

CONSULTANCY SERVICES FOR SURVEY, DESIGN AND EIA WORKS OF WATER SUPPLY AND
SEWERAGE FACILITIES IN 7 ISLANDS, MALDIVES

PACKAGE 4

WATER SUPPLY SYSTEM OF ADH. DHIHDHOO, MALDIVES

For Ministry of National Planning and Housing Infrastructure, Republic of Maldives

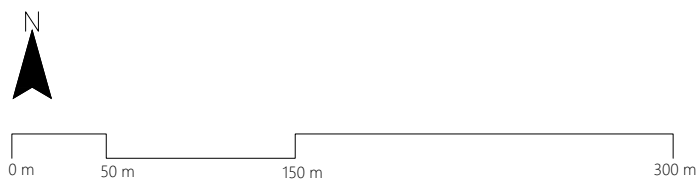
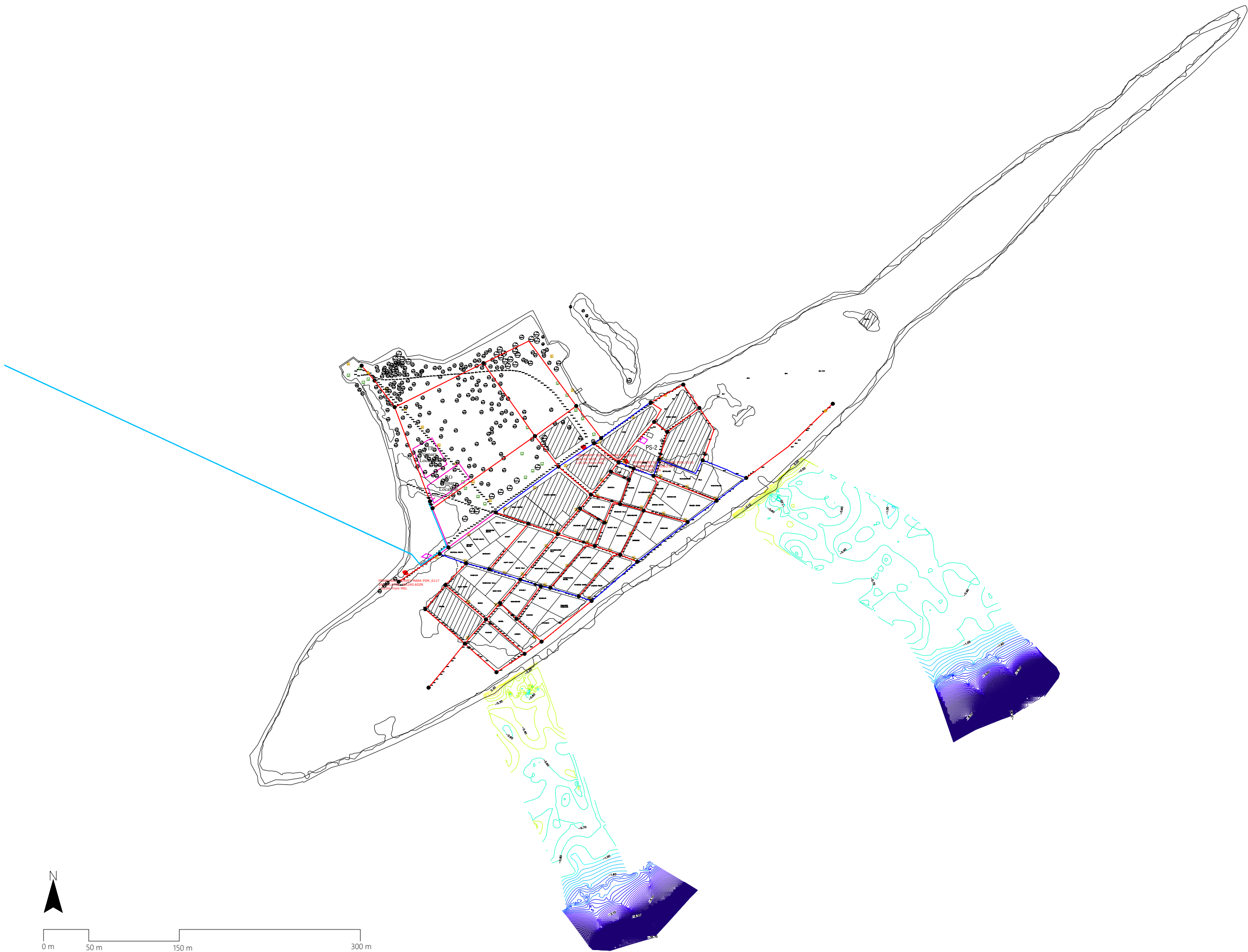


T: +960 333 3528 E: info@epoch.associates W: www.epoch.associates
A: 4A, 4th Floor, M. Ahigasdhoshuge, Fareedhee Magu Male' Republic of Maldives



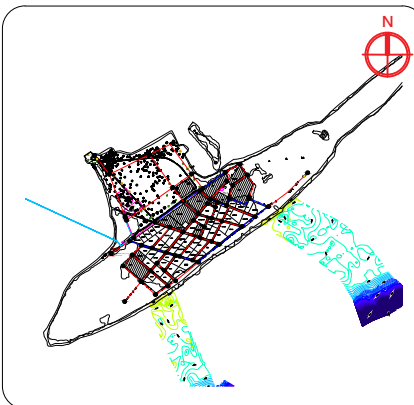
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ADH. DHIHDHOO WATER SUPPLY NETWORK LAYOUT

1:4000



Legend

- Ø63 HDPE Water Main Distribution Pipe
- Ø90 HDPE Water Main Distribution Pipe
- Ø140 HDPE Water Main Distribution Pipe
- Ø110 HDPE Brine Outfall Pipe
- Junction
- Ø75 HDPE Water Main Distribution Pipe
- Ø110 HDPE Water Main Distribution Pipe
- Ø160 HDPE Water Main Distribution Pipe
- Washout Valves
- Gate Valves

- Notes:
- All levels are shown in meters.
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 - This drawing to be read in conjunction with all other relevant drawing and specifications.
 - All pressure pipes and fittings shall be installed using electro-fusion and butt-fusion technologies.
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DIAMETER (mm)	LENGTH HDPE (m)	TYPE OF PIPE
63	3048	HDPE (PE100,PN10,SDR17)
75	777	
90	138	
Total	3963	

Gate Valves	- 13 nos
Washout Valves	- 02 nos

OUTFALL		
DIAMETER (mm)	LENGTH HDPE (m)	TYPE OF PIPE
110	- 108m (on land), 545m (offshore)	HDPE (PE100,PN10,SDR11)

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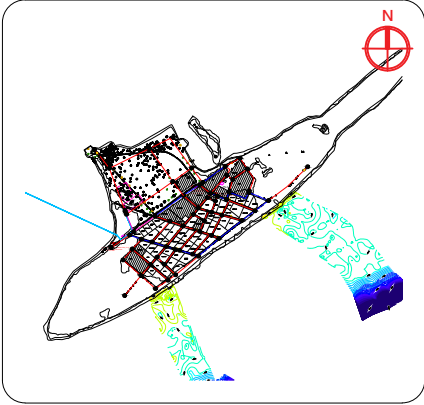
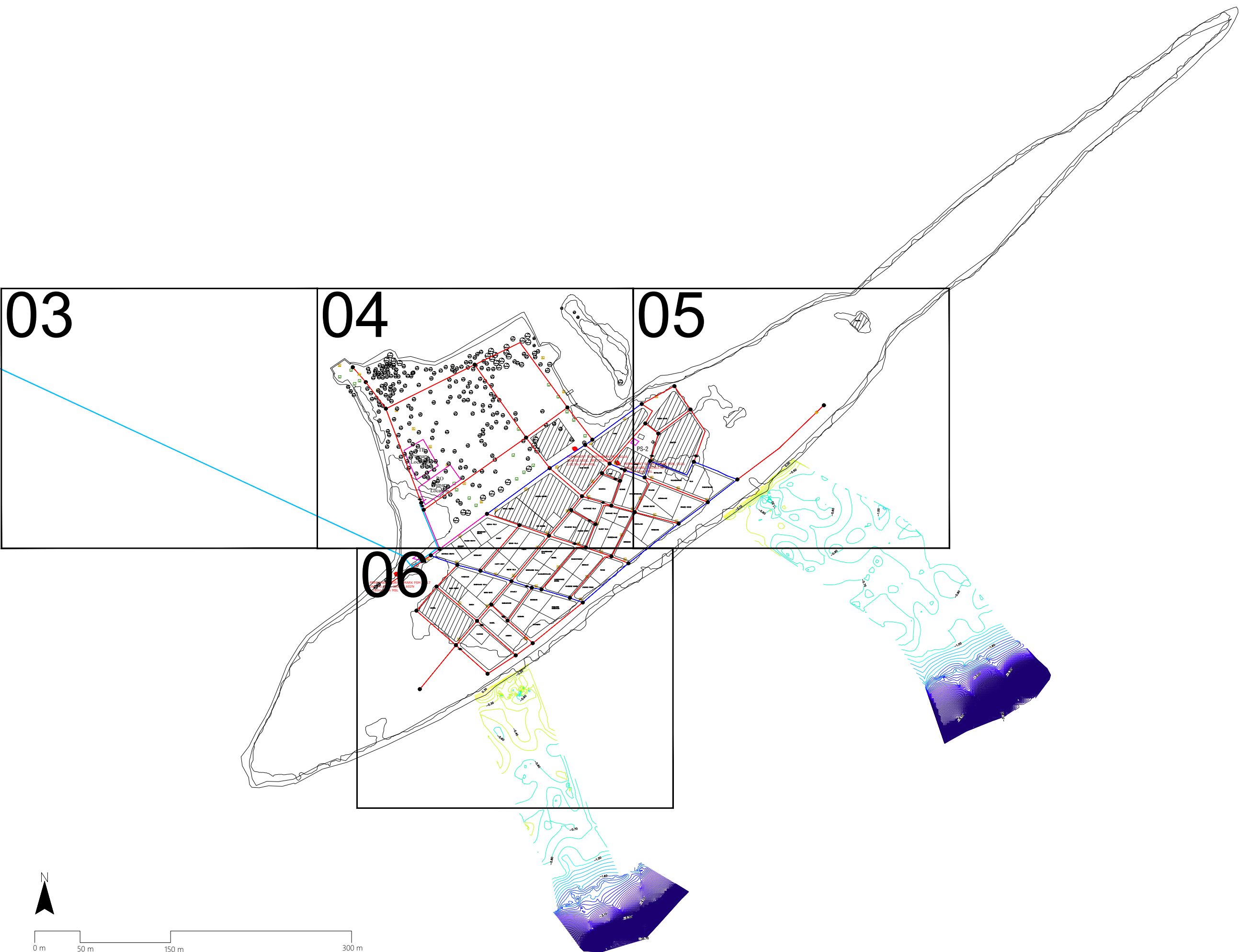
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T: +960 333 3528
E: info@epochassociates
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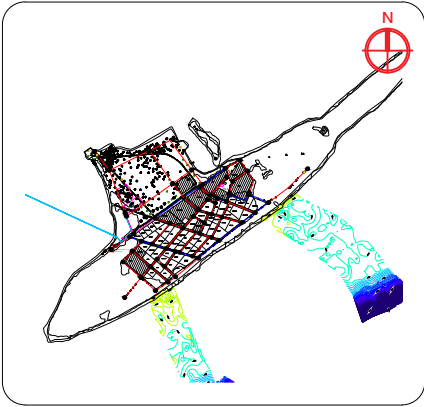
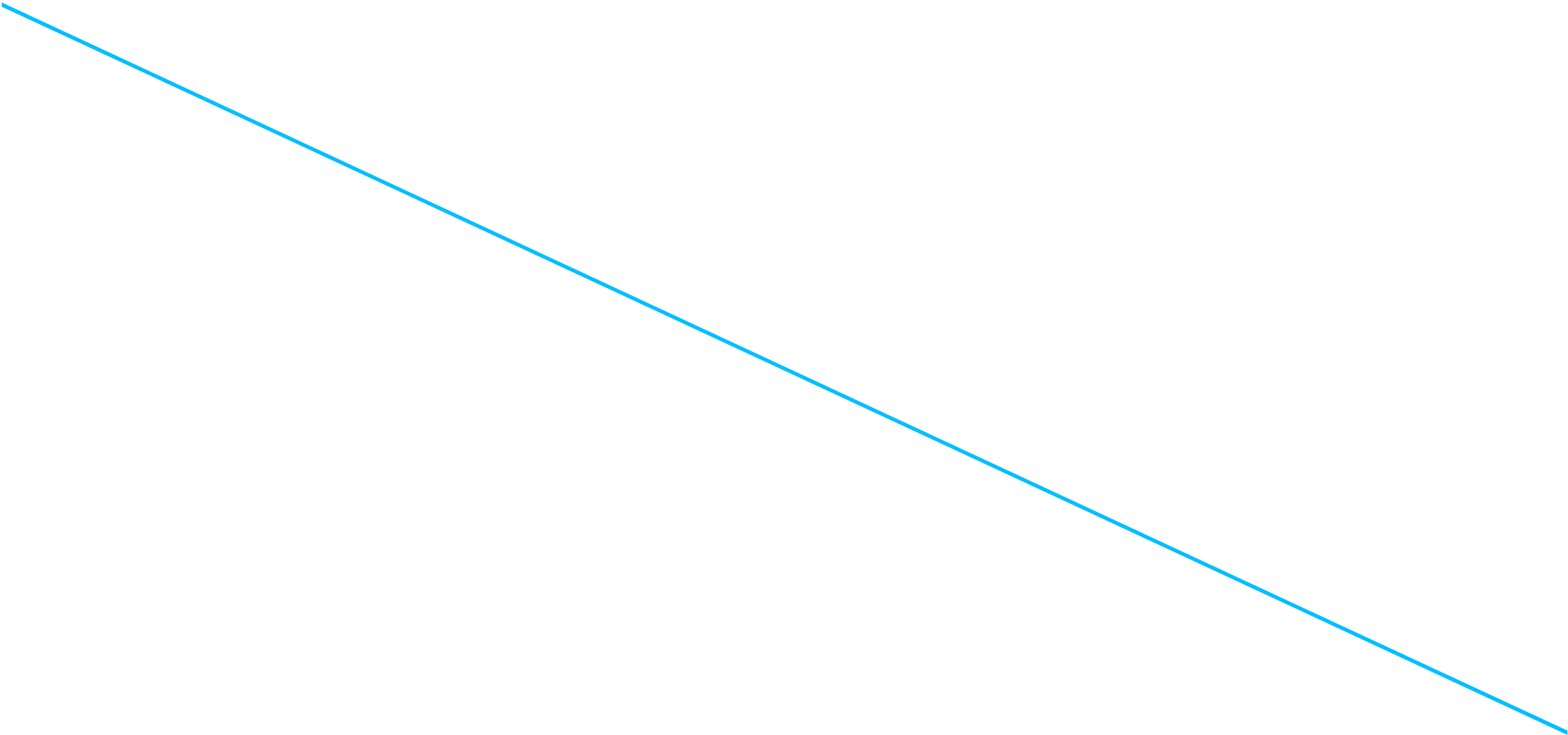
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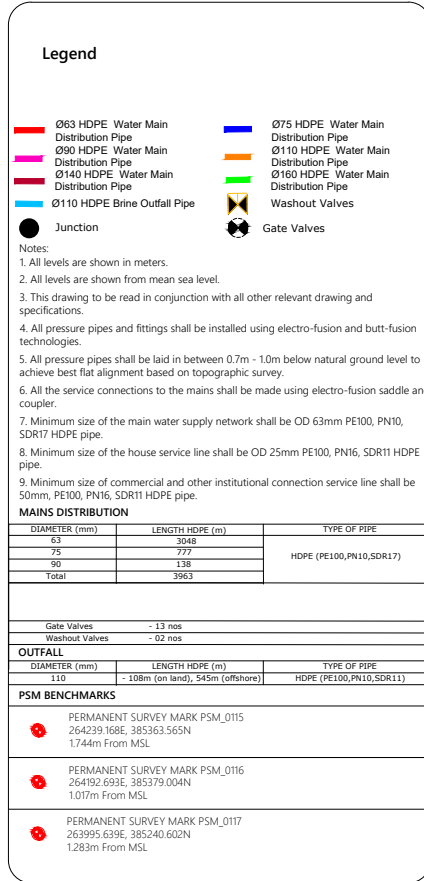
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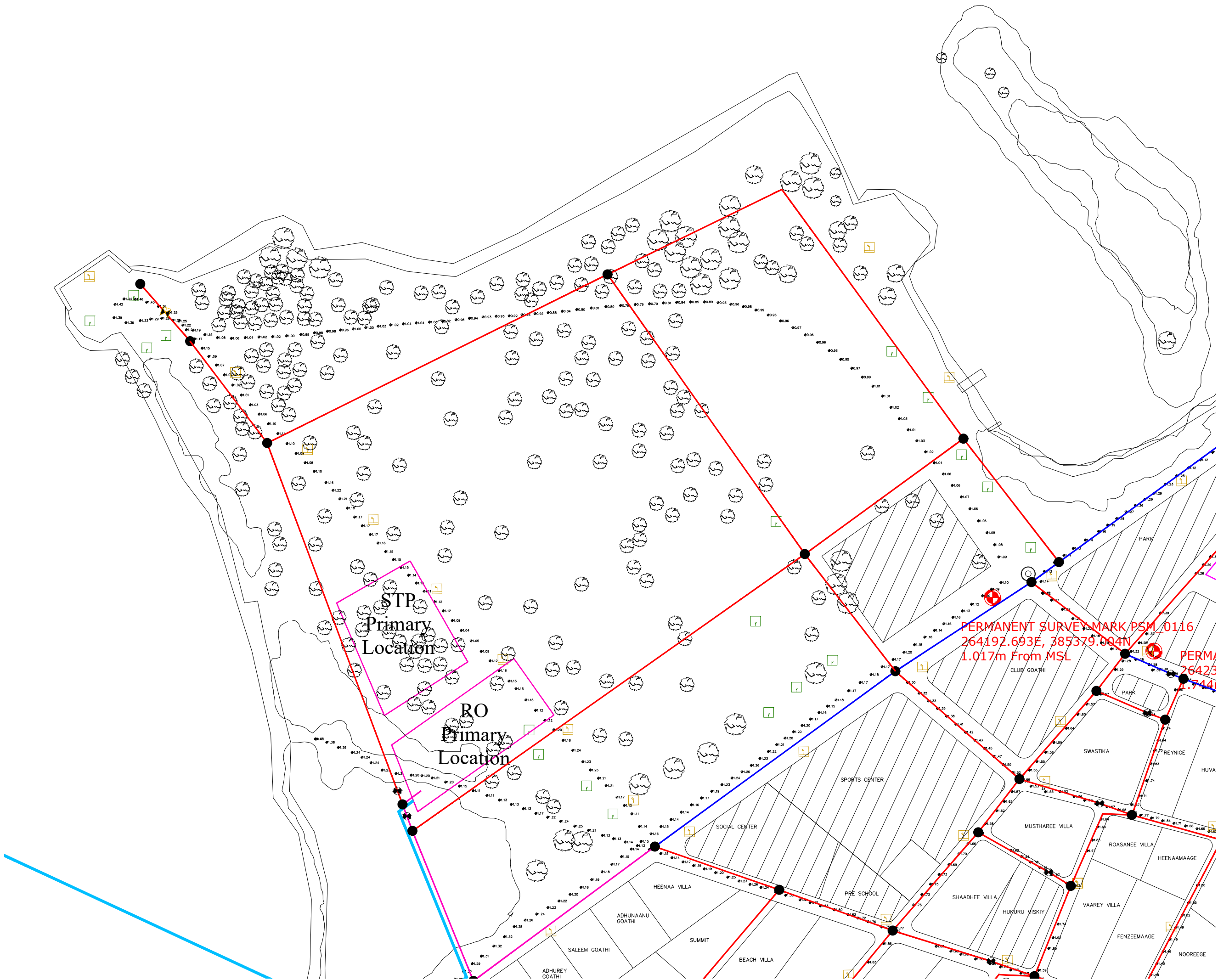
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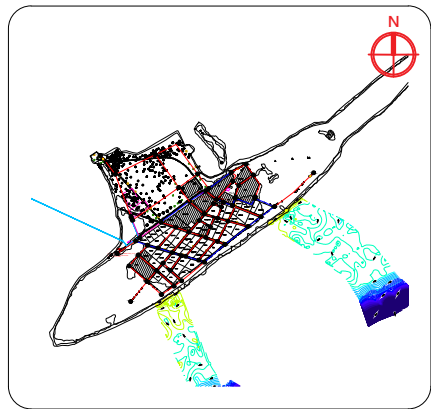
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Legend

- | | | | |
|---|--|---|--|
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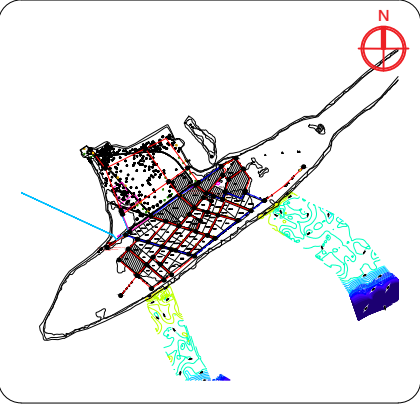
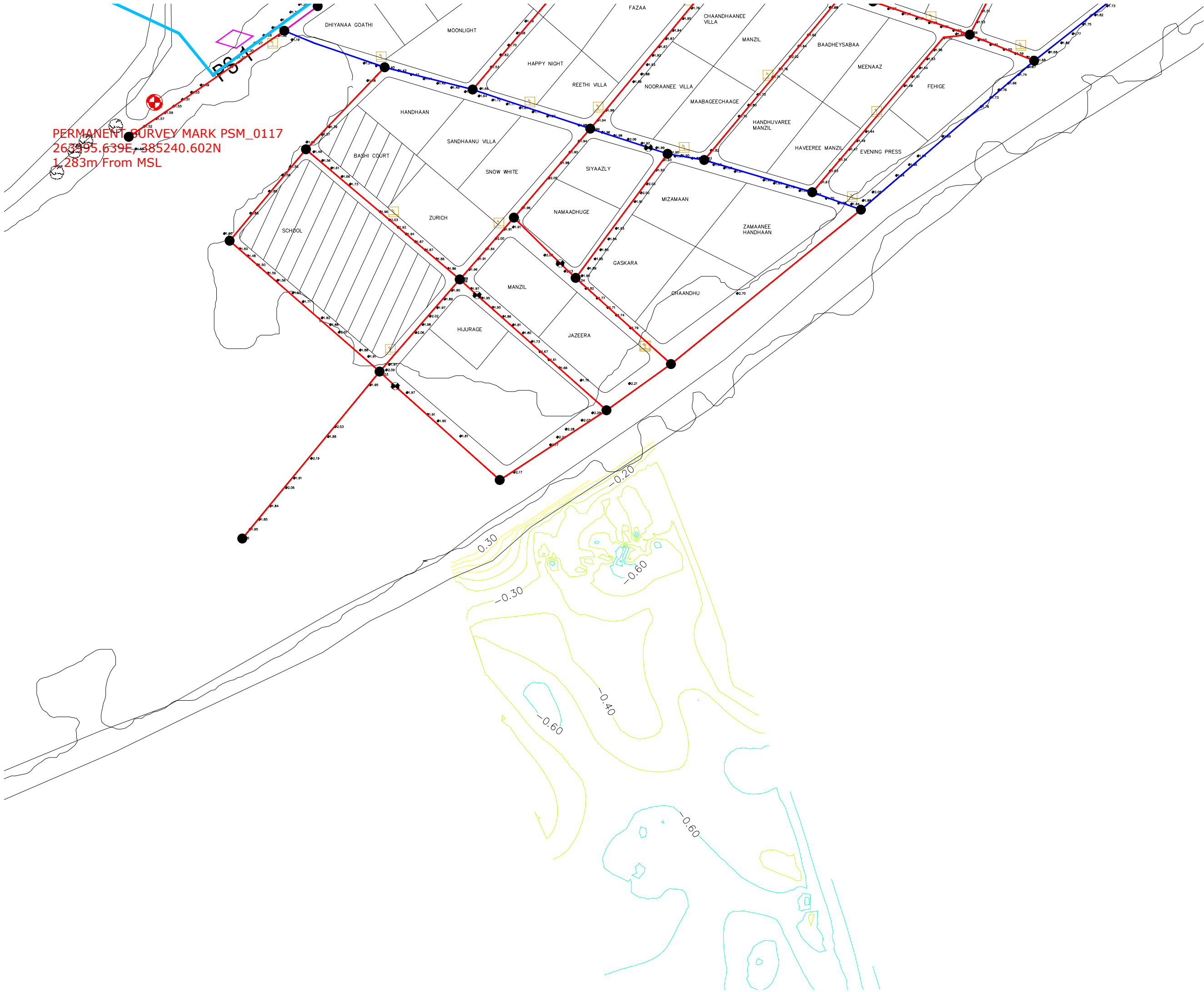
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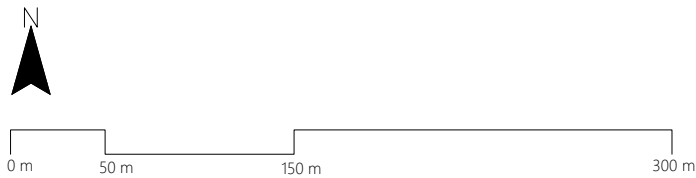
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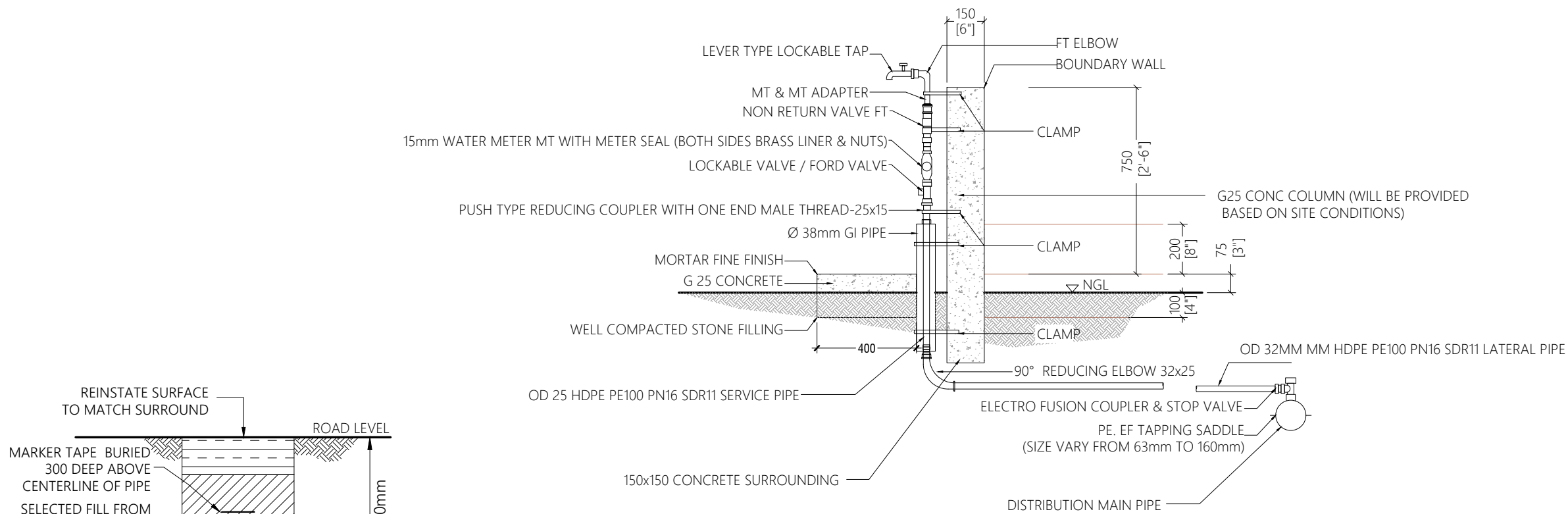
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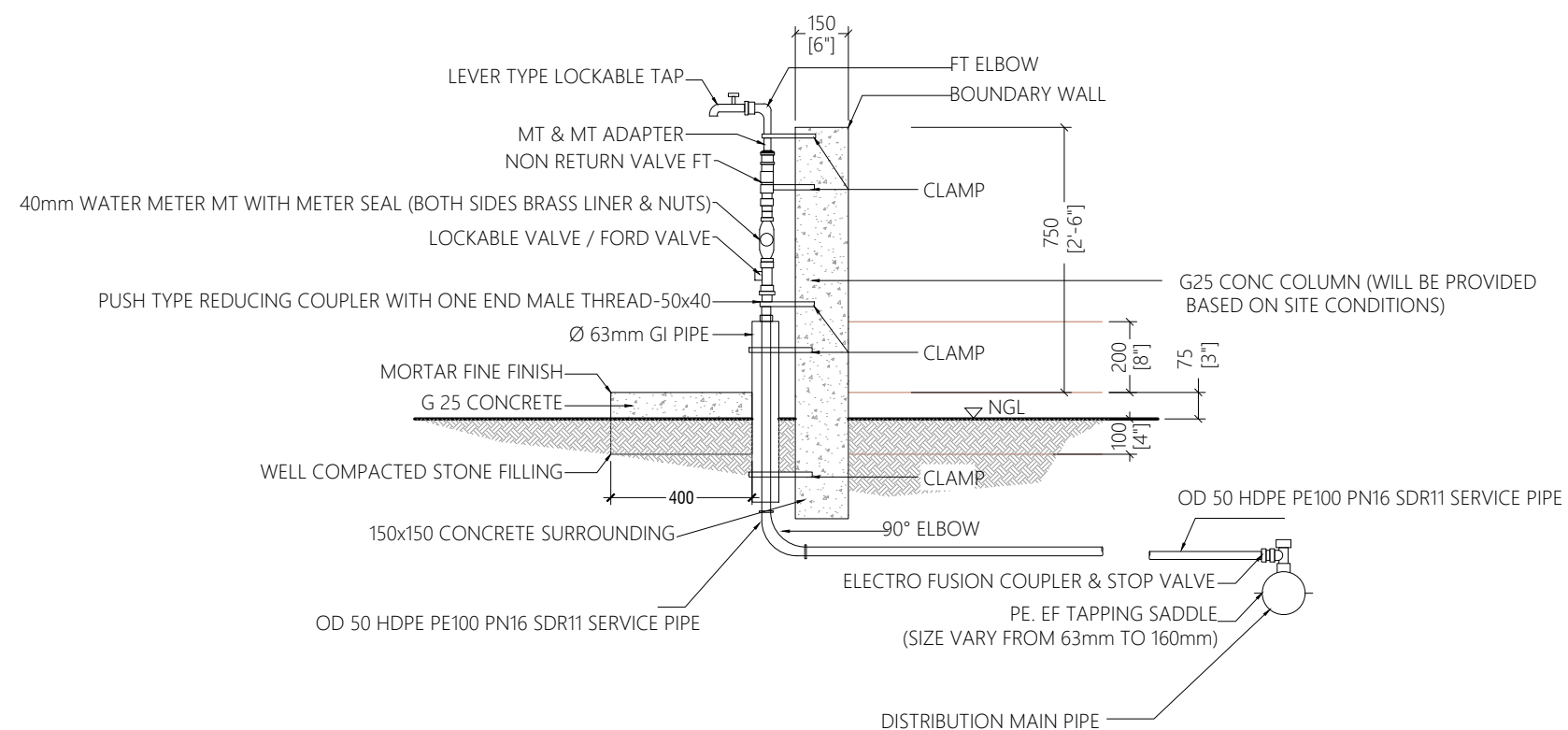


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WATER SUPPLY HOUSE CONNECTION DETAILS

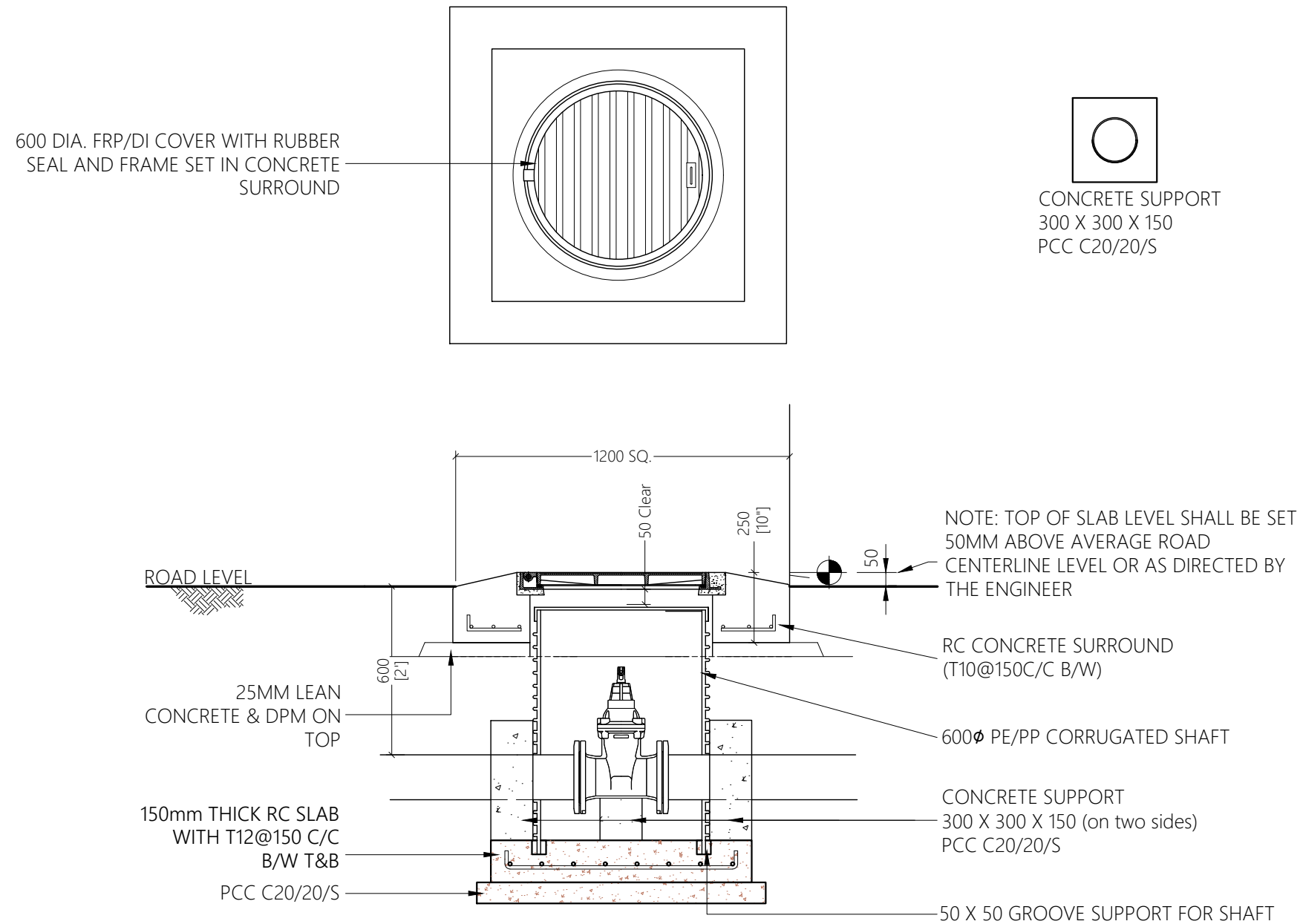


WATER SUPPLY COMMERCIAL/INSTITUTIONAL CONNECTION DETAILS

WATER SUPPLY HOUSE AND COMMERCIAL/INSTITUTIONAL CONNECTIONS

Legend

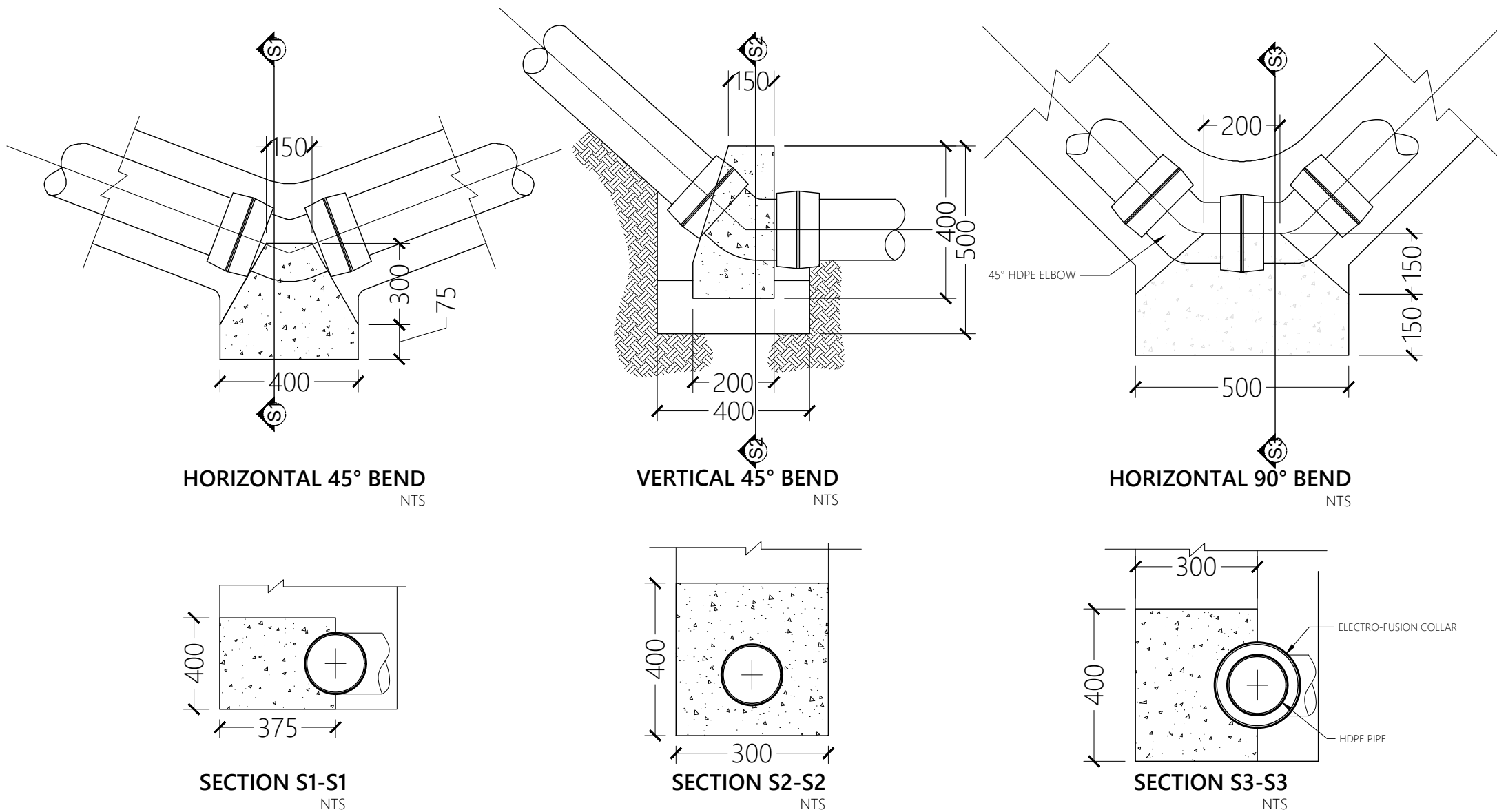
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VALVE CHAMBER DETAILS

Legend

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THRUST BLOCK DETAILS

NTS

Legend

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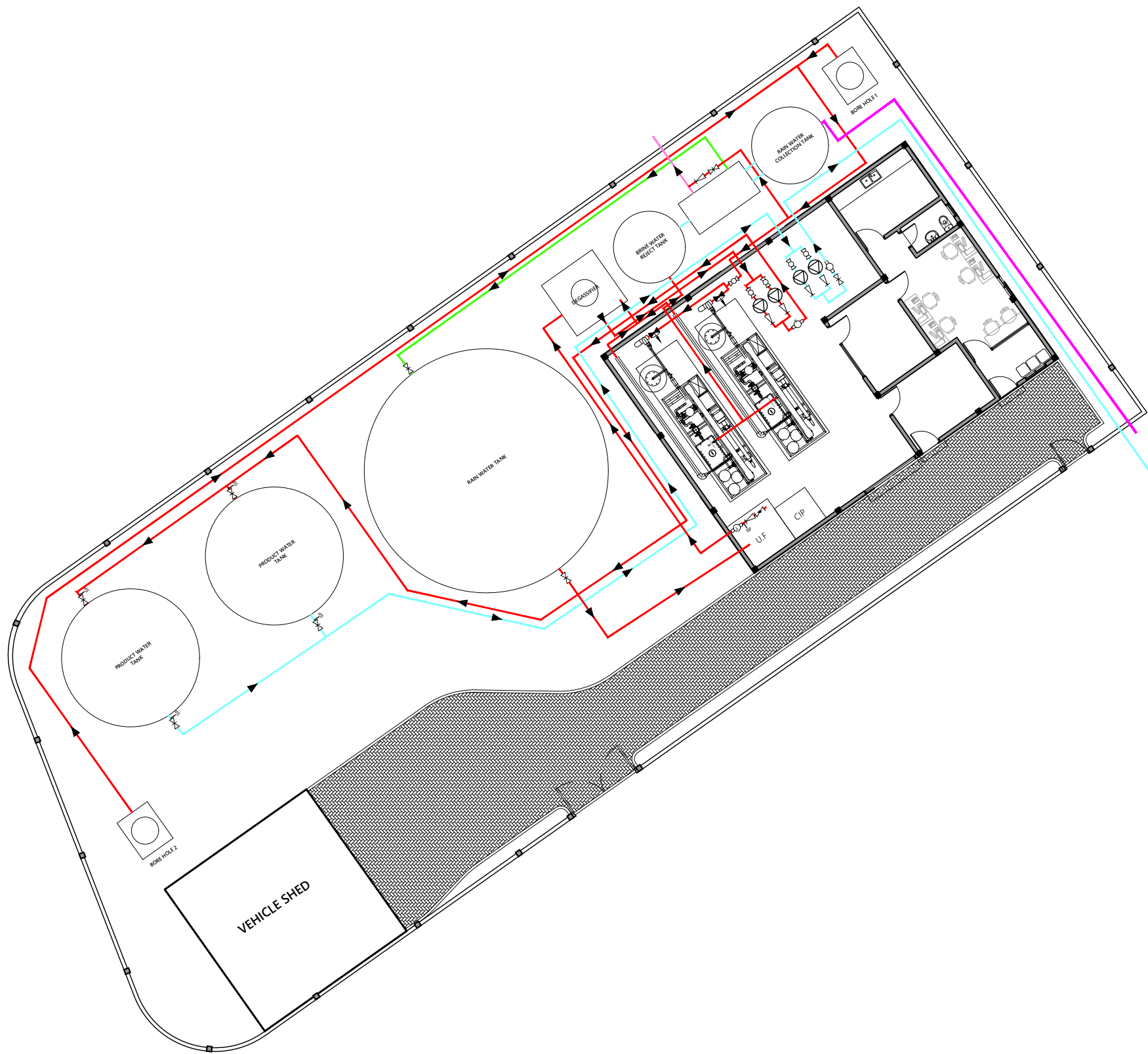


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PUMP DETAILS

- Borehole Pump : 2 Nos
- Flow (Q) = 5.55 m³/hr
- Head (H) = 50 m
- High Pressure Pump : 2 Nos
- Flow (Q) = 2.78 m³/hr
- Pressure Range = 40-85 bar
- Transfer Pump : 2 Nos
- Flow (Q) = 4.17 m³/hr
- Head (H) = 9 m
- Distribution Pump Set : 2 Nos
- Flow (Q) = 3.00 m³/hr
- Head (H) = 30 m
- Brine Pump : 2 Nos
- Flow (Q) = 3.89 m³/hr
- Head (H) = 13 m
- Rain Water Lift Well Pump : 2 Nos
- Flow (Q) = 35.24 m³/hr
- Head (H) = 12m
- UF Feed Pump : 2 Nos
- Flow (Q) = 2.5 m³/hr
- Head (H) = 35 m

- Gate Valve
- Check Valve
- Totalizer
- Pump
- Closed Gate Valve
- SP
- Butterfly Valve
- Ball Valve



INTERNAL PIPE LAYOUT

1:200

Legend

- Ø90 HDPE (PE100, PN10, SDR17)
- Ø63 HDPE (PE100, PN10, SDR17)
- Ø160 HDPE (PE100, P10, SDR17)
- Ø110 HDPE (OUTFALL PE100, PN16, SDR11)
- Ø250 HDPE (RAINWATER PE100, PN6, SDR26)

Notes:

- All Pump sizes are based on 15 year demands.
- Rainwater collection Pump sizing is done considering Maximum Rainfall intensity of 50mm/hr.
- UF feed pump will be subject to Approved UF Plant suppliers approval.
- Both Feed Pump and High pressure pump capacity will need to be approved by the approved RO plant Supplier. The working pressure range will be established based on the approved suppliers requirements.
- Distribution Pump set will have Variable Frequency Drive.
- All pump control float switches and automated valves will be provided.

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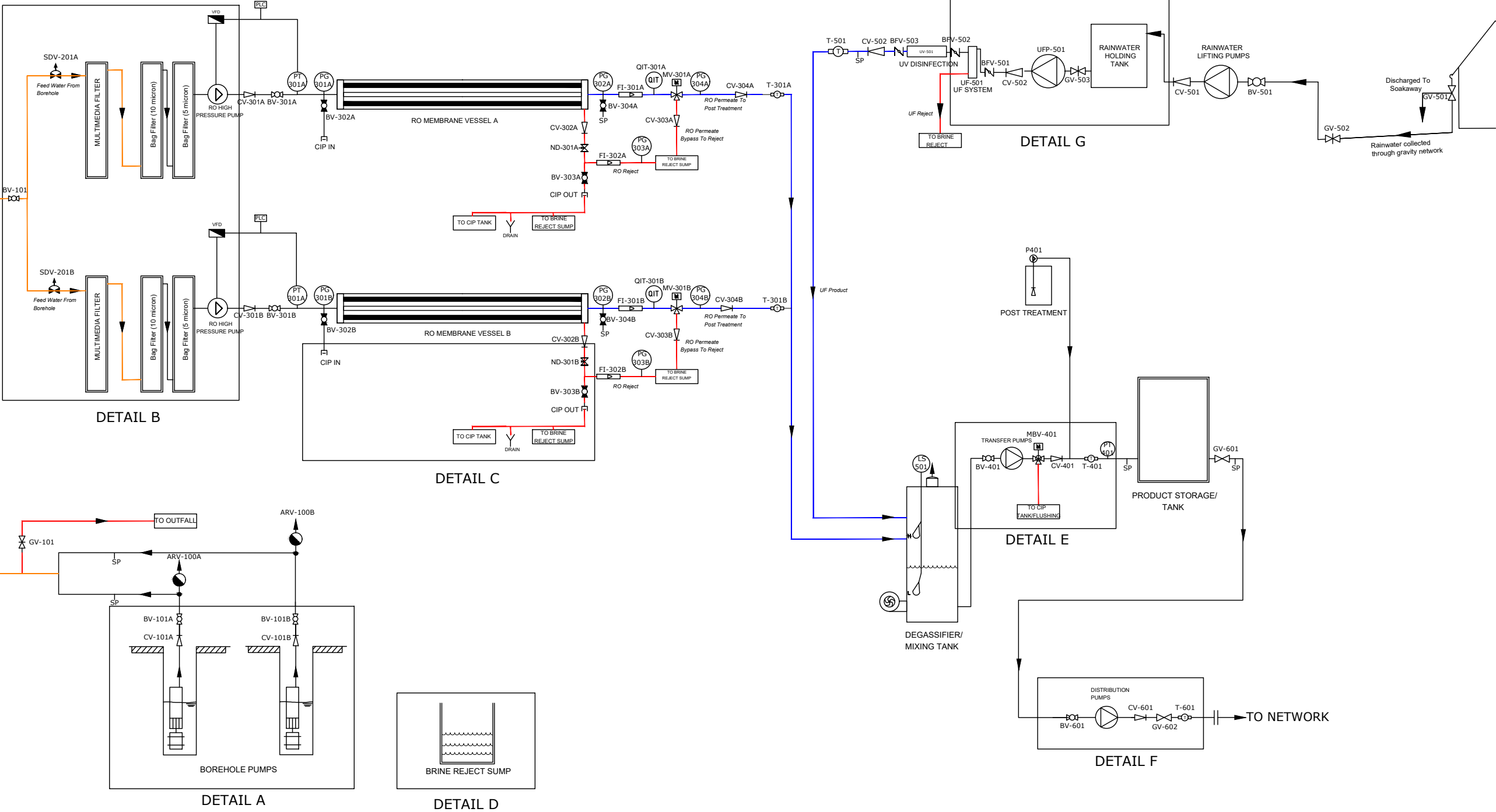
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LEGEND					
ACTUATION		VALVES		FEATURES	CONDITION
	MANUALLY OPERATED		BUTTERFLY		MOTORIZED BALL
	PNEUMATIC DIAPHRAGM - SINGLE ACTING		BALL		TORTALIZER
	PNEUMATIC DIAPHRAGM - DOUBLE ACTING		DIAPHRAGM		GATE
	PNEUMATIC PISTON		3-WAY		CHECK VALVE
			SLUICE		MOTORIZED 3 WAY
					FLANGED CONNECTION
					TRAP
					DISCHARGE TO ATMOSPHERE
					SAMPLING POINT
					FLOW INDICATOR
					VALVE NORMALLY OPEN
					VALVE NORMALLY CLOSED

Legend

- FEED LINE
- REJECT LINE
- PRODUCT LINE

Note:

- CPVC pipe with PN10 rating to be used for the internal pipeline of the plant except for high pressure area (HPP to MV).
- From HPP to MV SS316 piping to be used.
- CPVC pipe with PN16 rating to be used for pipe fittings.
- CPVC pipe with SDR ratio 17 ratio to be used for network.
- HPP used to have a self cooled radial piston.
- CF filters to have a plastic housing with SS304 bolt fittings at connections.
- MM filters to be sized with 32" height by 7" diameter housing.
- Borehole Pumps set to include Variable Frequency Drive (VFD)

Title:
Consultancy Services for Survey, Design and EIA works of Water Supply and Sewerage Facilities in 7 islands, Maldives - Package 4

Sub Title:
Water Supply System in Adh. Dhihdhoo

Client:
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T: +960 333 3528
E: info@epoch.associates
W: www.epoch.associates
A: G. Rossary West, Husnuheena Magu, Male', Maldives

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Designed: F.I.A.	Approved: I.W.
Date: Sep 2020	SCALE (A3): NTS
Project No: EP-WS/2019/04	
Rev: R-01	Page: W-05



IWRM PLANT P&I OVERVIEW

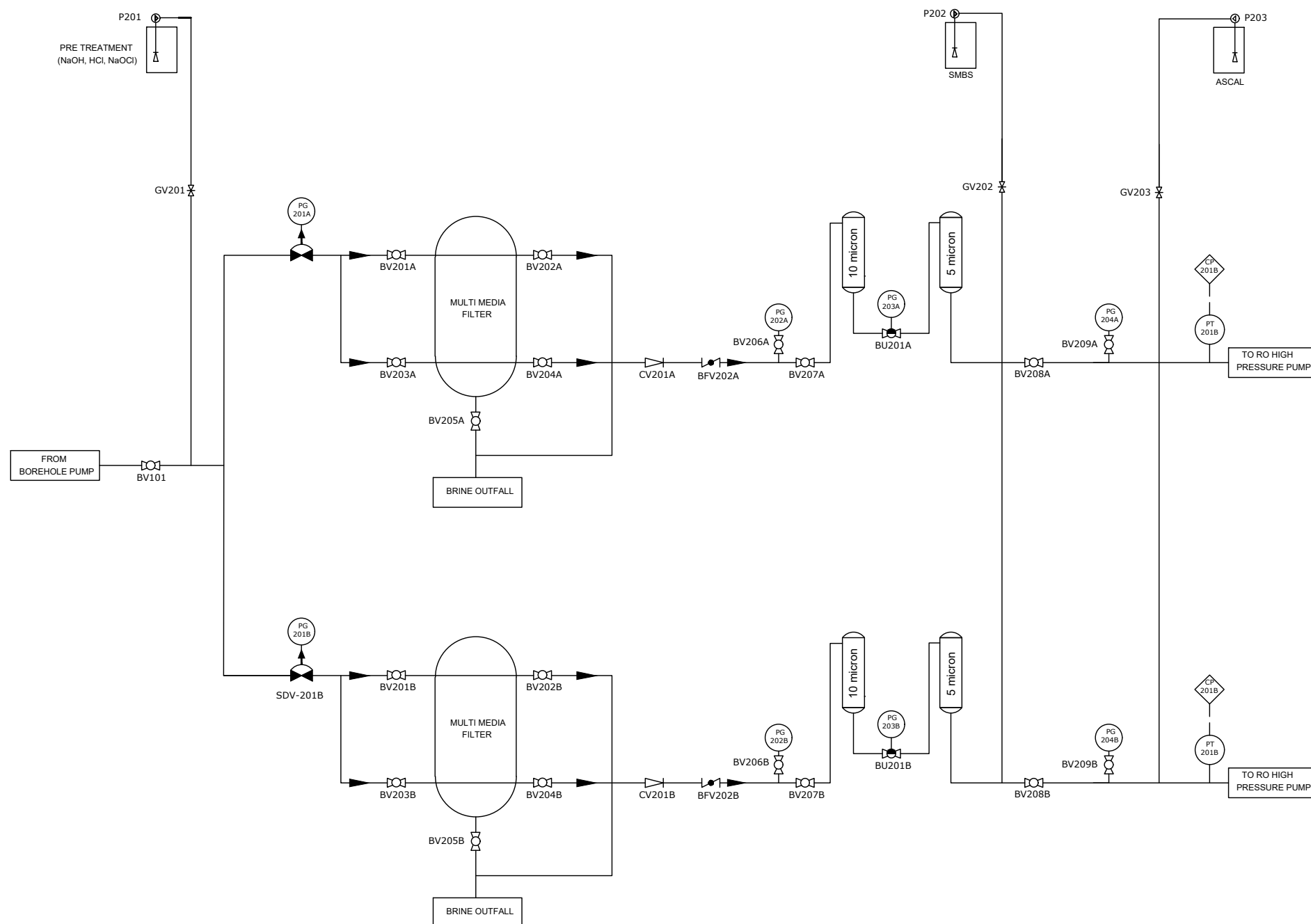
NTS



DETAIL A

IWRM PLANT P&I DETAIL A

 <p>EPOCH ANALYTICS</p>	 <p>FEDBACK INFRA Making Self-Service a Reality</p>
<p>T: +960 333 3258 E: info@epoch.analysics W: www.epoch.analysics A: G. Rosany West, Husnuheena Magu, Male', Maldives</p>	
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<p>Designed: F.I.A.</p>	<p>Approved: I.W.</p>
<p>Date: Sep 2020</p>	<p>SCALE (A3): NTS</p>
<p>Project No:</p>	<p>EP-WS/2019/04</p>
<p>Rev: R-01</p>	<p>Page: W-06</p>



LEGEND									
ACTUATION		VALVES			FEATURES		CONDITION		ABBREVIATIONS
	MANUALLY OPERATED		BUTTERFLY		MOTORIZED BALL		FLANGED CONNECTION		LS - LEVEL SENSOR FT - FLOW TRANSMITTER PI - PRESSURE INDICATOR SP - SAMPLING POINT AR - AIR RELEASE P - PUMP PG - PRESSURE GAUGE PS - PRESSURE SENSOR CP - CONNECTION POINT LT - LEVEL TRANSMITTER QIT - CONDUCTIVITY INDICATOR PLC - PROGRAMMABLE LOGIC CONTROLLER
	PNEUMATIC DIAPHRAGM - SINGLE ACTING		BALL		TORTALIZER		TRAP		
	PNEUMATIC DIAPHRAGM - DOUBLE ACTING		DIAPHRAGM		GATE		DISCHARGE TO ATMOSPHERE		
	PNEUMATIC PISTON		3-WAY		CHECK VALVE		SAMPLING POINT		
	PNEUMATIC PISTON		SLUICE		MOTORIZED 3 WAY		FLOW INDICATOR		

NTS

- SMBS Pre dosing chemical to be used only if Chlorine based dosing chemical is added prior to filtration.
- Union valve to be connected in between the two cartridge filters.
- MM filters to be controlled manually.

Title:
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Design and EIA works of Water
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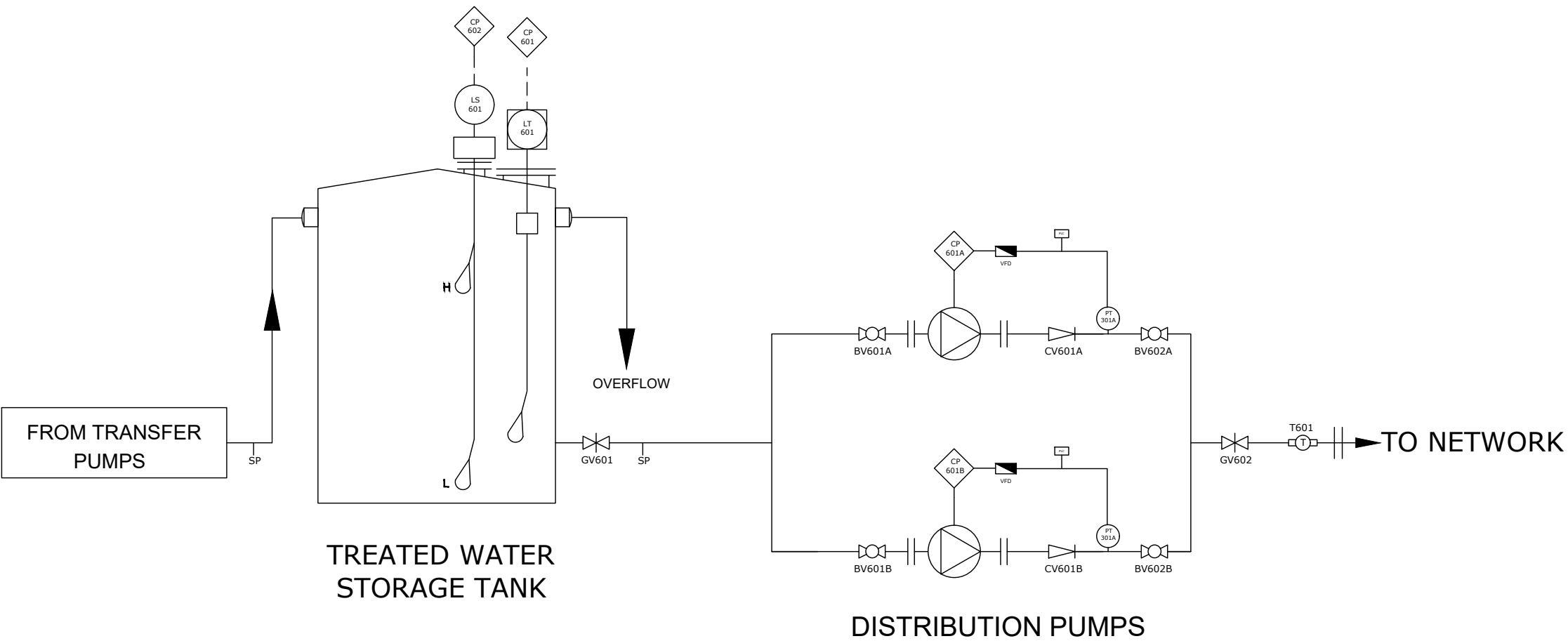
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W-07

IWRM PLANT P&I DETAIL C

Rev: R-01	Page: W-08
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<p>Drawn: F.I.A.</p>	<p>Checked: M.S.S.</p>
<p>Designed: F.I.A.</p>	<p>Approved: I.W.</p>
<p>Date: Sep 2020</p>	<p>SCALE (A3): NTS</p>
<p>Project No:</p>	<p>EP-WS/2019/04</p>
<p>Rev: R-01</p>	<p>Page: W-09</p>



DETAIL F

LEGEND					
ACTUATION	VALVES		FEATURES		ABBREVIATIONS
	MANUALLY OPERATED	BUTTERFLY	MOTORIZED BALL	FLANGED CONNECTION	<div>LS - LEVEL SENSOR</div> <div>FT - FLOW TRANSMITTER</div> <div>PI - PRESSURE INDICATOR</div> <div>SP - SAMPLING POINT</div> <div>AR - AIR RELEASE</div> <div>P - PUMP</div> <div>PG - PRESSURE GAUGE</div> <div>PS - PRESSURE SENSOR</div> <div>CP - CONNECTION POINT</div> <div>LT - LEVEL TRANSMITTER</div> <div>QIT - CONDUCTIVITY INDICATOR</div> <div>PLC - PROGRAMMABLE LOGIC CONTROLLER</div>
	PNEUMATIC DIAPHRAGM - SINGLE ACTING	BALL	TORTALIZER	TRAP	
	PNEUMATIC DIAPHRAGM - DOUBLE ACTING	DIAPHRAGM	GATE	DISCHARGE TO ATMOSPHERE	
	PNEUMATIC PISTON	3-WAY	CHECK VALVE	SAMPLING POINT	
		SLUICE	MOTORIZED 3 WAY	FLOW INDICATOR	

IWRM PLANT P&I DETAIL F

NTS

Title:
Consultancy Services for Survey,
Design and EIA works of Water
Supply and Sewerage Facilities in
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Sub Title:
Water Supply System in Adh. Dhihdhoo

Client:
Ministry of National Planning, Housing and
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T. +960 333 3528

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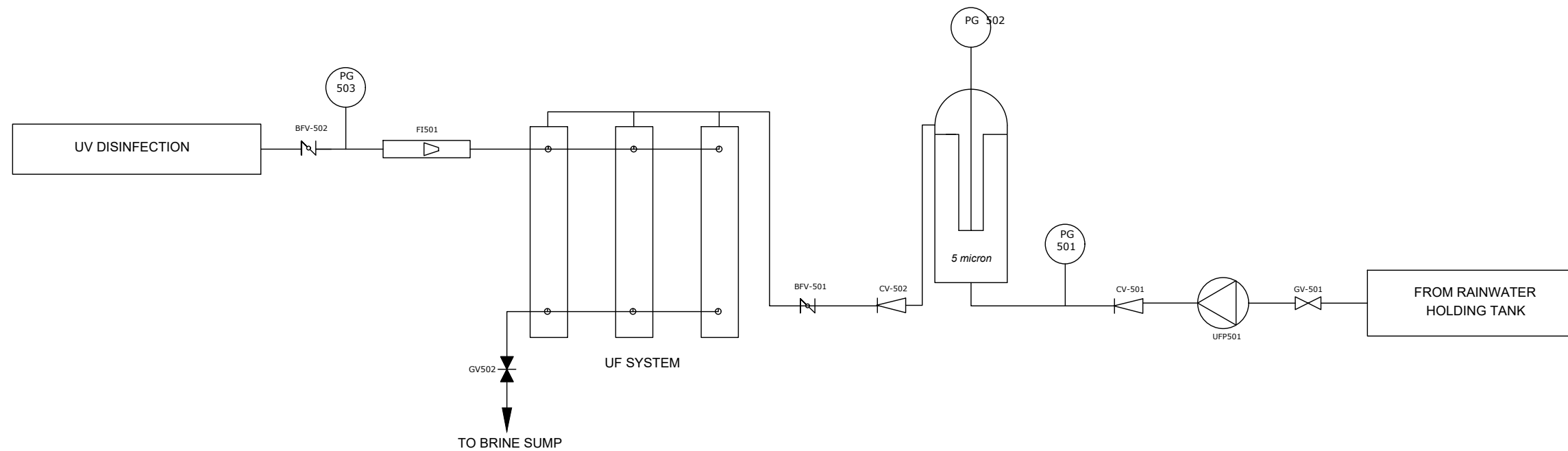
A. G. Rosary West,
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FEEDBACK INFRA






















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Rev: R-01	Page: W-11

UV DISINFECTION



DETAIL G

LEGEND										
ACTUATION		VALVES				FEATURES		CONDITION		ABBREVIATIONS
	MANUALLY OPERATED		BUTTERFLY		MOTORIZED BALL		FLANGED CONNECTION		VALVE NORMALLY OPEN	LS - LEVEL SENSOR FT - FLOW TRANSMITTER PI - PRESSURE INDICATOR SP - SAMPLING POINT AR - AIR RELEASE P - PUMP PG - PRESSURE GAUGE PS - PRESSURE SENSOR CP - CONNECTION POINT LT - LEVEL TRANSMITTER QIT - CONDUCTIVITY INDICATOR PLC - PROGRAMMABLE LOGIC CONTROLLER
	PNEUMATIC DIAPHRAGM - SINGLE ACTING		BALL		TORTALIZER		TRAP		VALVE NORMALLY CLOSED	
	PNEUMATIC DIAPHRAGM - DOUBLE ACTING		DIAPHRAGM		GATE		DISCHARGE TO ATMOSPHERE			
	PNEUMATIC PISTON		3-WAY		CHECK VALVE		SAMPLING POINT			
			SLUICE		MOTORIZED 3 WAY		FLOW INDICATOR			

IWRM PLANT P&I DETAIL G

NTS



Legend

R00	JUNE 2020	STAGE -1	PD	SBC	SD
REV. NO.	Date	Revision Description	Drawn	Chkd	Appd.

Title:
**Consultancy Services for Survey,
Design and EIA works of Water
Supply and Sewerage Facilities in
7 islands, Maldives - Package 4**

Sub Title:
Water Supply System in Adh. Dhihdhoo

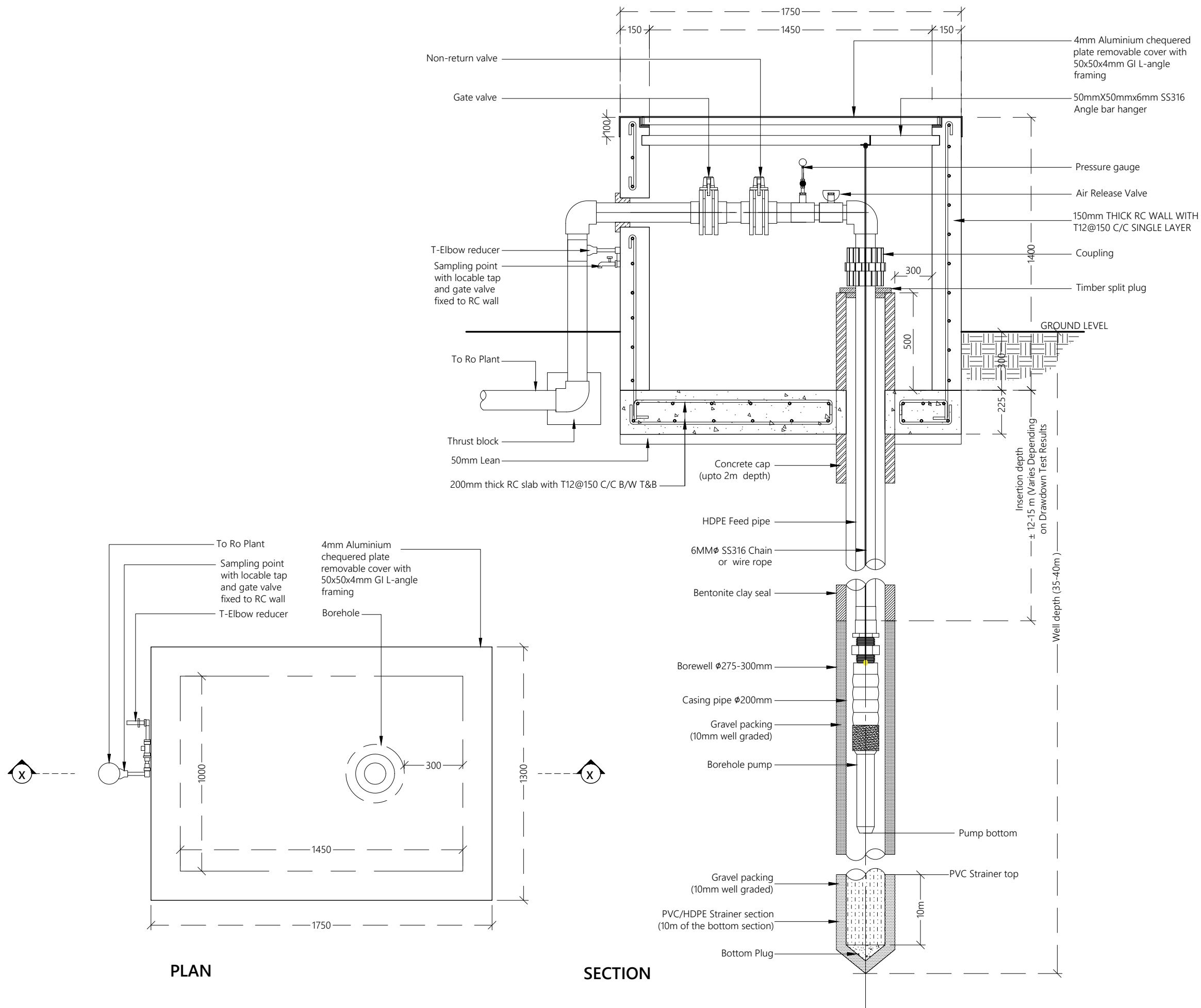
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Rev: R-01	Page: W-12



BOREHOLE DETAILS

NTS

Legend

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Title:
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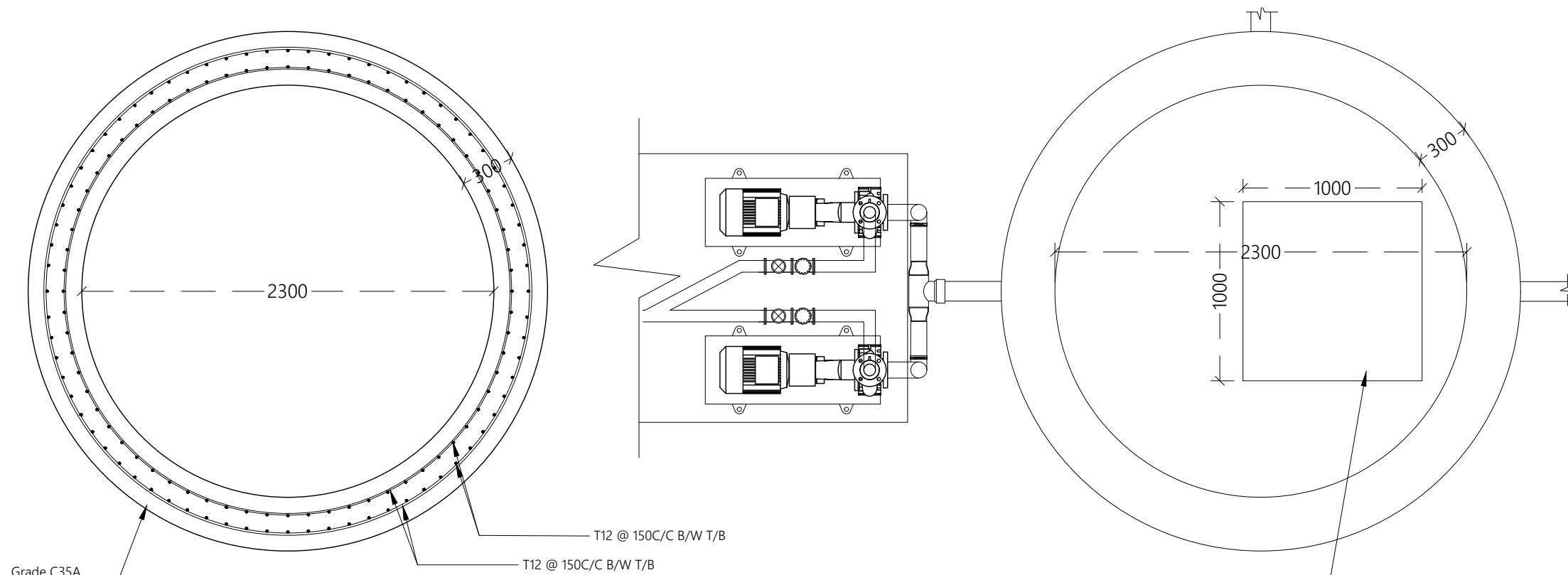
Sub Title:
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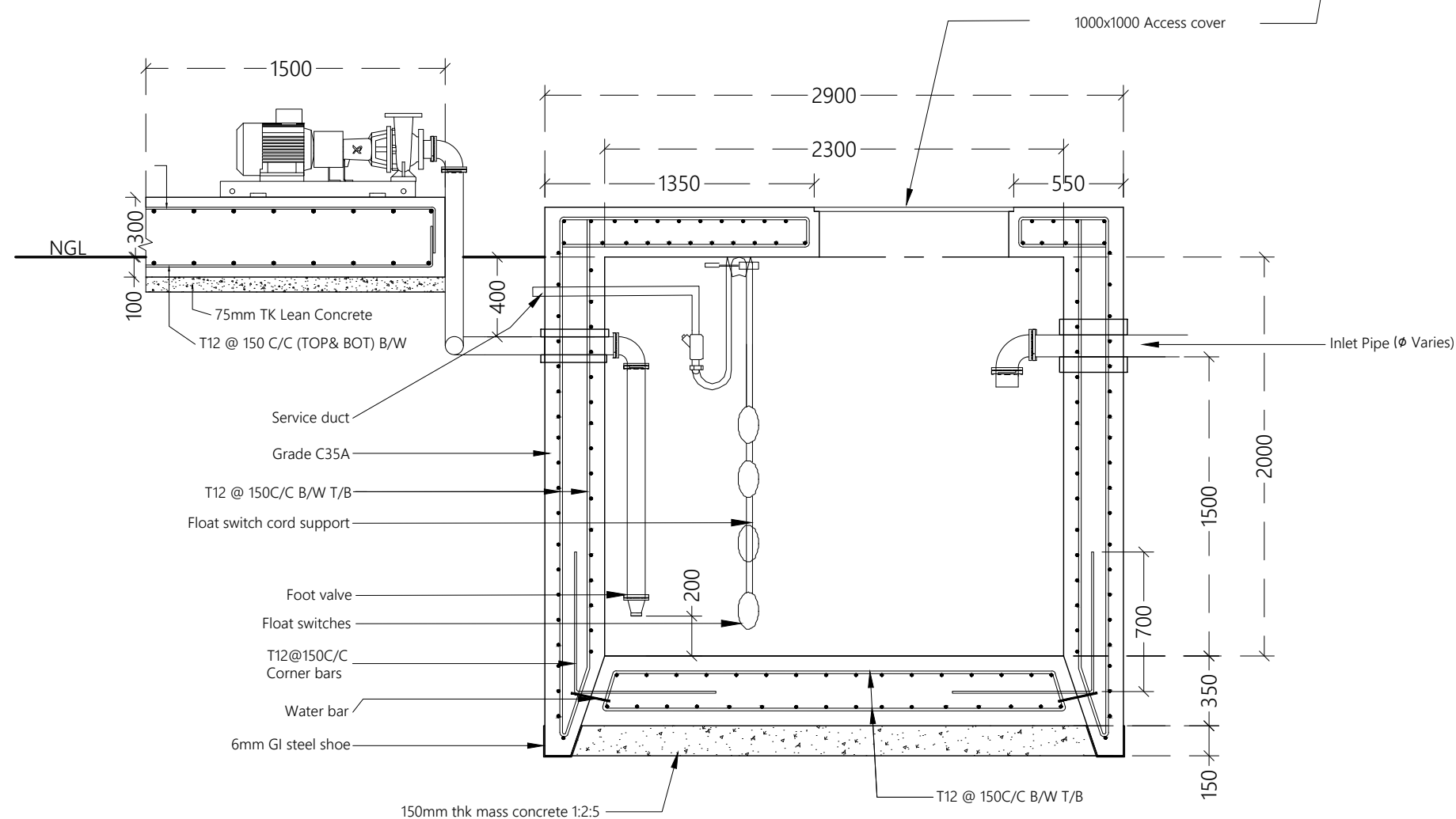
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BRINE WATER TANK PLAN - STRUCTURAL

BRINE WATER TANK PLAN



BRINE WATER TANK SECTION X-X

BRINE TANK DETAILS

Legend

Note:
- Pumps, pipe work, fittings and control panel shall be installed in accordance with manufacturers recommendations.
- Orientation of tanks and pipe work to suit location.

REV. NO.	Date	Revision Description	Drawn	Chkd	Appd.
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Title:
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A: G. Rosary West, Husnuheena Magu, Male', Maldives

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Date: Sep 2020	SCALE (A3): 1:30
Project No: EP-WS/2019/04	
Rev: R-01	Page: W-14



Legend

- Note:**
- Pumps, pipe work, fittings and control panel shall be installed in accordance with manufacturers recommendations.
 - Orientation of tanks and pipe work to suit location.
 - The rainwater lift well will have a filter to prevent entry of debris and dirt.

REV. NO.	Date	Revision Description	Drawn	Chkd	Appd.
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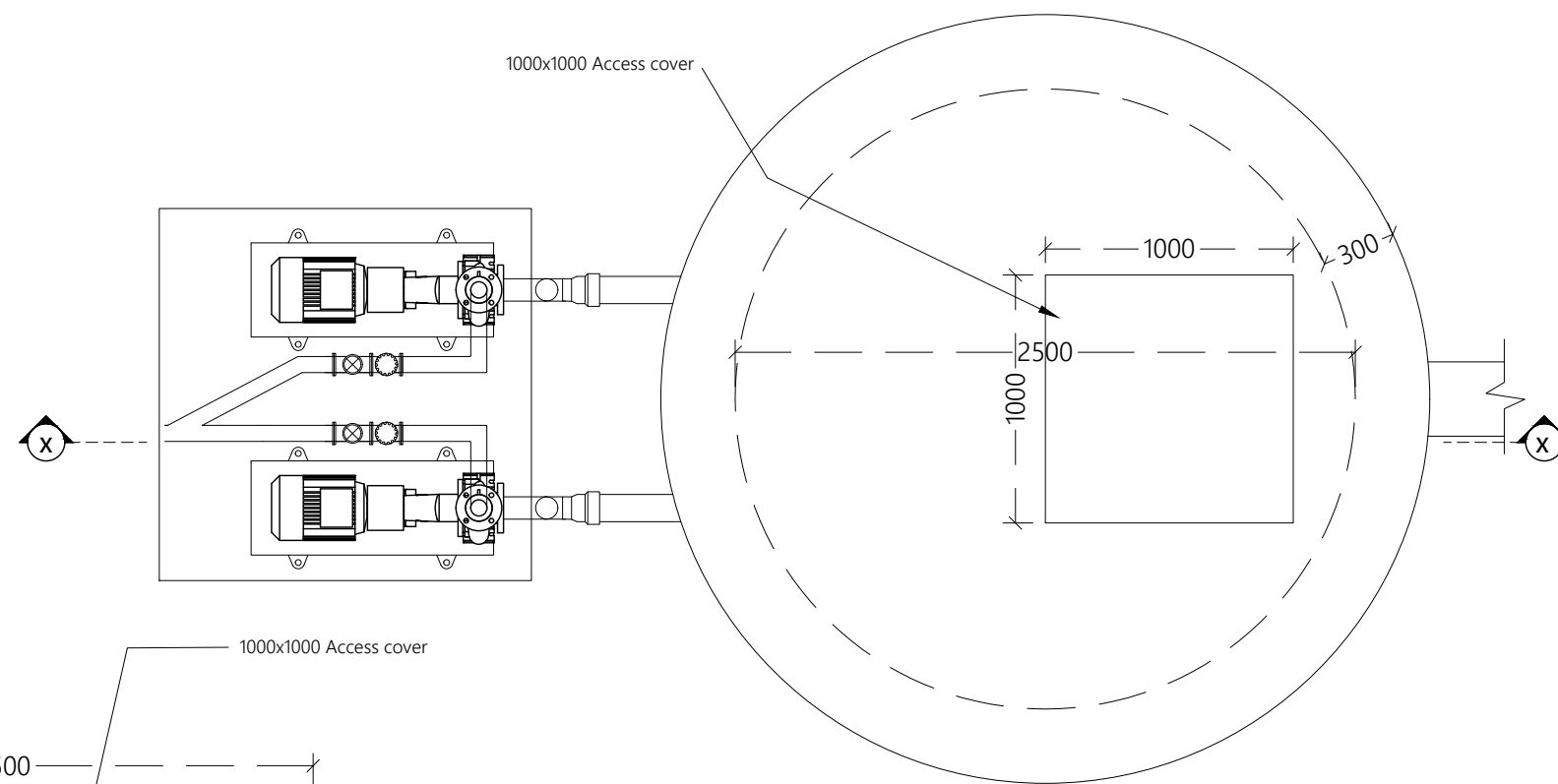
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Designed: F.I.A. Approved: I.W.

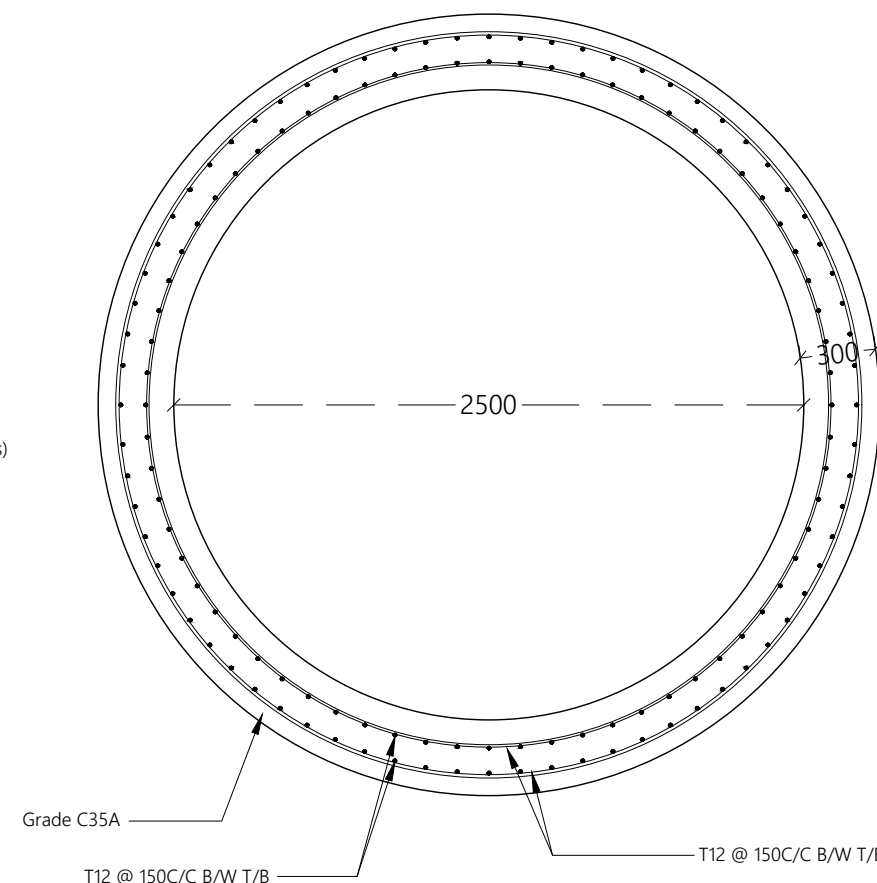
Date: Sep 2020 SCALE (A3): 1:30

Project No: EP-WS/2019/04

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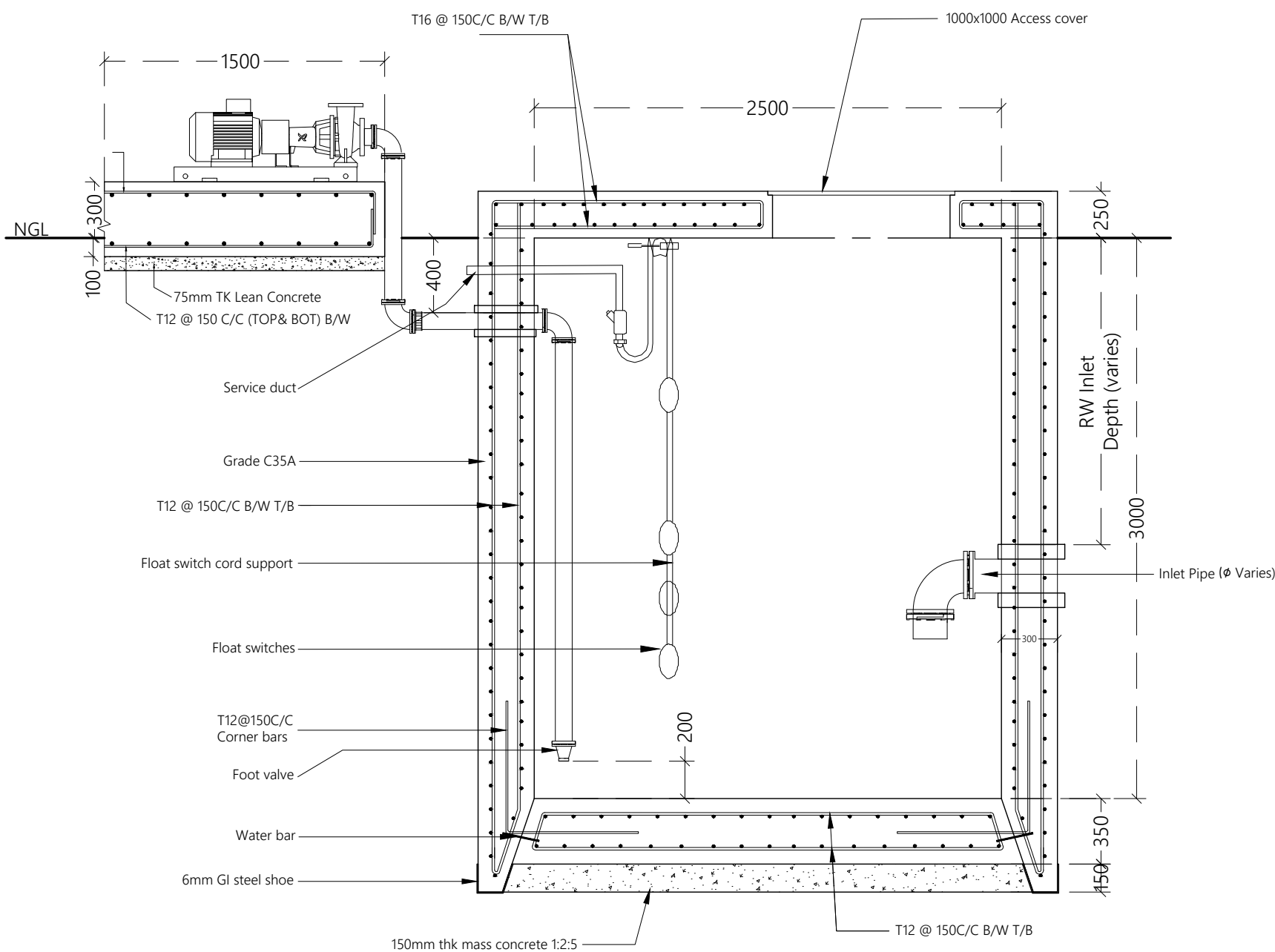
RAIN WATER LIFT WELL PLAN



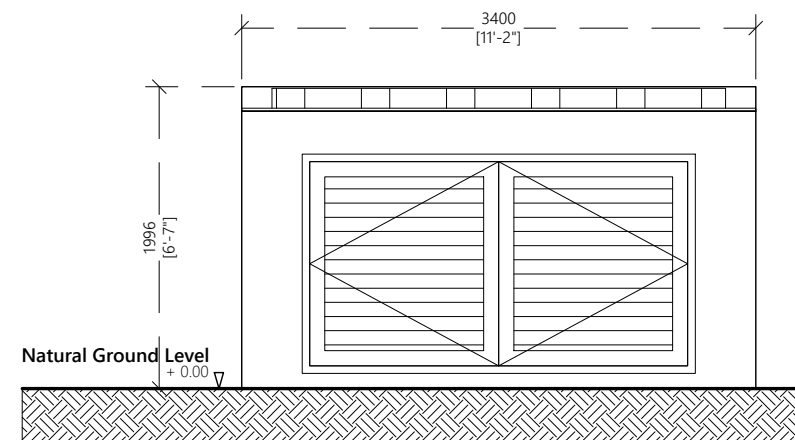
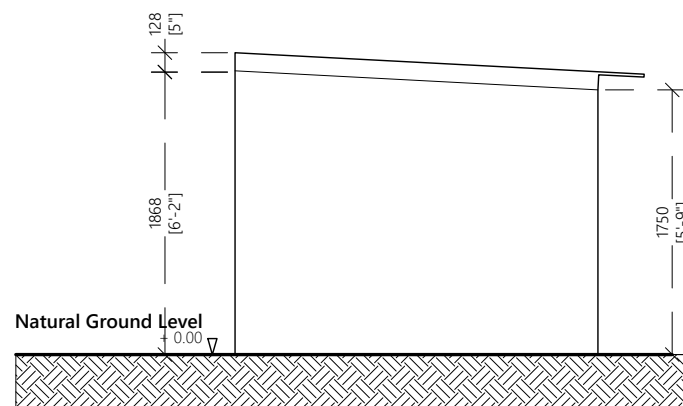
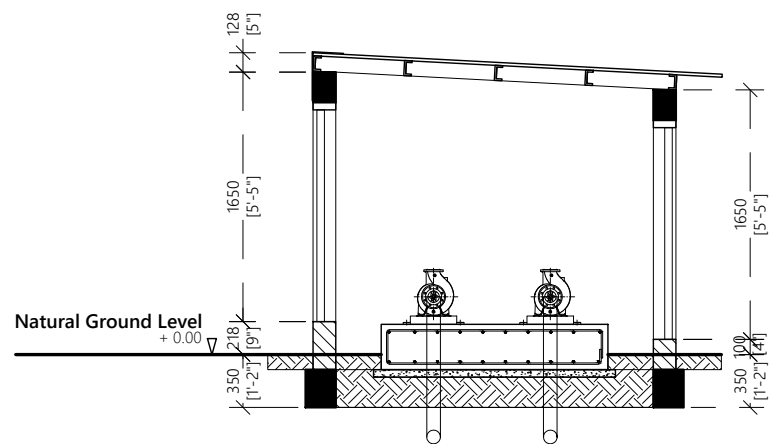
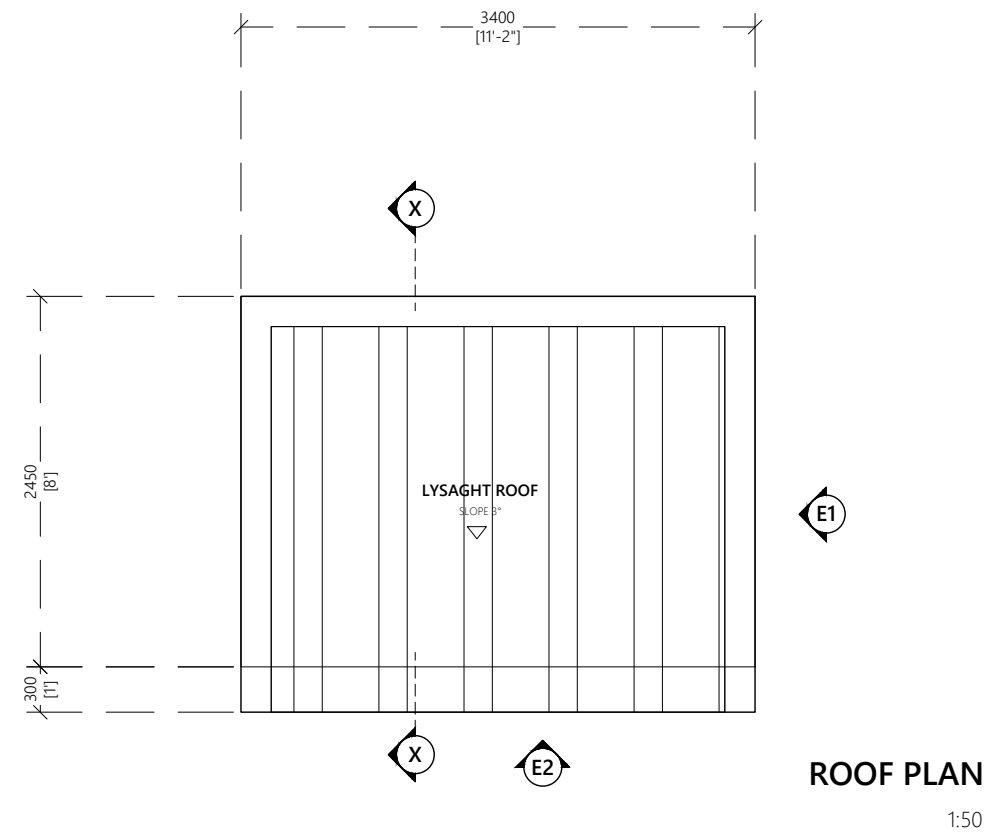
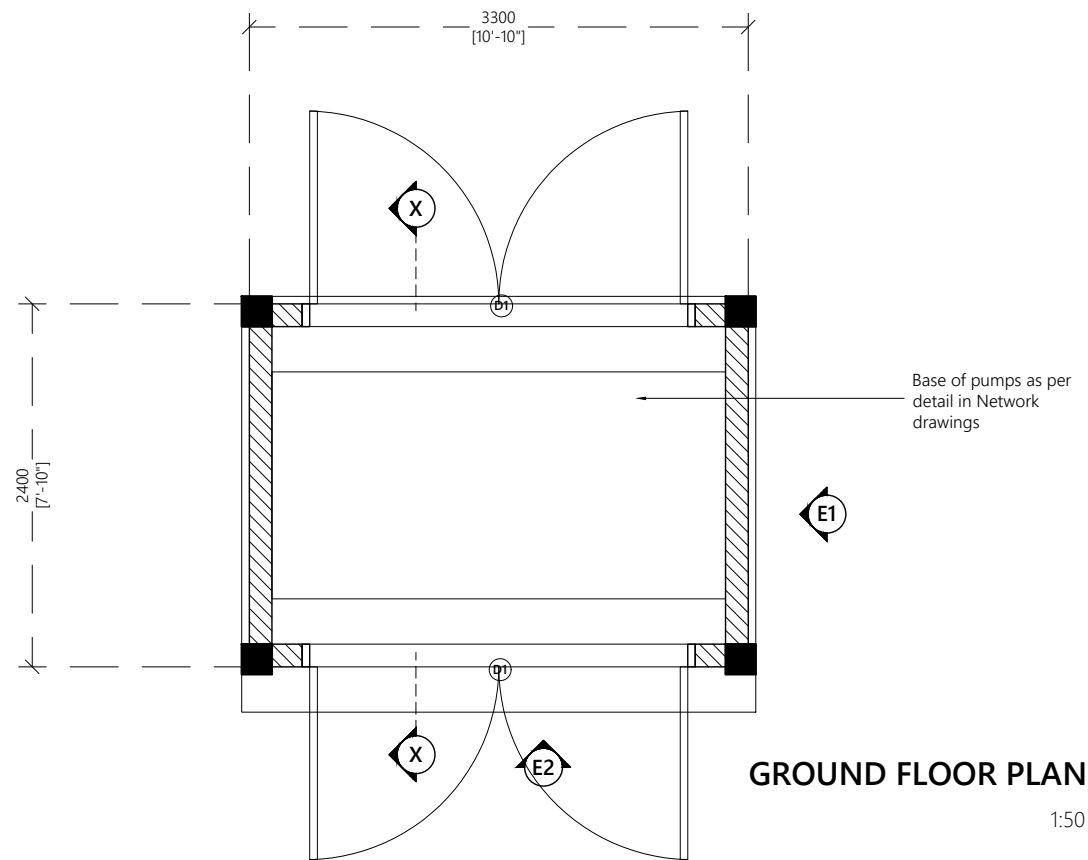
RAIN WATER LIFT WELL PLAN - STRUCTURAL

RAINWATER LIFT WELL DETAILS

1:30



RAIN WATER LIFT WELL SECTION X-X



PUMP SHED DETAILS



Legend

REV. NO.	Date	Revision Description	Drawn	Chkd	Appd.
R00	JUNE 2020	STAGE -1	PD	SBC	SD

Title:
Consultancy Services for Survey, Design and EIA works of Water Supply and Sewerage Facilities in 7 islands, Maldives - Package 4

Sub Title:
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Client:
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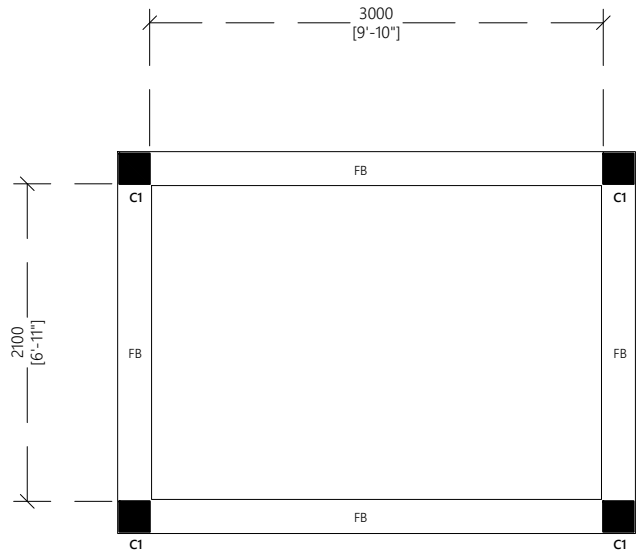
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Designed: F.I.A. Approved: I.W.

Date: Sep 2020 SCALE (A3): -

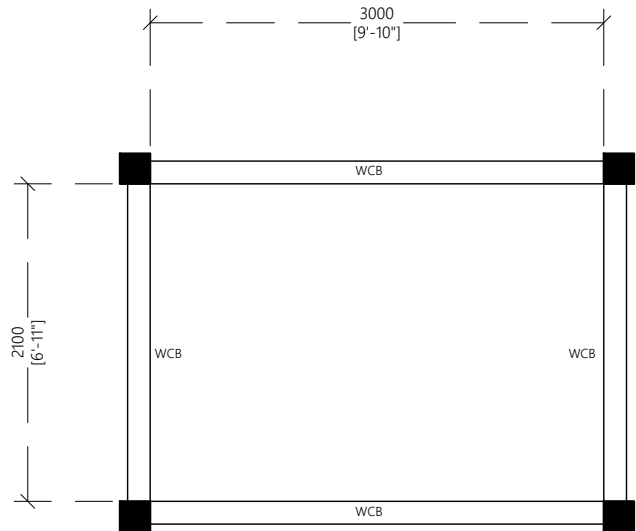
Project No: EP-WS/2019/04

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GROUND FLOOR PLAN

1:100



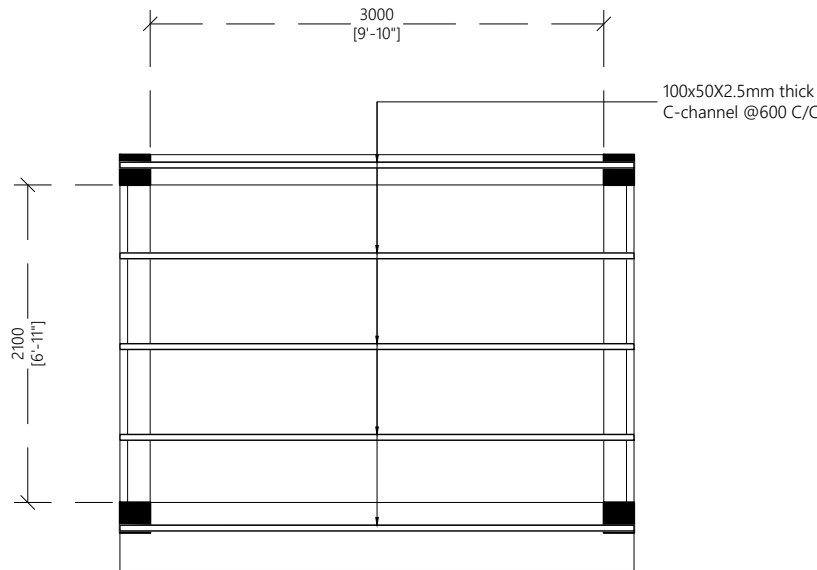
ROOF PLAN

1:100

Door ID		
Plan view		
Elevation view		<p>General Door Notes:</p> <p>Dimensions shown on DWG indicate effective openings of frame</p> <p>All frame depths are 100mm All dor panel thicknesses are 35mm All window manel thickness are 25mm Al frame edges shal be trimmed 3mm</p> <p>All wodden components should be wood stained finish</p> <p>All glazing should be of 6mm unless specified</p> <p>External units must comply the following weather conditions:- Wind pressure: 200 kg/sqm Water tightness: 25 kg/sqm</p> <p>All external frames / wall joints must be sealed with silicon sealant and the wedges trimmed with 12X12mm hardwood beading fixed to frames by brass nails</p> <p>All hardware should be provided for the performance of al functions of the units</p> <p>Hinges shall confirm to</p> <ol style="list-style-type: none">Door size more than 700X1900mm WD: 125mm X2 sets SD: 150mm X3 setsDoor size less than 700X1900mm WD: 100mm X2 sets SD: 125mm X2 sets <p>Locks shall be cylindrical with master key sets</p> <p>Door knobs shall be1000mm above FFL</p>
FFL		
Frame material	600 micron powder coated aluminum frames	
Panel material	600 micron powder coated aluminum louvered panel with side aluminum frames with allowance for handle and lock	
Openable area	-	

Door Schedule

1:100



ROOF PLAN

1:100

PUMP SHED DETAILS



Legend

Notes:

- All CHS shall have minimum yield stress of 275MPa
- All welds shall be 6mm thick full perimeter fillet welds
- All Truss ends shall be end capped with 6mm plates
- All truss members shall be protected with anti corrosive coatings

REV. NO.	Date	Revision Description	Drawn	Chkd	Appd.
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1:20



1:20

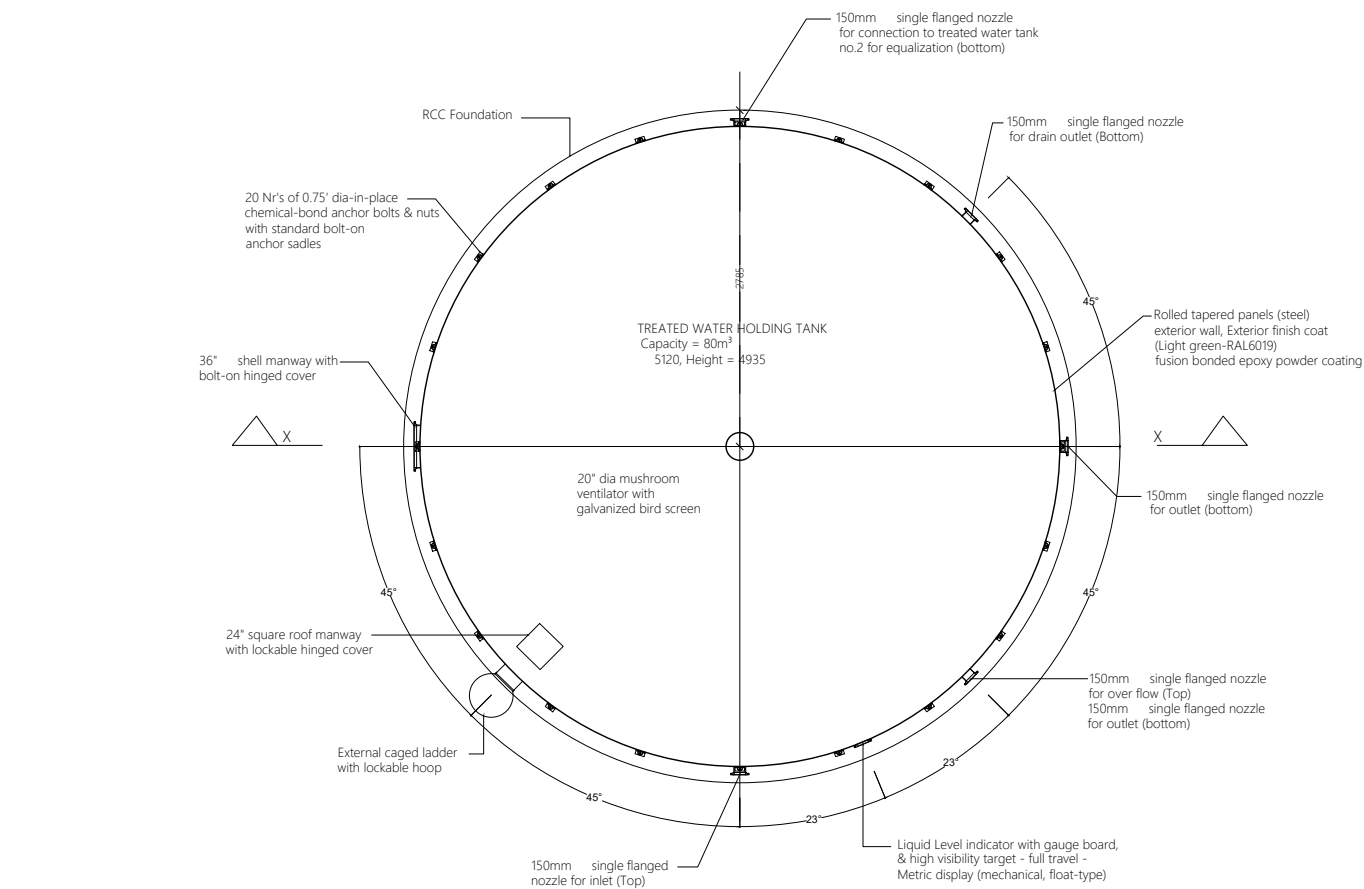


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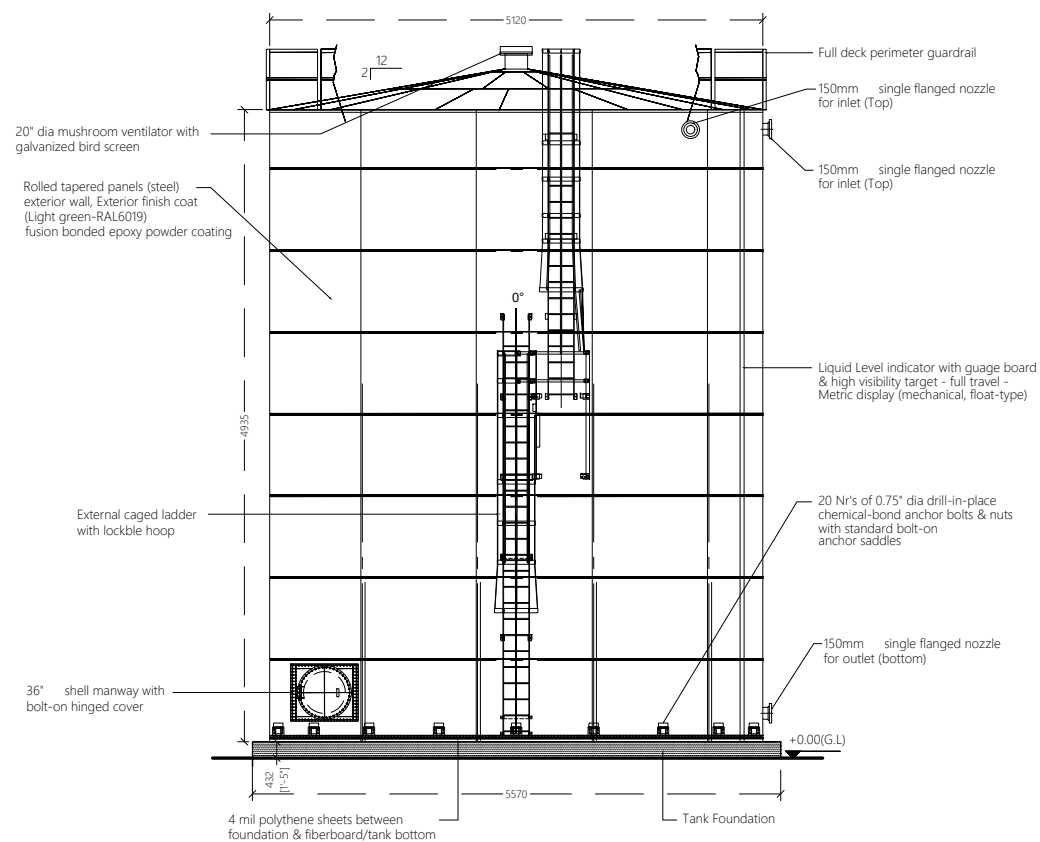
R00	JUNE 2020	STAGE -1	PD	SBC	SD
REV. NO.	Date	Revision Description	Drawn	Chkd	Appd.

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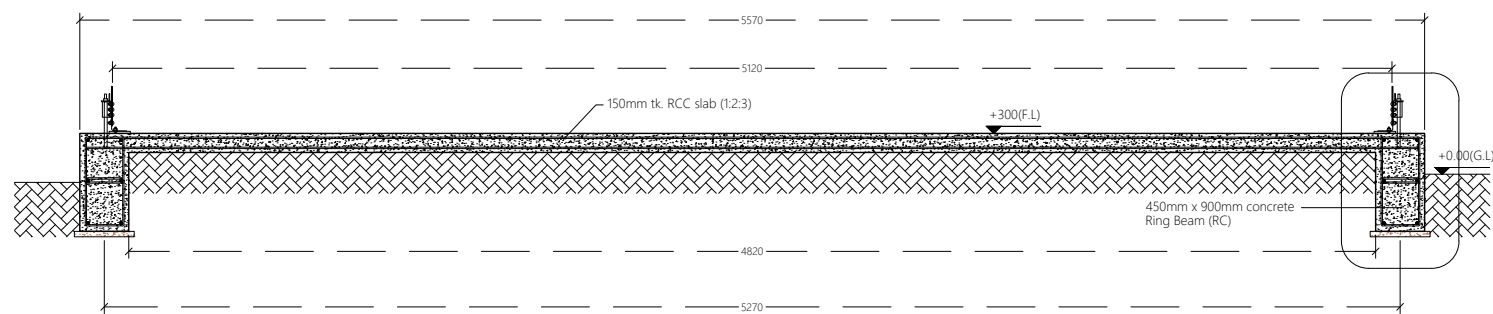
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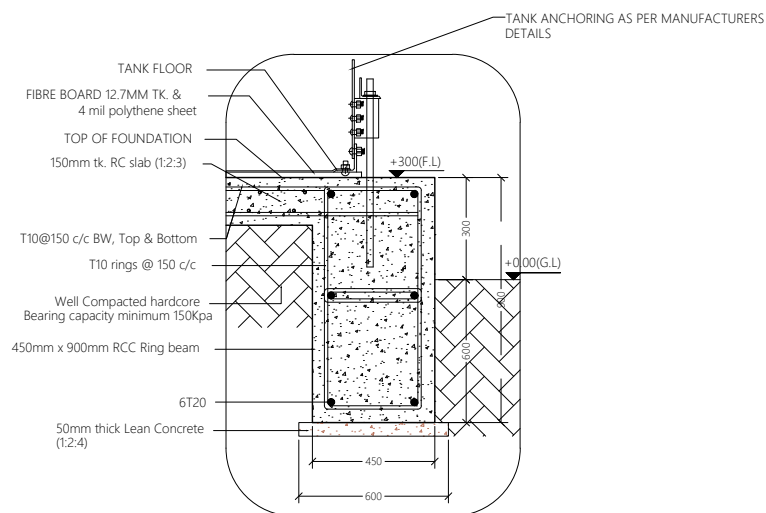
TREATED WATER HOLDING TANK AND FOUNDATION- PLAN



TREATED WATER HOLDING TANK AND FOUNDATION- ELEVATION



SECTION X-X



DETAIL

Note:-
Cover = 50mm
Lap length 50

TREATED WATER TANK DETAILS

NTS

Legend

REV. NO.	Date	Revision Description	Drawn	Chkd	Appd.
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Title:
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E: info@epoch.associates
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Date: Sep 2020 SCALE (A3): NTS

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Legend

REV. NO.	Date	Revision Description	Drawn	Chkd	Appd.
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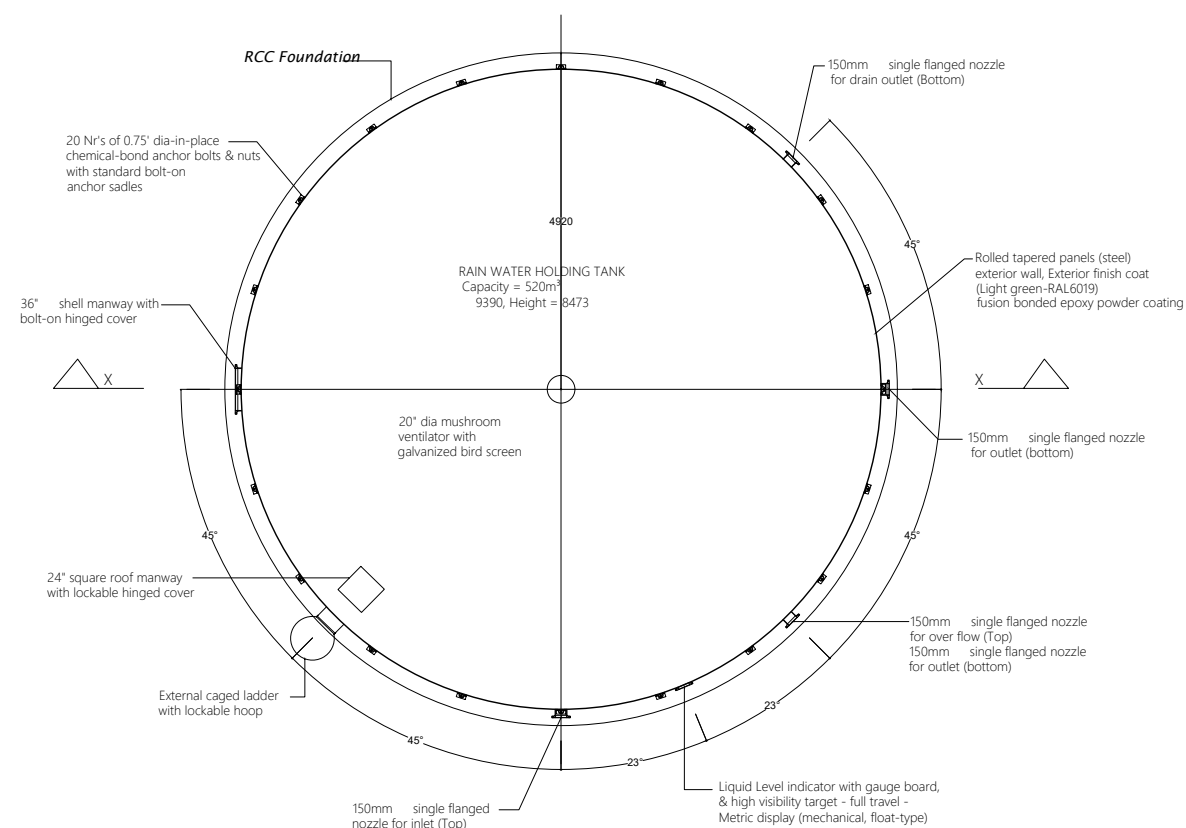
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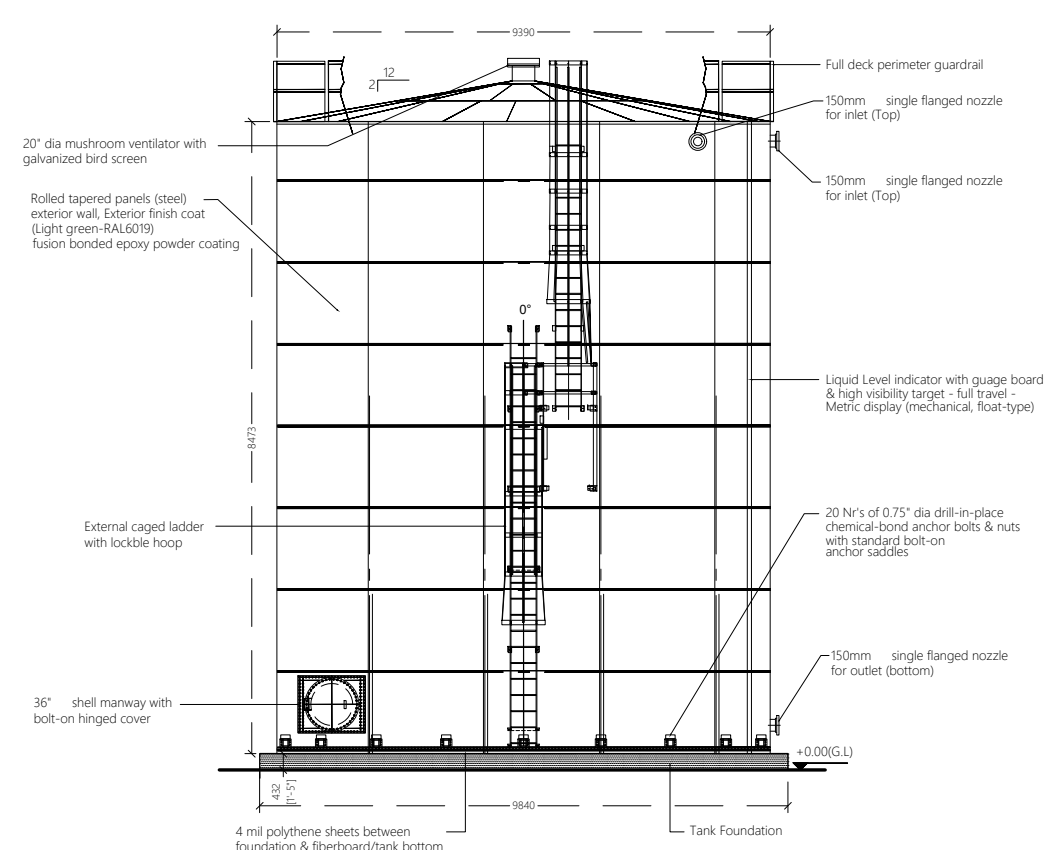
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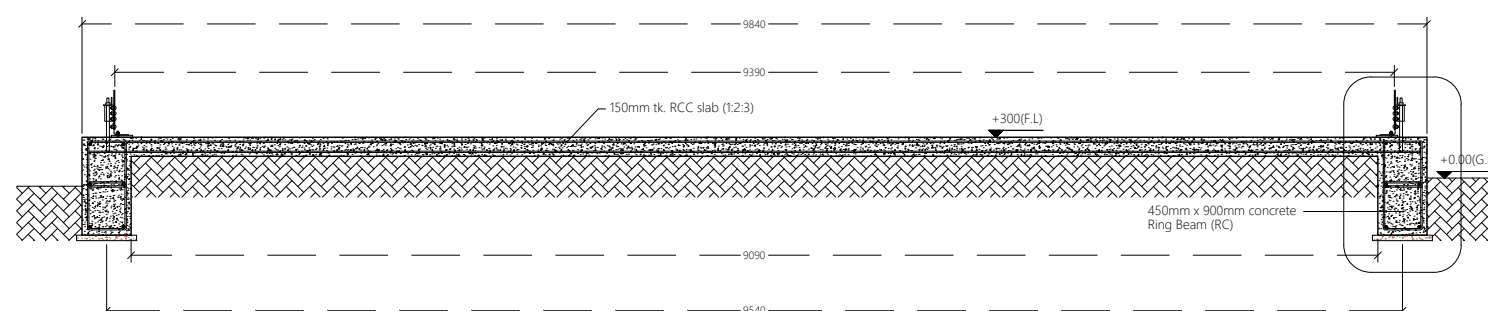
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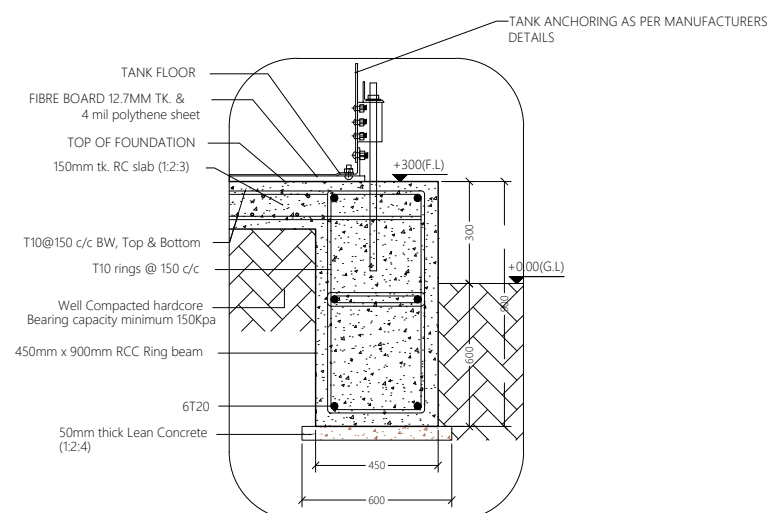
RAINWATER HOLDING TANK AND FOUNDATION- PLAN



RAINWATER HOLDING TANK AND FOUNDATION- ELEVATION



SECTION X-X

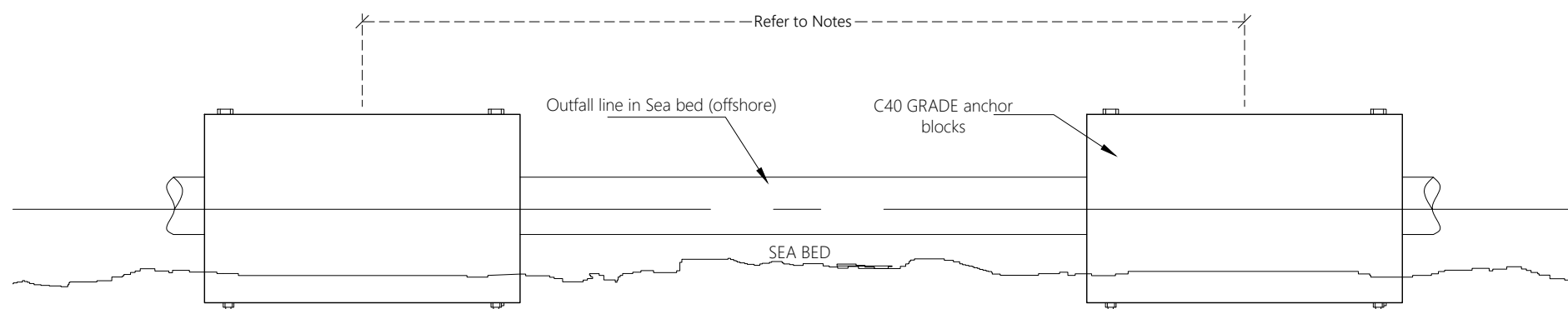


DETAIL

Note:-
Cover = 50mm
Lap length 50

RAINWATER HOLDING TANK DETAILS

NTS



Technical drawing of a structure on a sea bed. The structure has a trapezoidal base and a semi-circular top. Dimensions are indicated by dashed lines with arrows:

- Top width: 900
- Base width: 600
- Height of the trapezoidal base: 300
- Radius of the semi-circular top: 300
- Thickness of the base: 100

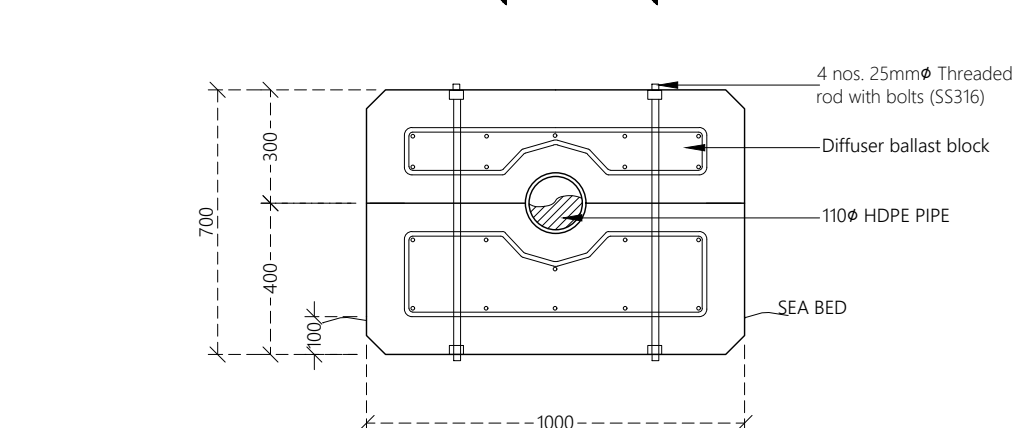
A circular opening is located on the front face of the structure, centered vertically and horizontally. The opening is shaded with diagonal lines. The structure is shown resting on a surface labeled "SEA BED".

Technical drawing of a dome-shaped structure on a sea bed. The structure features a hemispherical upper section and a conical lower section. Key components and dimensions are labeled as follows:

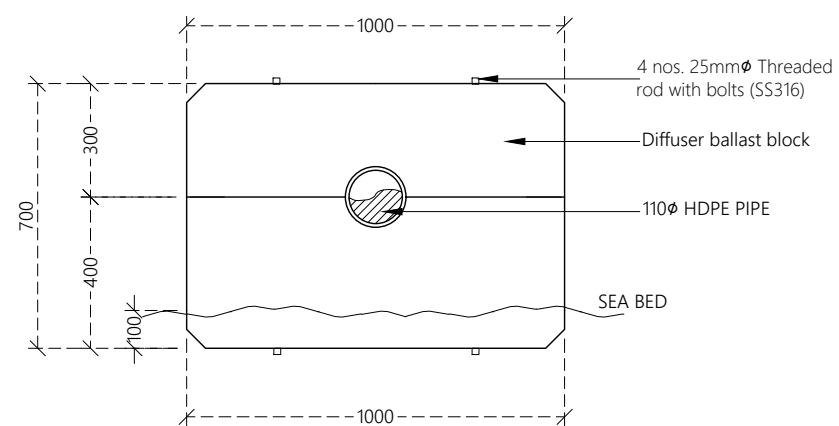
- Labels:**
 - T12 @200c/c B/W**: Reinforcement for the dome and base.
 - Anchor blocks C40A GRADE**: Located at the base of the structure.
 - 4 nos. 25mm \varnothing Threaded rod with bolts (SS316)**: Connects the anchor blocks to the structure.
 - Outfall pipe**: A circular pipe passing through the center of the dome.
 - SEA BED**: The ground surface on which the structure is installed.
- Dimensions (mm):**
 - Vertical Height:** 300 (dome), 300 (conical base), and 100 (total height).
 - Horizontal Width:** 150 (radius of dome), 600 (base diameter), and 150 (radius of base).

Technical drawing of a rectangular plate with dimensions and annotations:

- Overall width: 1000 (indicated by a dashed line at the top).
- Overall height: 1500 (indicated by a dashed line on the right).
- Four nos. 25mm ϕ Threaded rod with bolts (SS316) are shown, with two rods passing through the plate.
- 27mm ϕ hole is indicated by an arrow pointing to a hole in the top plate.
- Dimensions for the plate sections:
 - Top plate: 100 (width) x 150 (height).
 - Middle section: 400 (width) x 600 (height).
 - Bottom plate: 100 (width) x 150 (height).
- Dimensions for the bolt holes:
 - Horizontal spacing between bolt holes: 100 (from left edge) and 100 (from right edge).
 - Vertical spacing between bolt holes: 100 (from top edge) and 100 (from bottom edge).



DIFFUSER BALLAST BLOCK SECTION - S



Technical drawing of a trapezoidal diffuser ballast block. The dimensions are as follows:

- Top width: 600
- Bottom width: 900
- Total height: 700
- Section heights: 300 (top), 400 (middle), 100 (bottom)
- Labels:
 - 4 nos. 25mm Ø Threaded rod with bolts (SS316)
 - Diffuser ballast block
 - SEA BED

DIFFUSER DETAILS



- All backing rings for stub flanges , nuts and bolts shall be grade 316 stainless steel.
- All pipe work shall be bedded on 10mm thick neoprene rubber seal in semicircular recess matching the O.D. of the pipe.
- Fabricate specific pipe clamps to provide firm clamping action according to pipe O.D.
- All structural concrete shall be of grade C40A.
- All castings shall be done using sulphate resistant portland cement to BS 4027:1996.
- All structural reinforcement shall be epoxy coating of non-pre-stressed reinforcement to ASTM-A775/A775M.
- A cover of 75mm should be given for all reinforcements.
- In shallow water(regions where the depth is less than 1m), the ballast block spacing is 3.5m. In deeper water (regions where the depth is greater than 1m), the ballast block spacing is 2.0m. All distances are from c/c of blocks.

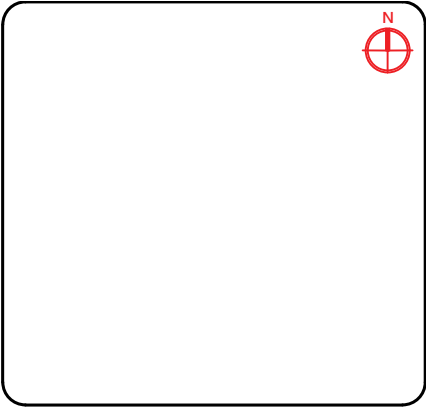
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EPOCH ASSOCIATES

T. +960 333 3528
E. info@epoch.associates
W. www.epoch.associates
A. G. Rosary West,
Husnuheena Maqu, Male', Maldives

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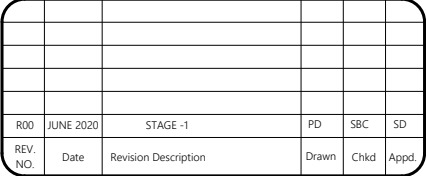


Legend

Notes:

- The contractor to undertake a detailed inspection of the outfall site to assess the profile and condition of the reef below sea level and to prepare his methodology for installation and fixing.
- In shallow water (regions where the depth is less than 1m), the ballast block spacing is 3.5m. In deeper water (regions where the depth is greater than 1m), the ballast block spacing is 2.0m. All distances are from c/c of blocks.

- The contractor to undertake a detailed inspection of the outfall site to assess the profile and condition of the reef below sea level and to prepare his methodology for installation and fixing.
- In shallow water (regions where the depth is less than 1m), the ballast block spacing is 3.5m. In deeper water (regions where the depth is greater than 1m), the ballast block spacing is 2.0m. All distances are from c/c of blocks.



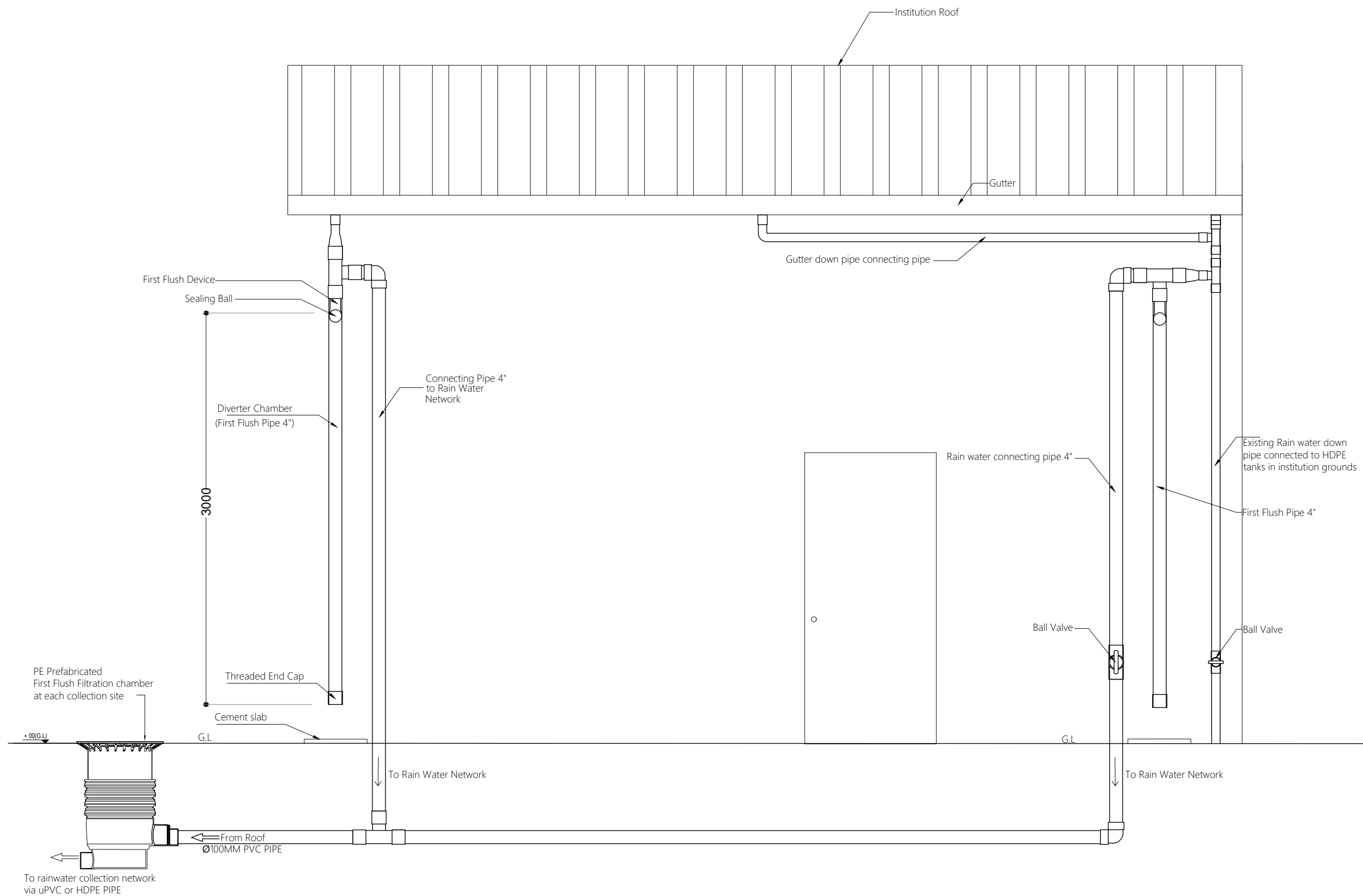
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T: +960 333 3528
E: info@epoch.associates
W: www.epoch.associates
A: G. Rosary West,
Husnuheena Magu, Male', Maldives

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NTS



NTS

- Prefab filtration chambers will be used as first flush mechanism.
- Filtration chambers suppliers to be approved by engineer.
- Number of chambers will be based on approved manufacturers roof area recommendations.
- Overflow mechanism will be installed on only corner down pipes or where necessary.
- All down pipes are 3 inch dia PVC pipes.
- The filtration chamber will have a screen to prevent entry of debris and dirt.

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Client:
**Ministry of National Planning, Housing and
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— = PVC PIPES Ø160mm
— = PVC PIPES Ø110mm

APPROXIMATE PIPE NETWORK LENGTH (DIAMETER 110mm) = 66m

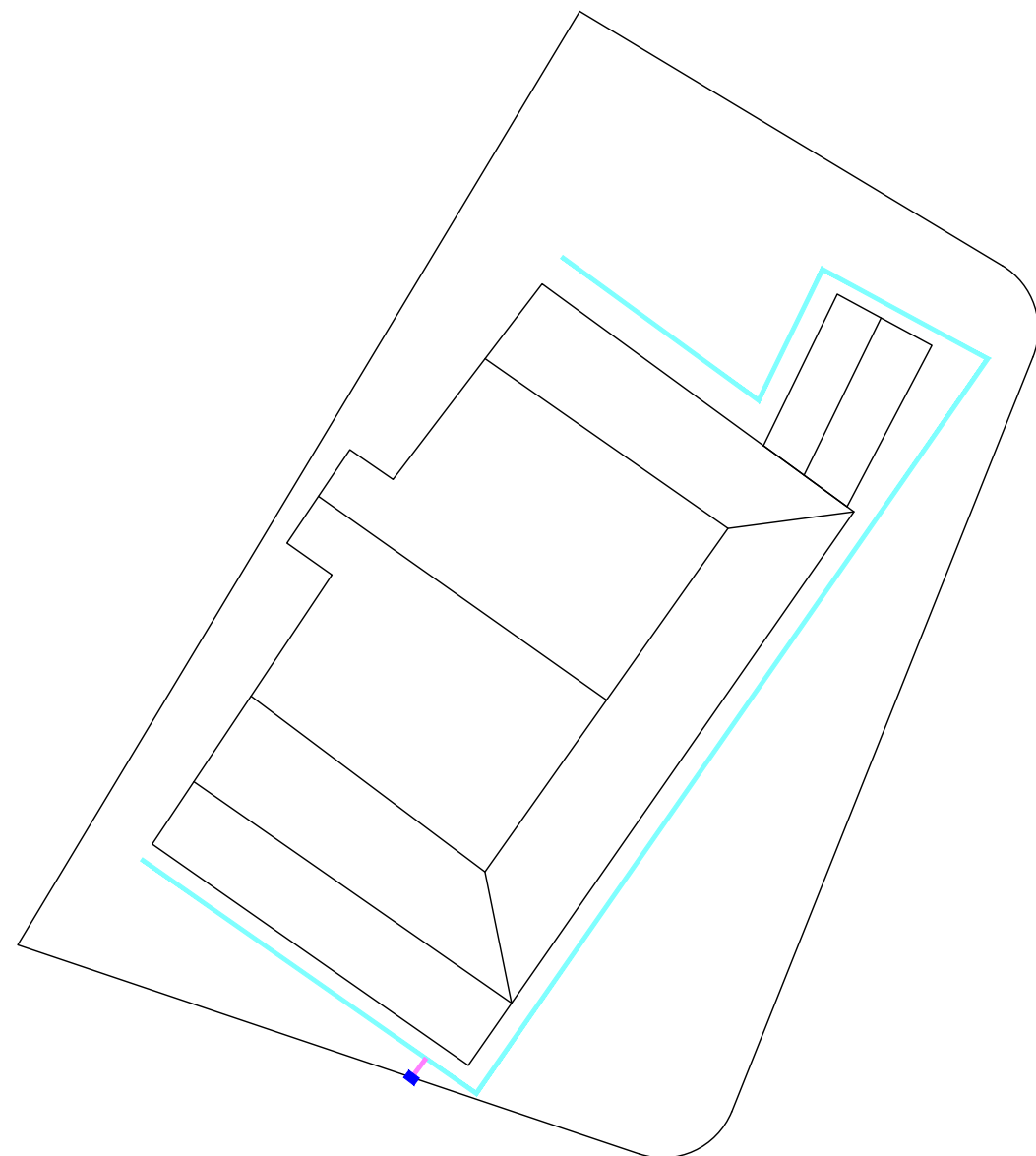
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APPROXIMATE PIPE NETWORK LENGTH (DIAMETER 110mm) = 63m

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Legend

———— = PVC PIPES Ø160mm

———— = PVC PIPES Ø110mm

APPROXIMATE TOTAL NETWORK LENGTH =
52m

APPROXIMATE GUTTER LENGTH = 73m

APPROXIMATE PIPE NETWORK LENGTH (DIAMETER 160mm) = 1m

APPROXIMATE PIPE NETWORK LENGTH (DIAMETER 110mm) = 51m

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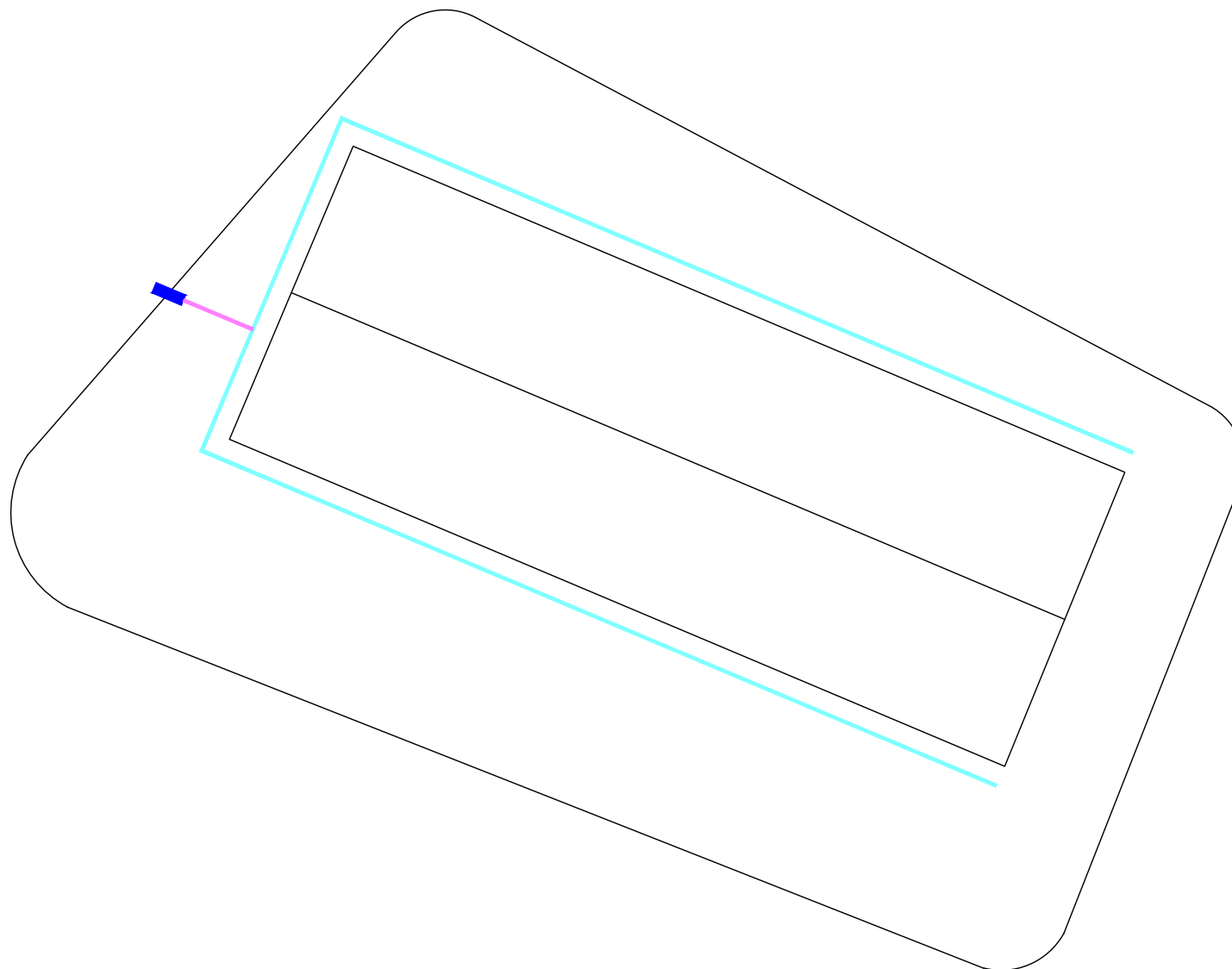
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Legend

— = PVC PIPES Ø160mm

— = PVC PIPES Ø110mm

APPROXIMATE TOTAL NETWORK LENGTH =
67m

APPROXIMATE GUTTER LENGTH = 52m

APPROXIMATE PIPE NETWORK LENGTH (DIAMETER 160mm) = 2m

APPROXIMATE PIPE NETWORK LENGTH (DIAMETER 110mm) = 65m

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T: +960 333 3528
E: info@epoch.associates
W: www.epoch.associates
A: G. Rosary West,
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INTERNAL NETWORK LAYOUT- COUNCIL OFFICE

1:200



— = PVC PIPES Ø160mm

— = PVC PIPES Ø110mm

APPROXIMATE TOTAL NETWORK LENGTH = 27m

APPROXIMATE GUTTER LENGTH = 17m

APPROXIMATE PIPE NETWORK LENGTH (DIAMETER 160mm) = 2m



APPROXIMATE PIPE NETWORK LENGTH (DIAMETER 110mm) = 25m

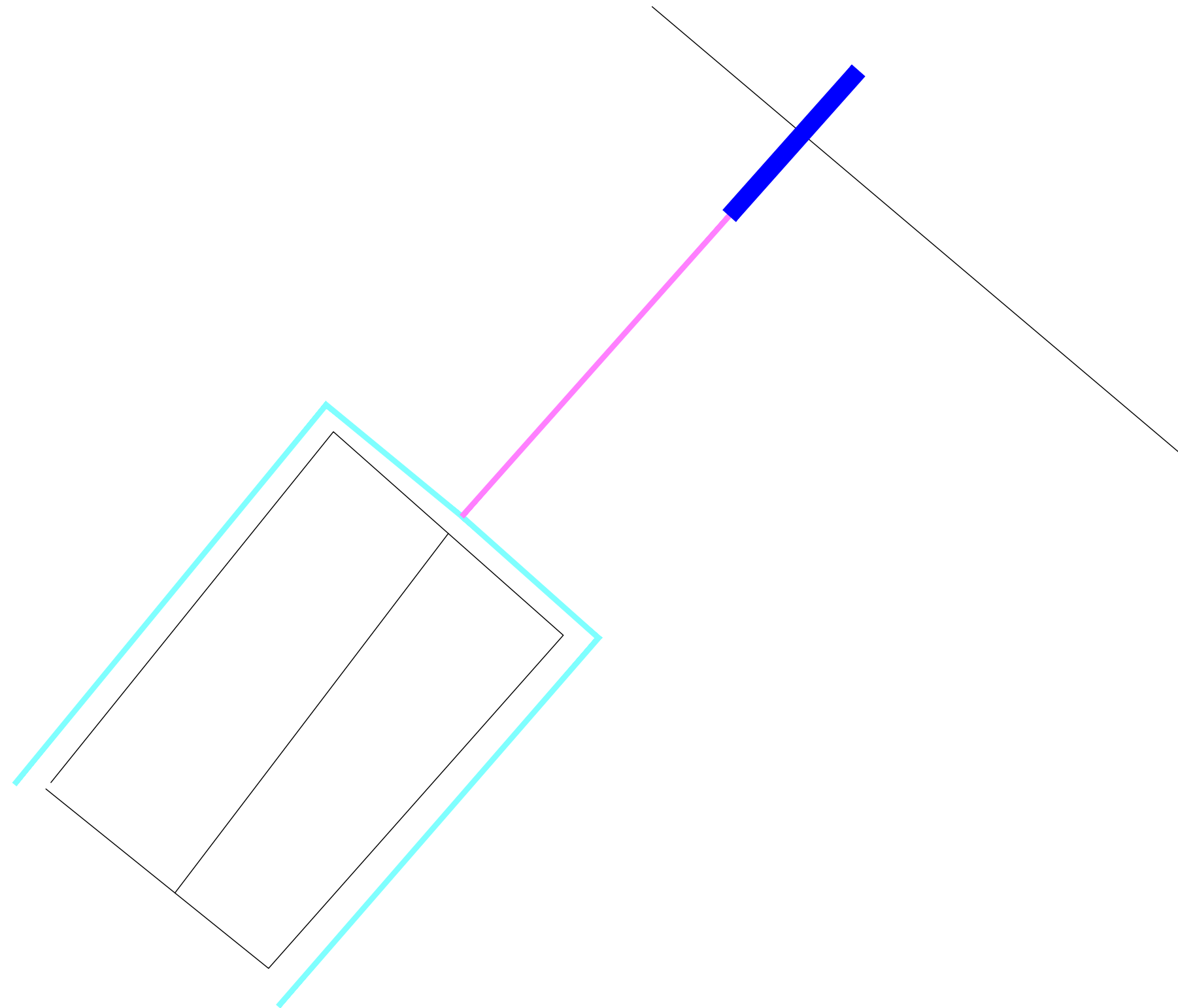
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Legend

———— = PVC PIPES Ø160mm

— = PVC PIPES Ø110mm

APPROXIMATE TOTAL NETWORK LENGTH = 35m

APPROXIMATE GUTTER LENGTH = 18m

APPROXIMATE PIPE NETWORK LENGTH (DIAMETER 160mm) = 8m

APPROXIMATE PIPE NETWORK LENGTH (DIAMETER 110mm) = 27m

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T: +960 333 3528
E: info@epoch.associates
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INTERNAL NETWORK LAYOUT - SPORTS CENTER

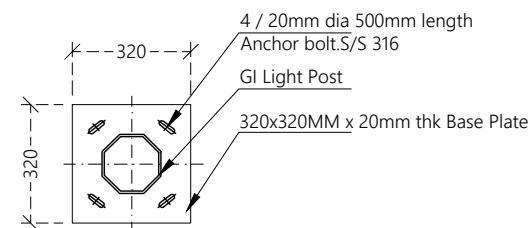
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Note:

- Concrete Cover :50mm
- All steel members and GI SHS to be applied with 2 coats of anti-corrosive paint with epoxy finishing paint

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ARCHITECTURAL AND STRUCTURAL DRAWINGS OF

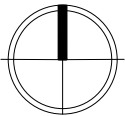
PROPOSED SINGLE STOREY BUILDING AT

RO PLANT ADMIN BUILDING AND VEHICLE SHED, ADH.DHIHDHOO



For Ministry of National Planning, Housing and Infrastructure

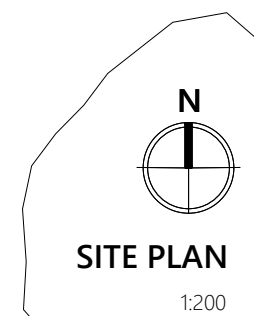
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Roof Plan	A.2 (2)
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Typical Ground Slab Detail	A.D (1)
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Elevations	A.6 (2)
Section	A.6 (2)
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Roof Truss Plan	S.4 (2)
Roof Framing Plan	S.D (4)



1:500

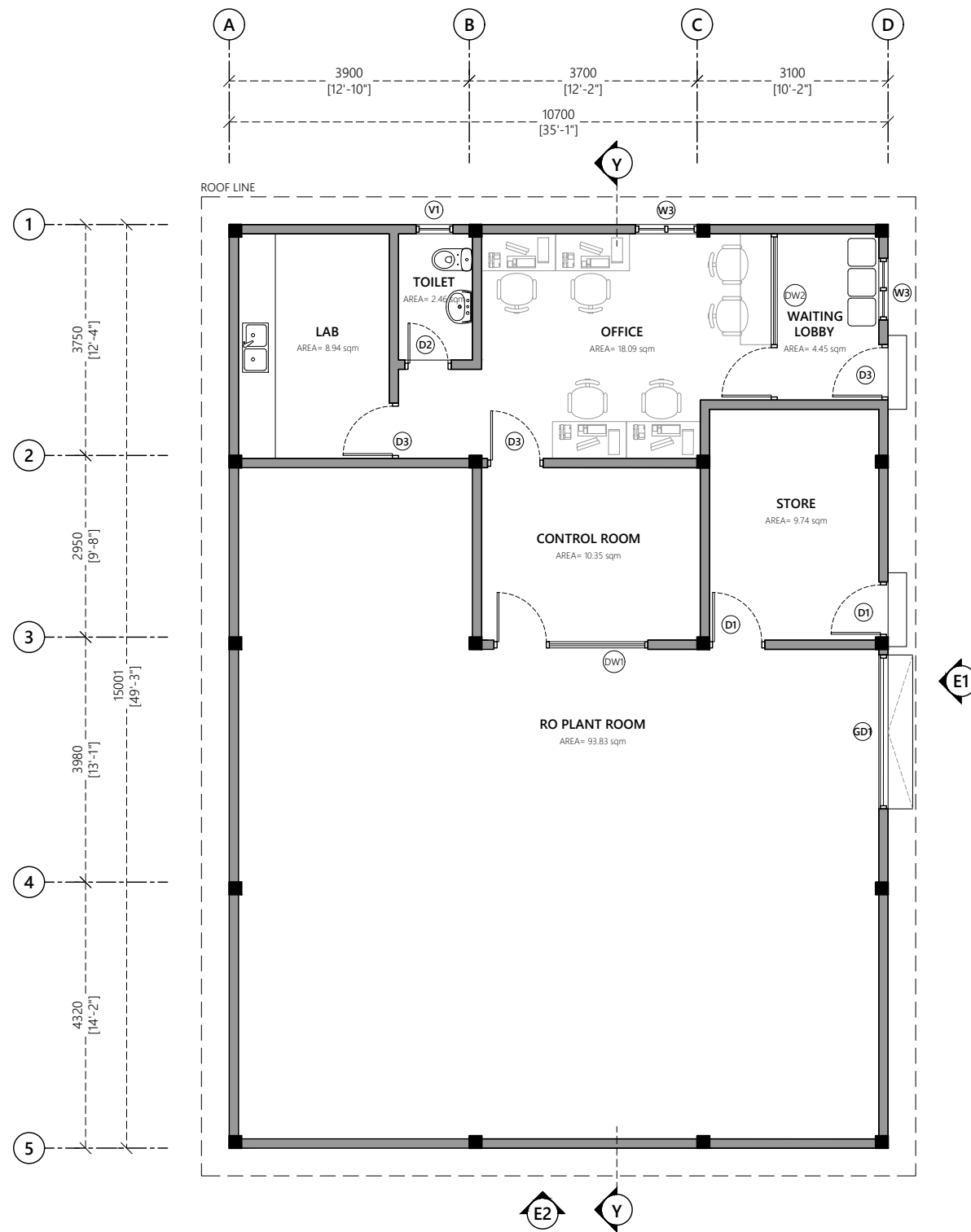
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ARCHITECTURAL AND STRUCTURAL DRAWINGS OF

PROPOSED SINGLE STOREY BUILDING AT

RO PLANT ADMIN BUILDING, ADH.DHIHDHOO



Wall Legend:

150mm thick masonry blocks with 20mm plaster on exterior and 12mm plaster on interior

Wall Finish:

Internal Wall Finish: Easy to wash odour-less Nippon paint Ivory White

External Wall Finish: Weatherboard Algae guard Nippon September Cream

Toilet and shower walls: 300x300mm ceramic wall lanka tiles up to ceiling height with tile adhesive. use joint filler of appropriate color for grouting joints between tiles

Floor Finish:

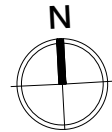
Floor Finishes: 600x600mm homogenous floor tiles with tile adhesive unless specified

Toilet Floor Finishes: 300x300mm homogenous non skid floor tiles with tile adhesive unless specified

Notes:

FFL of balconies and toilets should be 25mm lower than the FFL of respective floors

Water proofing to be applied in toilets, balconies and roof terrace prior to tiling



GROUND FLOOR PLAN

1:100

Legend

Note:

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Sub Title:
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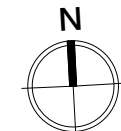
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T: +960 333 3528
E: info@epoch.associates
W: www.epoch.associates
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1:100

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1:100

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Door ID	DW 1	DW 2	W3
Plan view			
Elevation view			
FFL			
Frame material	Aluminum black powder coated	Aluminum black powder coated	Aluminum black powder coated
Panel material	Aluminum cladding sheet & Fixed clear glass	Aluminum cladding sheet & Fixed clear glass	Reflective Glass
Openable area	-	-	-

Door ID	V1
Plan view	
Elevation view	
FFL	
Frame material	Aluminum black powder coated
Panel material	Reflective Glass
Openable area	0.32

General Notes:

Dimensions shown on DWG indicate effective openings of frame

All frame depths are 100mm
All dor panel thicknesses are 35mm
All window manel thickness are 25mm
Al frame edges shal be trimmed 3mm

All wdden components should be wood stained finish

All glazing should be of 6mm unless specified

External units must comply the following weather conditions:-
Wind pressure: 200 kg/sqm
Water tightness: 25 kg/sqm

All external frames / wall joints must be sealed with silicon sealant and the wedges trimmed with 12X12mm hardwood beading fixed to frames by brass nails

All hardware should be provided for the performance of al functions of the units

- Hinges shall confirm to
- Door size more than 700X1900mm
WD: 125mm X2 sets
SD: 150mm X3 sets
 - Door size less than 700X1900mm
WD: 100mm X2 sets
SD: 125mm X2 sets

Locks shall be cylindrical with master key sets

Door knobs shall be1000mm above FFL

DOOR & WINDOW SCHEDULE -2

1:50

Legend

Note:

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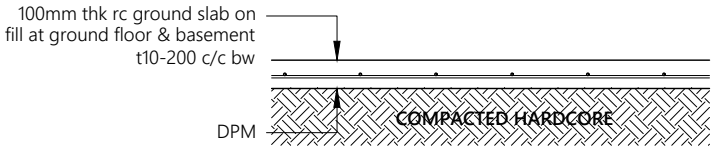
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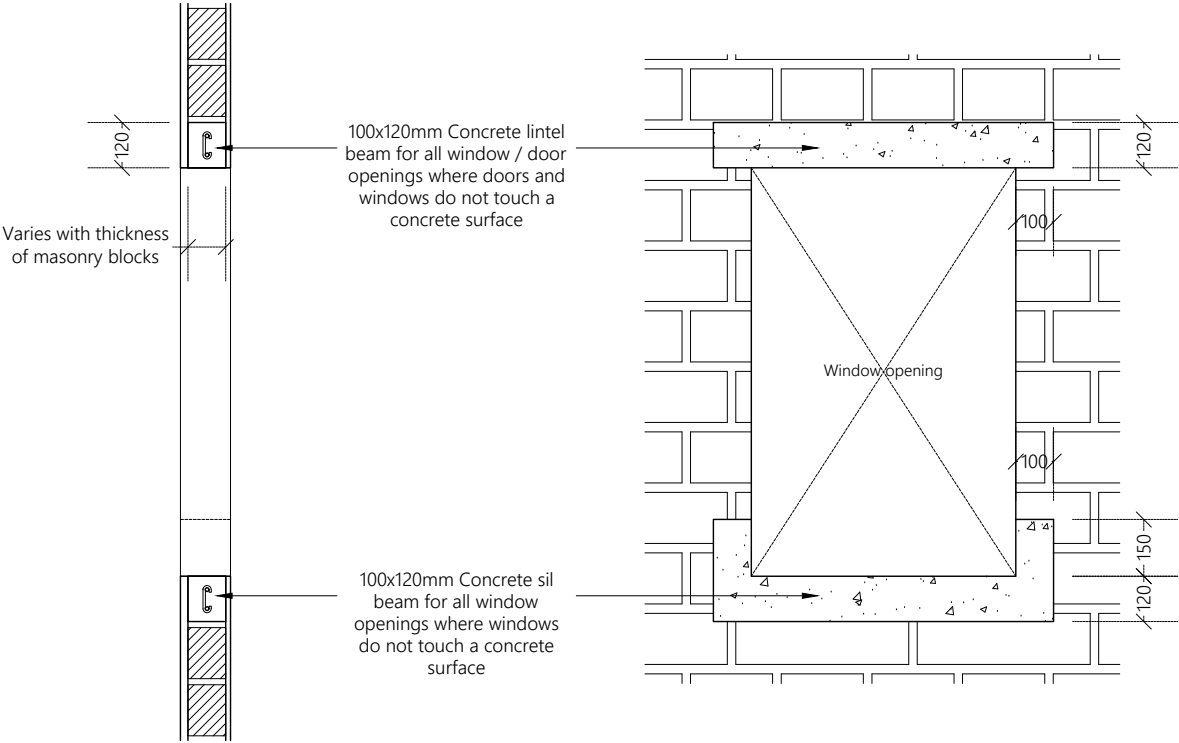
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- Note:**
- All cover blocks shall be casted using grade C25/30 concrete with 5-10mm aggregates
 - For slab, rebar spacer chairs spacing shall be minimum 1m spacing or 1 no. per 1 sqm

TYPICAL GROUND SLAB DETAIL

1:20



TYPICAL OPENING DETAIL

1:20

Legend

Note:

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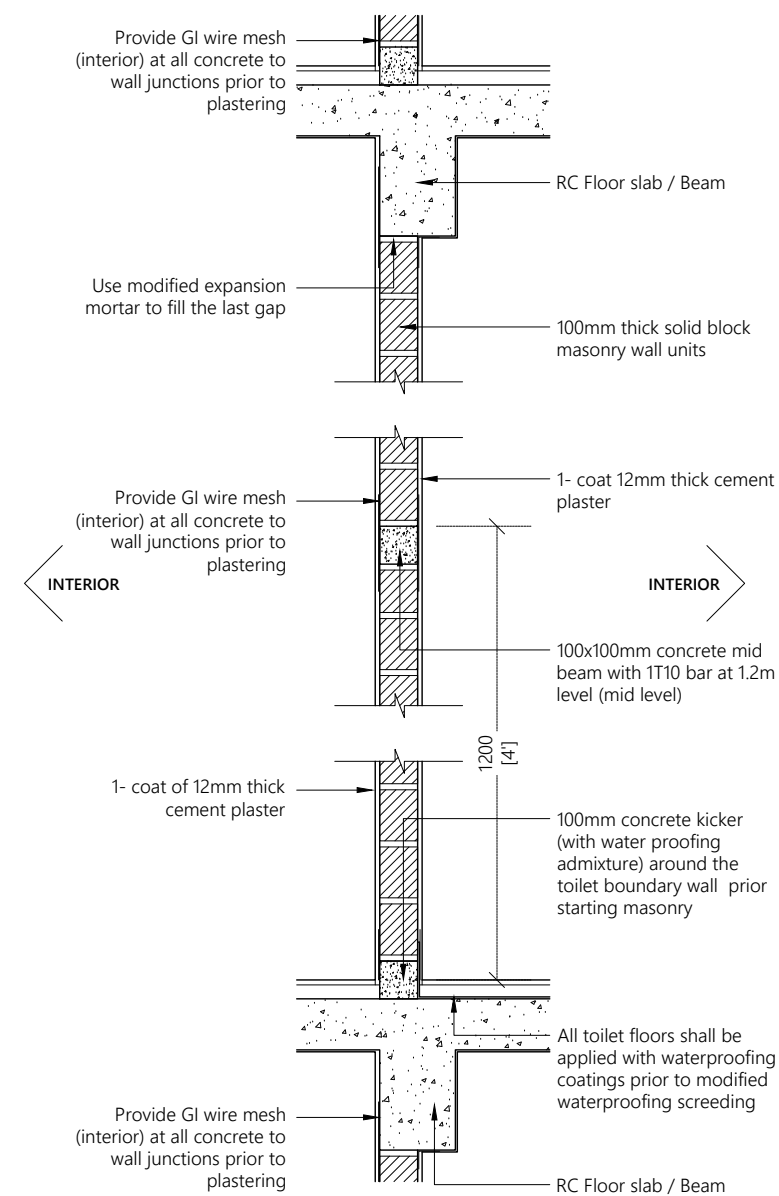
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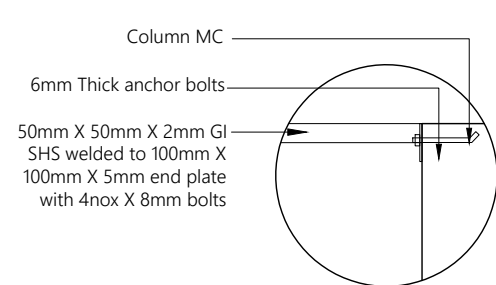
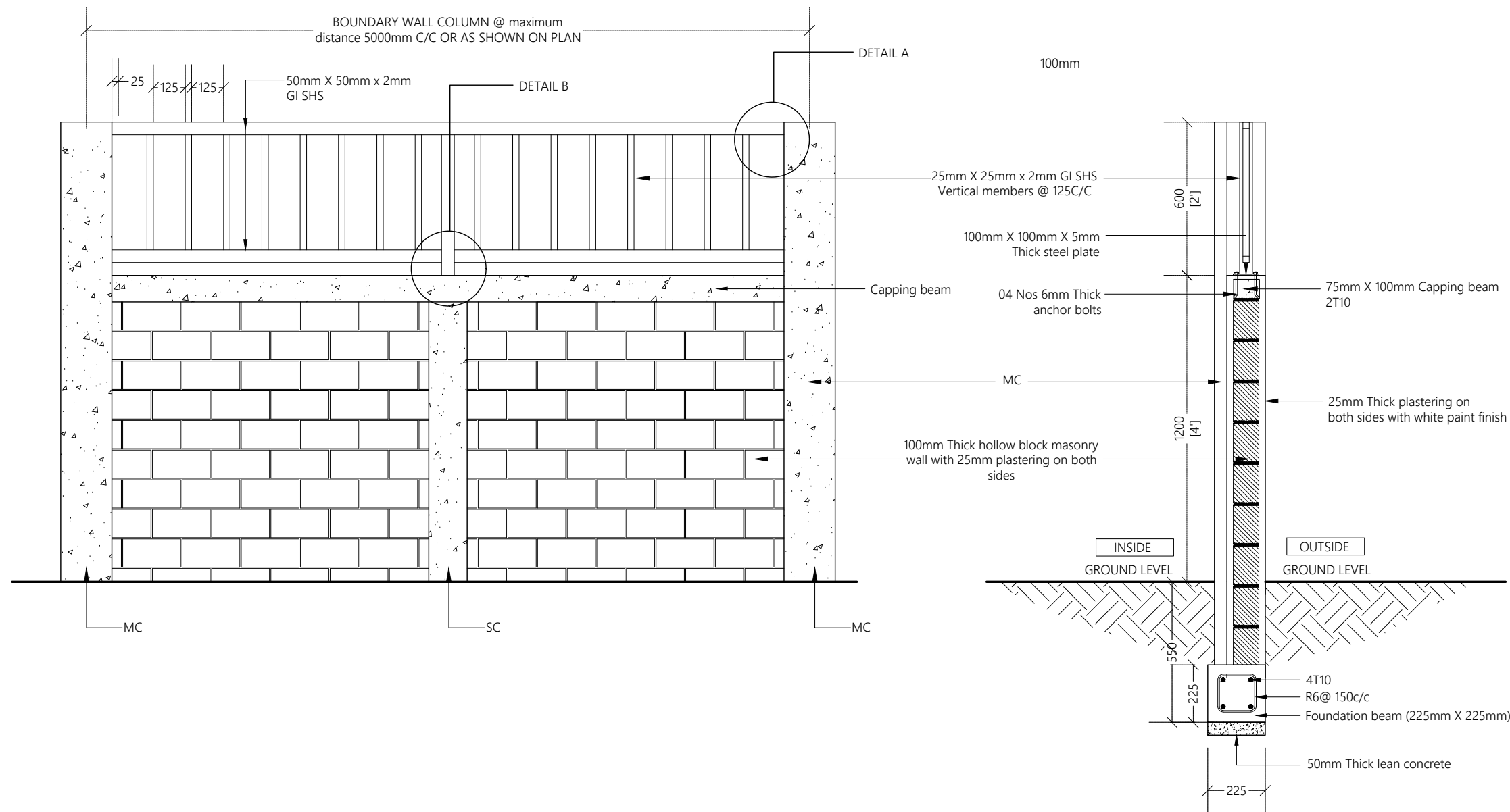


- Concrete surfaces shall be thoroughly cleaned with water & applied with mastercast 141 or equivalent bonding mortar prior to plastering.
- Plastering mortar mix shall be 1:4 (cement: sand) ratio.
- Plaster mix shall be modified using fibre wool & mastercast 141 or equivalent plasticisers as per manufacturer's specification.
- Height of placing blocks shall be maximum 1.2m per day.
- After initial coat of plastering, water curing shall be provided for minimum 3 days & after final coat, water curing shall be provided for 7 days.

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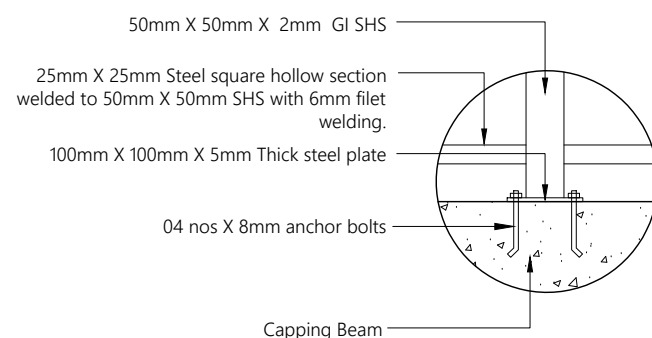
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Date: Sep 2020	SCALE (A3): 1:20
Project No: EP-WS/2019/04	
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1:20



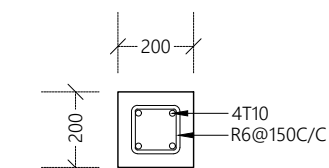
DETAIL A

1:10

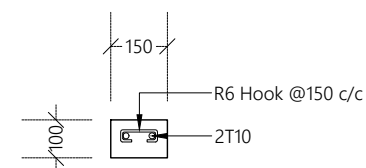


DETAIL B

1:10



MAIN COLUMN
@ maximum distance 5000mm C/C



STIFFENER COLUMN
(in between two main columns)

NOTE:

- FRAME MATERIAL : Steel gate frame 2.5mm thick GI sections SHS
- All steel members and GI SHS to be applied with 2 coats of anti-corrosive paint with epoxy finishing paint
- Allowance shall be made to fix pad lock in Gates

BOUNDARY WALL DETAIL

1:20

Legend

Note:

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R00	AUG 2020	STAGE -1	A.S.A.	F.I.A.	M.H.

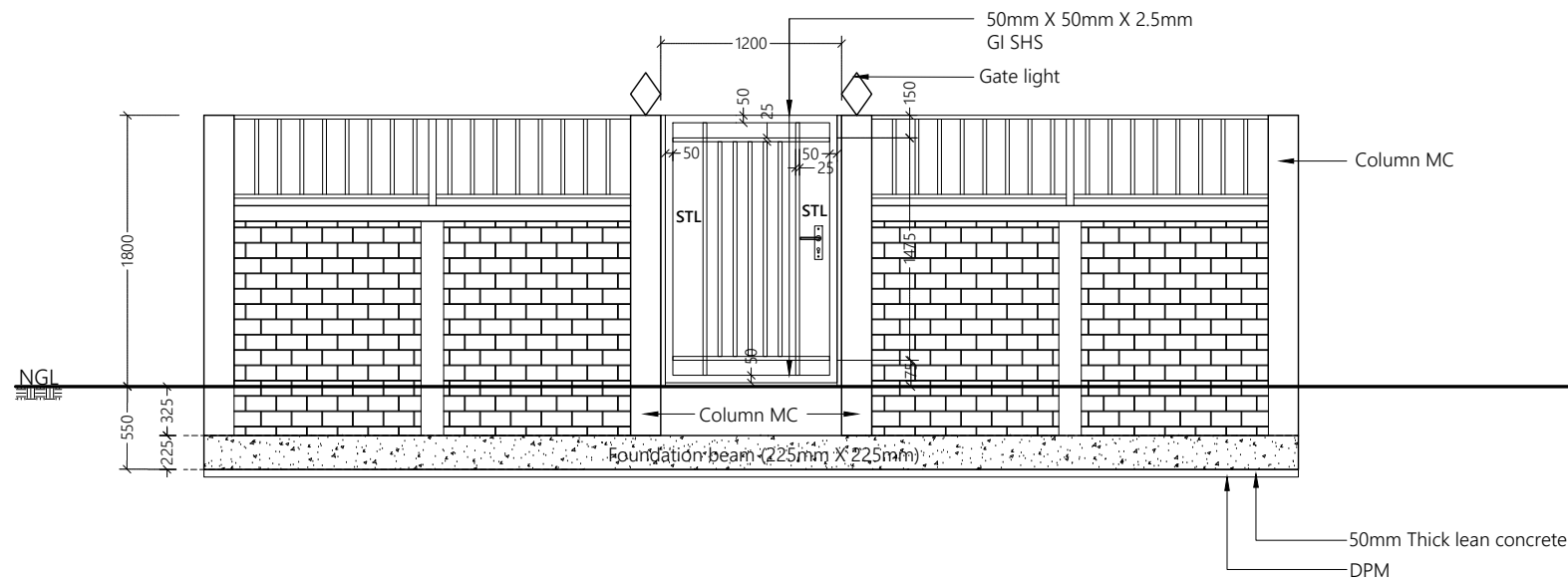
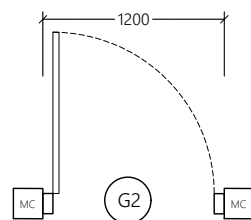
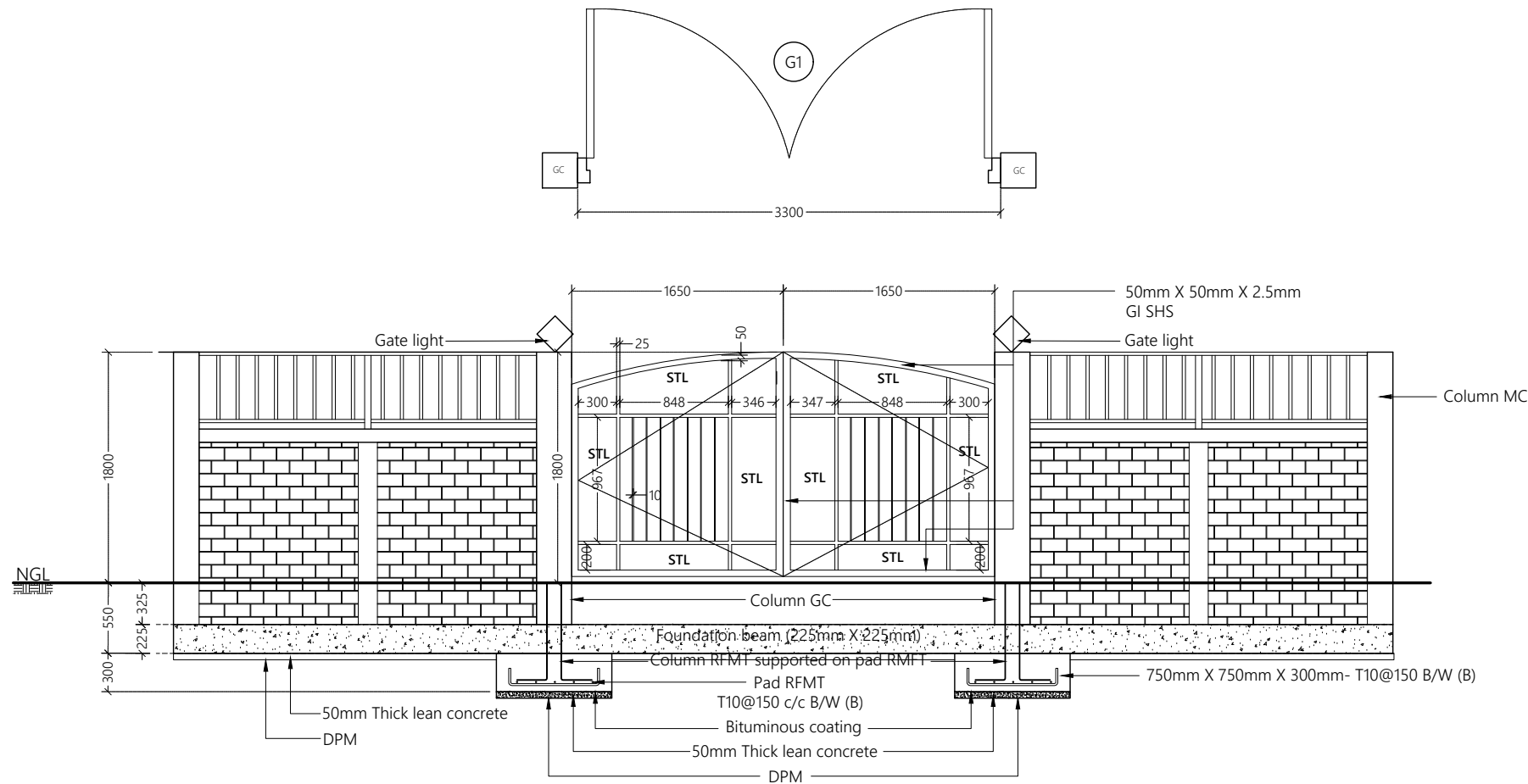
Title:
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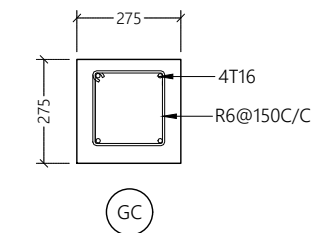
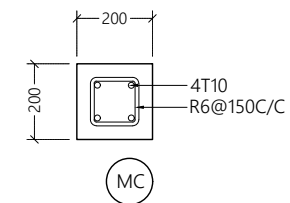
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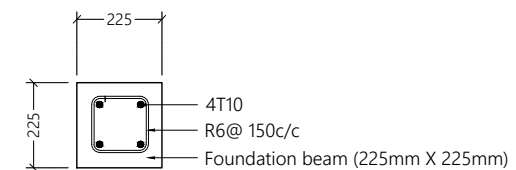
GATE DETAILS

1:50



COLUMN DETAILS

1:20



FOUNDATION BEAM DETAIL

1:20

Legend

Note:

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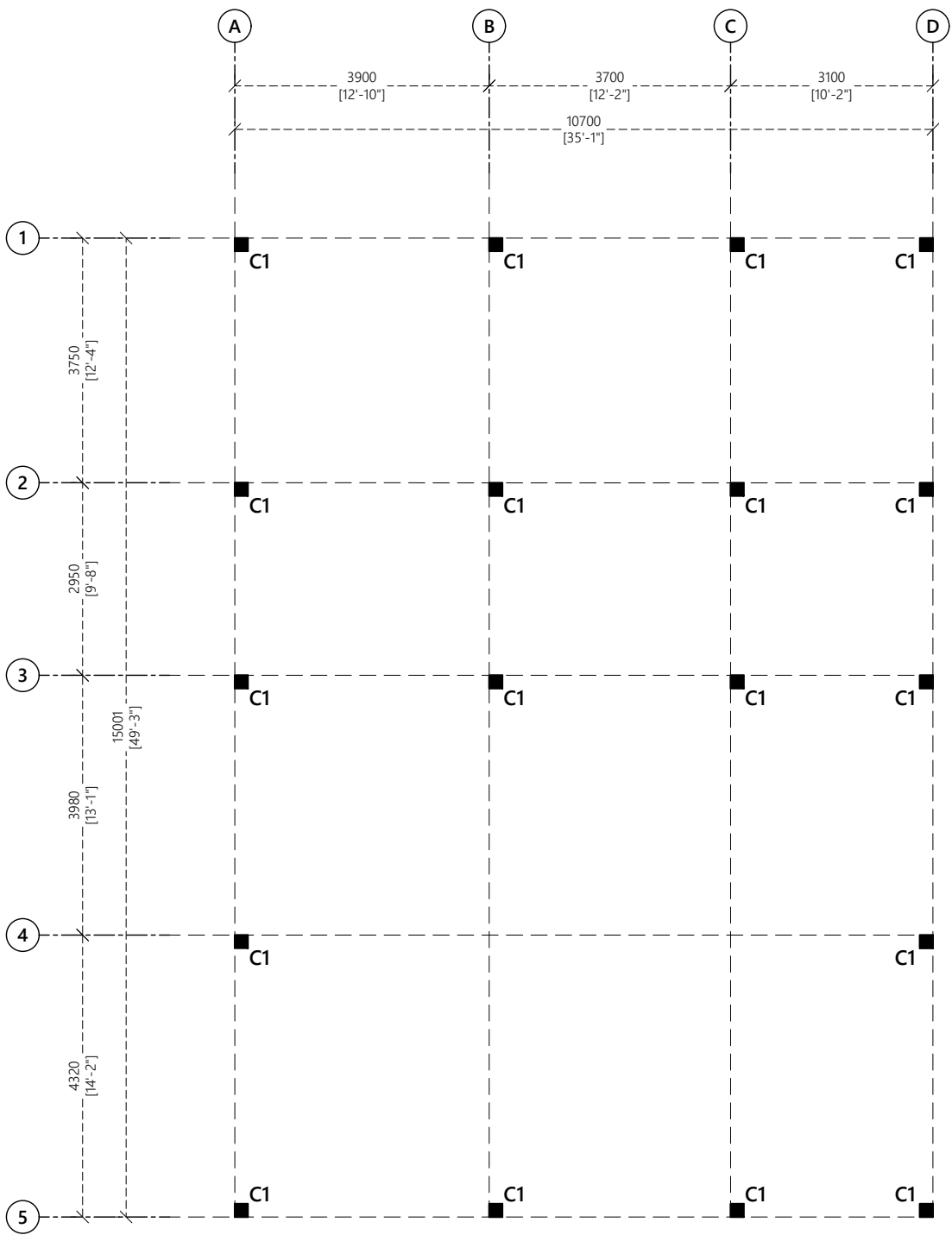
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COLUMN LAYOUT PLAN

1:100

Legend

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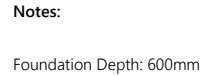
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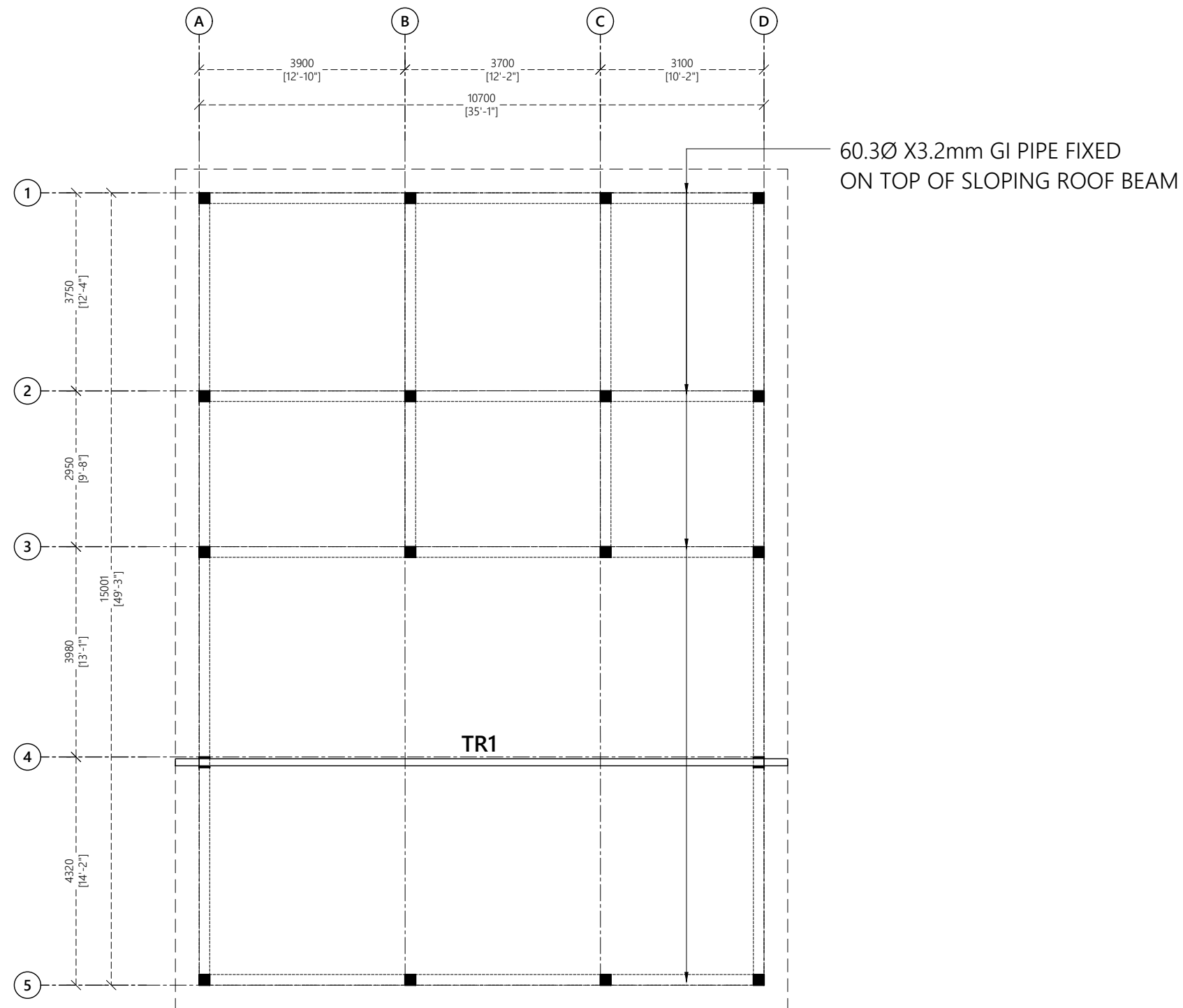


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ROOF TRUSS PLAN

1:100

Legend

Note:

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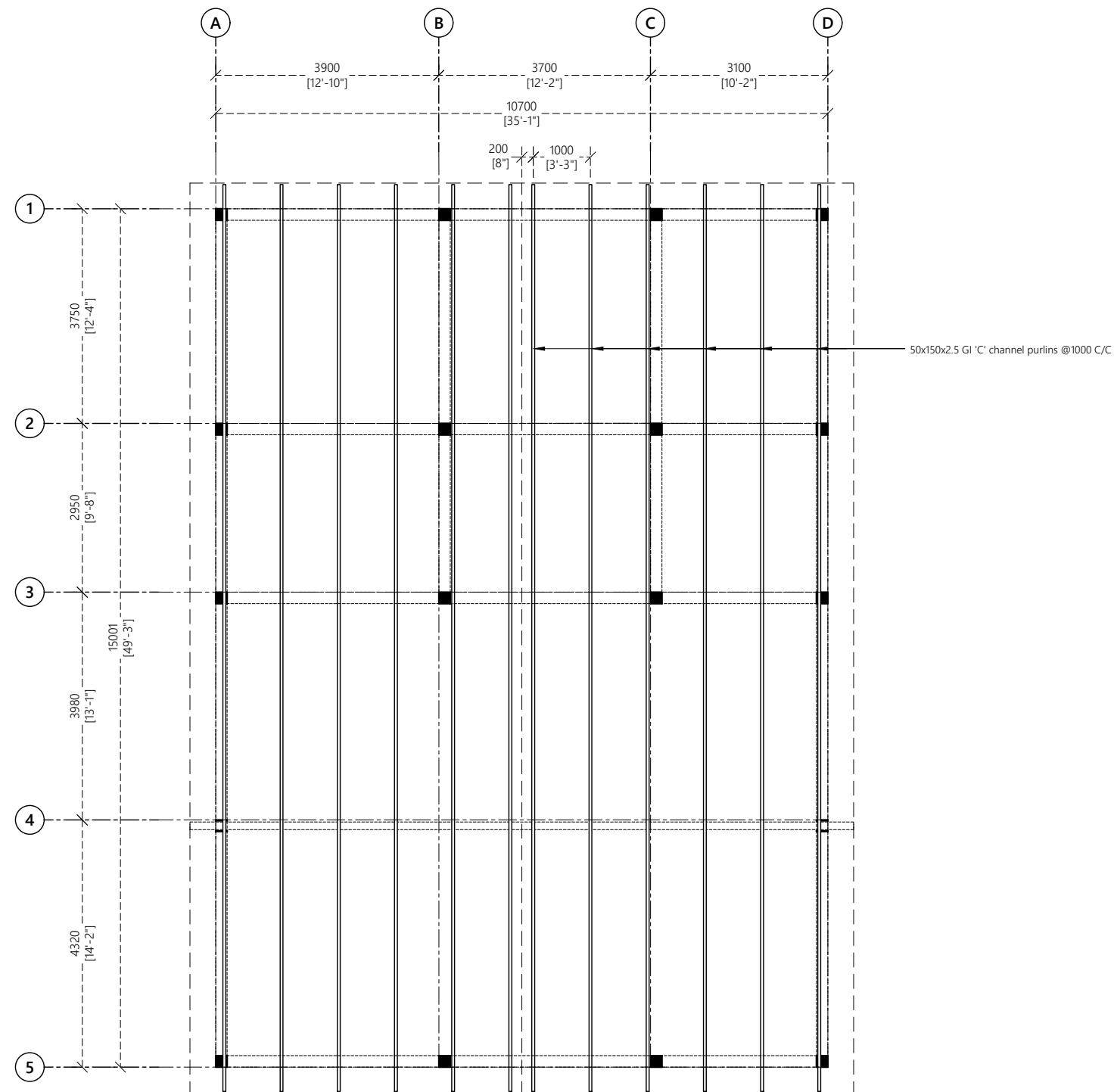
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ROOF FRAMING PLAN

1:100

Legend

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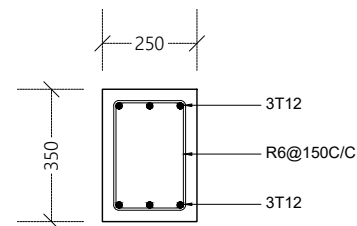
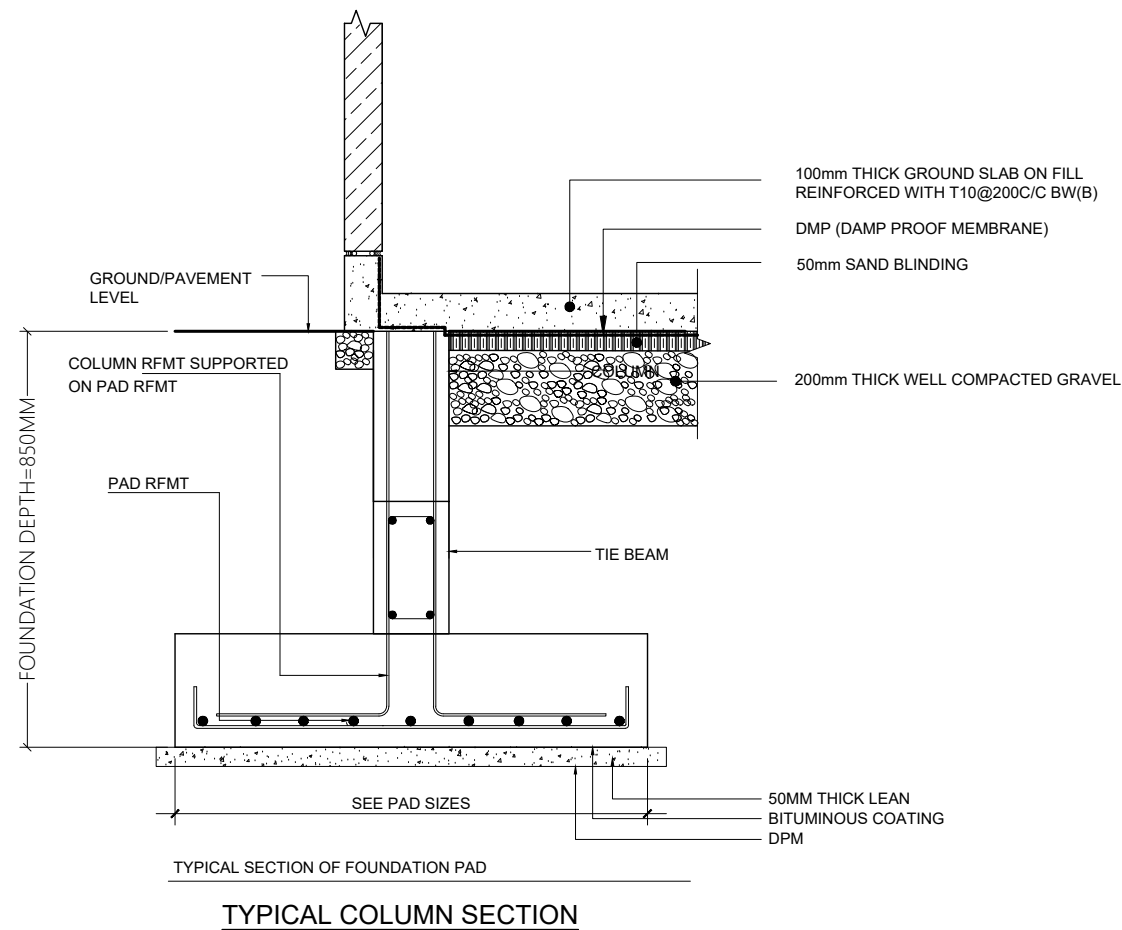
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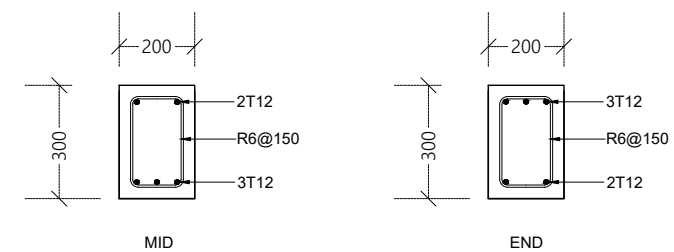
Page: S.3 (3)



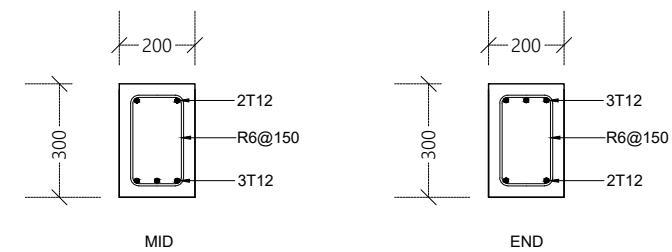
FOUNDATION BEAM (FB)

F1 - 650x650x250 - T10@150C/C B/W (B)

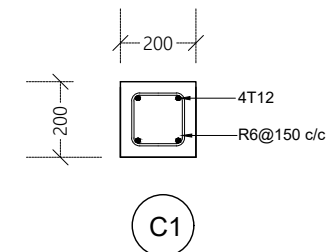
FOUNDATION PAD DETAILS



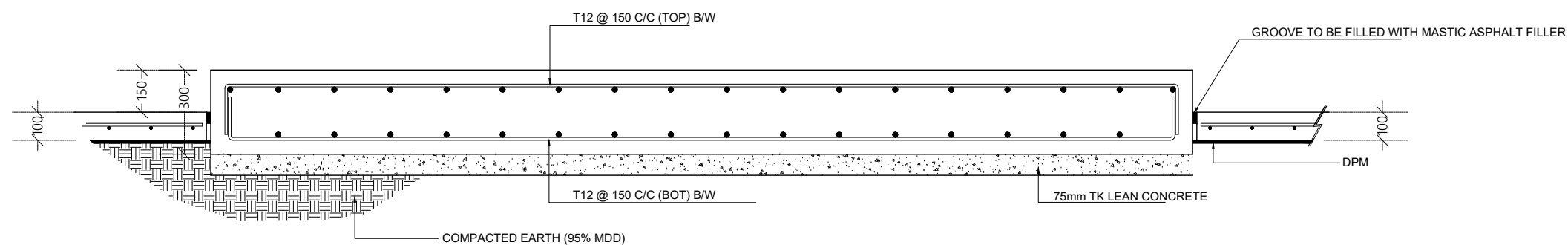
ROOF BEAM (RB)



SLOPING ROOF BEAM (SRB)



COLUMN DETAIL



RO PLANT BASE DETAIL

STRUCTURAL DETAILS

1:20

Legend

Note:

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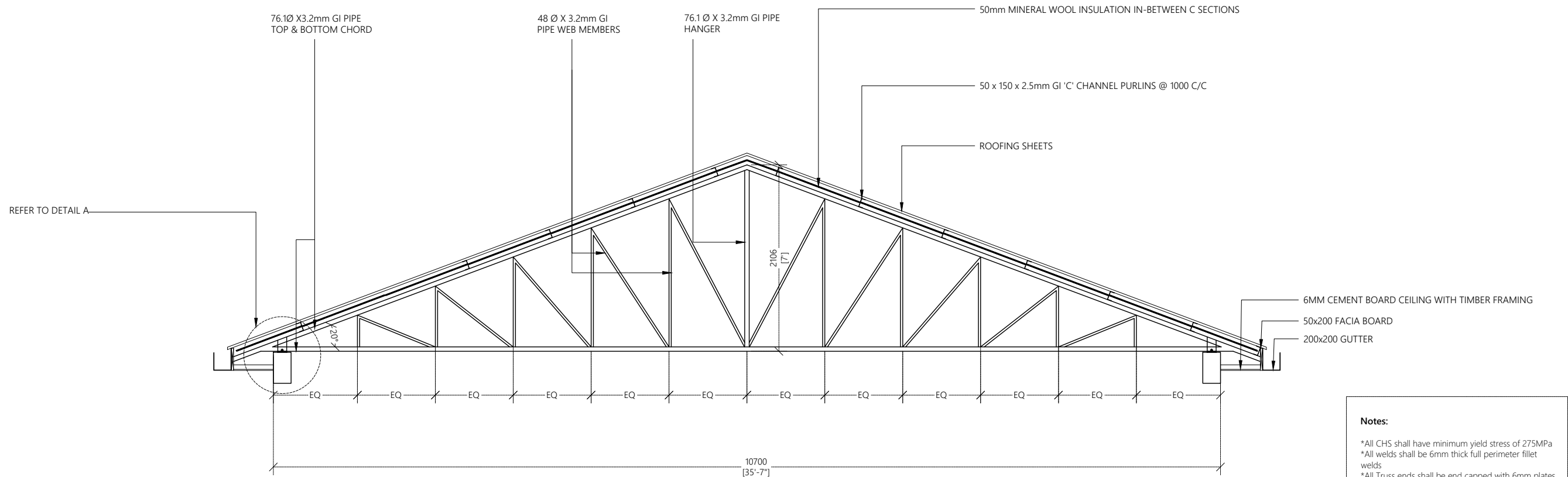
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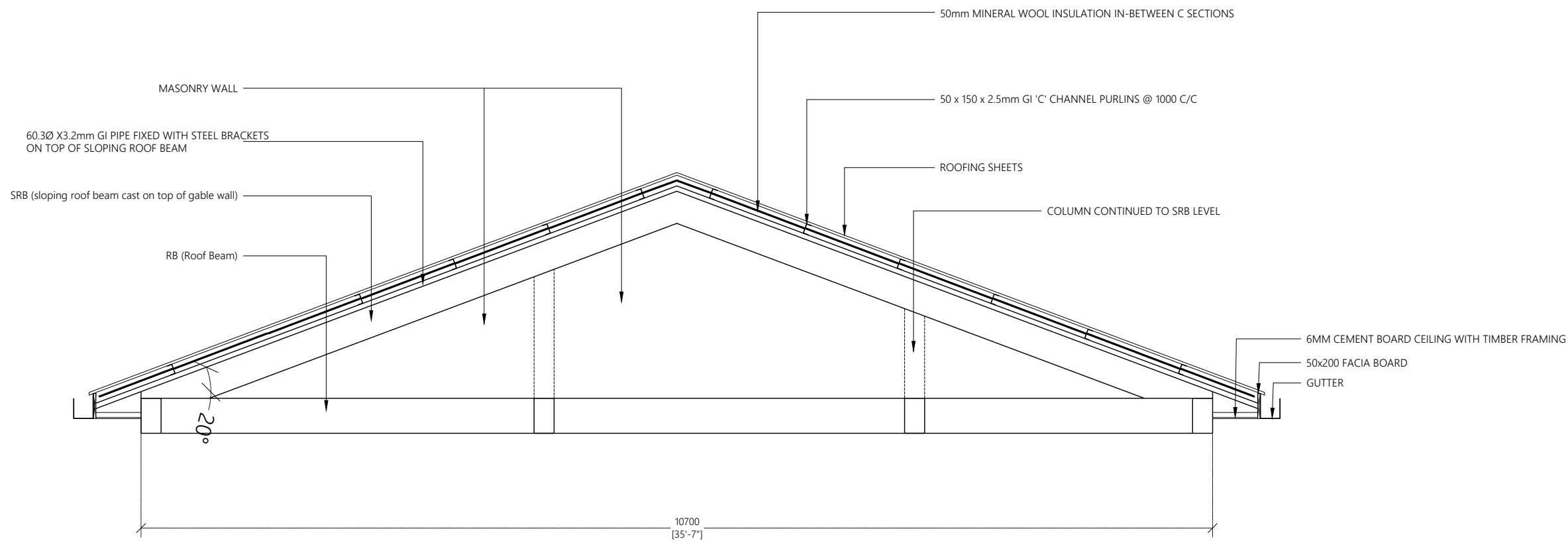
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TRUSS DETAIL TR1 @ GRID 2

1:50

- Notes:**
- *All CHS shall have minimum yield stress of 275MPa
 - *All welds shall be 6mm thick full perimeter fillet welds
 - *All Truss ends shall be end capped with 6mm plates
 - *All truss members shall be protected with anti corrosive coatings



DETAIL OF 63Øx3.2MM PIPE FIXED ON GRID 1,3,4 & 5

1:50

Legend

Note:

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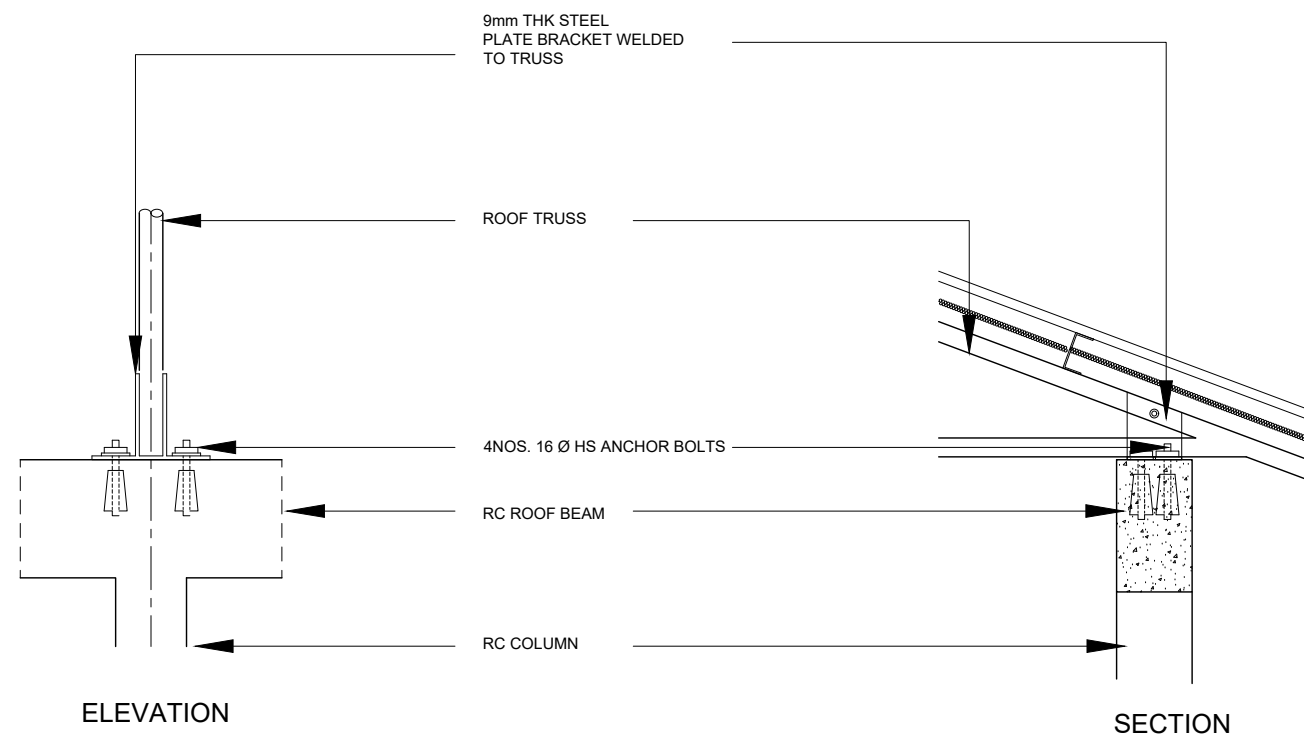
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Legend

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DETAIL A

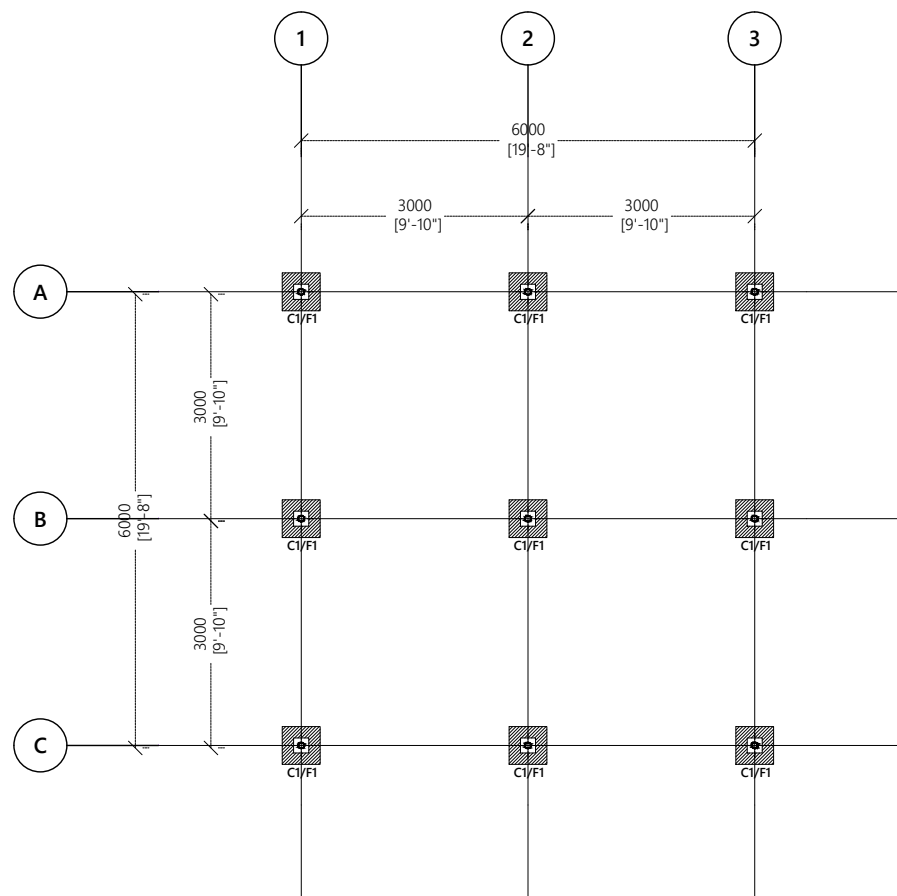
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ARCHITECTURAL AND STRUCTURAL DRAWINGS OF

PROPOSED SINGLE STOREY BUILDING AT

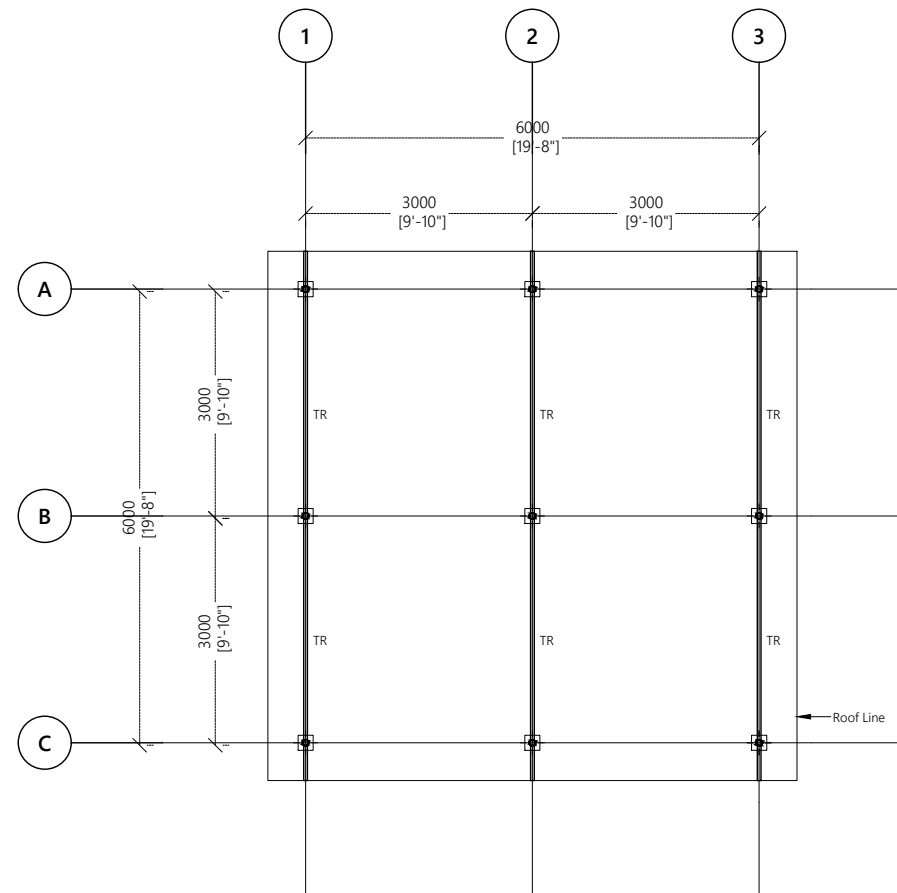
RO PLANT VEHICLE SHED, ADH.DHIHDHOO





FOUNDATION PLAN

1:100



ROOF TRUSS PLAN

1:100

Legend

Note:

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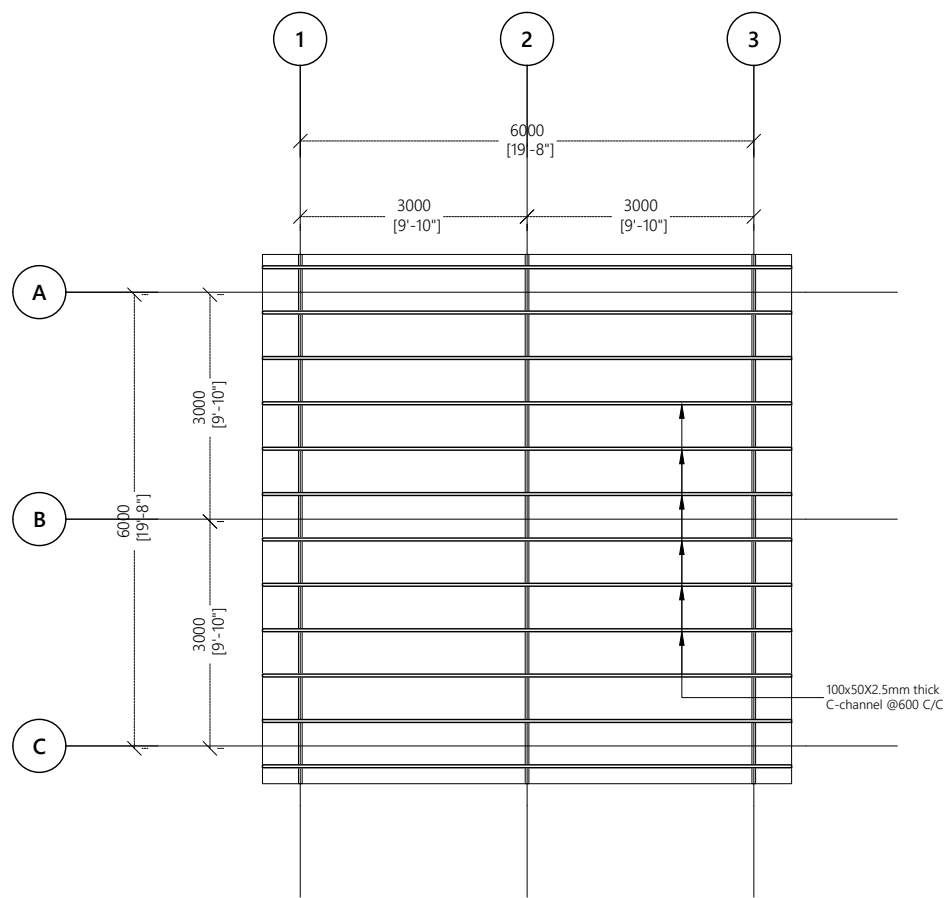
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ROOF FRAMING PLAN

1:100

Legend

Note:

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BUILDING SERVICES DRAWINGS OF
PROPOSED SINGLE STOREY BUILDING AT
RO PLANT ADMIN BUILDING, ADH. DHIHDHOO

For Ministry of National Planning, Housing and Infrastructure

CONTENTS

BUILDING SERVICES DRAWINGS	
GROUND FLOOR POWER AND ACV LAYOUT	PAC-01
GROUND FLOOR FDP LAYOUT	FDP-01
GROUND FLOOR LIGHTING LAYOUT	EL-01
GROUND FLOOR PLUMBING LAYOUT	PL-01
GROUND FLOOR DRAINAGE LAYOUT	DR-01
ROOF DRAINAGE LAYOUT	DR-02
SITE LIGHTING LAYOUT	EL-02










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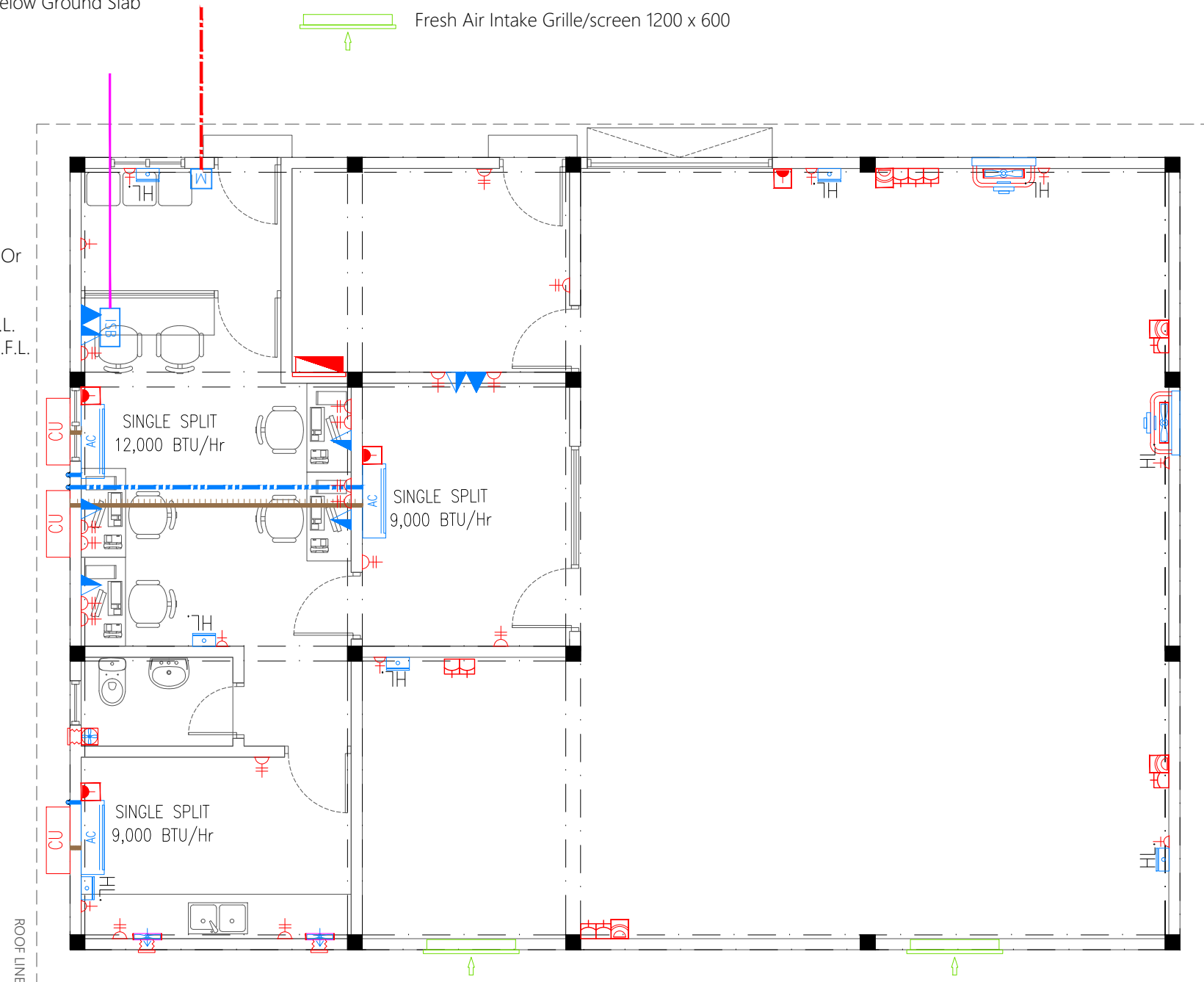
- | | |
|--|--|
|  | 13A Twin Socket |
|  | 13A Twin Socket With USB Ports |
|  | 15A Switched Socket @ H.L. |
|  | 15A Socket In Polycarbonate Box |
|  | 15A Switch @ 1200mm From F.F.L. |
|  | 13A Power Socket |
|  | Distribution Board |
| HL. | High Level |
|  | 82Ø PVC Duct For Tel./Internet Cable Lead In Below Ground Slab |
|  | Main Incoming Cable For Power In 110Ø PVC Duct Below Ground Slab |
|  | Internet Switchboard |
|  | Telephone Outlet |
|  | Computer Network Outlet |
|  | Emergency Light |
|  | Electricity Meter |

Notes: -

- All 13A Power Outlets For Kitchen Hood Or Under Cabinet Or Wardrobe Lights At 1800mm From F.F.L.
- All Twin Sockets At 300mm From F.F.L. Except Located At Kitchen Cupboard Area Which Shall Be At 1200mm From F.F.L.
- All Computer, TV And Telephone Points At 300mm From F.F.L.
- All 20A Switched Neon Indicator At 1200mm From F.F.L.

Legend

- | | |
|---|---|
|  | Refrigerant Pipes |
|  | 25Ø Condensate Drain Pipe |
|  | 40Ø Condensate Drain Riser Pipe |
|  | Wall Mount Air Conditioner |
|  | Outdoor Condensing Unit |
|  | Ceiling Mounted Exhaust Fan 90m ³ /hr |
|  | Wall Mounted Exhaust Fan |
|  | Single Intake, Centrifugal, External Motor, 800m ³ /hr |
|  | Fresh Air Intake Grille/screen 1200 x 600 |



Legend

Note:

- All 13A Power Outlets For Kitchen Hood Or Under Cabinet Or Wardrobe Lights At 1800mm From F.F.L.
 - All Twin Sockets At 300mm From F.F.L.
- Except Located At Kitchen Cupboard Area Which Shall Be At 1200mm From F.F.L.
- All Computer, TV And Telephone Points At 300mm From F.F.L.
 - All 20A Switched Neon Indicator At 1200mm From F.F.L.

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Approved: M.R.

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PAC-01

GROUND FLOOR POWER AND ACV LAYOUT

1:75



- Legend



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GROUND FLOOR FDP LAYOUT

1:75

- [illegible]










GROUND FLOOR LIGHTING LAYOUT

1:75

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Legend

-  16Ø Cold Water Supply To Basin Faucet
-  16Ø Cold Water Supply To Bidet Shower
-  16Ø Cold Water Supply To Wall Tap
-  16Ø Cold Water Supply To Cistern
-  Gate Valve
-  Rise In Wall
-  MWSC Meter
-  25Ø Cold Water Supply Pipes Running Underground
-  20Ø Cold Water Supply Pipes Running In Wall

Legend

Note:

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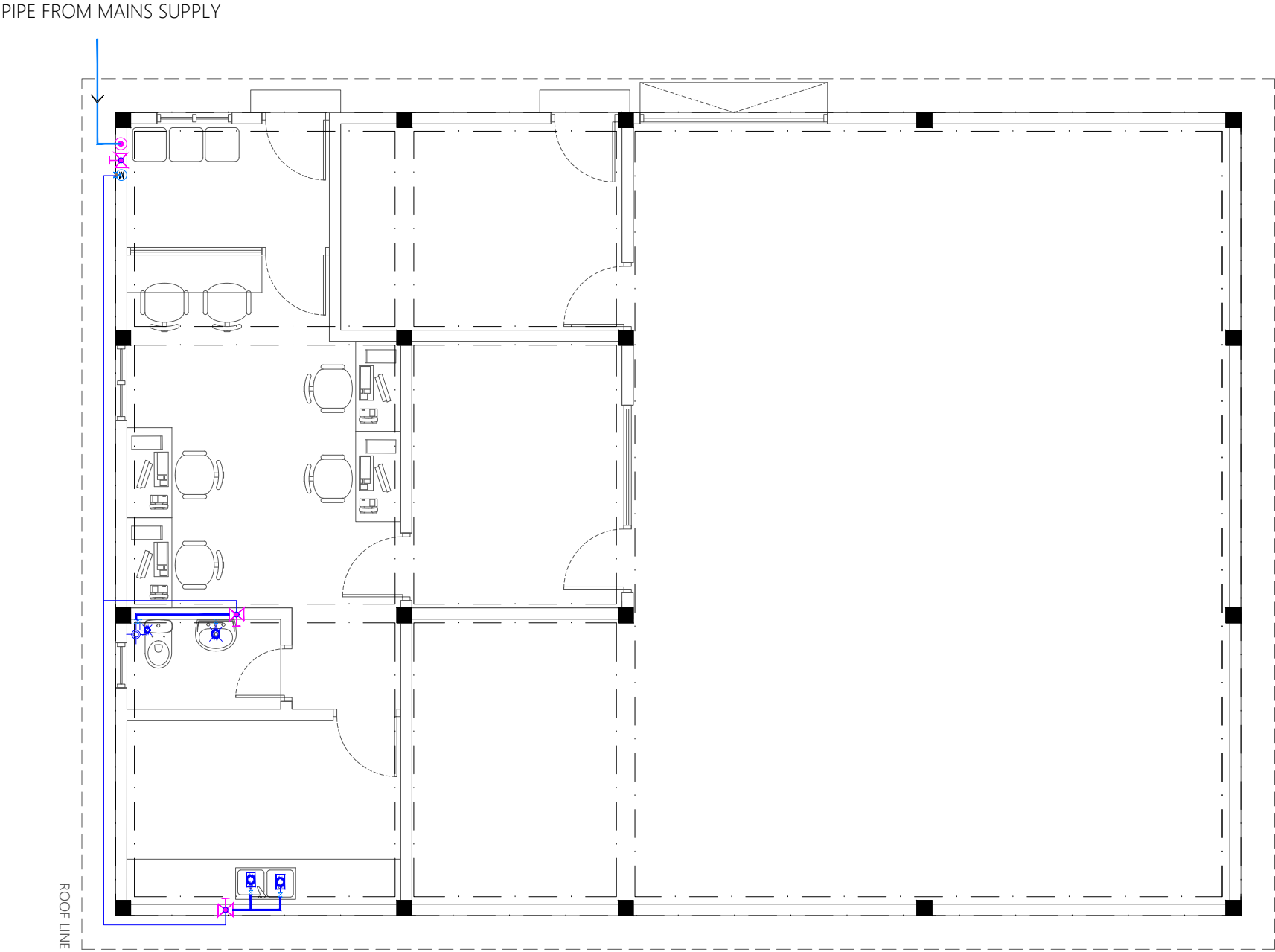
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GROUND FLOOR PLUMBING LAYOUT



- Notes: -

CONNECTED TO MAIN NETWORK

CONNECTED TO RAINWATER NETWORK

CONNECTED TO RAINWATER NETWORK

CONNECTED TO RAINWATER NETWORK

TO BRINE TANK

CONNECTED TO RAINWATER NETWORK

1:75

Legend

Note:

R00	AUG 2020	STAGE -1	H.R.	M.R.	M.R.
REV. NO.	Date	Revision Description	Drawn	Chkd	Appd.

Title:

Sub Title:

Water Supply System in Adh. Dhihdhoo

Client:

Ministry of National Planning, Housing and
Infrastructure, Republic of Maldives



FEEDBACK INFRA
Making Infrastructure Happen

Drawn: H.R.

Checked: M.R.

Designed: H.R.

Approved: M.R.

Date: Sep 2020

SCALE (A3): 1:75

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Legend

-  Floor Drain
-  Floor Gully
-  82Ø Soil Pipe (uPVC Pipe)
-  82Ø Soil Vent Pipe (uPVC Pipe)
-  63Ø Waste Pipe (uPVC Pipe)
-  63Ø Waste Vent Pipe (uPVC Pipe)
-  40Ø Waste Pipe (uPVC Pipe)
-  50Ø Manhole Vent Pipe (uPVC Pipe)
-  110Ø Rain Water Pipes (uPVC Pipe)
-  Gully Trap
-  110Ø Rainwater Outlet
-  Clean Out Point
-  Bottle Trap

Notes: -

- All Drainage Pipes Should Have At A Slope Of 1/150
- All Floor Drains Should Have 'P' Traps



GROUND FLOOR DRAINAGE LAYOUT

1:75



Legend

- Note:
- All Drainage Pipes Should Have At A Slope Of 1/150
- All Floor Drains Should Have 'P' Traps

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REV. NO.	Date	Revision Description	Drawn	Chkd	Appd.

Title:
Consultancy Services for
Survey, Design and EIA works of
Water Supply and Sewerage
Facilities
in 7 Islands, Maldives – Package 4
Sub Title:
Water Supply System in Adh. Dhiidhoo

Client:
Ministry of National Planning, Housing and
Infrastructure, Republic of Maldives

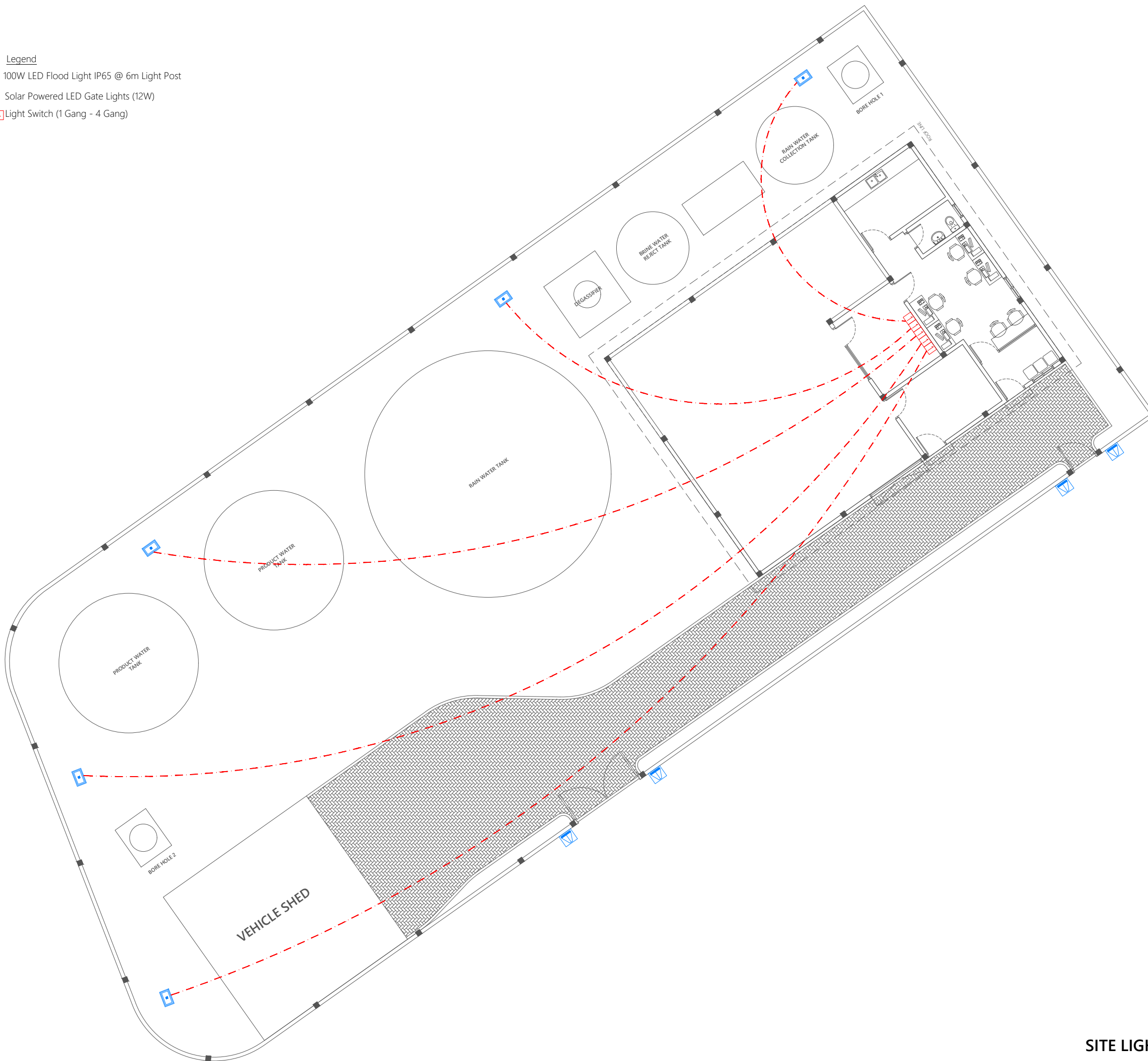
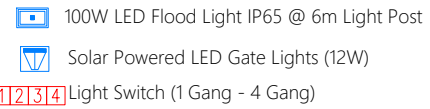


T: +960 333 3528
E: info@epoch.associates
W: www.epoch.associates
A: G. Rosary West,
Husnuheemaa Magu, Male', Maldives



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SITE LIGHTING LAYOUT

1:150

Note:

- All Drainage Pipes Should Have At A Slope Of 1/150
- All Floor Drains Should Have 'P' Traps

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REV. NO.	Date	Revision Description	Drawn	Chkd	Appd.	

Title:
Consultancy Services for
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Sub Title:
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