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BILL OF QUANTITIES FOR CONSTRUCTION OF A WASTE BURNER IN GA. KOLAMAAFUSHI

No	Item	Unit	Quantity	Rate	Amount
1	Preliminaries				
1.1	Mobilization to site	LS	1		
1.2	Allow for all site clean-up work including relocation of existing waste to a temporary location identified by island council	LS	1		
2	Earth Works				
2.1	Ground levelling works for ground slabs	m2	1.94		
3	Concrete Slab Works				
3.1	Concrete ground slab works for burner	m3	1.94		
3.2	Concrete ground slab works fan stand	m3	0.05		
4	Steel works. Rate shall include all associated cutting, bending and welding works.				
	Main Body of Burner				
4.1	10mm Base plate (200mm wide) and bolting base plate to ground slab using 10mm bolts	m2	2.24		
4.2	6mm MS sheet for main chamber	m2	35.84		
4.3	6mm MS sheet for frustum	m2	9.11		
4.4	6mm MS sheet for stack	m2	14.13		
	Construction of a metal cap for the top of the burner as shown in				
4.5	the drawing. Rates shall include all necessary welding, frames and	LS	1		
	seals.				
	Main Body Frames				
4.6	Welding of 50mm dia ring pipe for frustum frame with intermediate support members of 50mm dia as shown in the	m	23.98		
4.0	drawing.	111	23.30		
	Welding of 50mm dia ring pipe for main chamber frame as		20.40		
4.7	shown in the drawing.	m	38.40		
4.8	Welding of 50mm dia ring pipe for support frame of fire bricks at	m	24.14		
4.0	top of the main chamber as shown in the drawing.	m	24.14		
	16mm non deformed bars welded to the top of the support				
4.9	frame of fire bricks at the top of the main chamber as shown in the	m2	9.51		
	drawing.				
	Doors and Openings Fixing charging / discharging door of dimensions 1000 x 1000mm				
	at a height of 800mm from bottom of burner. Rate shall include				
4.10	50mm diameter frame pipe around opening and high temperature	Nos	1		
	air-tight seal				
	Construction of metal sliding hatch doors that slide up and				
4.11	down. Each door should be 700 x 150 mm at a height 300mm from	Nos	4		
	the bottom of the burner. Rates shall include all necessary frames and				
	seals Combustion Net and Frames				
4.12	50 x 50 x 6 Equal Angle for combustion net frame as specified in the drawing.	m	24.32		
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4.13	16mm non deformed bars at 100mm c/c BW for combustion net as specified in the drawing.	m2	7.06	
	Ash Collection			
4.14	Construction of pull out trays for collecting ash from 3mm MS Sheet with dimensions 1700 x 1190 x 200mm with handles made out of 10mm dia ring pipe and four wheels along each side of the length of the tray as specified. Rates shall include all necessary welding, frames and seals	Nos	2	
4.15	Construction of pull out trays for collecting ash from 3mm MS Sheet with dimensions 1145 x 1190 x 200mm with handles made out of 10mm dia ring pipe and three wheels along each side of the length of the tray as specified. Rates shall include all necessary welding, frames and seals	Nos	2	
4.16	Construction of slopes using 3mm MS Sheet for the four corners of the ash collection trays as specified in the drawing. Rates shall include all necessary welding, frames and seals	LS	1	
	Axial Fan Ducts and Cover			
4.17	Fabricate and install 300mm diameter ducts from fan to main chamber and stack using 3mm MS Sheet and 25mm Dia G.I Pipe Welded at the 4 quadrants of the Duct as specified in the drawings. Rates shall include all G.I Clips, G.I pipes, welding, frames and seals.	LS	1	
4.18	Provide cover for axial fan using 3mm MS Sheet and 25mm dia G.I. pipes as specified. Rates shall include all welding, frames and seals.	LS	1	
5	Construction of fire wall using fire bricks that can withstand heat of atleast 400 Degree Celsius around the main chamber and at the top of the main chamber as indicated in the drawing	LS	1	
6	Applying refractory lining on top of ground slab	LS	1	
	Marine Grade High temperature paint on all steel members			
7	including ring pipes for support frames (Paint that can withstand heat of atleast 400 Degree Celsius)	LS	1	
8	Electrical Works and Accessories			
8.1	Supply and install 550w, 3000 rpm, 300mm diameter axial flow fan for blowing air into the main chamber and stack. Rate shall include connection to circuit breaker using 10sqmm power supply cable and all necessary accessories	LS	1	
9	Demobilization Works			
9.1	Clean up site upon completion of works	LS	1	
9.2	Demobilization	LS	1	

Sub total

GST 6%

Grand total

BILL OF QUANTITIES FOR BURNER CONSTRUCTION IN GA. KOLAMAAFUSHI

No	Item	Amount
1	Preliminaries	
2	Earth Works	
3	Concrete Slab Works	
4	Steel works	
5	Construction of fire wall	
6	Applying refractory lining on top of ground slab	
7	Marine Grade High temperature paint on all steel members	
8	Electrical Works and Accessories	
9	Demobilization Works	

Sub total

GST 6%

Grand total

UPGRADE OF WASTE MANAGEMENT CENTRE - GA. KOLAMAAFUSHI Bill of Quantities

No	Item	Unit	Quantity	Rate	Amount
1	Preliminaries				
1.1	Mobilization to site	LS	1		
1.2	Site management cost including set up of temporary services for contractor's services as maybe necessary	LS	1		
2	Site Clearance and Demolition/Removal				
	Allow for all site clean-up work including relocation				
2.1	of existing waste to a temporary location identified by island council	LS	1		
	Demolition				
2.2	Concrete column foundation 450x450mm of height 400mm	LS	26		
	Removal				
2.3	G.I Pipe fence of height 2000mm with 50mm Mesh as shown in the drawing	m	78		
3	Earth works				
	Allow for all excavation work for foundations as follows				
3.1	Collection bay foundation	m3	3.99		
3.2	Perimeter wall	m3	8.20		
3.3	Flood light pole	m3	0.13		
3.4	Ground levelling works for ground slab works	m2	72.67		
3.5	Setting up a ground water well in the location shown	LS	1		
4	Concrete works				
	Collection Bay Area				
4.1	Provide 100mm concrete floor screed for collection bay area according to the slope shown in drawing with a drain at the Sorting Area. Reinforcement for the slab shall be R6@150 BW single layer	m3	7.27		
4.2	Wall Footing of Collection Bay Area walls cast according to drawing. Reinforcement shall be as shown on drawing	m3	2.54		
4.3	Middle Beams of Collection Bay Area walls cast according to drawing. Reinforcement shall be as shown on drawing.	m3	0.76		

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4.4	Lintel for Collection Bay Area walls cast according to drawing. Reinforcement shall be as shown on drawing.	m3	0.76		
4.5	Columns for Collection Bay Area walls cast according to drawing. Reinforcement shall be as shown on drawing.	m3	1.12		
	Perimeter Wall				
4.6	Perimeter wall column	m3	2.28		
4.7	Perimeter wall beam	m3	2.99		
4.8	Other				
4.90	Foundation for flood light pole	m3	0.29		
4.10	Ground water well casting work	LS	1		
5	Structural steel works				
	Collection Bay Area				
5.1	Provide 75mm G.I pipe as structural columns for collection bay area. Rate shall include all fixings at both ends of the pipe for necessary connections as shown on drawing	Nos	5.00		
5.2	Provide truss as shown on the drawing. Rate shall include all cuttings, weldings, applying of protective coating for welded joints, and setting up the truss	m	6.15		
	Perimeter Wall				
5.3	Perimeter fence using 50mm G.I pipe as shown on drawing. Rate shall include all cuttings, weldings, applying of protective coating for welded joints, and, setting up the fence.	m	78.10		
	Other				
5.4	Perimeter fence using 50mm G.I pipe as shown on drawing. Rate shall include all cuttings, weldings, applying of protective coating for welded joints, and, setting up the fence.	m	78.10		
5.5	Provide 75mm G.I pipe as flood light fixing poles. Rate shall include installation charges as shown on drawing.	Nos	2		
6	Masonry works				
	Collection Bay Area walls of thickness 150mm				
6.1	3500mm high walls for Collection Bay Walls	m3	17.17		
6.2	1500mm high walls for Collection Bay section separation	m3	2.40		
	Perimeter walls of thickness 150mm				
6.3	1000mm high wall for perimeter wall	m3	9.96		
	Other				

6.4	2000mm high walls of thickness 150mm for Pump House (1700mm high wall above ground level with 300mm below ground level)	m3	1.76	
7	Plastering works			
	Collection Bay Area			
7.1	25mm plastering on 3500mm high walls for Collection Bay Outer Walls	m2	271.56	
7.2	25mm plastering on 1500mm high walls for Collection Bay section separation	m2	26.10	
	Perimeter Wall			
7.3	25mm plastering on 1000mm wall for perimeter wall	m2	168.82	
	Other			
7.4	2000mm high walls of thickness 150mm for Pump House (1700mm high wall above ground level with 300mm below ground level)	m2	12.58	
8	Painting works			
	Collection Bay Area Walls			
8.1	Apply emulsion paint coating on 3500mm high walls for Collection Bay Outer Walls	m2	271.56	
8.2	Apply emulsion paint coating on 1500mm high walls for Collection Bay section separation	m2	26.10	
	Collection Bay Area Steel Members			
8.3	Apply emulsion paint coating on G.I columns of collection bay	LS	1	
8.4	Apply emulsion paint coating on the roof trusses	LS	1	
8.5	Apply paint coating on the metal sliding door of the Hazardous waste storage room	LS	1	
8.6	Apply paint coating on the two metal folding doors of the equipment room	LS	2	
	Perimeter Wall			
8.7	Apply emulsion paint coating on 1000mm high wall for perimeter fence	m2	168.82	
	Perimeter Wall Steel members			
8.8	Apply emulsion paint coating on G.I members of perimeter fence	LS	1	
8.9	Apply emulsion paint coating on G.I members and MS Sheets of gates	LS	1	
	Other			
8.10	Apply paint coating on flood light pole	LS	2	
8.11	Apply emulsion paint coating on the removable timber covers of the leachate collection tanks	LS	2	

8.12	Apply emulsion paint coating on 2000mm high walls of thickness 150mm for Pump House (1700mm high wall above ground level with 300mm below ground level)	m2	12.58	
	Existing Structure			
8.13	Apply emulsion paint coating on G.I columns of existing structure	LS	1.00	
8.14	Apply emulsion paint coating on 2m high walls of the existing structure	m2	87.50	
9	Roofing works			
	Collection Bay Area			
9.1	Lysaght roofing sheet for collection bay area. Rate shall include all necessary laps, fastening, fixtures and sealing of joints	m2	81.12	
9.2	Roof flashing. Rate shall include fastening and sealing of joints	m	25.50	
9.3	Timber beams - 150 x 75mm. Rate shall include for all fixing and joints.	m	50.70	
9.4	Timber rafters - 100 x 50mm. Rate shall include for all fixing and joints	m	18.78	
9.5	Timber battens - 50×38 mm. Rate shall include for all fixing and joints.	m	28.17	
	Other			
9.6	Lysaght roofing sheet for Pump House. Rate shall include all necessary laps, fastening, fixtures and sealing of joints	m2	4.00	
9.7	Pump House Timber rafters - 100 x 50mm. Rate shall include for all fixing and joints	m	4.00	
9.8	Pump House Timber battens - 50 x 38mm. Rate shall include for all fixing and joints.	m	6.67	
10	Electrical works			
	Collection Bay Area			
10.1	Provide 3 phase 13 A power sockets in equipment room. Rate shall include connection to circuit breaker and all necessary accessories	Nos	4	
10.2	Provide 100W ceiling mount energy saving light in equipment room, provide the switches near circuit breaker inside the equipment room. Rate shall include connection to circuit breaker	Nos	1	
10.3	Provide 100W ceiling mount energy saving light in hazardous waste storage room, provide the switches near circuit breaker inside the equipment room. Rate shall include connection to circuit breaker	Nos	1	

12	Doors and windows			
11.4	Supply 25mm diameter flexible hose	m	25.0	
11.3	Provide PVC taps at ends of outlet pipes.	Nos	25.0	
11.2	Provide outlet pipes as shown on drawing. Rate shall include connection to pump, bends, fittings and others as maybe necessary.	LS	1	
11.1	Provide connection from pump to ground water well. Rate shall include all necessary pipes, bends, fittings and footvalve and others as maybe required.	LS	1	
11	Plumbing works			
10.11	Provide well water pump. Rate shall include its fixing inside the Pump House	Nos	1	
10.10	Provide 200 W flood light for illuminating the waste yard. Rate shall include connecting each light to a switch near circuit breaker inside the equipment room and providing power to the switch	Nos	2	
10.9	Provide 13 A power socket for well water pump inside the Pump House, provide the switch for the pump near circuit breaker inside the equipment room. Rate shall include connection to circuit breaker.	Nos	1	
	Other			
10.8	Provide 25 sqmm 4 core power supply cable from nearest distribution box to waste yard distribution board	m	150	
10.7	Provide weather proof switch for all lights	LS	1	
10.6	Provide and mount a exhaust fan inside the Equipment Room and Hazardous Waste Storage Room. Rate shall include provision of switch near the circuit breaker inside the equipment room, connection to circuit breaker and all necessary accessories	LS	2	
10.5	Supply and fix electric meter, 4 pole MCCB, Single Phase distribution board and 3 Phase distribution board as shown on drawing. Earth link and connection to earth rod with proper earth pit should be provided as well	LS	1	
10.4	Provide and mount a Ceiling fan inside the Equipment Room as indicated. Rate shall include provision of switch near the circuit breaker inside the equipment room, connection to circuit breaker and all necessary accessories	Nos	1	

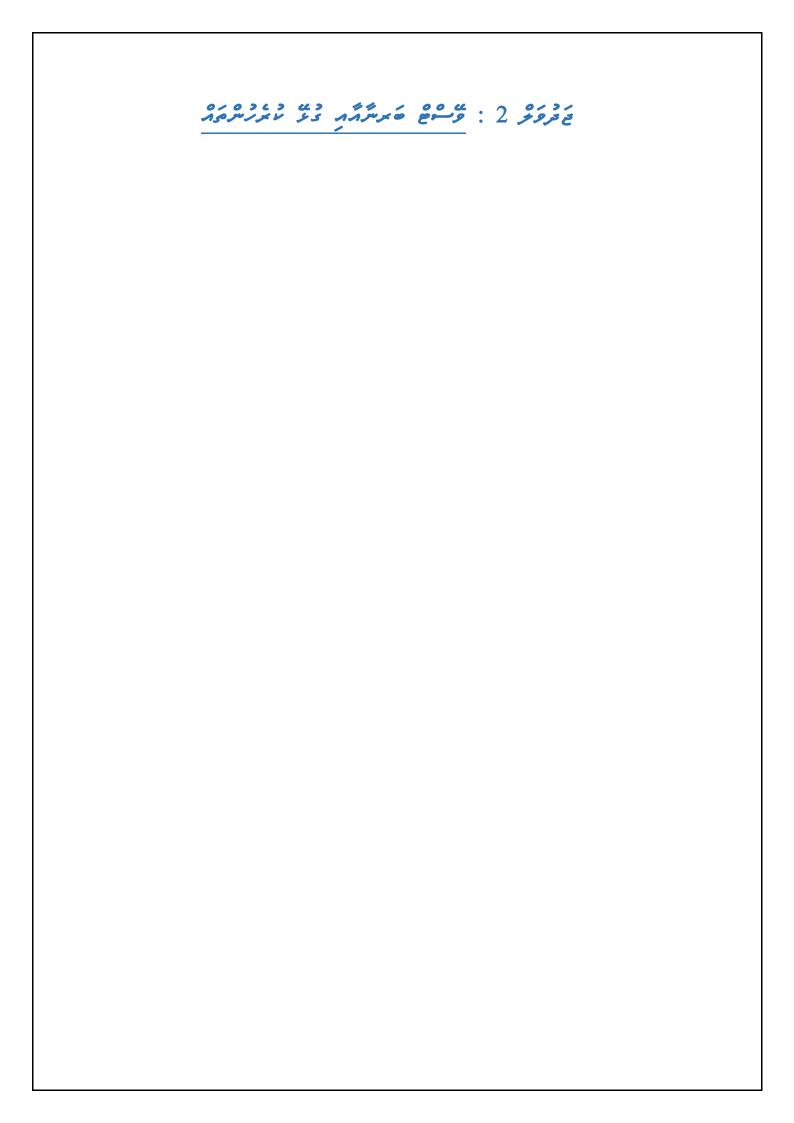
	Metal Doors			
12.1	Provide lockable metal sliding gates for entrance to hazardous waste storage room. Rate shall include all cuts, welds, applying protective coating to welded joints, painting the door and proper fixing of the door. Rate shall include fabrication and fixing of guide rails and wheels as well.	Nos	1	
12.2	Provide lockable metal folding gates for entrance to Equipment room. Rate shall include all cuts, welds, applying protective coating to welded joints, painting the door and proper fixing of the door. Rate shall include fabrication and fixing of guide rails and wheels as well.	Nos	2	
12.3	Provide lockable metal gates for entrance to waste yard as specified in the drawing. Rate shall include all cuts, welds, applying protective coating to welded joints, painting the frame and properly fixing the door to the fence.	Nos	1	
	Timber Doors			
12.4	Provide a lockable timber door of dimensions 1000mm x 1000mm with double door frames and fixed timber louvers for the ground water pump room hut. Rates shall include all materials, hinges and fixings.	Nos	1	
13	Other Works			
	Collection Bay Area			
13.1	Provide a 5" vinyl roof gutter with 2" x 3" downspout. Rates shall include all materials and fastenings.	LS	1	
	Perimeter Wall			
13.2	50 x 50 PVC coated mesh. Rate shall include properly securing the mesh to G.I steel frame	m2	164.01	
14	Demobilization Works			
14.1	Setup sign boards on site as specified	LS	1	
14.2	Clean up site upon completion of works	LS	1	

TOTAL

UPGRADE OF WASTEMANAGEMENT CENTRE - GA. KOLAMAFUSHI Bill of Quantities SUMMARY SHEET

Bill No	Item	Amount
1	Preliminaries	
2	Site clearance/Demolition/Removal	
3	Earth works	
4	Concrete works	
5	Structural steel works	
6	Masonry works	
7	Plastering works	
8	Painting works	
9	Roofing works	
10	Electrical works	
11	Plumbing works	
12	Doors and windows	
13	Other Works	
14	Demobilization	
	Sub Total	
	GST 6%	,)

عَهُوَوُ 1 : تُسَرُّسِ مُعَ سَمَّسُ مُعِرِ عِي مُسَاءِ عِي مُعَالِمُ مُسَرِّ مَعْ وِنَاعُ / عِرْوَرِ مِرْمَرِمُورُمُسُرِمُسُورُمُو تُعَمِّدُ عَنْ فِي الْمُعْدِينَ عَبِي الْمُعْدِينَ الْمُ

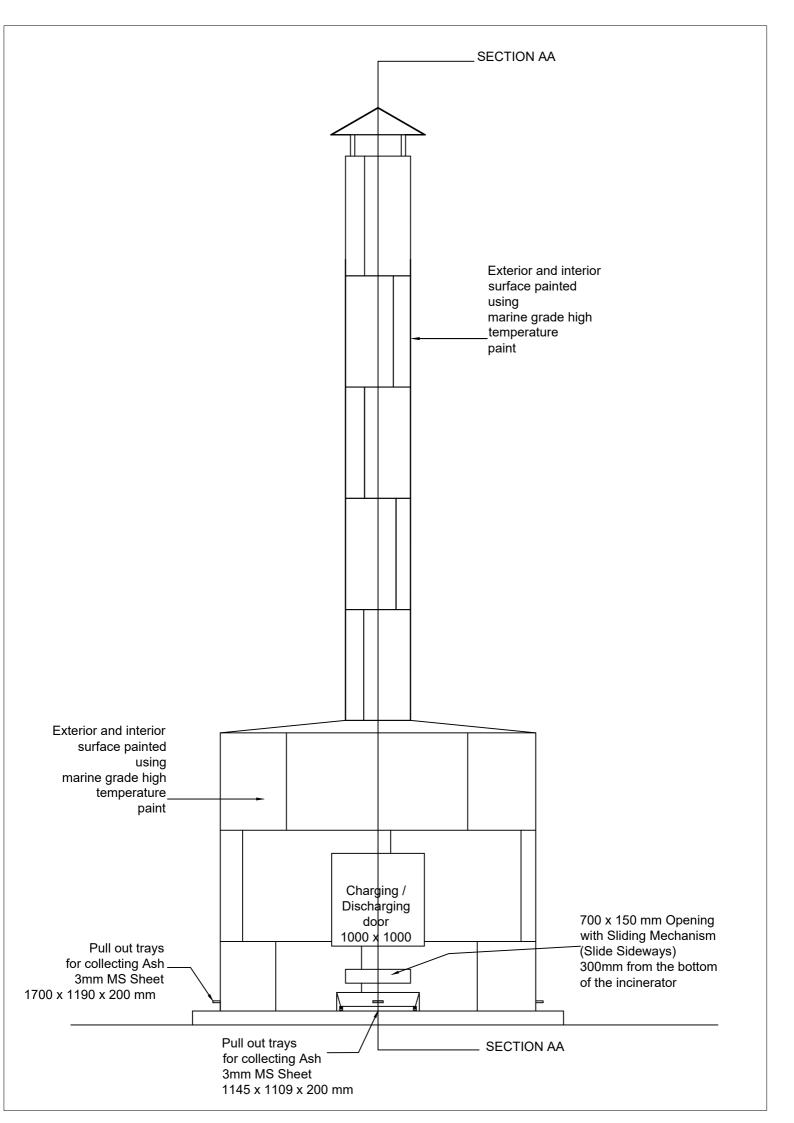


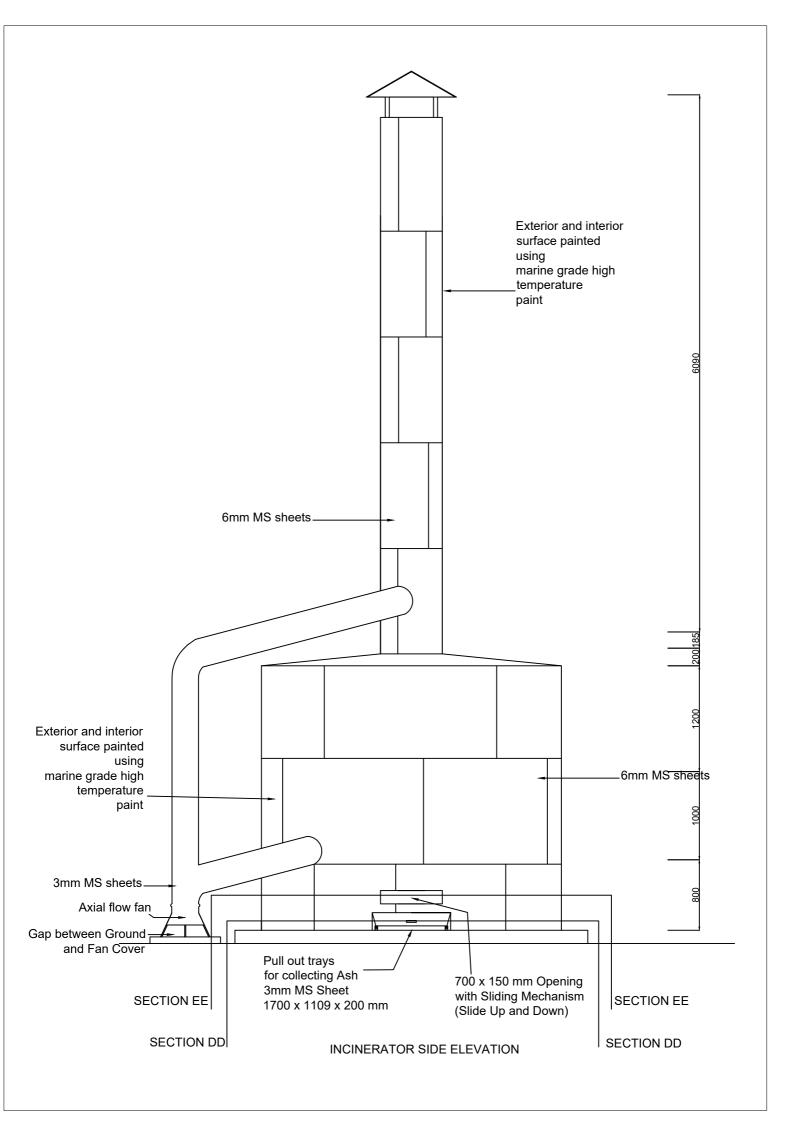


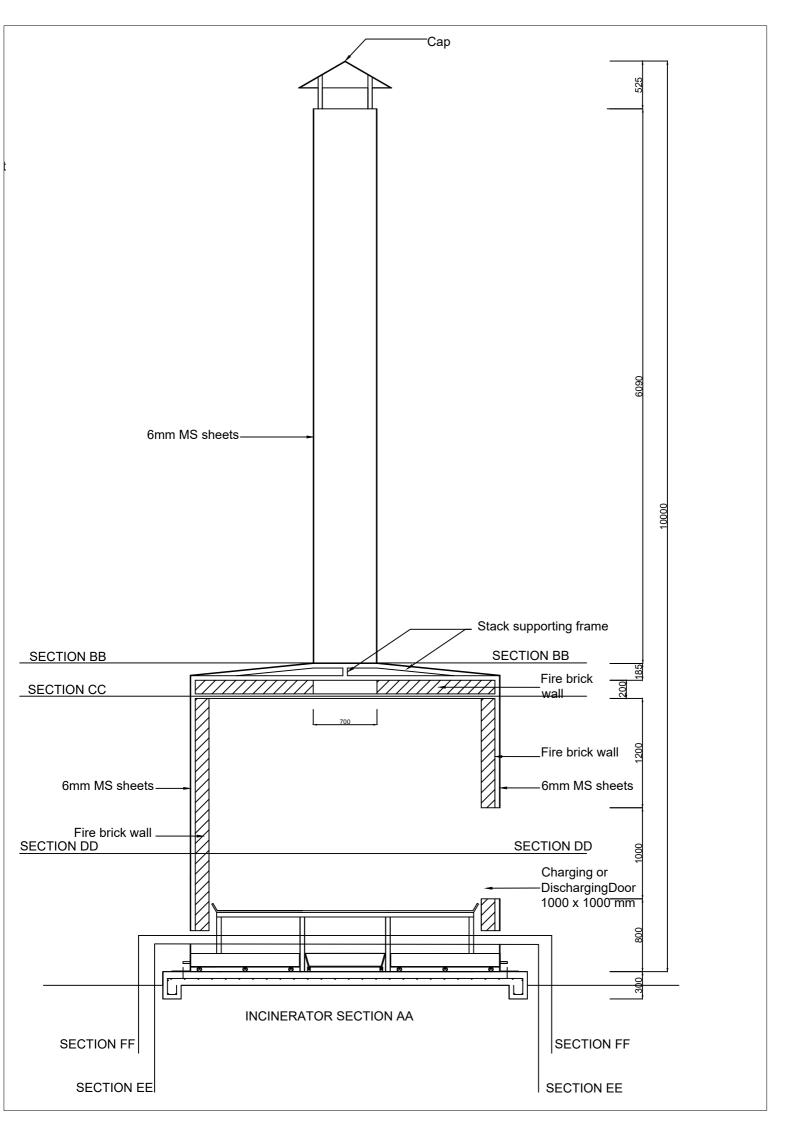
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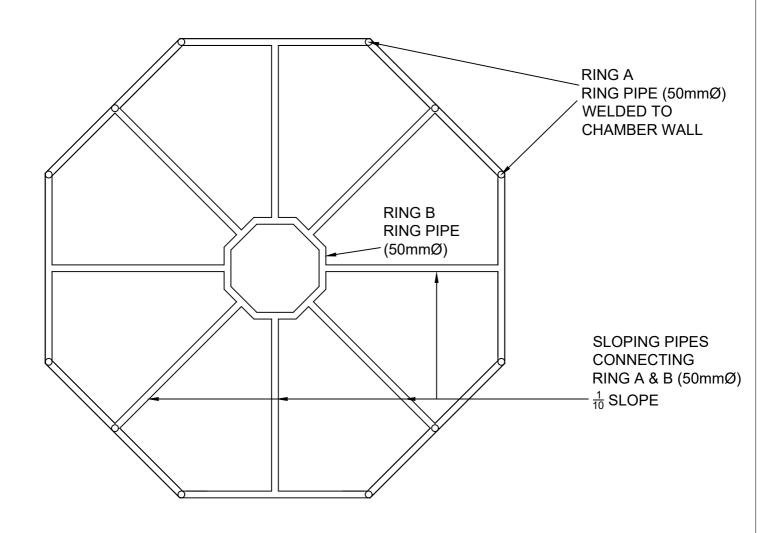
CONSTRUCTION OF WASTE BURNER AT GA. KOLAMAAFUSHI

PREPARED BY: WASTE MANAGEMENT AND POLLUTION CONTROL DEPARTMENT MINISTRY OF ENVIRONMENT AND ENERGY

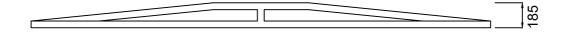




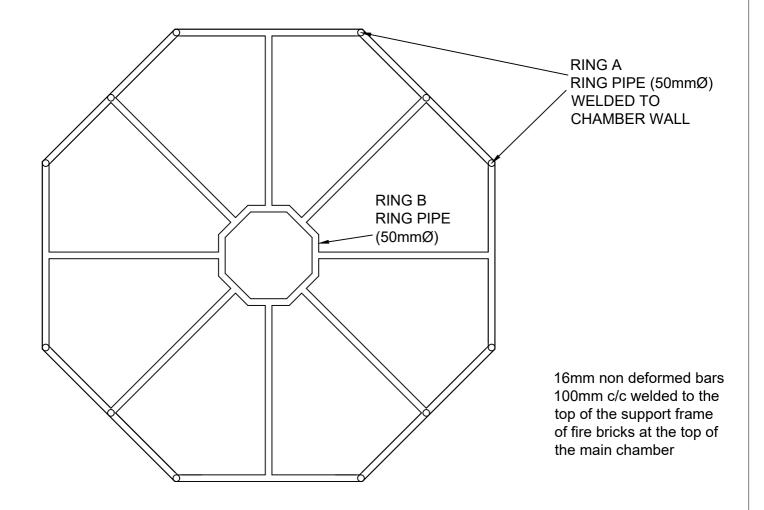




PLAN OF INCINERATOR SECTION BB STACK SUPPORTING FRAME



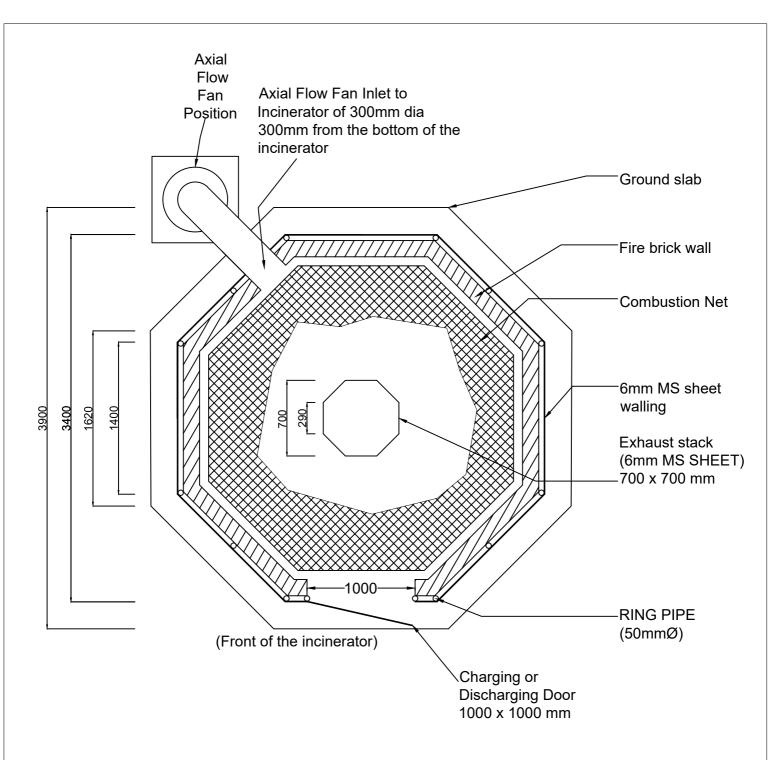
ELEVATION OF INCINERATOR SECTION BB STACK SUPPORTING FRAME



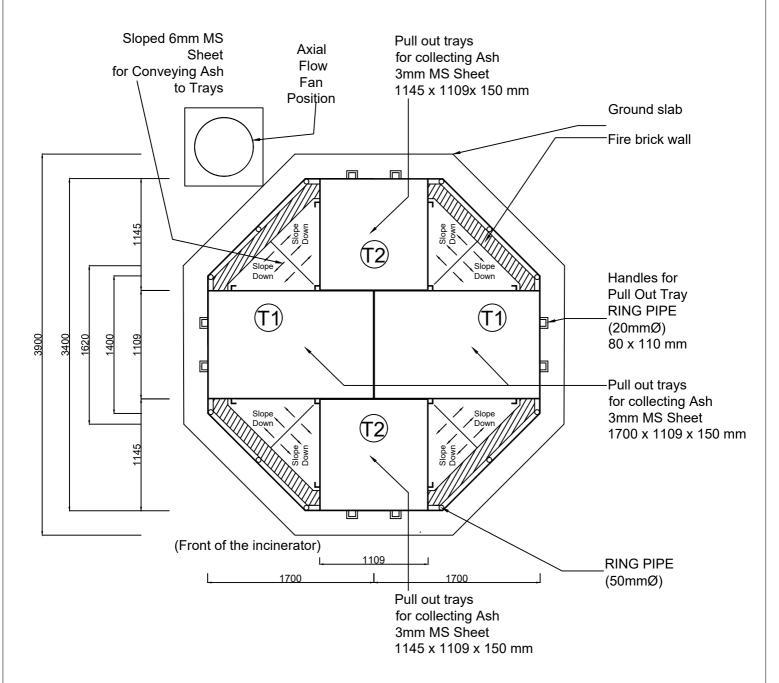
PLAN OF INCINERATOR SECTION CC MAIN CHAMBER TOP FIRE BRICKS SUPPORTING FRAME

16mm non deformed bars welded to the top of the support frame

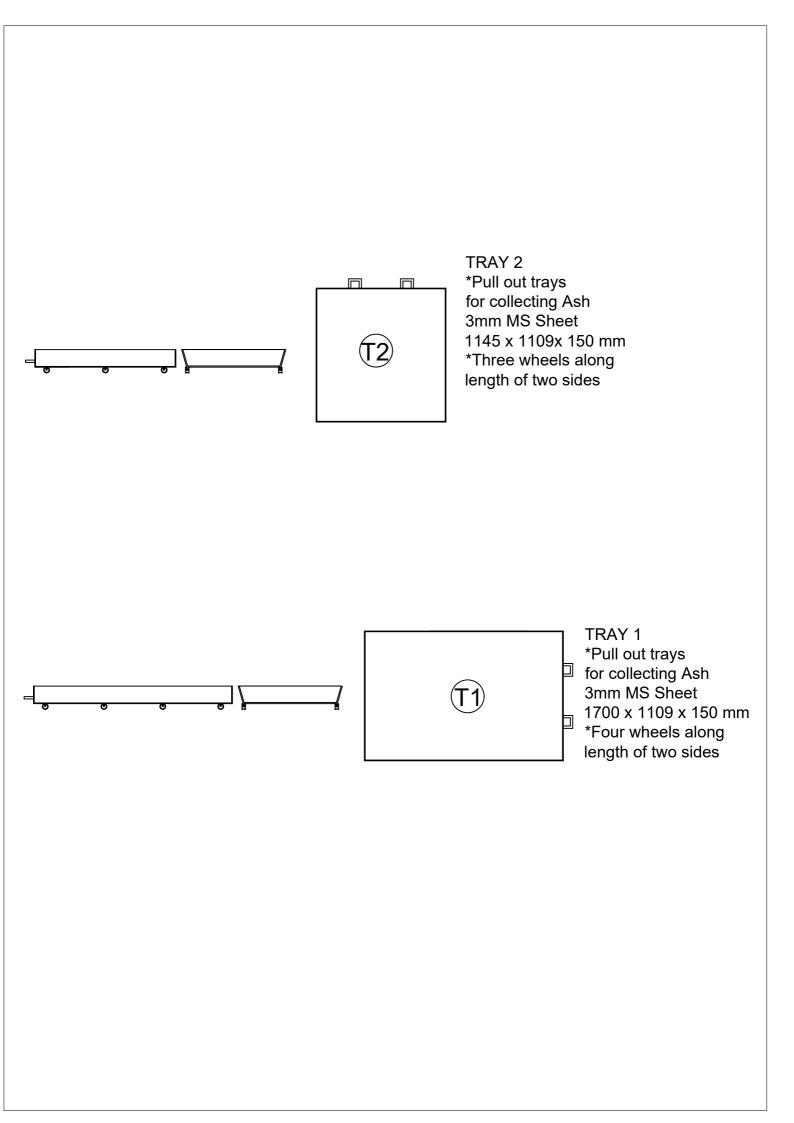
ELEVATION OF INCINERATOR SECTION CC
MAIN CHAMBER TOP FIRE BRICKS SUPPORTING FRAME

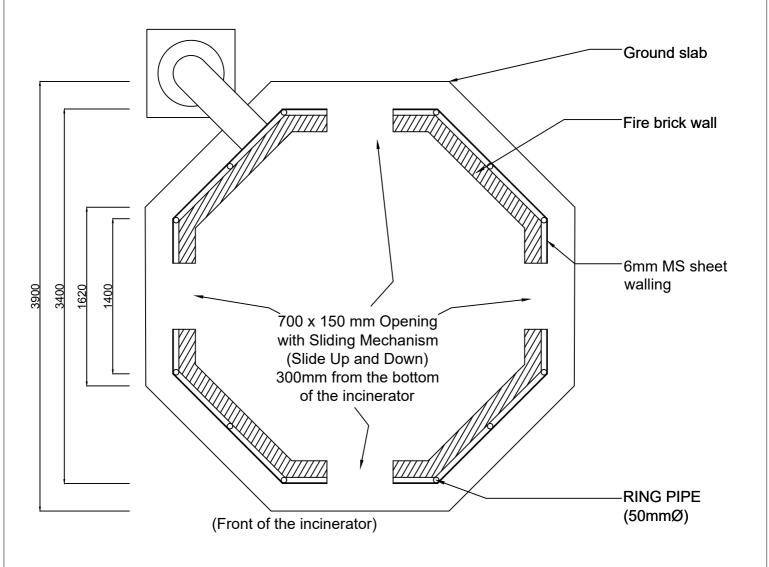


INCINERATOR SECTION DD

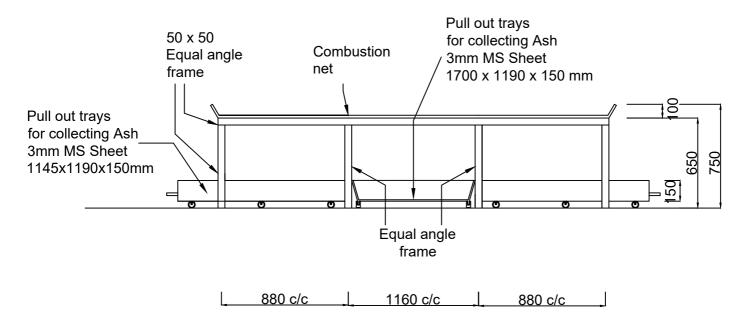


INCINERATOR SECTION EE ASH COLLECTION

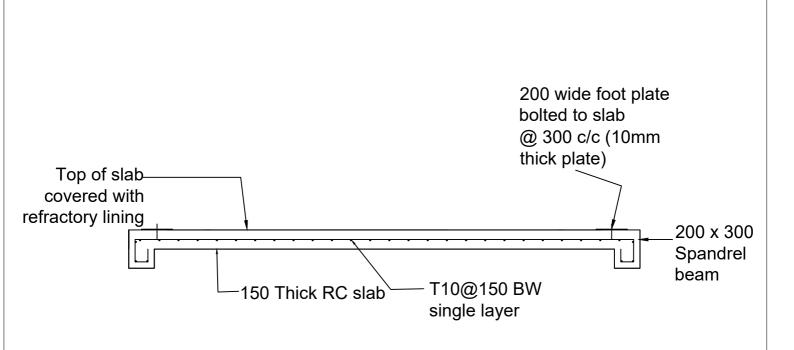




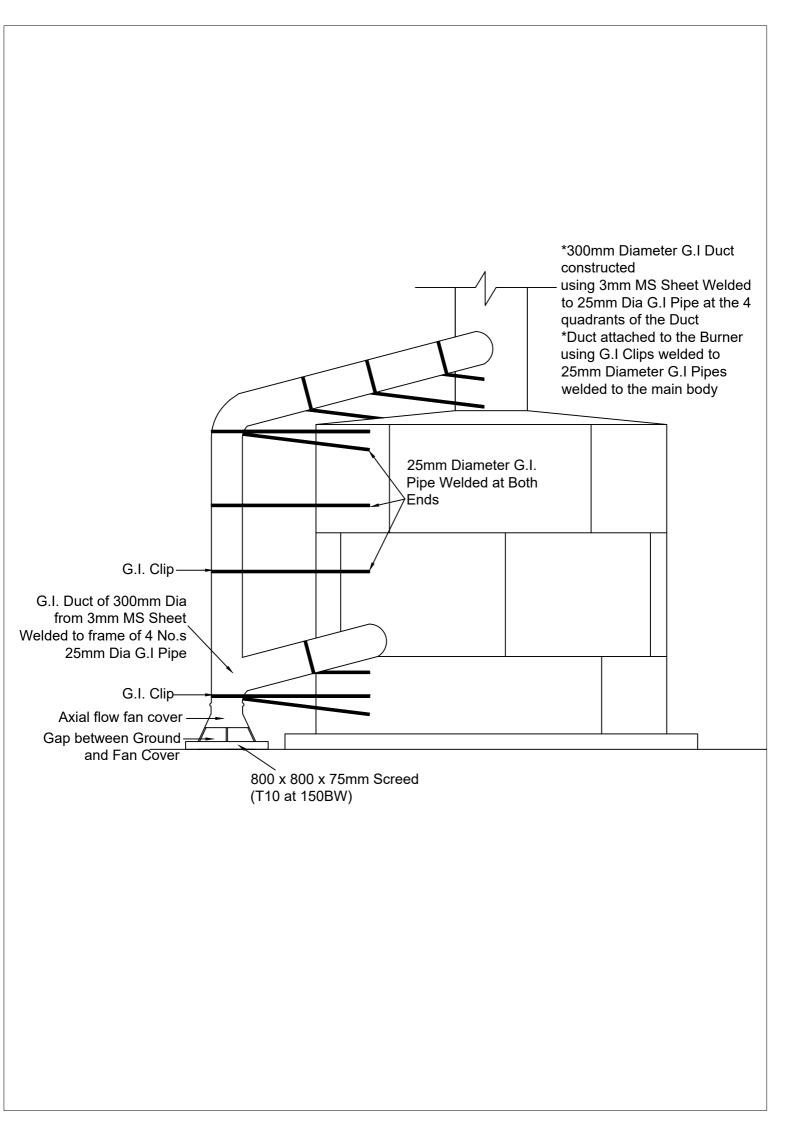
INCINERATOR SECTION FF SLIDING OPENINGS

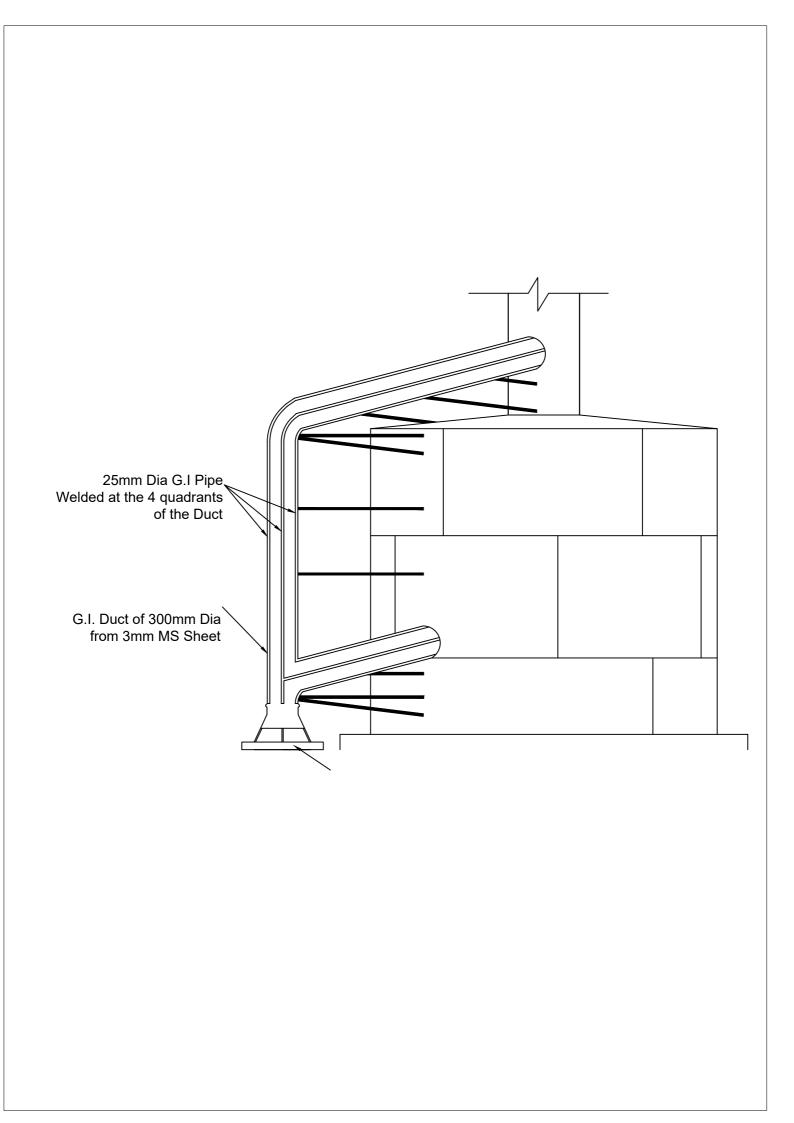


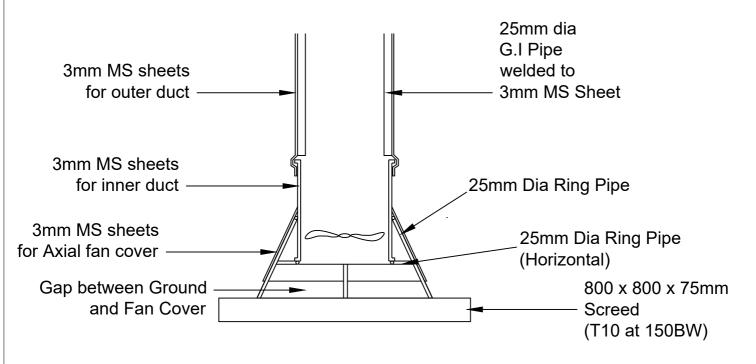
INCINERATOR COMBUSTION NET SUPPORT FRAME AND ASH COLLECTION SECTION (From the front of the incinerator)



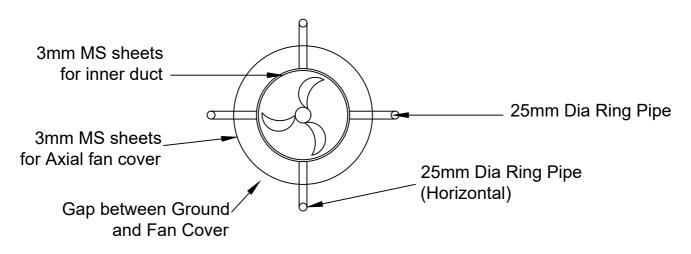
INCINERATOR CONCRETE SLAB



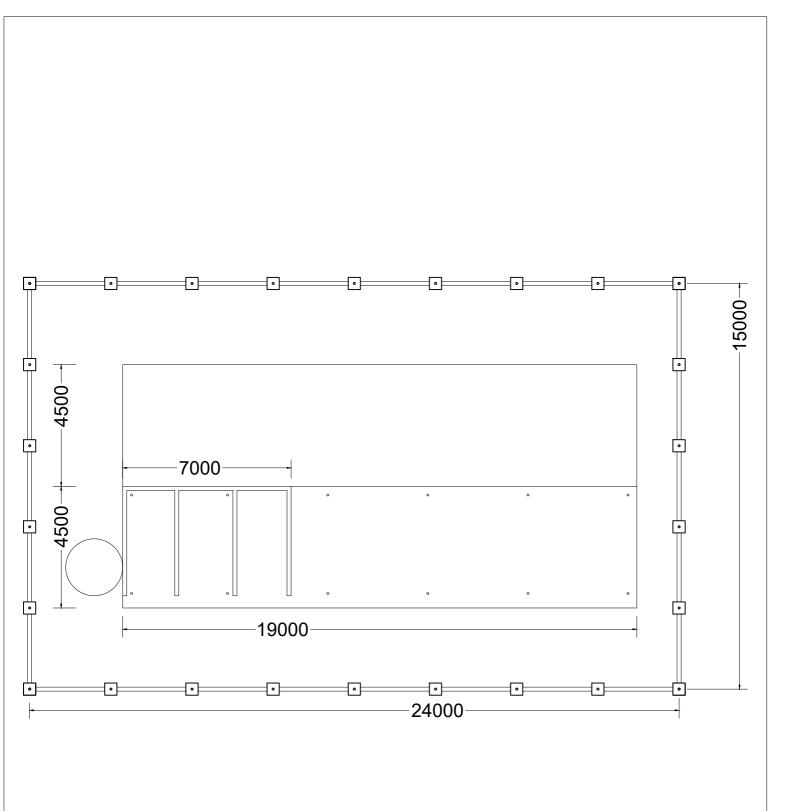


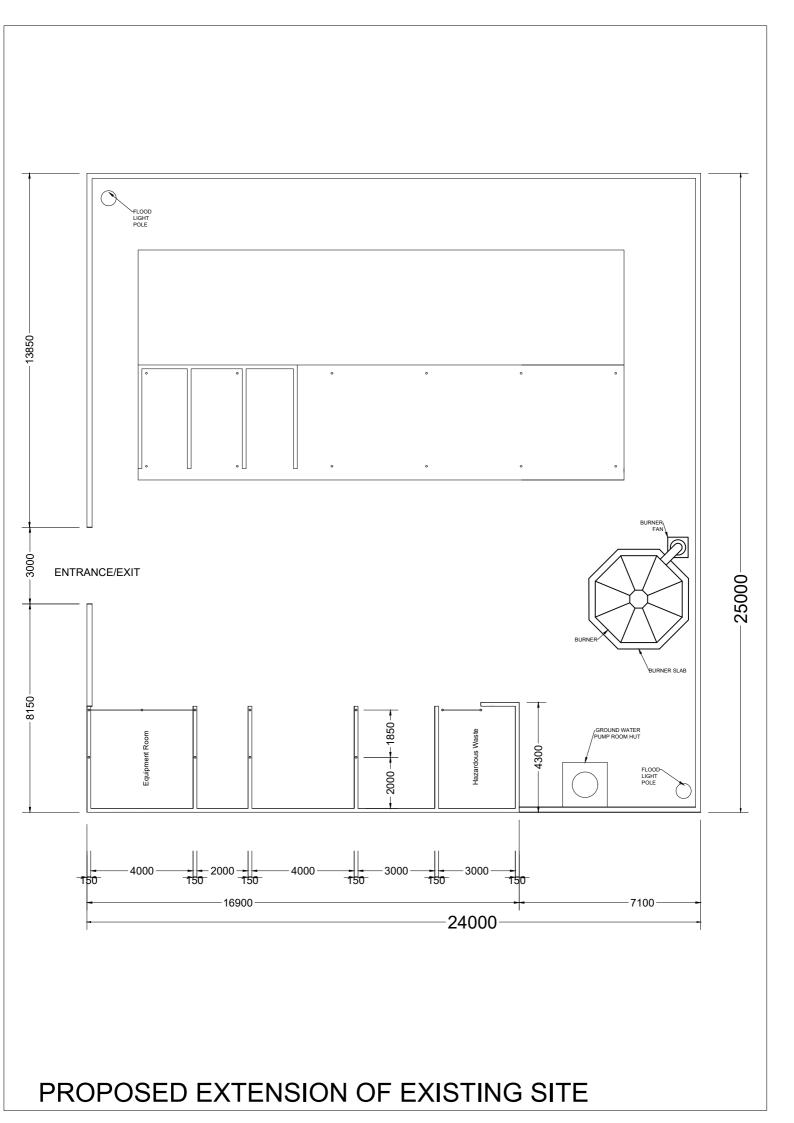


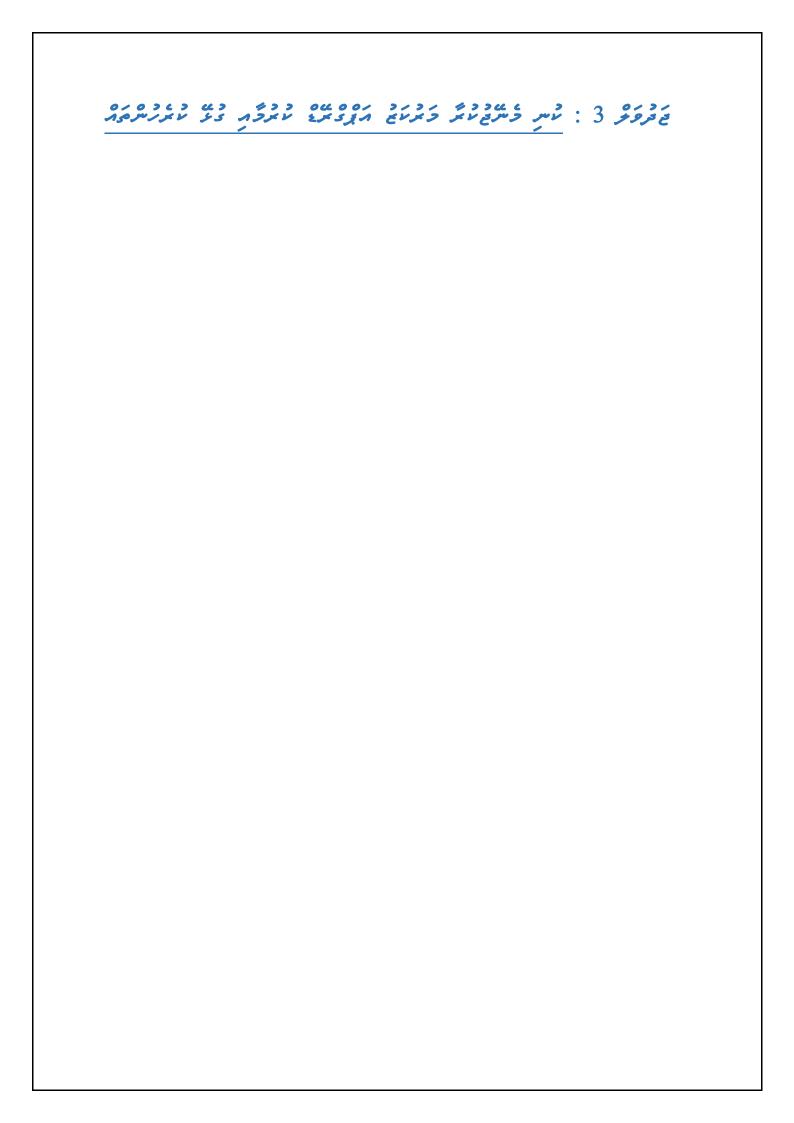
AXIAL FLOW FAN SIDE ELEVATION



AXIAL FLOW FAN HOUSING TOP VIEW







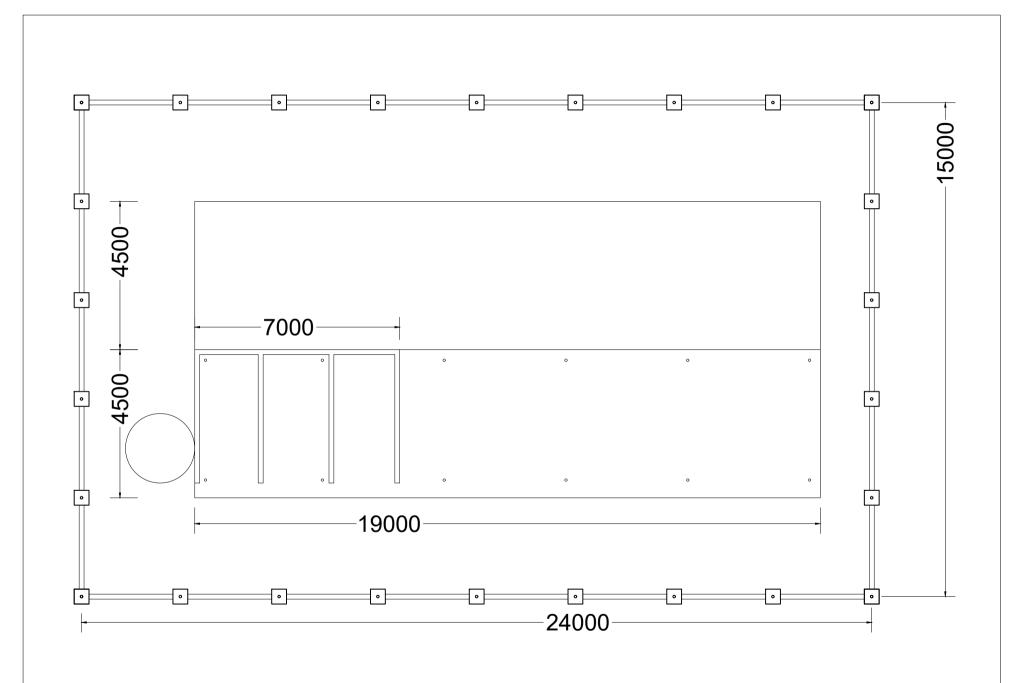


PROJECT:

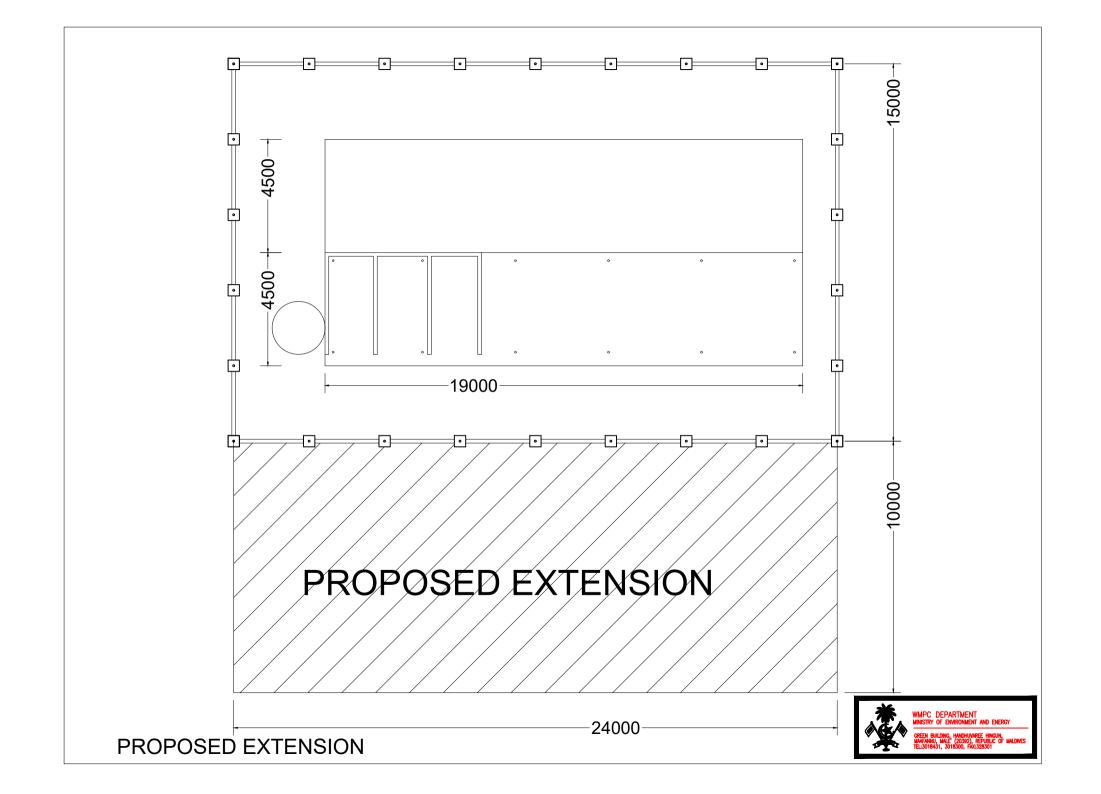
CONSTRUCTION OF AN ISLAND WASTE MANAGEMENT CENTRE For GA. KOLAMAAFUSHI

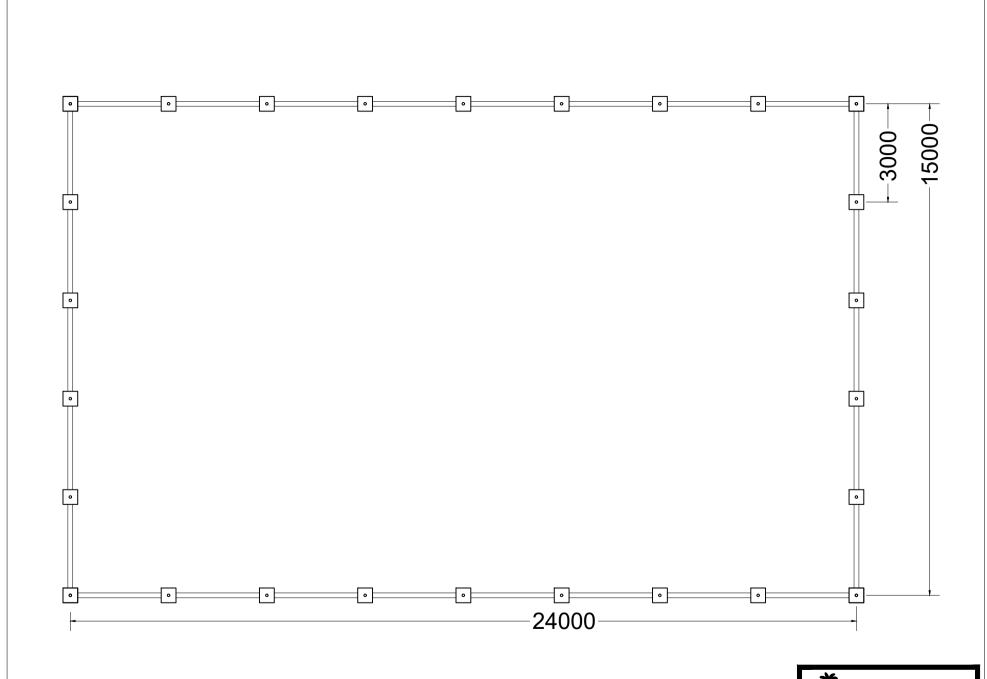
PREPARED BY:

WASTE MANAGEMENT AND POLLUTION CONTROL DEPARTMENT
MINISTRY OF ENVIRONMENT AND ENERGY



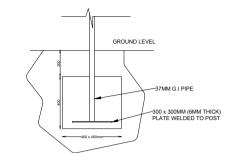




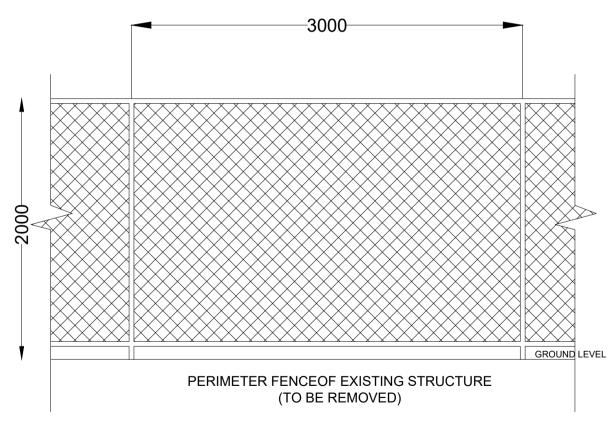


PARTS OF EXISTING LAYOUT TO BE DEMOLISHED OR REMOVED





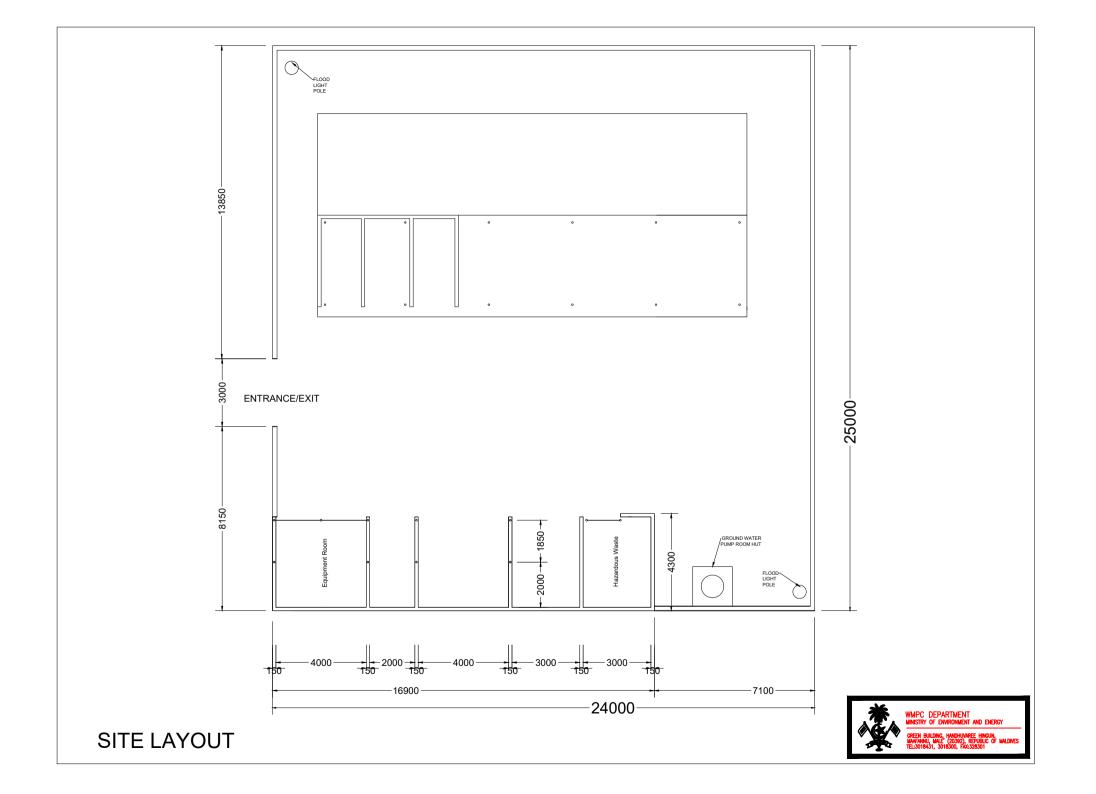
FOUNDATION DETAIL OF EXISTING PERIMETER FENCE TOTAL NUMBER OF COLUMNS: 26 (TO BE REMOVED)

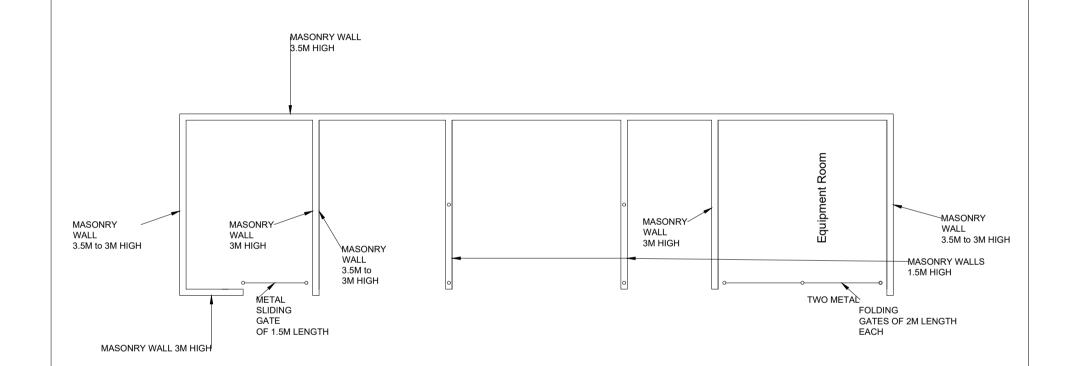




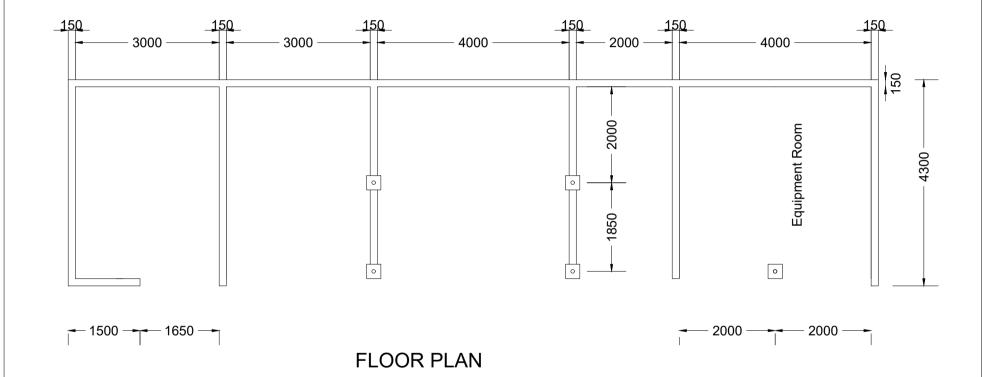




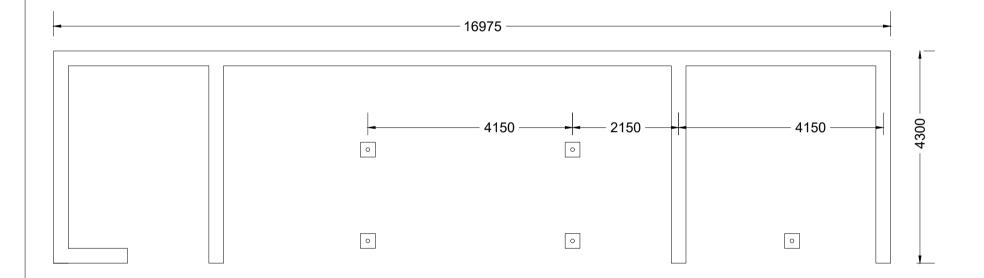




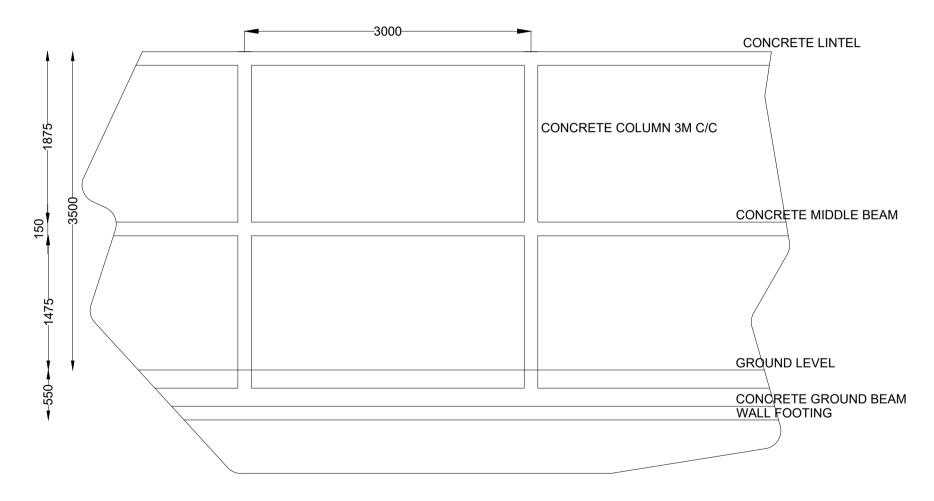




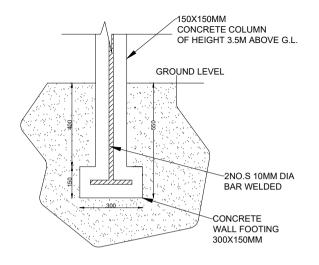


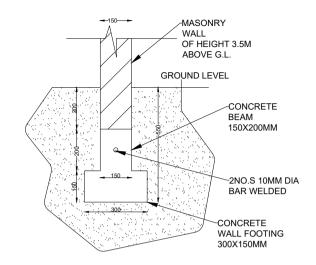






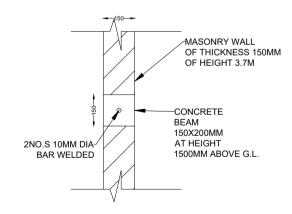




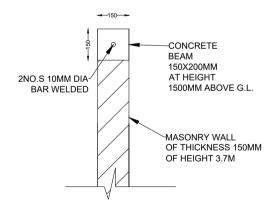


COLUMN DETAILS

BEAM AND WALL FOOTING DETAILS



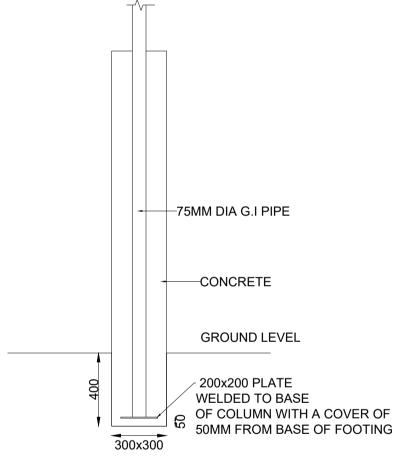
MIDDLE BEAM DETAILS



LINTEL DETAILS

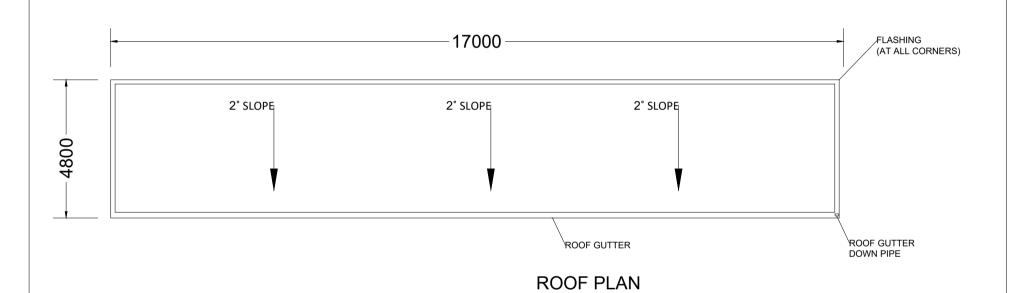


COLLECTION BAY - WALL DETAILS

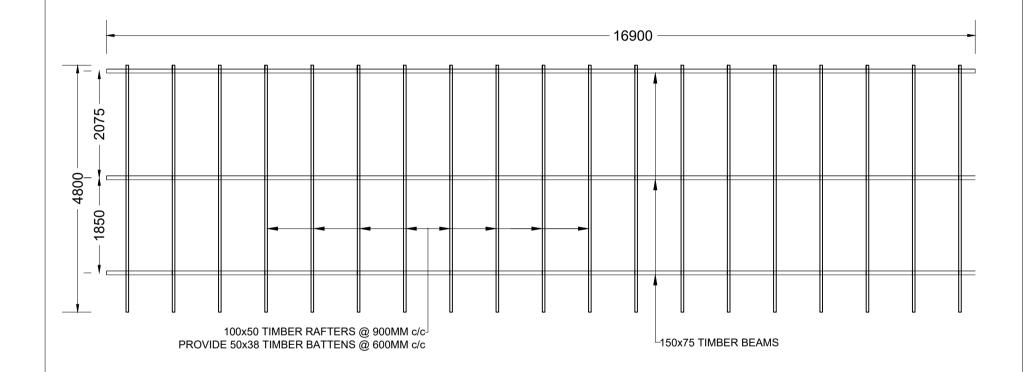


COLLECTION BAY
G.I. PIPE COLUMN FOUNDATION

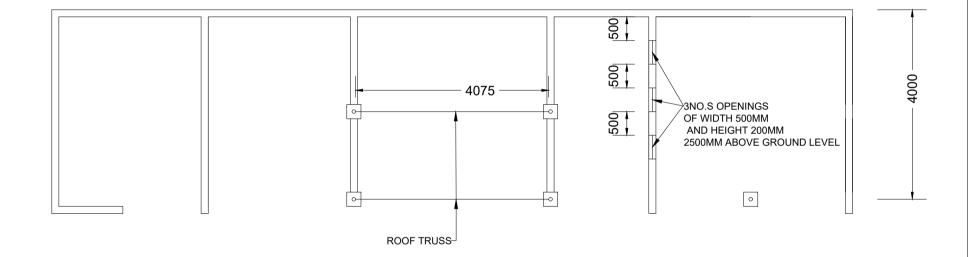




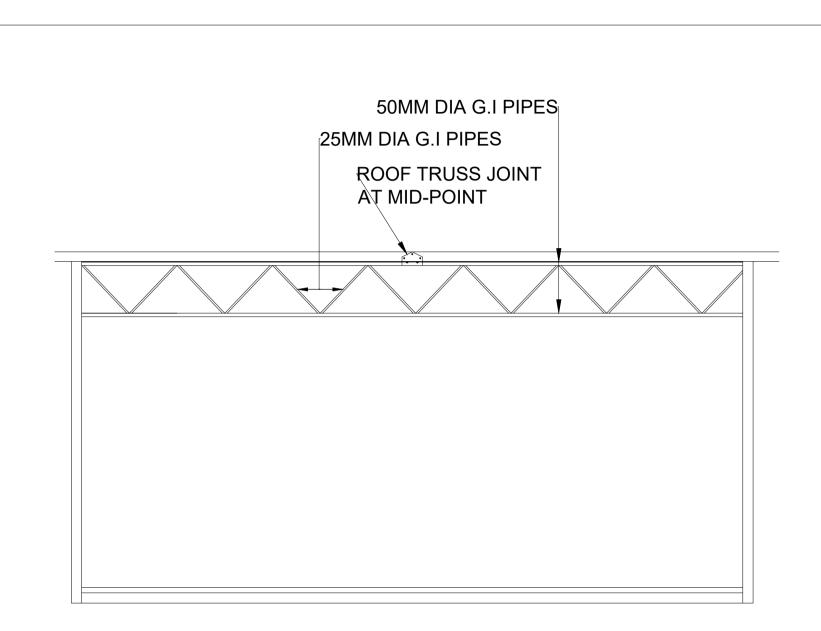




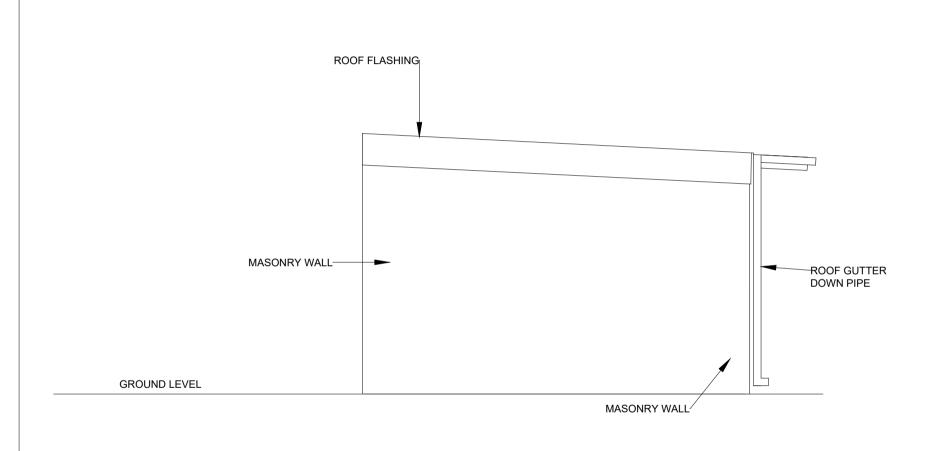




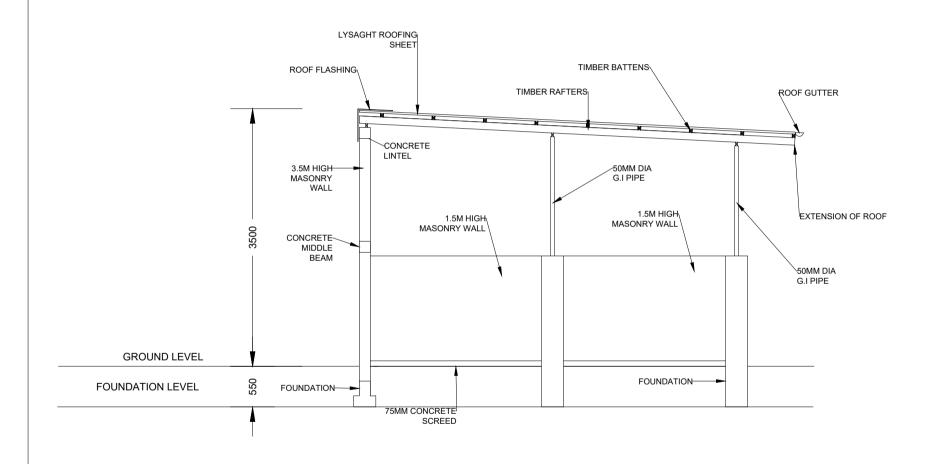




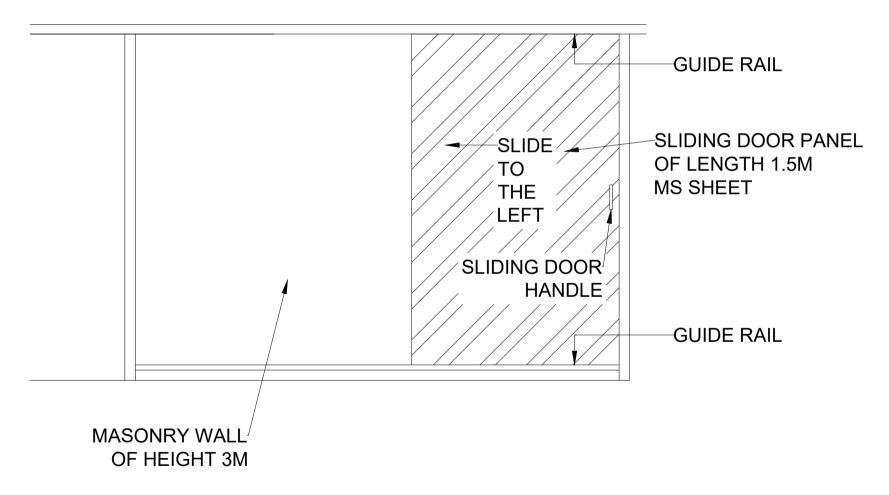






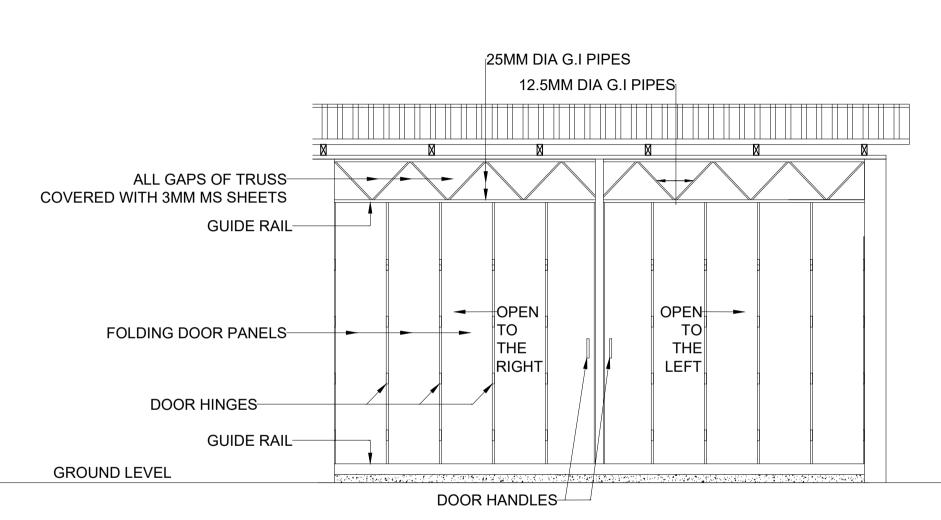






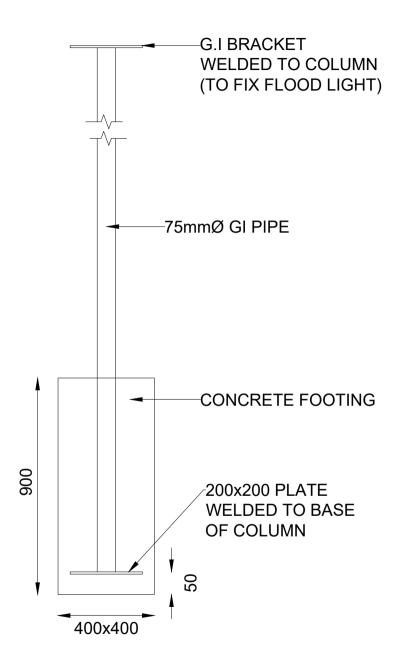
HAZARDOUS WASTE STORATE ROOM - METAL SLIDING DOOR DETAIL



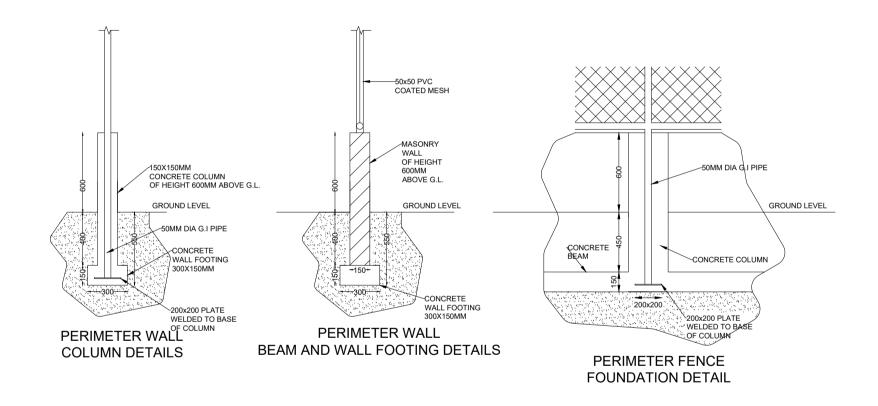


NOTE: ALL WELDS FOR TRUSS MEMBERS
ARE 5MM FILLET WELDS

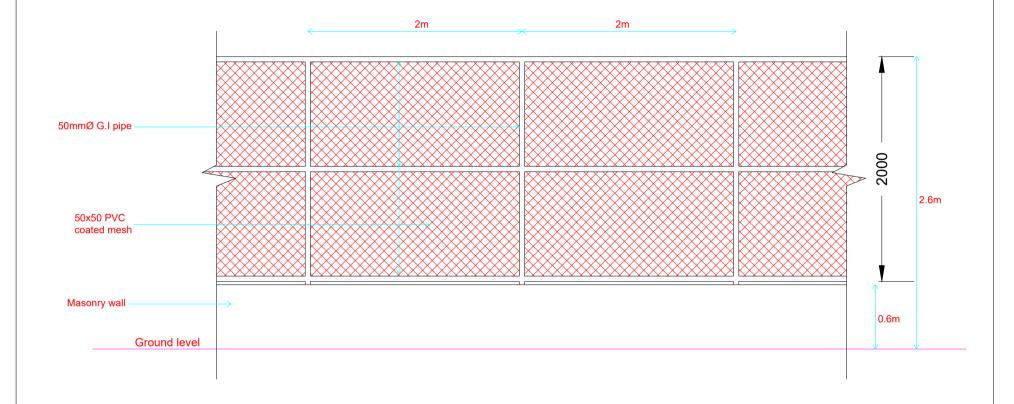










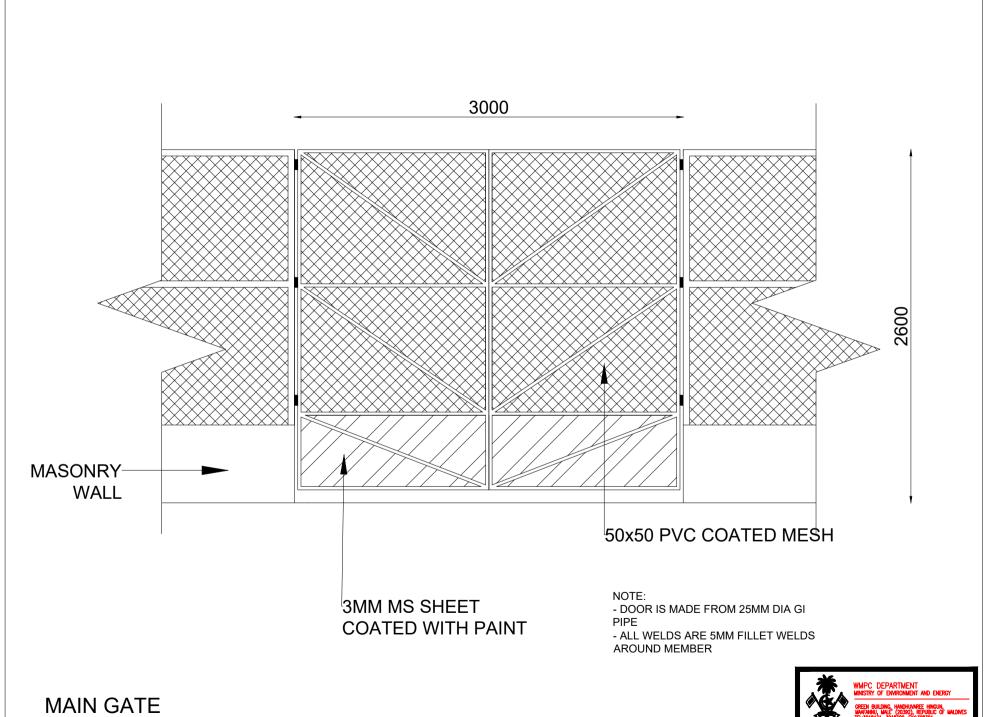


FENCE DETAILS

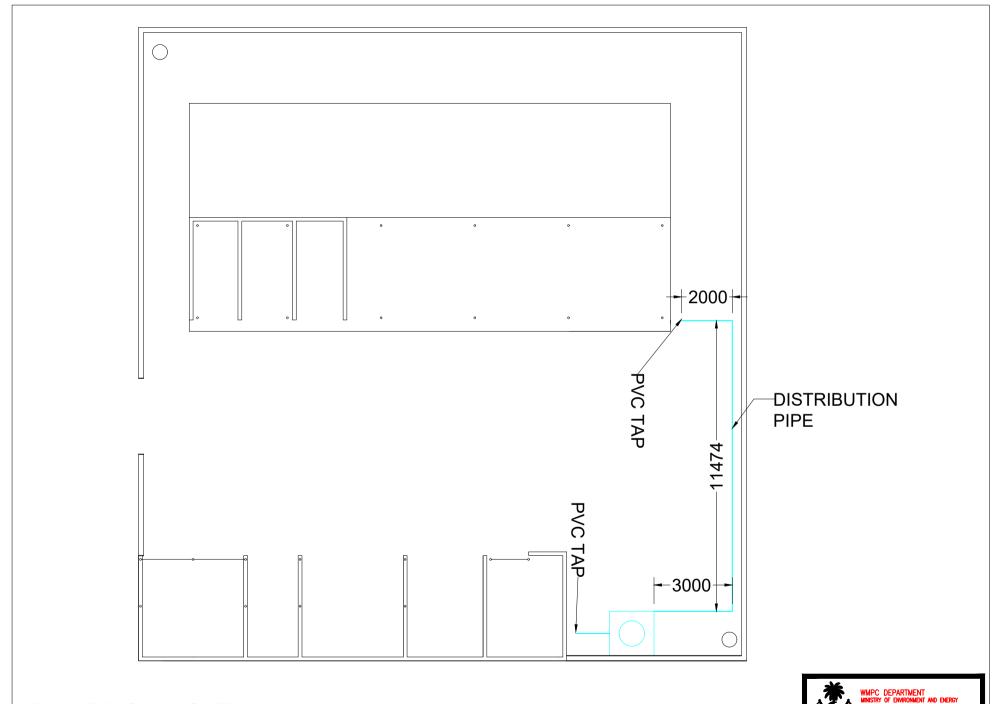
PERIMETER FENCE

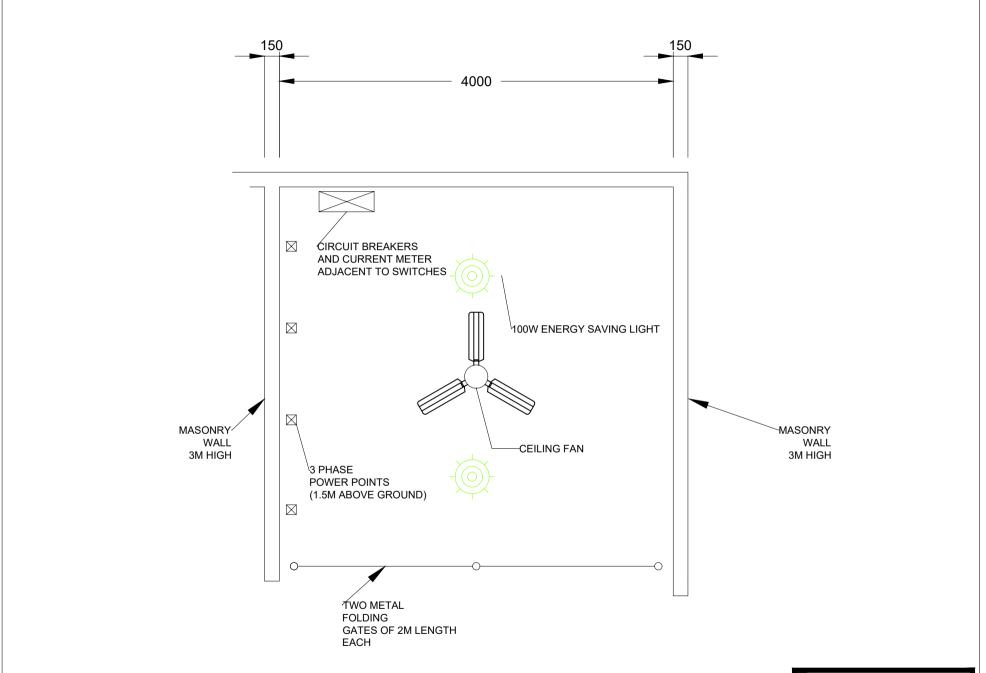


NOTE: ALL WELDS ARE 5mm FILLET WELD AROUND MEMBER



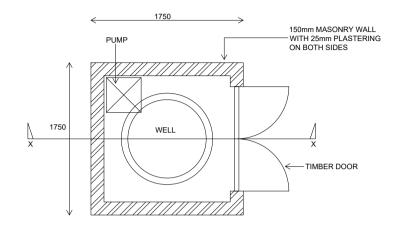




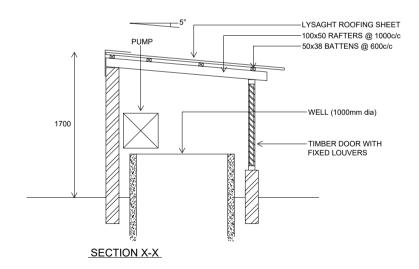


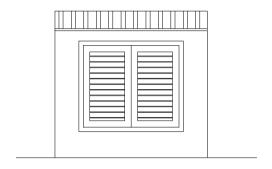
ELECTRICAL LAYOUT - EQUIPMENT ROOM



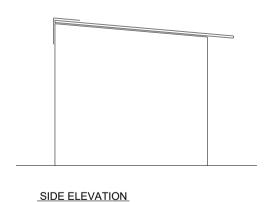


PUMP ROOM HUT





FRONT ELEVATION





عَرْوَوْ 4 : دُسَمُرُمُوْکُم فَوُسْمَ عُرُ عُرْسُوْ سَاؤُ سَاؤُسِ وَمُ عَاسِرُ عُلَاسَمُ

Working Site

The site should be kept clean during the construction work period and should be thoroughly cleaned once the works are completed. Works should be carried out on site in a safe manner to all the workers on site and the people living in the vicinity of site. Disturbance to the neighborhood should be kept to a minimum. Electricity and water supply to the site, during construction period, should be provided by the contractor

Concrete

Cement conforming to BS12 standards should be used for all concrete, masonry and plastering works. The cement intended for use should be fresh and should not have any traces of hardened cement in the bag.

- 1. All concrete works should be done using one brand of cement
- 2. Sand and aggregate used for concrete works should be well graded.
- 3. Concrete should be mixed in the ratio 1:2:3 which are 1 part cement, 2 parts sand and 3 parts aggregate.
- 4. All foundations should be cast on a lean concrete layer. The lean concrete should be placed on well compacted ground.
- 5. Concrete should be mixed using a concrete mixer. Concrete should not be mixed by hand. When pouring concrete into the formwork, the mix should be compacted using a mechanical vibrator.
- 6. Aggregate used for concrete works should not be larger than 20mm.
- 7. Sand and aggregate used for concrete works should be clear from dust, mud and other debris.
- 8. All reinforcement bars used for the concrete works should be free from rust and grease that could weaken the bonding between the reinforcement bar and the concrete. Care should be taken to use continuous bars rather than short segments joined by laps.

Masonry Works

- 1. All masonry work should be done using Cement confirming to BS12 standards.
- 2. Masonry blocks should be made from imported sand or local white sand sourced from a permitted sand borrow area. The sand should be free from organic matter and other debris.
- 3. Masonry blocks should be made from mortar mixed at 1:5 ratio with 1 part cement to 5 part sand.
- 4. Average size of sand particles should not exceed 5mm.

Plastering Works

- 1. All plastering work should be done using Cement confirming to BS12 standards.
- 2. Plaster mix should be made from imported or local sand white sand sourced from a permitted borrow area. The sand should be free from organic matter and other debris.
- 3. Plaster mix should be made by mixing Cement and Sand at a ratio of 1:3 with 1 part Cement to 3 part Sand.
- 4. Average size of sand particles should not exceed 5mm.

Structural Steel work

- 1. All steel pipes obtained for the work should be new pipes and free from rust.
- 2. Thickness of pipes should not be less than 2.5mm

	<u>cal works</u>
1.	All materials used for electrical wiring should comply with MEA standards.
Roofin	g works
	All materials used for roofing work should be newly purchased for the project.
2.	All screws or bolts used for roof fixing should be G.I or Zinc finish screws.

عُوْوُ وَ وَسَمَاءُ لَا يُعْرِينُ الْمُعْرِينُ مُعْرَدُهُ وَمُعْرَدُ مُعْرِينًا وَمُعْرَدُ مُعْرِينًا مُعْرَدُ مُعْرِينًا مُعْرَدُ مُعْرِينًا مُعْرَدُ مُعْرِينًا مُعْرِينًا مُعْرِينًا مُعْرَدُ مُعْرِينًا مُعْرِينًا مُعْرَدُ مُعْرِينًا مُعْرِينًا مُعْرِينًا مُعْرِينًا مُعْرِينًا مُعْرِينًا مُعْرِينًا مُعْرِينًا مُعْرَدُ مُعْرِينًا مُعْرِينًا مُعْرِينًا مُعْرِينًا مُعْرِينًا مُعْرَدُ مُعْرِينًا
