAN

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Date: **OCTOBER 2017**

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REVIEWED & APPROVED BY:  
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Regional Director Ecotech Ltd.      Managing Director Ecotech Ltd.

Drawing No:  
**31371-553-  
ELEV.-06**

Project No:  
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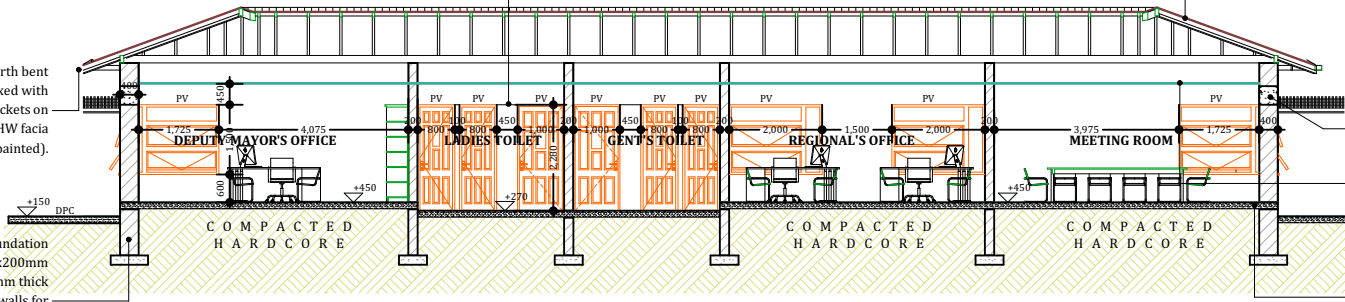
Sheet No:  
**06/21**



100mm thick rock-masonry partition walls with exterior quality emulsion paint on wood-float render to approval.

Gauge 28, 250mm girth bent twice GI gutters fixed with and including brackets on 150X25mm HW facia (painted).

400mm thick rock-masonry foundation walls for external shell, on 800x200mm RC strip foundation, and 200mm thick block-masonry foundation walls for internal partition walls, on 600x200mm RC strip foundation; depth determined on site to SE approval.



### MAIN BUILDING SECTION-01

Scale: 1:115

Corrugated GI sheets gauge 28, fixed on celurised cypress structure: 50x50mm Battens on 200X50mm Rafters @700mm, on 100X50mm Wall-plate bolted @ 1200mm centres; structure to SE details. GI lining on ridges and cut-outs.

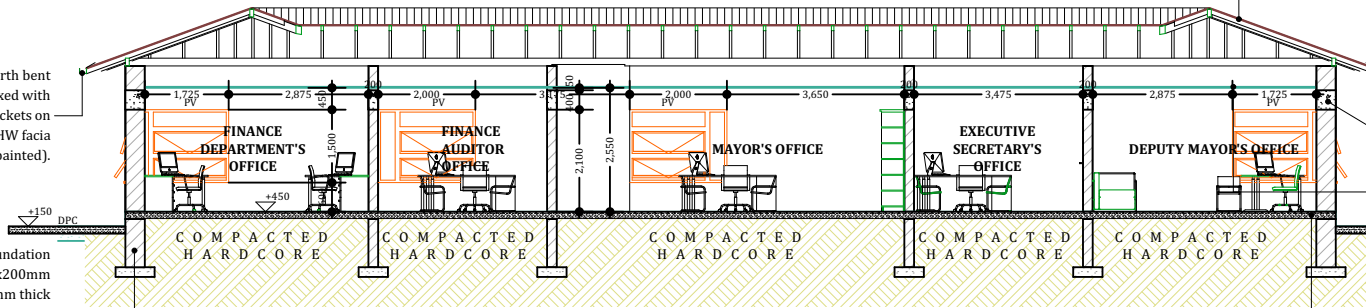
RC structure to SE details.

12mm thick chip-board ceiling on 50X50mm cypress brandering at 600 mm centres.

150mm thick floor slab reinforced with mesh on 1000 gauge DPM polyethylene on 50mm thick stone dust blinding on 300mm thick well compacted hardcore with anti-termite treatment; see SE details.

Gauge 28, 250mm girth bent twice GI gutters fixed with and including brackets on 150X25mm HW facia (painted).

400mm thick rock-masonry foundation walls for external shell, on 800x200mm RC strip foundation, and 200mm thick block-masonry foundation walls for internal partition walls, on 600x200mm RC strip foundation; depth determined on site to SE approval.



### MAIN BUILDING SECTION-02

Scale: 1:110

Corrugated GI sheets gauge 28, fixed on celurised cypress structure: 50x50mm Battens on 200X50mm Rafters @700mm, on 100X50mm Wall-plate bolted @ 1200mm centres; structure to SE details. GI lining on ridges and cut-outs.

RC structure to SE details.

12mm thick chip-board ceiling on 50X50mm cypress brandering at 600 mm centres.

150mm thick floor slab reinforced with mesh on 1000 gauge DPM polyethylene on 50mm thick stone dust blinding on 300mm thick well compacted hardcore with anti-termite treatment; see SE details.

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**SECTION PLAN**

Sheet Content:  
**SECTION PLAN**

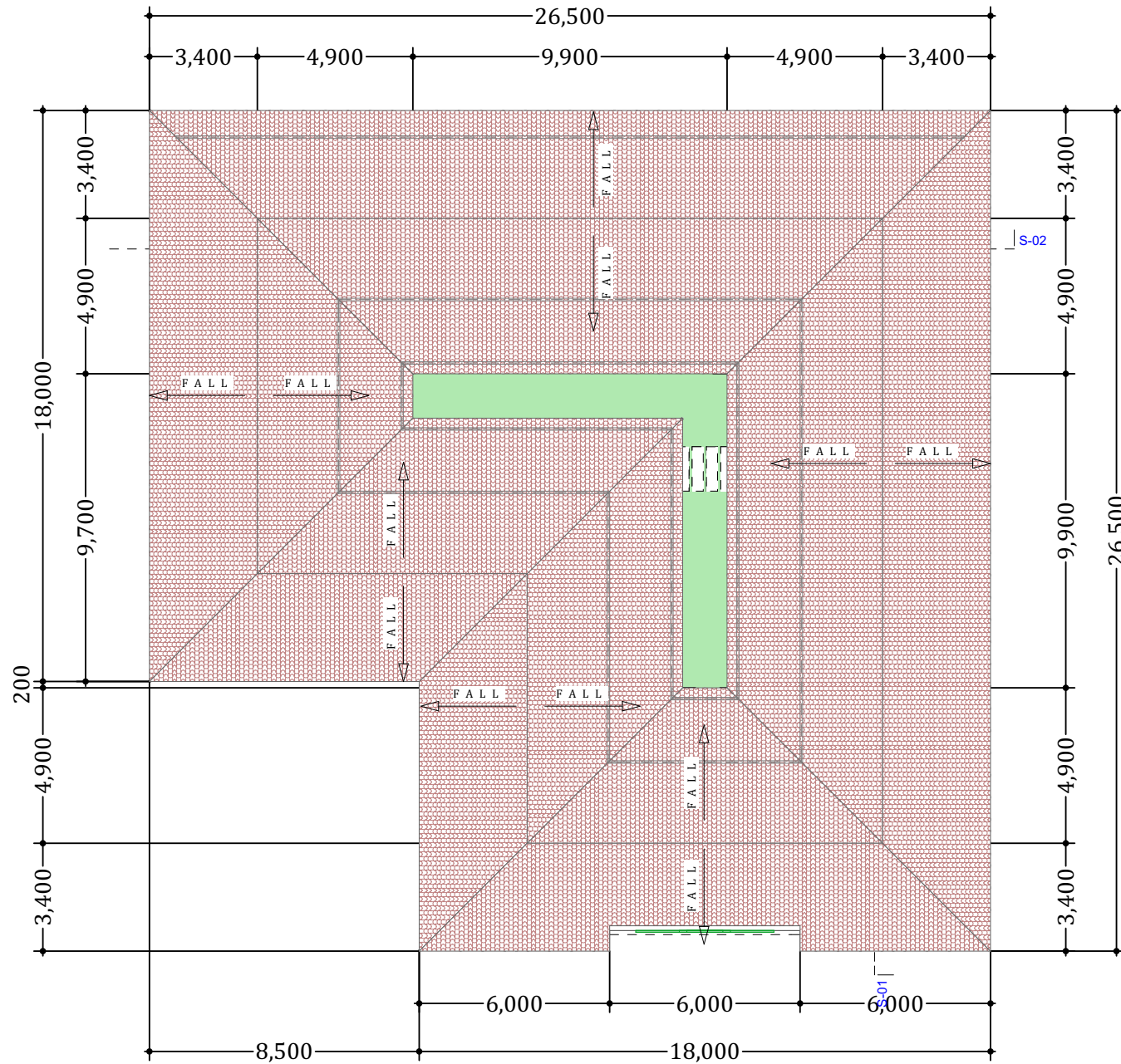
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REVIEWED & APPROVED BY:

ENG. AHMED KIBISH Regional Director Ecotech Ltd.      ENG. ALI HUSSEIN Managing Director Ecotech Ltd.

Drawing No: **31371-553-SECTION-07**      Project No: **MOF/SFF/SERV/08**

Sheet No: **07/21**      A3



**ROOF PLAN**  
Scale: 1:140

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**ROOF PLAN**

Sheet Content:  
ROOF PLAN

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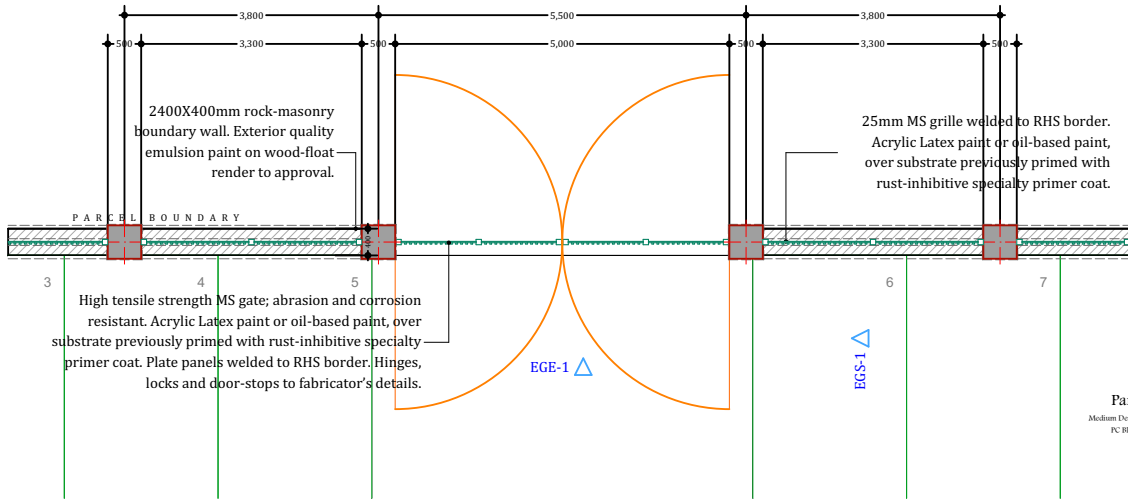
ENG. ALI HUSSEIN  
Managing Director Ecotech Ltd.

Drawing No:  
**31371-553-  
ROOF PLN-08**

Project No:  
**MOF/SFF/SERV/08**

Sheet No:  
**08/21**

A3

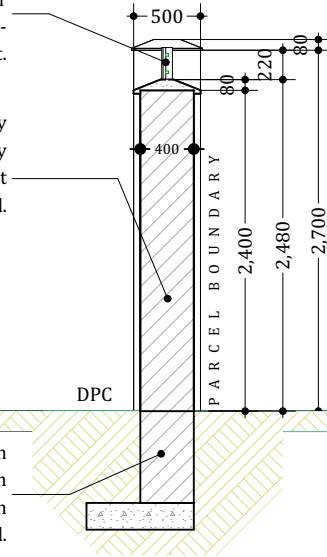


**BOUNDARY WALL**  
Scale: 1:80

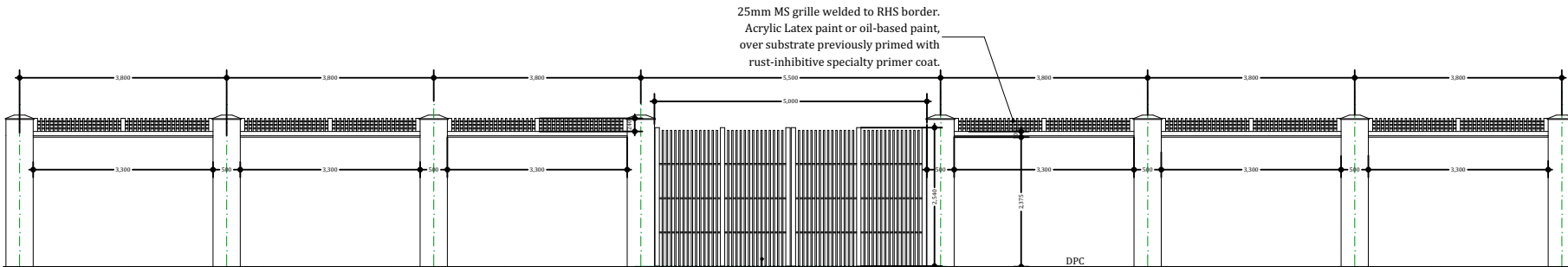
25mm MS grille welded to RHS border.  
Acrylic Latex paint or oil-based paint, over substrate previously primed with rust-inhibitive specialty primer coat.

2400X400mm rock-masonry boundary wall. Exterior quality emulsion paint on wood-float render to approval.

400mm thick rock-masonry foundation walls for external shell, on 800x200mm RC strip foundation, depth determined on site to SE approval.



**BWALL SECTION-1**  
Scale: 1:40



High tensile strength MS gate; abrasion and corrosion resistant. Acrylic Latex paint or oil-based paint, over substrate previously primed with rust-inhibitive specialty primer coat. Plate panels welded to RHS border. Hinges, locks and door-stops to fabricator's details.

**BOUNDARY WALL ELEVATION**  
Scale: 1:85

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- All walls less than 200mm thick are to be reinforced with hoop iron sheet every alternate course.
- All reinforced concrete works to be done according to the Ecotech Structural Engineers detail drawings.

NO.	DATE	DESCRIPTION

**REVISIONS.**

FINANCED BY:

CLIENT:

IMPLEMENTED BY:

**SFF SOMALIA**  
Special Financing Facility

CONSULTANT:

**ECOTECH LIMITED**  
P.O. Box 527-00100,  
Nairobi - Kenya  
Tel: +254 712 388815  
Fax: +254 701 838222  
Email: info@ecotech.co.ke  
Web: www.ecotech.co.ke  
Location: Ecotech House, Woodlands Road, off Lenana Road, Nairobi - Kenya

Project Title:

FINAL DRAWINGS FOR PROPOSED  
ADMINISTRATION OFFICES  
IN BURTINLE DISTRICT, BUWALE REGION

Drawing Title:

**BOUNDARY WALL**

Sheet Content:

BOUNDARY WALL

Scale: **N.T.S (NOT TO SCALE)**

Date: **OCTOBER 2017**

PREPARED BY: **JEFFREY LUTZURIAGA**

REVIEWED & APPROVED BY:

ENG. AHMED KIBISH      ENG. ALI HUSSEIN  
Regional Director Ecotech Ltd.      Managing Director Ecotech Ltd.

Drawing No:

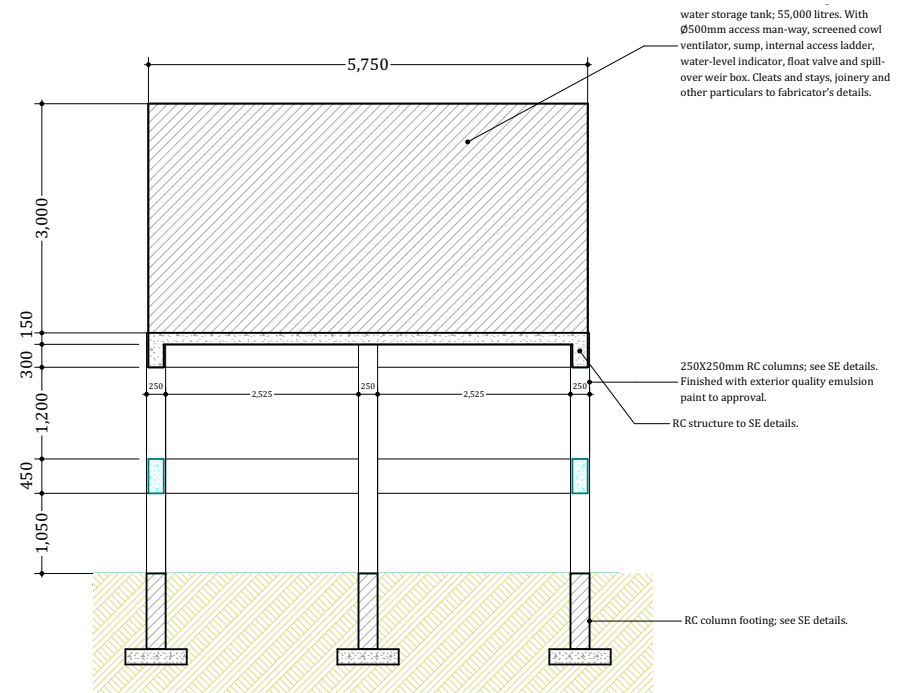
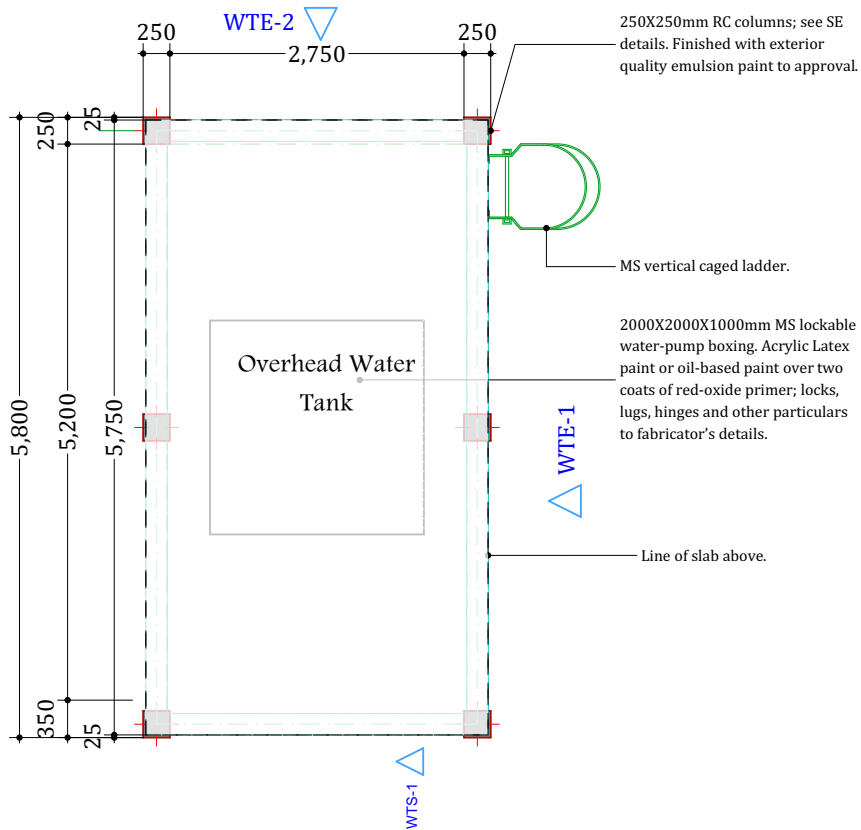
31371-553-  
B. WALL-09

Project No:

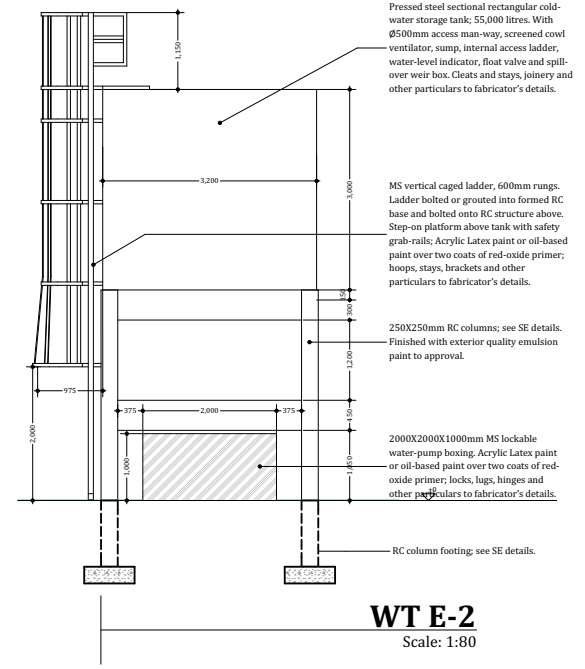
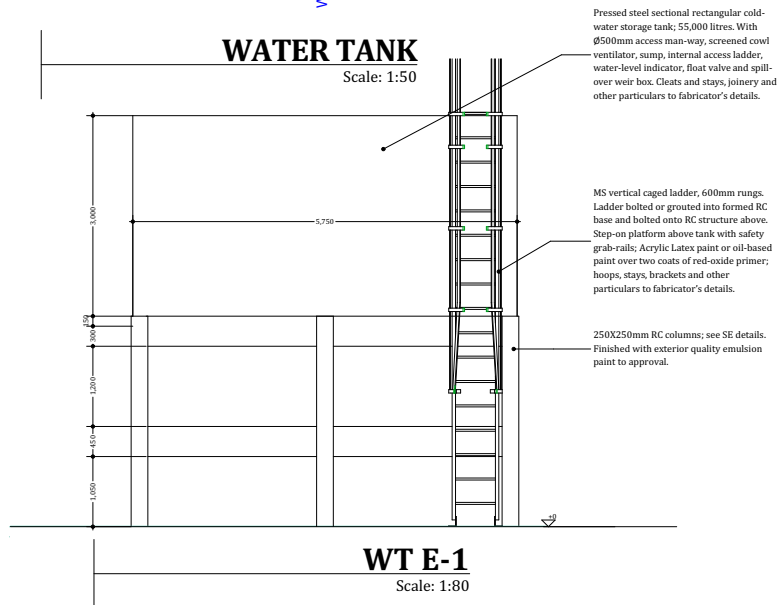
MOF/SFF/SERV/08

Sheet No:

**09/21**  
A3



**WATERTANKSECTION - 1**  
Scale: 1:70



**NOTES:**

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NO.	DATE	DESCRIPTION

**REVISIONS.**

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Project Title:  
FINAL DRAWINGS FOR PROPOSED  
ADMINISTRATION OFFICES  
IN BURTINLE DISTRICT, SUGAL REGION

Drawing Title:  
**WATER TANK**

Sheet Content:  
**WATER TANK**

Scale: **N.T.S (NOT TO SCALE)**  
Date: **OCTOBER 2017**

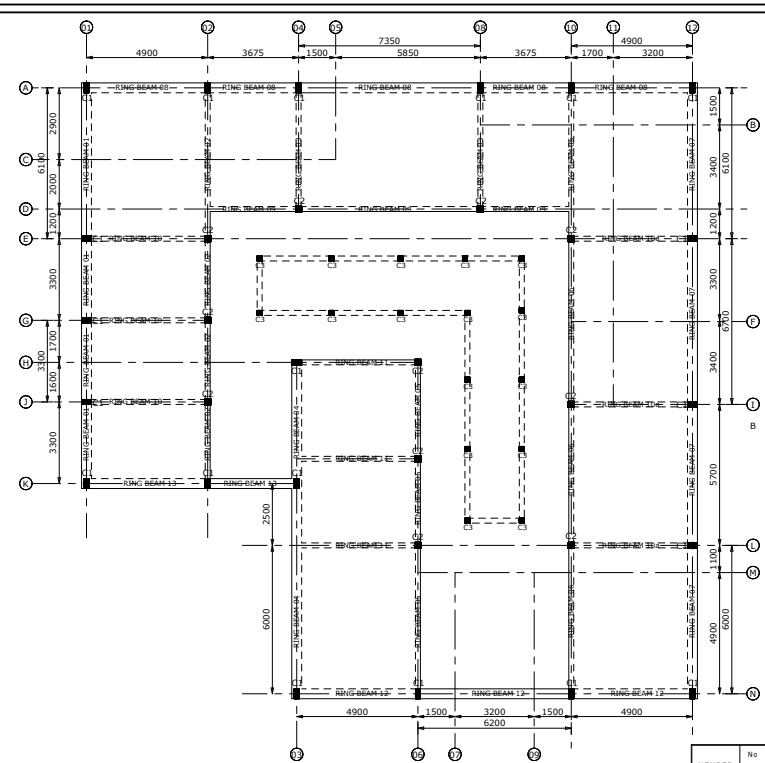
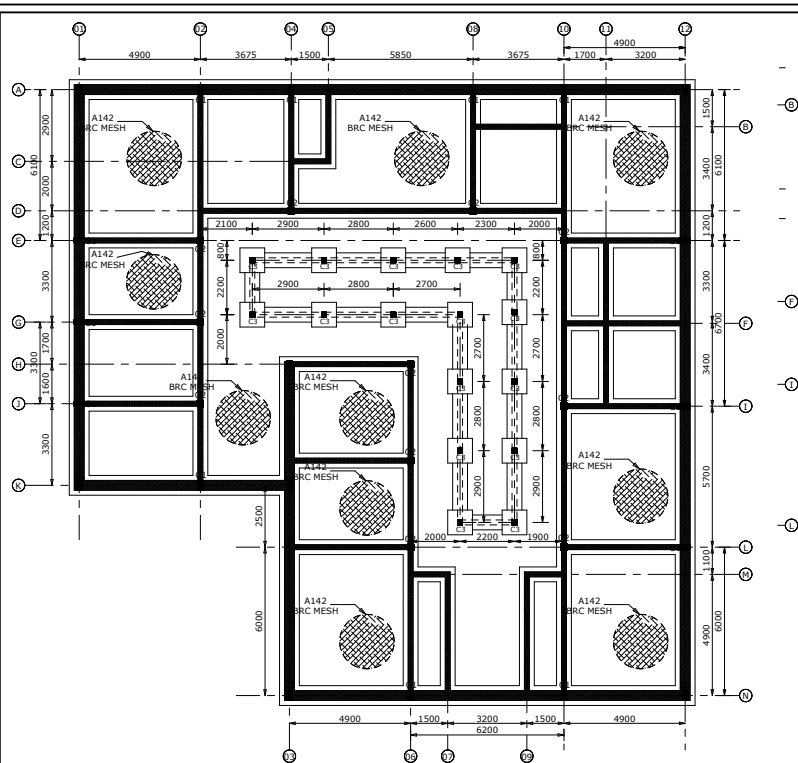
PREPARED BY: **JEFFREY LUTZURIAGA**  
REVIEWED & APPROVED BY:

ENG. AHMED KIRISHI      ENG. ALI HUSSEIN  
Regional Director Ecotech Ltd.      Managing Director Ecotech Ltd.

Drawing No:  
**31371-553-  
SEPTIC TANK-10**

Project No:  
**MOF/SFF/SERV/08**

Sheet No:  
**10/21**  
A3



**NOTES ON CONCRETE WORK**

- These notes shall be deemed to apply to all structural drawings
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- All dimensions shall be verified by the contractor and drawings shall not be scaled off.
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Concrete grade shall be class 25 for beams & slabs and class 25 for columns & foundations
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- 40 mm. For columns  
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- 25 mm. For beams
- Contractor shall verify the dimensions given in the bending schedules before cutting and bending steel reinforcement.
- These notes do not supersede the specifications and the contractor shall consult the engineer in event of any contradictions.
- Safe bearing pressure of soil is 150 kn/sq.m  
Structural timber shall be well seasoned timber stress grade s3 cypress (bs 5268-2:2002) with min. Moisture content of 12%

**NOTES:**

- All dimensions are to be checked on site. Any discrepancy in dimensions is to be reported to the Engineer/Architect before any work commences. The Architect's drawings and specifications overrule any other.
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**REVISIONS.**

NO.	DATE	DESCRIPTION:

FINANCED BY:

CLIENT:

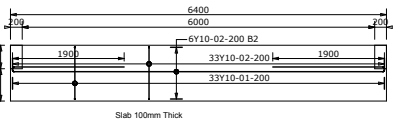
IMPLEMENTED BY:

Special Financing Facility

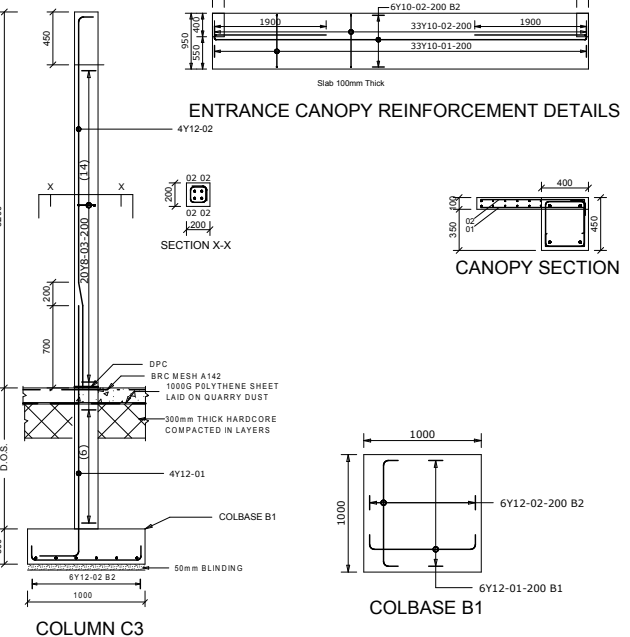
CONSULTANT:

**ECOTECH LIMITED**  
P.O. Box 0527-00100,  
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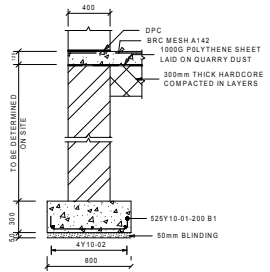
**FOUNDATION LAYOUT**



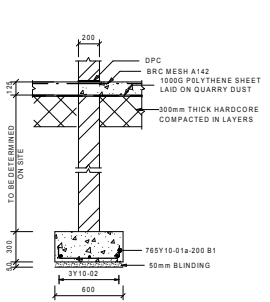
**ENTRANCE CANOPY REINFORCEMENT DETAILS**



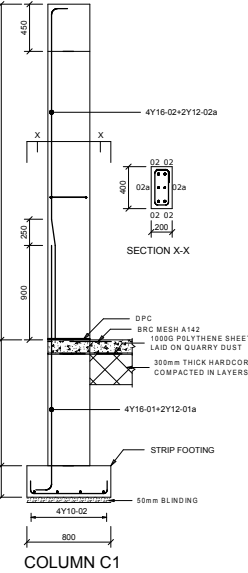
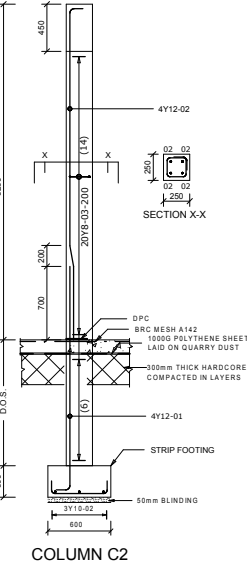
**RING BEAM LAYOUT**



**EXTERNAL WALL STRIP FOOTING**



**INTERNAL WALL STRIP FOOTING**



MEMBER	No OF MEMB	BARS PER MEMB	DIA.	LENGTH	TOTAL NUMBER	MARK	S C	BENDING																								
								A	B	C	D	E/R																				
COL C1	19	Y16	2450	76	01	37	2330	(150)	19	20	21	22	23	24																		
															Y16	3275	76	02	42	900	250	2010	51									
																								Y12	3275	38	02	42	900	250	2010	51
Y8	3275	48	02	42	700	200	2260	47																								
									Y8	625	240	03	61	180	180	190																
																	Y12	2225	64	01	37	2130	(130)	140								
																									Y12	3275	64	02	42	700	200	2260
Y8	625	320	03	61	130	130	140																									
								Y12	1100	96	01	35	900																			
																Y12	2550	41	01	38	1115	380	(1115)									
																								Y12	7200	2	02	41	700	200	(830)	
Y12	7200	03	41	700	200	(830)																										
							Y12	9000	3	04	43	700	200	7200	40																	
																Y12	9000	05	43	700	200	7200	40									
																								Y8	1525	78	06	61	380	330	7200	40
Y12	2225	52	02	41	700	200																										
							Y12	7225	03	41	700	200	(830)																			
														Y12	9000	04	43	700	200	7175	40											
																						Y12	8975	04	43	675	225	7175	40			
Y8	1125	72	06	61	380	130																								140		
							Y12	2250	41	01	38	955	380																		(950)	
														Y12	4355	02	43	700	200	2870	40											
																						Y12	4475	04	43	700	200	2870	40			
Y8	1125	44	04	61	380	130																								140		
							Y12	6200	02	41	700	200	(830)																			
														Y12	6200	03	41	700	200	(830)												
																					Y12	4475	04	43	700	200	2000	40				
Y12	4475	08	43	700	200	2060																							40			
							Y12	2225	52	05	38	955	380																	(950)		
														Y8	1125	60	07	61	380	130											140	
																					Y12	2550	01	38	1115	380	(1115)					
Y12	6825	2	02	41	700	200																						(6725)				
							Y12	6825	03	41	700	200	(6725)																			
														Y12	4475	04	43	700	200	2850									40			
																					Y12	7050	200	43	700	200	2850			40		
Y8	1525	2	06	61	380	330																						5250			40	
							Y8	1125	60	07	61	380	130																			140

R	B	10	12	16	20	25	32	40	TOT
X	317	1215	687						2218
Y	317	1215	687						2218

Project Title: FINAL DRAWINGS FOR PROPOSED ADMINISTRATION OFFICES IN BURTINLE DISTRICT, SUGAL REGION

Drawing Title: **STRUCTURAL**

Sheet Content: **STRUCTURAL**

Scale: N.T.S (NOT TO SCALE)  
Date: OCTOBER 2017

PREPARED BY: JEFFREY LUTURIAGA  
REVIEWED & APPROVED BY:

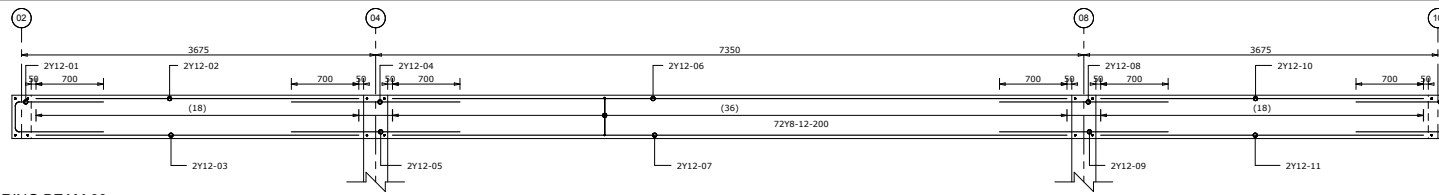
ENG. AHMED KIRISH  
Project Director Ecotech Ltd.

ENG. ALI HUSSEIN  
Managing Director Ecotech Ltd.

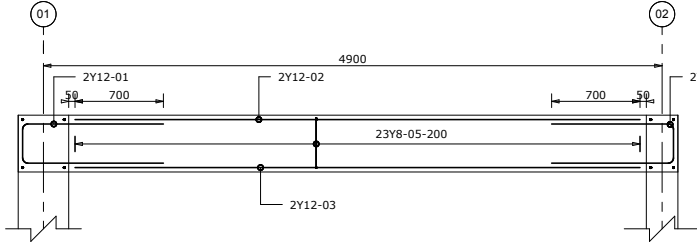
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Project No: M/OF/SFF/SERV/08

Issue No: 11/21

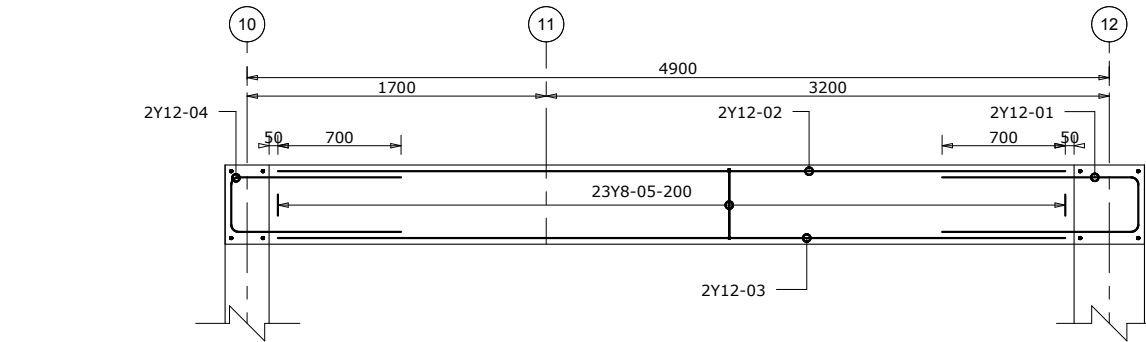




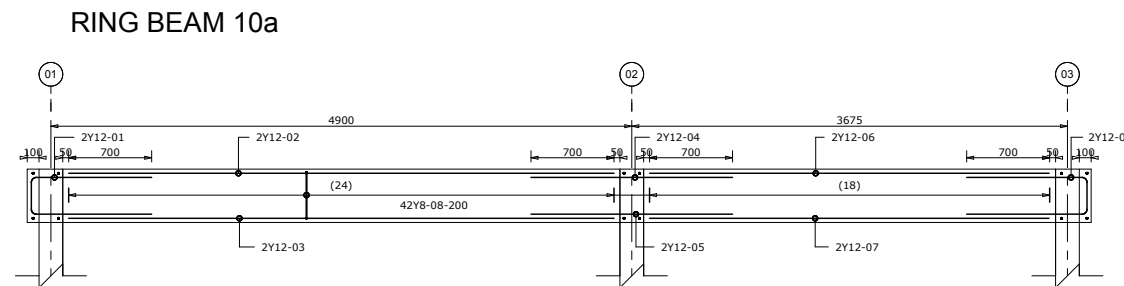
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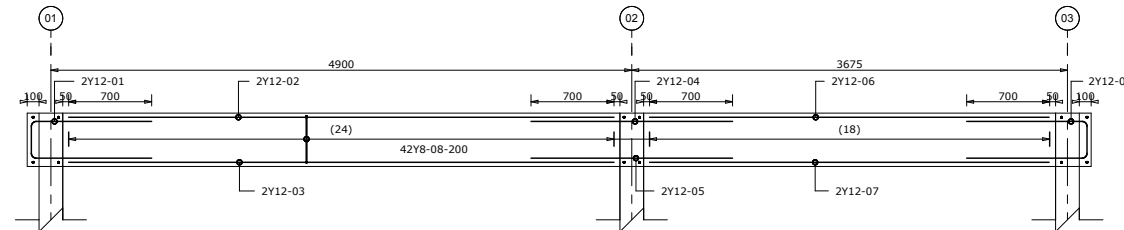
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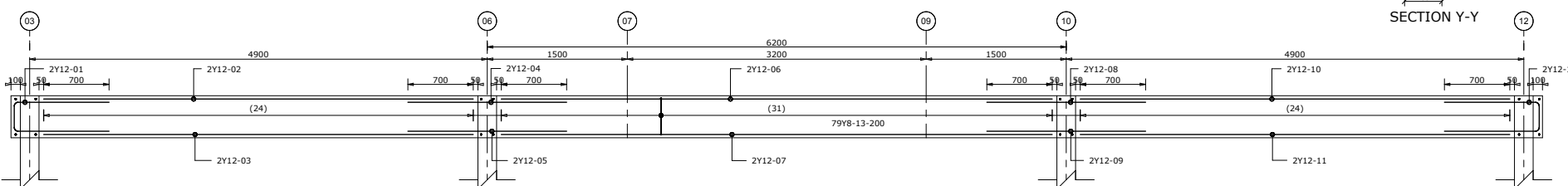
RING BEAM 11



RING BEAM 10a



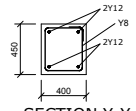
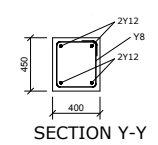
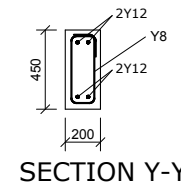
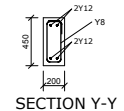
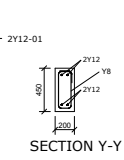
RING BEAM 13



RING BEAM 12

NOTES ON CONCRETE WORK

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MEMBER	No OF	BARS PER MEMB	DIA.	LENGTH	TOTAL NUM. BAR	MARK	S	C	BENDING					
									A	B	C	D	E/F	
BEAM 09	1	4	Y12	2075	4	01	38	315	310	(915)				
		2	Y12	3360	2	02	20	(3360)						
		2	Y12	3360	2	03	20	(3360)						
		2	Y12	1700	2	05	20	(1700)						
		2	Y12	7000	2	07	20	(7000)						
		2	Y12	7000	2	07	20	(7000)						
		2	Y12	1750	2	08	20	(1750)						
		2	Y12	1750	2	09	20	(1750)						
		2	Y12	3360	2	11	20	(3360)						
		2	Y12	3360	2	11	20	(3360)						
BEAM 10	3	2	Y12	2475	72	01	38	1115	310	(1115)				
		2	Y12	4475	6	02	20	(4475)						
		2	Y12	4475	6	03	20	(4475)						
		2	Y12	2175	6	04	38	985	310	(985)				
BEAM 10a	3	2	Y12	2475	69	01	38	1115	310	(1115)				
		2	Y12	4475	6	02	20	(4475)						
		2	Y12	4475	6	03	20	(4475)						
		2	Y12	2175	6	04	38	985	310	(985)				
BEAM 11	3	2	Y12	2475	69	01	38	1115	310	(1115)				
		2	Y12	4475	6	02	20	(4475)						
		2	Y12	4475	6	03	20	(4475)						
		2	Y12	2175	6	04	38	985	310	(985)				
BEAM 12	1	2	Y12	2275	2	01	38	1015	310	(1015)				
		2	Y12	4600	2	02	20	(4600)						
		2	Y12	1700	2	04	20	(1700)						
		2	Y12	1700	2	05	20	(1700)						
BEAM 13	1	4	Y12	2275	4	01	38	1015	310	(1015)				
		2	Y12	4600	2	02	20	(4600)						
		2	Y12	1700	2	04	20	(1700)						
		2	Y12	1700	2	05	20	(1700)						
		2	Y12	3375	2	06	20	(3375)						
		2	Y12	3375	2	07	20	(3375)						
		4	Y8	1525	42	08	61	380	330					
		4	Y8	1525	42	08	61	380	330					

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NO.	DATE	DESCRIPTION

**REVISIONS.**

FINANCED BY:

CLIENT:

IMPLEMENTED BY:

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Special Financing Facility

CONSULTANT:

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Project Title:  
FINAL DRAWINGS FOR PROPOSED  
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IN BURTINLE DISTRICT, BUWAALE REGION

Drawing Title:  
**STRUCTURAL**

Sheet Content:  
**STRUCTURAL**

Scale: **N.T.S (NOT TO SCALE)**  
Date: **OCTOBER 2017**

PREPARED BY: **JEFFREY LUTZURIAGA**  
REVIEWED & APPROVED BY:

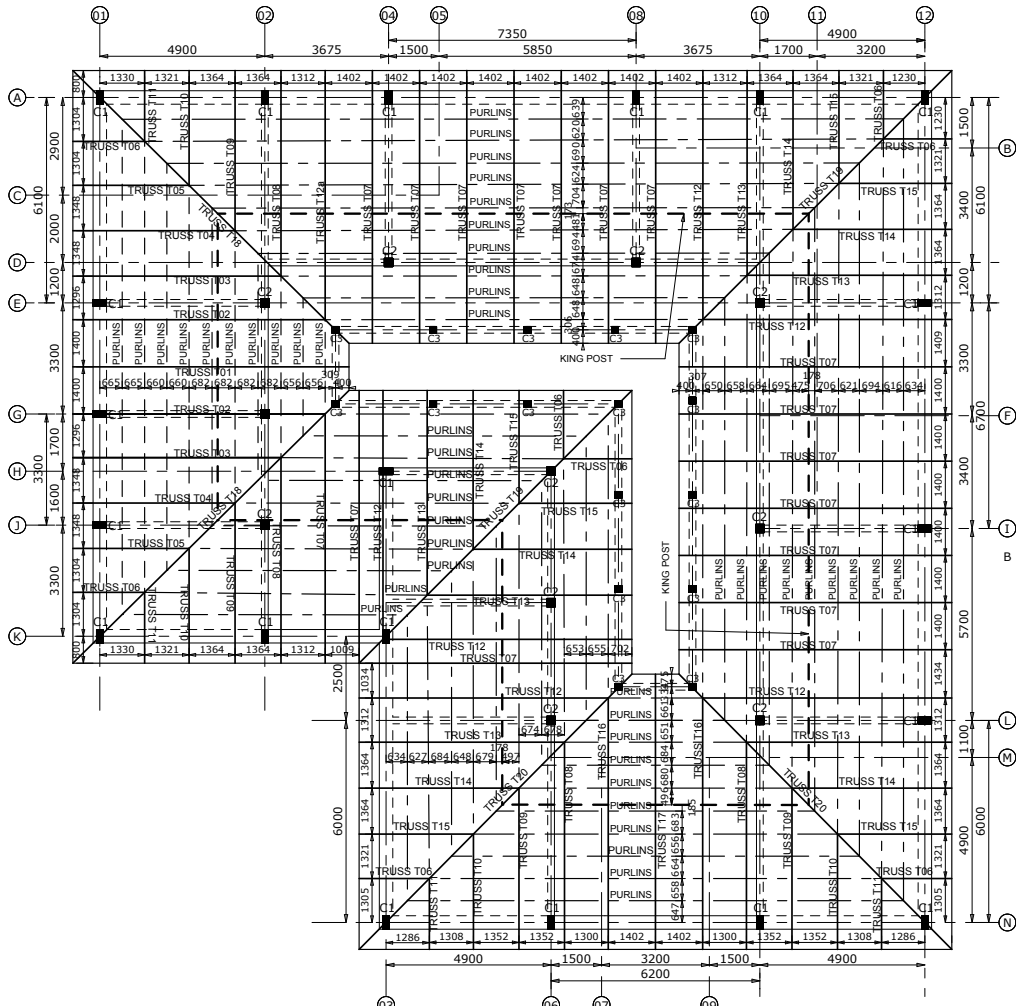
ENG. AHMED KIRISH  
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Managing Director Ecotech Ltd.

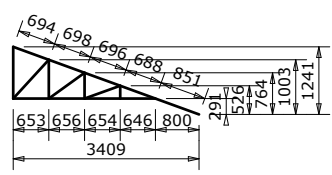
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**31371-553-  
STRUCTURAL-13**

Project No:  
**MOF/SFF/SERV/08**

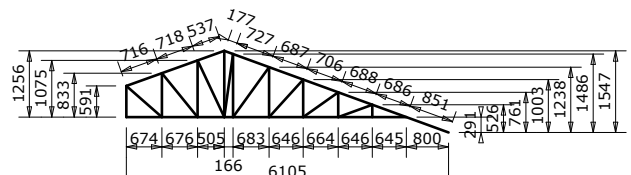
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**13/21**



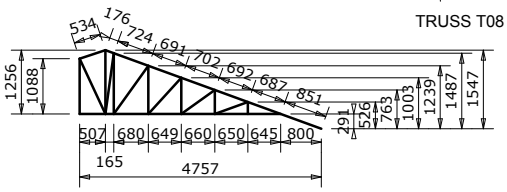
ROOF TRUSS LAYOUT



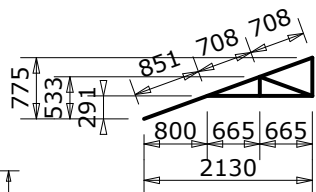
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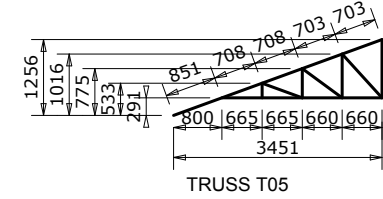
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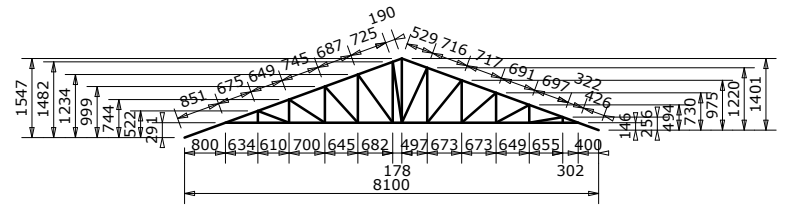
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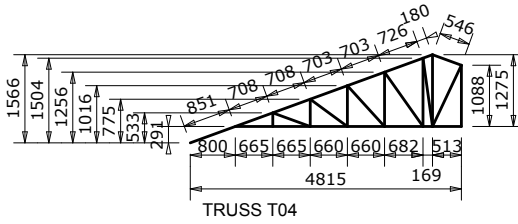
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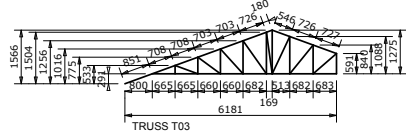
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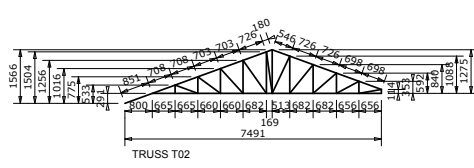
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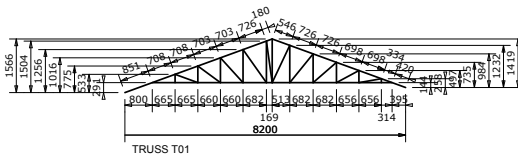
TRUSS T04



TRUSS T03



TRUSS T02



TRUSS T01

NOTES ON CONCRETE WORK

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NO:	DATE:	DESCRIPTION:

**REVISIONS.**

FINANCED BY:

CLIENT:

IMPLEMENTED BY:

**SFF SOMALIA**  
Special Financing Facility

CONSULTANT:

**ECOTECH LIMITED**  
P.O. Box 0527-00100,  
Nairobi - Kenya  
Tel: +254 712 388815  
Fax: +254 701 838222  
Email: info@ecotech.co.ke  
www.ecotech.co.ke  
Web:  
Location: Ecotech House, Woodlands Road,  
off Lenana Road, Nairobi - Kenya

Project Title:  
FINAL DRAWINGS FOR PROPOSED  
ADMINISTRATION OFFICES  
IN BURTINLE DISTRICT, NUGAL REGION

Drawing Title:  
**STRUCTURAL**

Sheet Content:  
**STRUCTURAL**

Scale: **N.T.S (NOT TO SCALE)**  
Date: **OCTOBER 2017**  
PREPARED BY: **JEFFREY LUTURIAGA**  
REVIEWED & APPROVED BY:  
ENG. AHMED KIBISH      ENG. ALI HUSSEIN  
Regional Director Ecotech Ltd      Managing Director Ecotech Ltd.

Drawing No: **31371-553-  
STRUCTURAL-14**

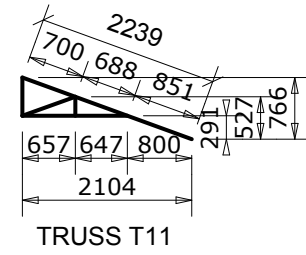
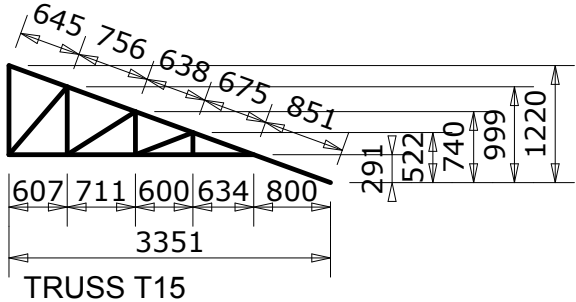
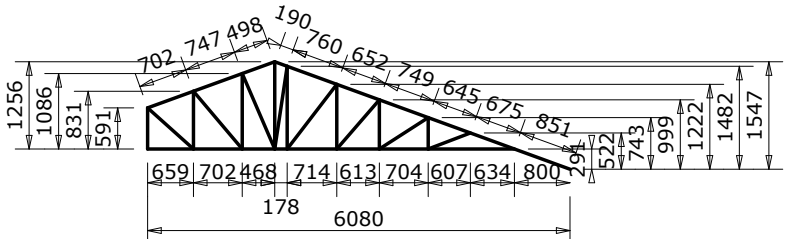
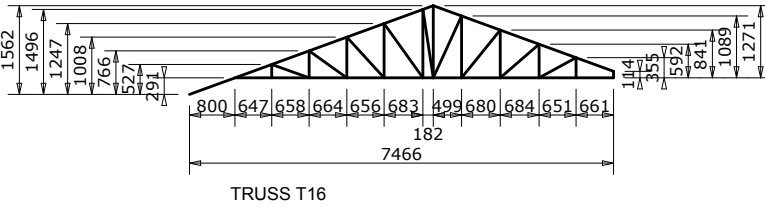
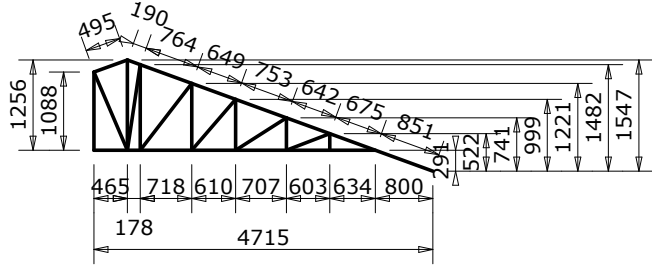
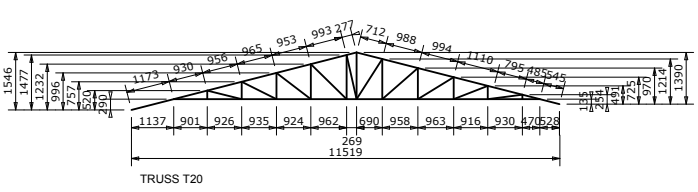
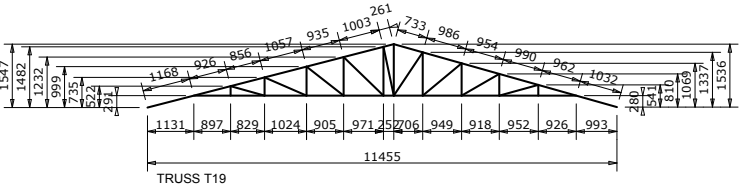
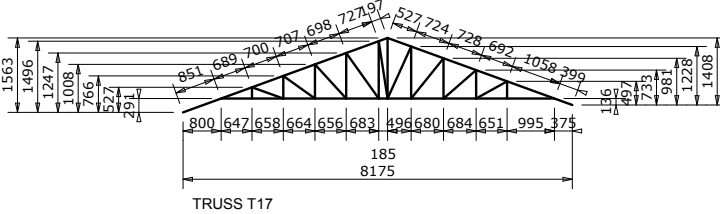
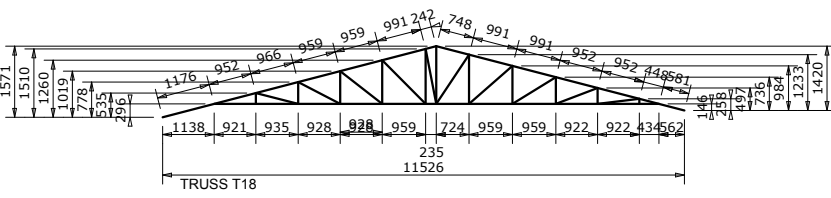
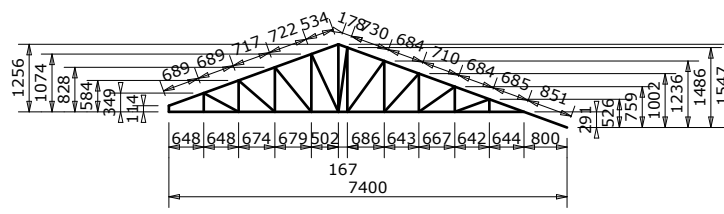
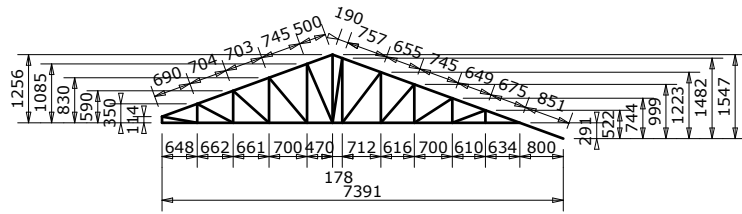
Project No: **MC/05/SFF/SERV/08**

Sheet No: **14/21**



**NOTES ON CONCRETE WORK**

1. These notes shall be deemed to apply to all structural drawings
2. The structural drawings shall be read in conjunction with the architectural drawings and in event of any discrepancies, the engineer and the architect shall be notified before proceeding with the work.
3. All dimensions shall be verified by the contractor and drawings shall not be scaled off.
4. Concrete shall have 20mm. Maximum size of aggregates and shall be adequately vibrated and cured. Concrete grade shall be class 25 for beams & slabs and class 25 for columns & foundations
5. Blinding concrete shall be 1:4:8 mix and shall be 50 mm. Thick unless otherwise stated.
6. Building blocks shall be adequately bonded and set in 3:1 sand/cement mortar.
7. Steel reinforcement shall be cold worked bars to b.S 4461 ref. Y and round mild bars to b.S 4448 ref. R.
8. Concrete covers shall be as follows:-  
- 50 mm. For foundations  
- 40 mm. For columns  
- 20 mm. For slabs and staircases  
- 25 mm. For beams
9. Contractor shall verify the dimensions given in the bending schedules before cutting and bending steel reinforcement.
10. These notes do not supercede the specifications and the contractor shall consult the engineer in event of any contradictions.
11. Safe bearing pressure of soil is 150 kn/sq.M
12. Structural timber shall be well seasoned timber stress grade s3 cypress (bs 5268:2:2002) with min. Moisture content of 12%



**NOTES:**

1. All dimensions are to be checked on site. Any discrepancy in dimensions is to be reported to the Ecotech architect before any work commences. The Architect's drawings and specifications overrule any other.
2. All construction work to comply with the international standards codes provisions.
3. The PV denotes permanent ventilation and must be provided above all doors and windows where indicated.
4. All walls less than 200mm thick are to be reinforced with hoops into sheet every alternate course.
5. All reinforced concrete works to be done according to the Ecotech Structural Engineers detail drawings.

NO.	DATE	DESCRIPTION

**REVISIONS.**

FINANCED BY:

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IMPLEMENTED BY:

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Special Financing Facility

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Drawing Title:  
**STRUCTURAL**

Sheet Content:  
STRUCTURAL

Scale:  
N.T.S (NOT TO SCALE)

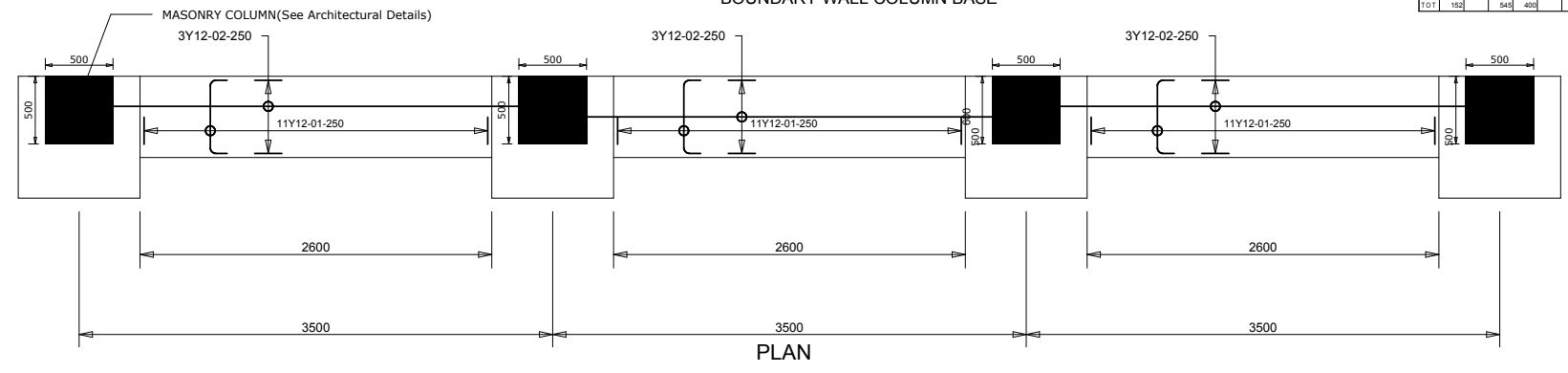
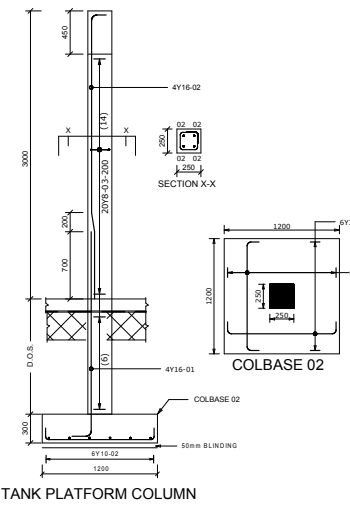
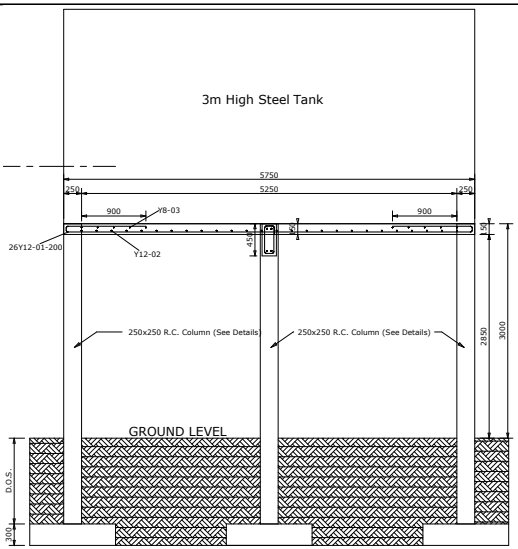
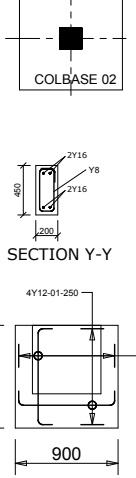
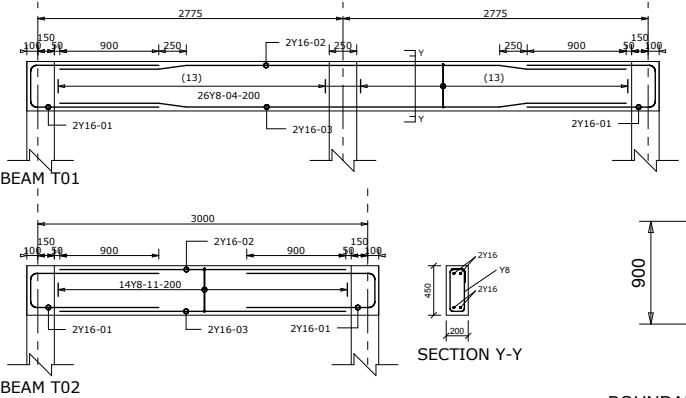
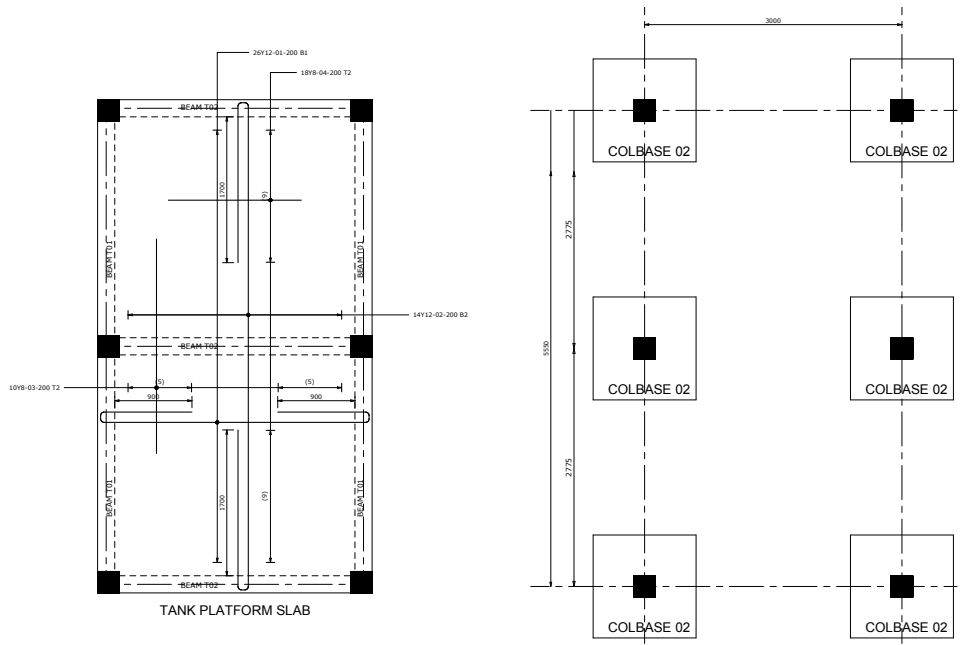
Date:  
OCTOBER 2017

PREPARED BY: JEFFREY LUZURIAGA  
REVIEWED & APPROVED BY:  
ENG. AHMED KIRISH      ENG. ALI HUSSEIN  
Regional Director Ecotech Ltd.      Managing Director Ecotech Ltd.

Drawing No:  
31371-553-  
STRUCTURAL-15

Project No:  
M01/SFF/SERV/08

Sheet No:  
**15/21**



**NOTES ON CONCRETE WORK**

- These notes shall be deemed to apply to all structural drawings.
- The structural drawings shall be read in conjunction with the architectural drawings and in event of any discrepancies, the engineer and the architect shall be notified before proceeding with the work.
- All dimensions shall be verified by the contractor and drawings shall not be scaled off.
- Concrete shall have 20mm. Maximum size of aggregates and shall be adequately vibrated and cured.  
Concrete grade shall be class 25 for beams & slabs and class 25 for columns & foundations
- Binding concrete shall be 1:4:8 mix and shall be 50 mm. Thick unless otherwise stated.
- Building blocks shall be adequately bonded and set in 3:1 sand/cement mortar.
- Steel reinforcement shall be cold worked bars to S 4461 ref. Y and round mild bars to S 4438 ref. R.
- Concrete covers shall be as follows:-  
- 50 mm. For foundations  
- 40 mm. For columns  
- 20 mm. For slabs and staircases  
- 25 mm. For beams
- Contractor shall verify the dimensions given in the bending schedules before cutting and bending steel reinforcement.
- These notes do not supersede the specifications and the contractor shall consult the engineer in event of any contradictions.
- Safe bearing pressure of soil is 150 kn/sq.M
- Structural timber shall be well seasoned timber stress grade s3 cypress (bs 5268-2:2002) with min. Moisture content of 12%

MEMBER	No OF	BARS	PER MEMB	DIA	LENGTH	TOTAL NUM. MARK	BENDING							
							S	C	A	B	C	D	E/F	
TANK SLAB	1	26	Y12	5095	26 01	66	12 15	120	3380	120	(1215)			
	14	Y12	10975	14 02	35	20 15	120	9900	120	120	(2015)			
	10	Y8	2500	10 03	20	20 00								
	18	Y8	1550	18 04	35	11 30								
	6	Y12	1325	6 01	35	11 30								
	6	Y12	1325	6 02	35	11 30								
	33	Y8	2025	33 01	61	1 80	80	6300	80		(1900)			
	6	Y8	1025	6 02	65	1 80	80	6300	80		(1900)			
	4	Y12	1050	144 01	35	840								
	4	Y12	1050	144 02	35	840								
OVERHANG														
B WALL	36	4	Y12	1050	144 02	35	840							
COLBASE & B WALL														
FOOTING	6	4	Y16	2300	24 01	37	2130	(200)						
TANK PLATFORM														
PLYFORM	20	4	Y16	3075	24 02	42	700	200	2060	47				
COLS														
BEAM T01	2	2	Y16	2625	4 01	38	1165	380	(1165)					
	2	Y16	5150	4 02	43	900	250	2850	2850	50				
	2	Y16	2625	4 01	38	1165	380	(1165)						
	26	Y8	1125	52 04	61	380	130							
	4	Y16	2575	12 01	38	1165	310	(1165)						
	2	Y16	2600	6 02	20	2000								
	2	Y16	2600	6 03	20	2000								
	14	Y8	1125	42 11	61	380	130							
BEAM T02	3													
R	8	10	12	16	20	25	32	40	TOT					
Y	152		545	400					1097					
TOT	152		545	400					1097					

**NOTES:**

- All dimensions are to be checked on site. Any discrepancy in dimensions to be reported to the Ecotech architect before any work commences. The Architect's drawings and specifications overrule any other.
- All construction work to comply with the international standards code provisions.
- The PV denotes permanent ventilation and must be provided above all doors and windows where indicated.
- All walls less than 200mm thick are to be reinforced with hoop iron sheet every alternate course.
- All reinforced concrete works to be done according to the Ecotech Structural Engineers detail drawings.

NO.	DATE	DESCRIPTION

**REVISIONS.**

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CLIENT:

IMPLEMENTED BY:

CONSULTANT:

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Scale:  
**N.T.S (NOT TO SCALE)**

Date:  
**OCTOBER 2017**

PREPARED BY: **JEFFREY LUZURIAGA**

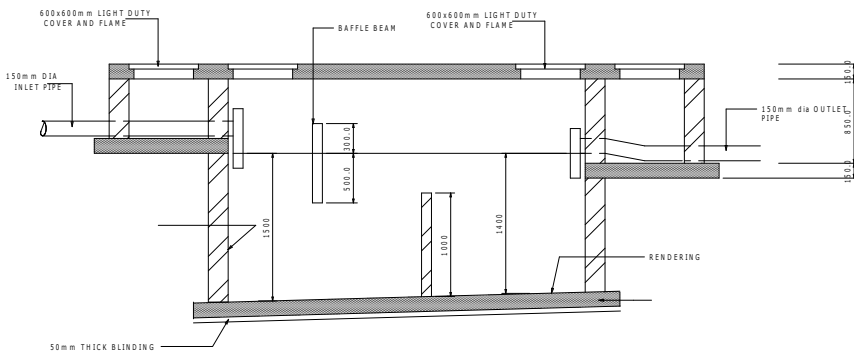
REVIEWED & APPROVED BY:

ENG. AHMED KIBISH      ENG. ALI HUSSEIN  
 Regional Director Ecotech Ltd.      Managing Director Ecotech Ltd.

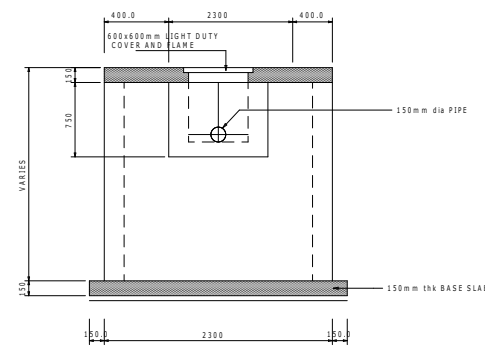
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**31371-553-  
 STRUCTURAL-16**

Project No:  
**MOF/SFF/SERV/08**

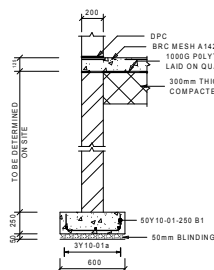
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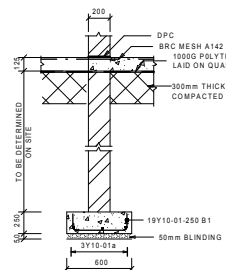
SECTION 2 - 2



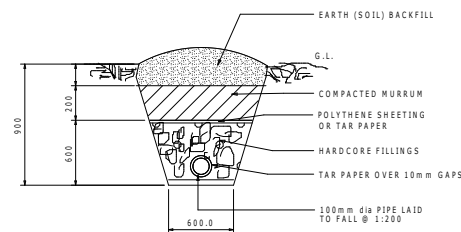
ELEVATION SECTION 1 - 1



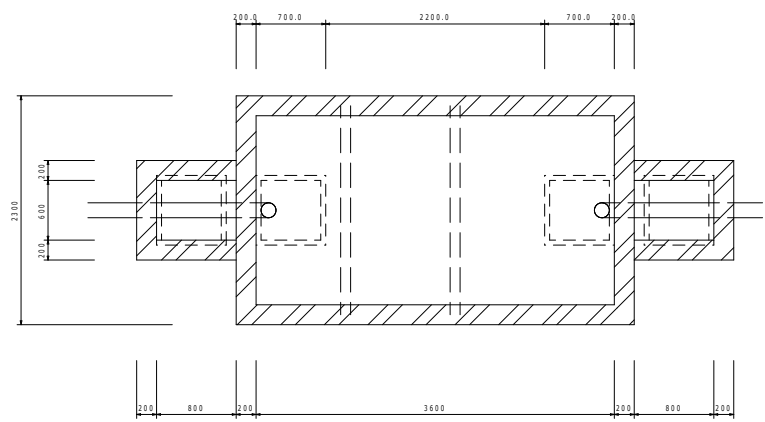
EXTERNAL WALL STRIP FOOTING



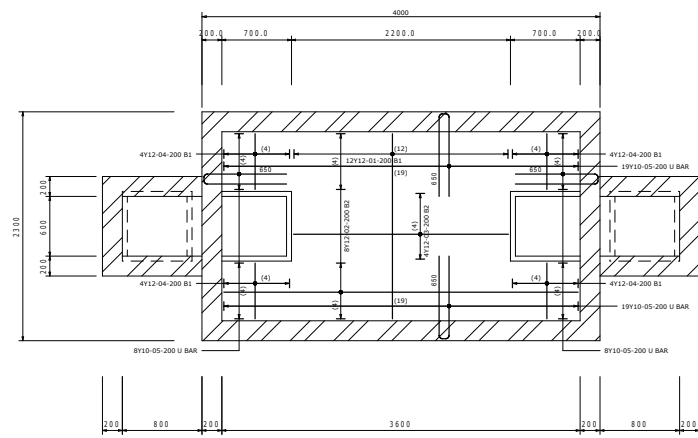
INTERNAL WALL STRIP FOOTING



FRENCH DRAIN



ROOF LAYOUT



TOP SLAB REINFORCEMENT

- NOTES ON CONCRETE WORK**
- THESE NOTES SHALL BE DEEMED TO APPLY TO ALL STRUCTURAL DRAWINGS
  - THE STRUCTURAL DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS AND IN EVENT OF ANY DISCREPANCIES, THE ENGINEER AND THE ARCHITECT SHALL BE NOTIFIED BEFORE PROCEEDING WITH THE WORK.
  - ALL DIMENSIONS SHALL BE VERIFIED BY THE CONTRACTOR AND DRAWINGS SHALL NOT BE SCALED OFF.
  - CONCRETE SHALL HAVE 20MM MAXIMUM SIZE OF AGGREGATES AND SHALL BE ADEQUATELY VIBRATED AND CURED. CONCRETE GRADE SHALL BE CLASS 25 UNLESS OTHERWISE STATED BY THE ENGINEER.
  - BLINDING CONCRETE SHALL BE 1:4:8 MIX AND SHALL BE 50 MM THICK UNLESS OTHERWISE STATED.
  - BUILDING BLOCKS SHALL BE ADEQUATELY BONDED AND SET IN 3:1 SAND/CEMENT MORTAR.
  - STEEL REINFORCEMENT SHALL BE COLD WORKED BARS TO B.S 4461 REF. Y AND ROUND MILD BARS TO B.S 4448 REF. R.
  - UNLESS OTHERWISE STATED, CONCRETE COVERS SHALL:
    - 50 MM. FOR FOUNDATIONS
    - 40 MM. FOR COLUMNS
    - 20 MM. FOR SLABS AND STAIRCASES
    - 25 MM. FOR BEAMS
  - CONTRACTOR SHALL VERIFY THE DIMENSIONS GIVEN IN THE BENDING SCHEDULES BEFORE CUTTING AND BENDING STEEL REINFORCEMENT.
  - THESE NOTES DO NOT SUPERCEED THE SPECIFICATIONS AND THE CONTRACTOR SHALL CONSULT THE ENGINEER IN EVENT OF ANY CONTRADICTIONS.
  - CUBE TESTS SHALL BE DONE FOR EVERY CONCRETING. ANY CONCRETE WORK THAT FAILS TESTS SHALL BE DEMOLISHED AND REDONE AT THE COST OF THE CONTRACTOR.

MEMBER	No OF	BARS PER METER	DIA.	LENGTH	TOTAL NUM. BARS	MARK	S	C	BENDING					
									A	B	C	D	EP	
TOP SLAB	1	12	Y12	1850	12	01	20							
		8	Y12	3650	8	02	20							
		4	Y12	2150	4	03	20							
		16	Y12	500	16	04	20			830	100			
		64	Y10	1700	64	05	38							
STRIP FOOTING		69	Y10	750	69	01	38	150	500					
		8	Y10	3650	8	02	20							
		12	Y10	2200	12	03	20							

**NOTES:**

- All dimensions are to be checked on site. Any discrepancy in dimensions is to be reported to the Ecotech architect before any work commences. The Architect's drawings and specifications overrule any other.
- All construction work to comply with the international standards code provisions.
- The PV denotes permanent ventilation and must be provided above all doors and windows where indicated.
- All walls less than 200mm thick are to be reinforced with hoop iron sheet every alternate course.
- All reinforced concrete works to be done according to the Ecotech Structural Engineers detail drawings.

NO.	DATE	DESCRIPTION

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Project Title:

FINAL DRAWINGS FOR PROPOSED  
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IN BURTINLE DISTRICT, MUGAL REGION

Drawing Title:

**SEPTIC TANK**

Sheet Content:

**SEPTIC TANK**

Scale: **N.T.S (NOT TO SCALE)**

Date: **OCTOBER 2017**

PREPARED BY: **JEFFREY LUTZURIAGA**

REVIEWED & APPROVED BY:

ENG. AHMED KIRISH (Regional Director Ecotech Ltd.)  
ENG. ALI HUSSEIN (Managing Director Ecotech Ltd.)

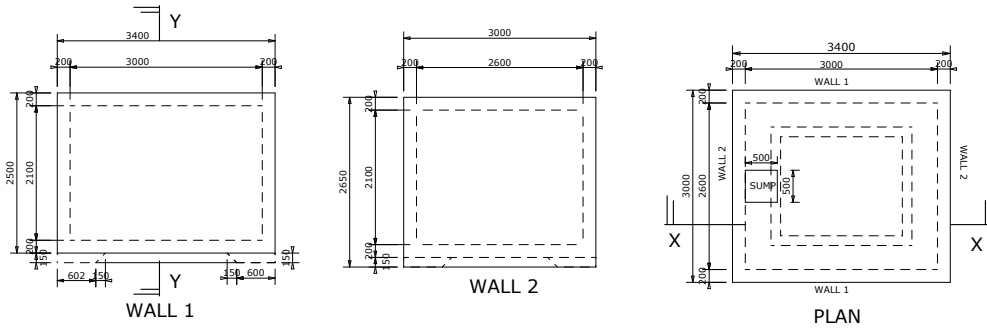
Drawing No: **31371-553- SEPTIC TANK -17**

Project No: **MOF/SFF/SERV/08**

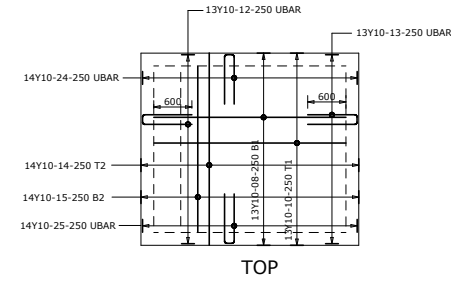
Sheet No: **17/21**

**SEPTIC TANK DETAIL-1**  
Scale: 1:1

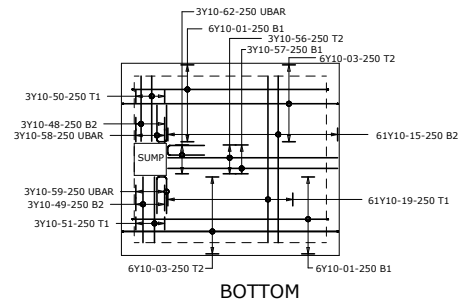
## CONSERVANCY TANK DETAILS



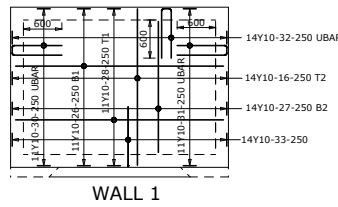
PLAN



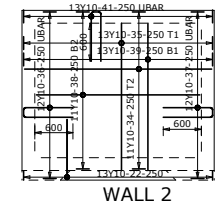
TOP



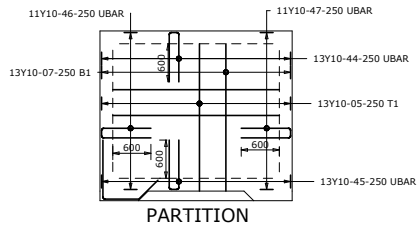
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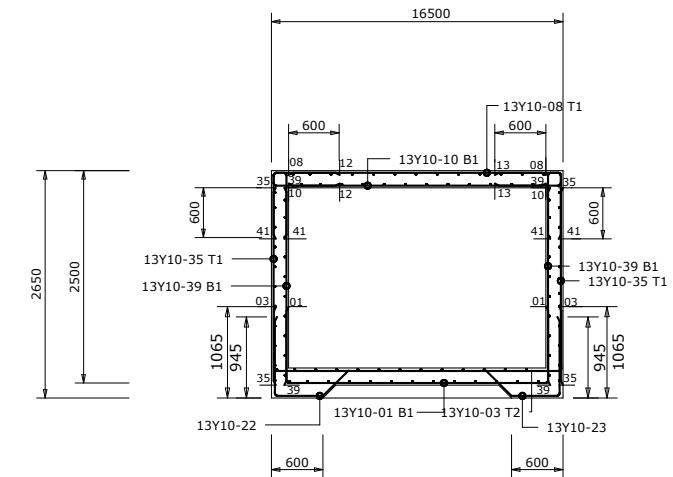
WALL 1



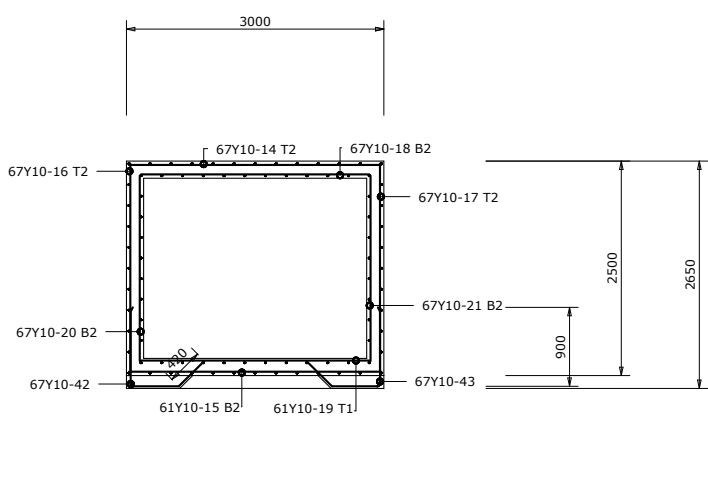
WALL 2



PARTITION



SECTION X-X



SECTION Y-Y

### NOTES ON STRUCTURAL DETAILS

- These notes shall be deemed to apply to all structural drawings.
- The structural drawings shall be read in conjunction with the architectural drawings and in event of any discrepancies, the Engineer and the Architect shall be notified before proceeding with the work.
- All dimensions shall be verified by the Contractor and drawings shall not be scaled off.
- Concrete shall have 20mm maximum size of aggregates and shall be adequately vibrated and cured. Concrete grade shall be Class 25 unless otherwise stated by the Engineer.
- Building concrete shall be 1:4:8 mix and shall be 50mm thick unless otherwise stated.
- Building blocks shall be adequately bonded and set in 3:1 sand/cement mortar.
- Steel reinforcement shall be cold worked bars to B.S. 4461 ref. Y and Round Mild Bars to B.S. 4448 ref. R.
  - Unless otherwise stated, concrete covers shall be:
    - 50mm for foundations.
    - 40mm for columns
    - 20mm for slabs and staircases
    - 25mm for beams
- Contractor shall verify the dimensions given in the Bending Schedules before cutting and bending steel reinforcement.
- These notes do not supersede the Specifications and the Contractor shall consult the Engineer in event of any contradictions.
- Cube Tests shall be done for every concreting. Any concrete work that fails tests shall be demolished and redone at the cost of the Contractor.
- Safe bearing pressure of soil is 150KN/m<sup>2</sup>
- Structural timber shall be well-seasoned timber stress grade S3 cypress (B.S. 5268-2:2002) with min. moisture content of 12%.

MEMBER	No OF MEMB	BARS	DIA.	LENGTH	TOTAL NUMBER	MARK	S	C	BENDING				E/F
									A	B	C	D	
TOP SLAB	1	13 Y10	3000	13	08	20	(3000)						
		13 Y10	3000	13	10	20	(2984)						
		13 Y10	1650	13	12	38	770	150	(770)				
		13 Y10	1650	13	13	38	770	150	(770)				
		14 Y10	9175	14	24	38	810	170	(8240)				
		14 Y10	9175	14	25	38	810	170	(8240)				
BOTTOM SLAB	1	14 Y10	3000	14	14	20	(3000)						
		12 Y10	4800	12	03	38	750	3350	(750)				
		12 Y10	4500	12	01	38	750	3050	(750)				
		3 Y10	1025	3	48	20	(1017)						
		3 Y10	1025	3	50	20	(1017)						
		3 Y10	1025	3	52	20	(1025)						
WALL 1	2	3 Y10	1250	3	59	38	570	150	(570)				
		3 Y10	1250	3	62	38	570	150	(570)				
		6 Y10	2600	6	15	20	(2600)						
		6 Y10	2900	6	13	20	(2900)						
		14 Y10	2450	28	16	20	(2440)						
		14 Y10	2050	28	20	20	(2040)						
		14 Y10	2450	28	17	20	(2440)						
		14 Y10	2175	28	21	20	(2160)						
		11 Y10	3250	22	26	20	(3244)						
		11 Y10	3250	22	28	20	(3244)						
		11 Y10	1650	22	31	38	775	150	(775)				
		14 Y10	1650	28	32	38	770	150	(770)				
11 Y10	1875	28	33	45	420	560	(920)				295		
13 Y10	1875	28	32	45	420	560	(920)				295		
13 Y10	2300	28	39	20	(2300)								
12 Y10	1650	24	36	38	770	150	(770)						
13 Y10	1650	24	37	38	770	150	(770)						
13 Y10	1650	26	41	38	770	150	(770)						
13 Y10	1650	26	40	38	770	150	(770)						
6 Y10	1875	134	42	45	420	560	(920)				295		
6 Y10	1875	134	43	45	420	560	(920)				295		

**NOTES:**

- All dimensions are to be checked on site. Any discrepancy in dimensions is to be reported to the Eotechnic architect before any work commences. The Architect's drawings and specifications overrule any other.
- All construction work to comply with the international standards codes provisions.
- The PV denotes permanent ventilation and must be provided above all doors and windows where indicated.
- All walls less than 200mm thick are to be reinforced with hoop iron sheet every alternate course.
- All reinforced concrete works to be done according to the Eotechnic Structural Engineers detail drawings.

NO.	DATE	DESCRIPTION

**REVISIONS.**

FINANCED BY:  
  
**The World Bank**

CLIENT:  
  
 THE FEDERAL GOVERNMENT OF SOMALIA  
 GOVERNMENT OF PUNTLAND  
 FEDERAL CAPITAL

IMPLEMENTED BY:  
  
**SFF SOMALIA**  
 Special Financing Facility

CONSULTANT:  
  
**ECOTECH LIMITED**  
 P.O. Box 5527-00100,  
 Nairobi - Kenya  
 Tel: +254 712 388815  
 Fax: +254 701 838222  
 Email: info@ecotech.co.ke  
 Web: www.ecotech.co.ke  
 Location: Ecotech House, Woodlands Road, off Lenana Road, Nairobi - Kenya

Project Title:  
**FINAL DRAWINGS FOR PROPOSED ADMINISTRATION OFFICES IN BURTIJALE DISTRICT, BUNGAL REGION**

Drawing Title:  
**SEPTIC TANK**

Sheet Content:  
**SEPTIC TANK**

Scale: **N.T.S (NOT TO SCALE)**  
 Date: **OCTOBER 2017**

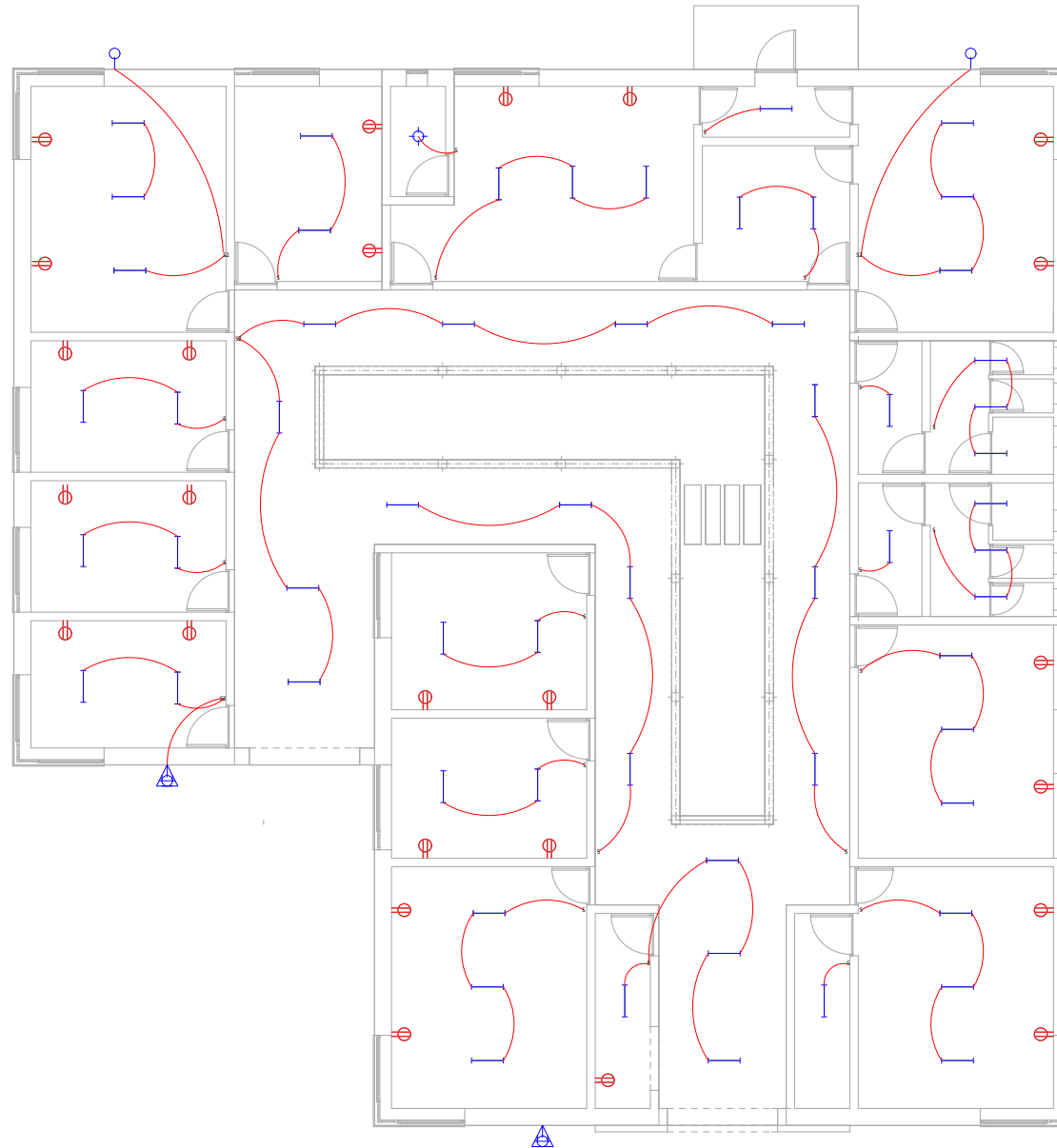
PREPARED BY: **JEFFREY LUTZURIAGA**  
 REVIEWED & APPROVED BY:  
 ENG. AHMED KIRISH (Project Director Ecotech Ltd.)  
 ENG. ALI HUSSEIN (Managing Director Ecotech Ltd.)

Drawing No: **31371-553-SEPTIC TANK-18**  
 Project No: **MOF/SFF/SERV/08**

Sheet No: **18/21**

	0	10	12	16	20	25	32	40	TOT	Date	7/20/2017
R										1509	Del. by
Y										1509	Ref. Dwg
TOT										1509	Job No

SYMBOL	MEANING
	CEILING MOUNTED LIGHT FIXTURE.
	CEILING MOUNTED LIGHT FIXTURE (PENDANT)
	WALL MOUNTED LIGHT FIXTURE
	RECESSED SPOT LIGHT
	FLUORESCENT LIGHT FIXTURE
	FLUORESCENT LIGHT FIXTURE UNDER FALSE CEILING
	WIRING CONNECTION
	FLUORESCENT LIGHT FIXTURE WITH SHAVER SOCKET & LOCALISED SWITCH
	FLUORESCENT LIGHT FIXTURE WITH LOCALISED SWITCH
	SINGLE PLEX RECEPTACLE
	DUPLEX RECEPTACLE
	SPECIAL RECEPTACLE & OUTLET (WITH PILOT LIGHT)
	WATERPROOF RECEPTACLE (SINGLE)
	CONSUMER UNIT
	TELEPHONE/TV JACK
	ALARM KEYPAD
	DOORBELL PUSH BUTTON
	DOORBELL TRANSFORMER
S3	3 gang switch
S2	2 gang switch
S	Single pole switch
	Flood lamp



## ELECTRICAL LAYOUT

Scale: 1:120

### NOTES:

- All dimensions are to be checked on site. Any discrepancy in dimensions is to be reported to the Ecotech architect before any work commences. The Architect's drawings and specifications overrule any other.
- All construction work to comply with the international standards codes practices.
- The PV denotes permanent ventilation and must be provided above all doors and windows where indicated.
- All walls less than 200mm thick are to be reinforced with hoop iron sheet every alternate course.
- All reinforced concrete works to be done according to the Ecotech Structural Engineers detail drawings.

NO.	DATE	DESCRIPTION

### REVISIONS.

FINANCED BY:



CLIENT:



IMPLEMENTED BY:



CONSULTANT:



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Project Title:  
 FINAL DRAWINGS FOR PROPOSED  
 ADMINISTRATION OFFICES  
 IN BURTINLE DISTRICT, MUGAL REGION

Drawing Title:  
**ELECTRICAL LAYOUT**

Sheet Content:  
 ELECTRICAL LAYOUT

Scale: **N.T.S (NOT TO SCALE)**  
 Date: **OCTOBER 2017**

PREPARED BY: **JEFFREY LUTZURIAGA**  
 REVIEWED & APPROVED BY:

ENG. AHMED KIBISHI      ENG. ALI HUSSEIN  
 Regional Director Ecotech Ltd.      Managing Director Ecotech Ltd.

Drawing No:  
**31371-553-  
 ELECTRICAL-19**

Project No:  
**MOF/SFF/SERV/08**

Sheet No:  
**19/21**  
 A3

**LEGEND**

- TA ..... TO ABOVE
- TB ..... TO BELOW
- FA ..... FROM ABOVE
- FB ..... FROM BELOW
- RM ..... RISING MAIN
- HL ..... HIGH LEVEL
- RE ..... RODDING EYE
- MH ..... MAN HOLE
- GT ..... GULLY TRAP
- SVP ..... STACKVENT PIPE
- FT ..... FLOOR TRAP
- FV ..... FLOAT VALVE
- CWS ..... COLD WATER SUPPLY



**PLUMBING LAYOUT**

Scale: 1:120

**NOTES:**

1. All dimensions are to be checked on site. Any discrepancy in dimensions is to be reported to the Ecotech architect before any work commences. The Architect's drawings and specifications overrule any other.
2. All construction work to comply with the international standards code practices.
3. The PV denotes permanent ventilation and must be provided above all doors and windows where indicated.
4. All walls less than 200mm thick are to be reinforced with hoop iron sheet every alternate course.
5. All reinforced concrete works to be done according to the Ecotech Structural Engineers detail drawings.

NO.	DATE	DESCRIPTION

**REVISIONS.**

FINANCED BY:



CLIENT:



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CONSULTANT:



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Project Title:  
 FINAL DRAWINGS FOR PROPOSED  
 ADMINISTRATION OFFICES  
 IN BURTINLE DISTRICT, MUGAL REGION

Drawing Title:  
**PLUMBING LAYOUT**

Sheet Content:  
 PLUMBING LAYOUT

Scale: **N.T.S (NOT TO SCALE)**  
 Date: **OCTOBER 2017**

PREPARED BY: **JEFFREY LUTZURIAGA**

REVIEWED & APPROVED BY:

ENG. AHMED KIBISHI      ENG. ALI HUSSEIN  
 Regional Director Ecotech Ltd.      Managing Director Ecotech Ltd.

Drawing No:  
**31371-553-  
 PLUMBING-20**

Project No:  
**MOF/SFF/SERV/08**

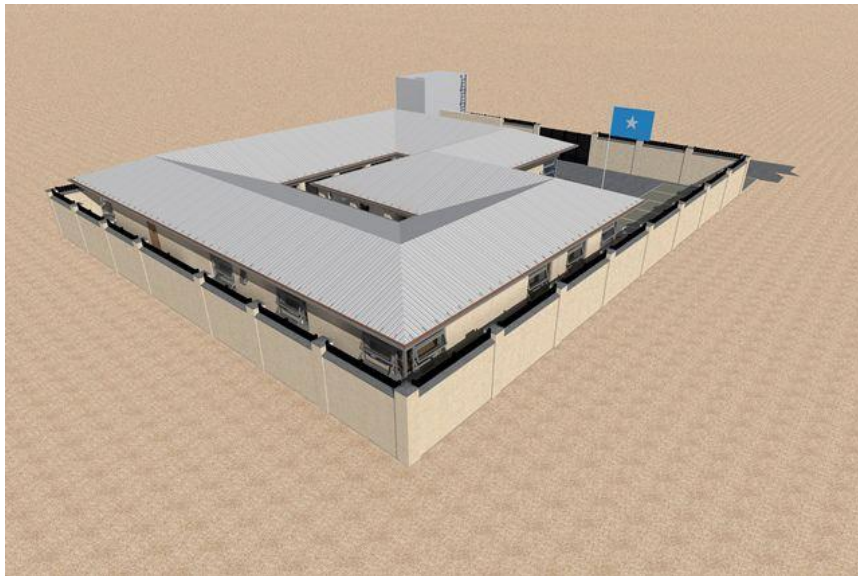
Sheet No:  
**20/21**  
 A3



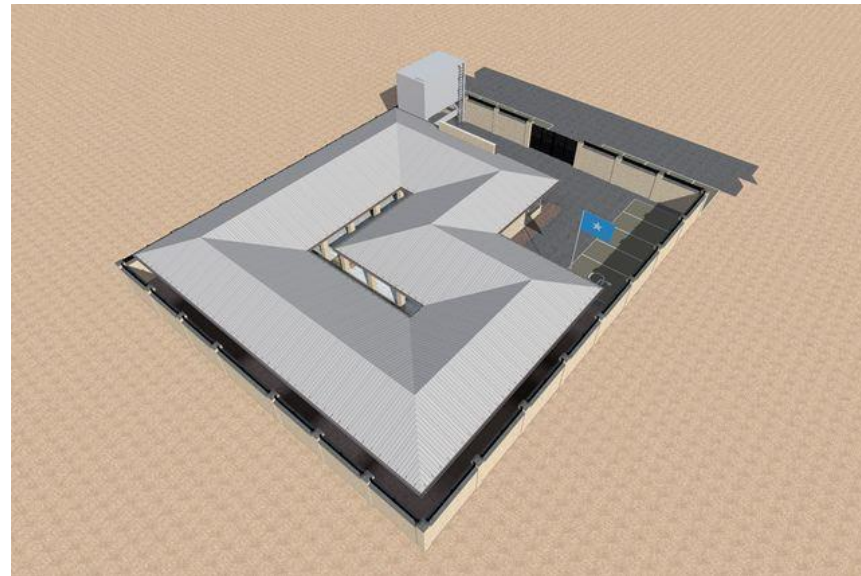
FRONT VIEW



COURTYARD VIEW



REAR VIEW



TOP VIEW

**NOTES:**

1. All dimensions are to be checked on site. Any discrepancy in dimensions is to be reported to the Ecotech architect before any work commences. The Architect's drawings and specifications overrule any other.
2. All construction work to comply with the international standards code practices.
3. The PV denotes permanent ventilation and must be provided above all doors and windows where indicated.
4. All walls less than 200mm thick are to be reinforced with hoop iron sheet every alternate course.
5. All reinforced concrete works to be done according to the Ecotech Structural Engineers detail drawings.

NO.	DATE	DESCRIPTION

**REVISIONS.**

FINANCED BY:



CLIENT:




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Project Title:  
FINAL DRAWINGS FOR PROPOSED  
ADMINISTRATION OFFICES  
IN BURTINLE DISTRICT, MUGAL REGION

Drawing Title:  
**PERSPECTIVE VIEW**

Sheet Content:  
PERSPECTIVE VIEW

Scale: **N.T.S (NOT TO SCALE)**  
Date: **OCTOBER 2017**

PREPARED BY: **JEFFREY LUTZURIAGA**  
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Regional Director Ecotech Ltd.      Managing Director Ecotech Ltd.

Drawing No:  
**31371-553-  
PERSPECTIVE-21**

Project No:  
**MOF/SFF/SERV/08**

Sheet No:  
**21/21**  
A3