

CONSULTANCY SERVICES FOR SURVEY, DESIGN AND EIA WORKS OF WATER SUPPLY AND
SEWERAGE FACILITIES IN 5 ISLANDS, MALDIVES

PACKAGE 6

SEWERAGE SYSTEM OF GA. NILANDHOO ,MALDIVES

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

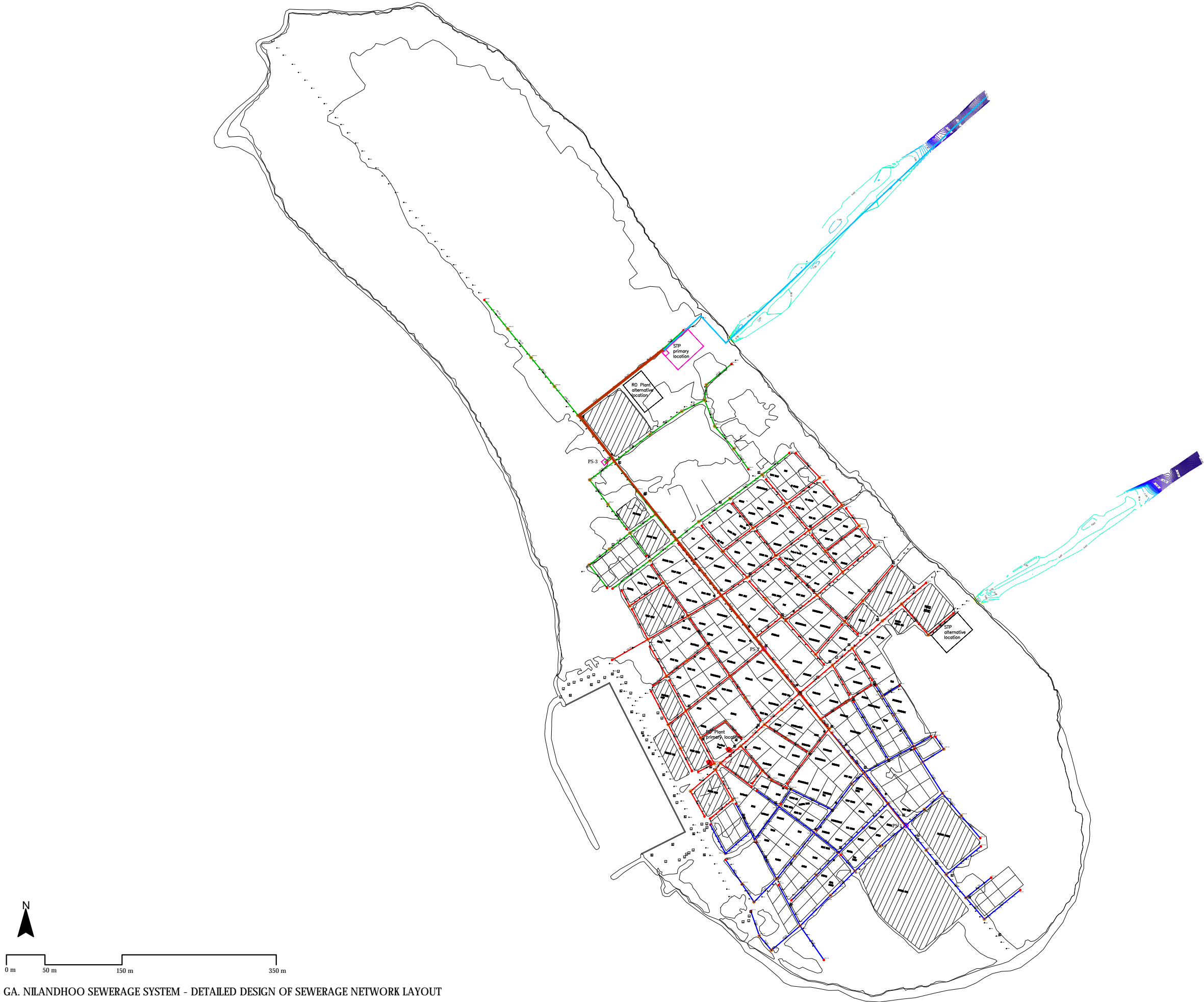


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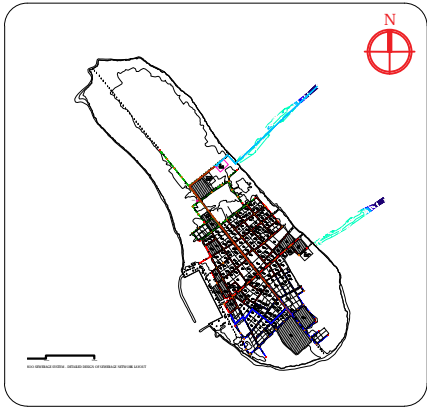
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GA, NILANDHOO SEWERAGE SYSTEM - DETAILED DESIGN OF SEWERAGE NETWORK LAYOUT
1:5000



Legend

- 160mm Ø uPVC PS1 Gravity Sewer Main (SN4, SDR41) - 2395 m
- 160mm Ø uPVC PS2 Gravity Sewer Main (SN4, SDR41) - 4042 m
- 160mm Ø uPVC PS3 Gravity Sewer Main (SN4, SDR41) - 1486 m
- 160 mm Ø HDPE Pumping Main (PE100, PN16, SDR11) - 1570 m
- 160 mm Ø HDPE Sea Outfall Pipe (PE100, PN16, SDR11) - 122 m on land, 456 m offshore, 578 m total
- 600mm Ø PE/PP Maintenance Shaft - 127 nos
- 160mmØ uPVC Clean Out - 74 nos
- PERMANENT BENCH MARK 1: 327149.526E, 70041.431N, 1.031m From MSL
- PERMANENT BENCH MARK 2: 327175.055E, 70057.839N, 1.306m From MSL

Notes

- All levels shown are in meters.
- All levels shown are from mean sea level
- This drawing to be read in conjunction with all other relevant drawings and specifications.
- All gravity sewer pipes shall be uPVC to BS EN1401-1:2019.
- All gravity sewer mains shall be 160mm dia uPVC of wall thickness & stiffness rated to SN4 & SDR41.
- All gravity house laterals shall be 110mm dia uPVC of wall thickness & stiffness rated to SD4 & SDR41.
- All gravity sewer mains shall have minimum 0.4% slope.
- All gravity sewer pipes shall be jointed using rubber ring push fit jointing method & rubber rings comply with BS 2494 (typ2).
- Connection from the household to the inspection chamber is not included. Provision shall be given in IC for multiple connections.
- All sewer pipes shall be buried under earth cover of minimum 0.6 meters.
- Catchment over flow links are to be connected as indicated below:
 - a) CO2-12 and MH3-12
 - b) CO2-36 and MH2-14
 - c) CO2-27 and CO2-37
 - d) CO1-02 and MH2-36
 - e) CO1-15 and MH1-11
 - f) CO1-19 and MH1-16
 - g) CO1-23 and MH1-34

REV. NO.	Date	Revision Description	Drawn	Chkd	Appd.

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Consultancy Services for Survey,
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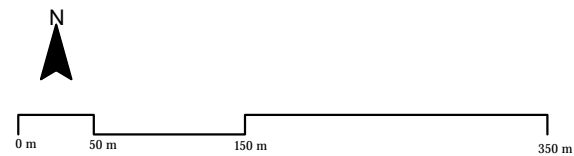
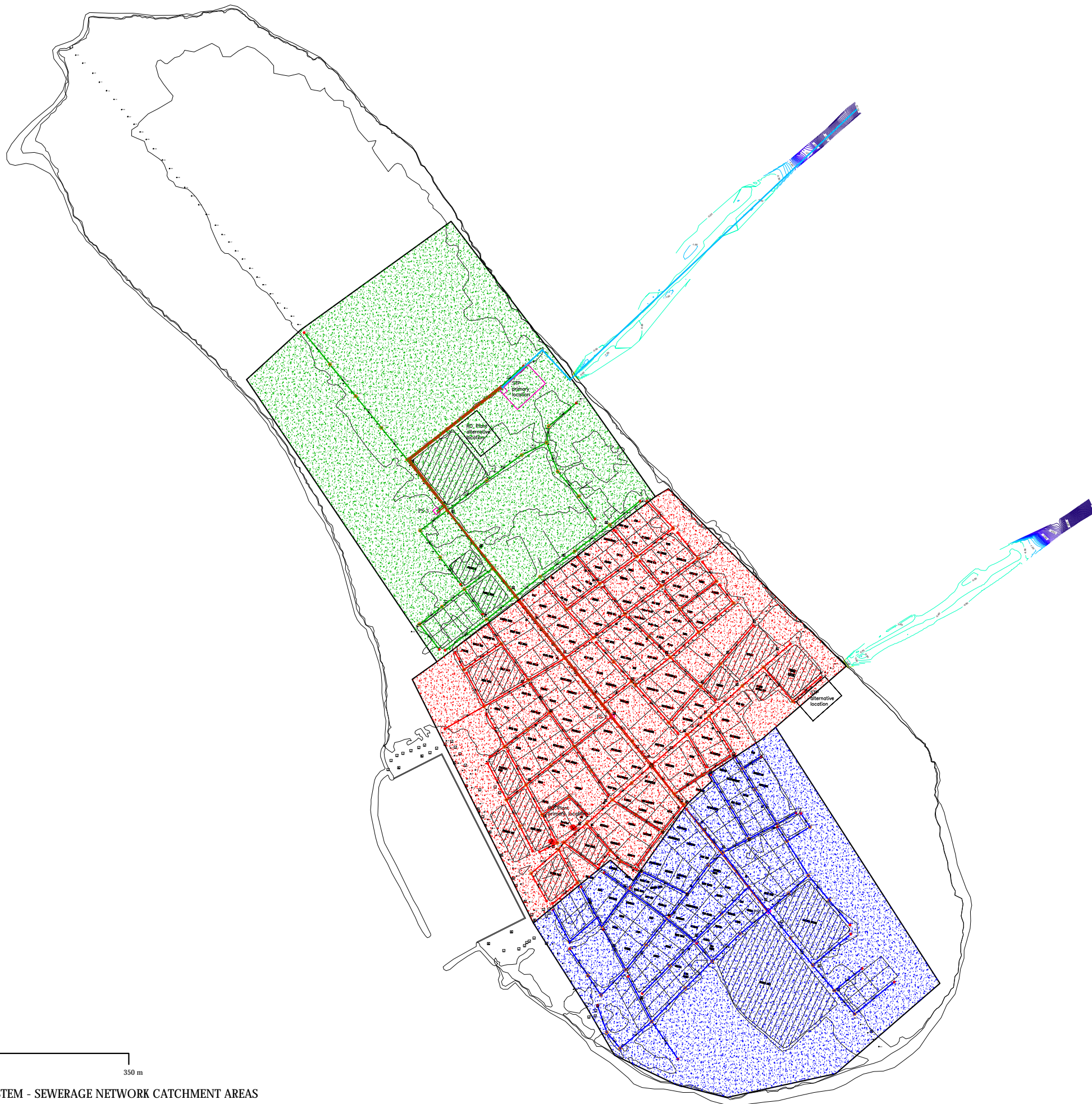
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Water Supply System in GA, Nilandhoo

Client:
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


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GA. NILANDHOO SEWERAGE SYSTEM - SEWERAGE NETWORK CATCHMENT AREAS
1:5000



Legend

-  PS-1 Catchment Area
-  PS-2 Catchment Area
-  PS-3 Catchment Area

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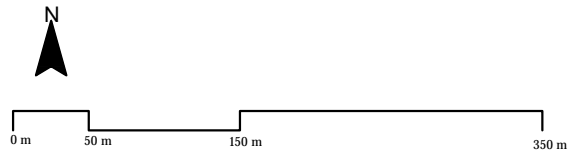


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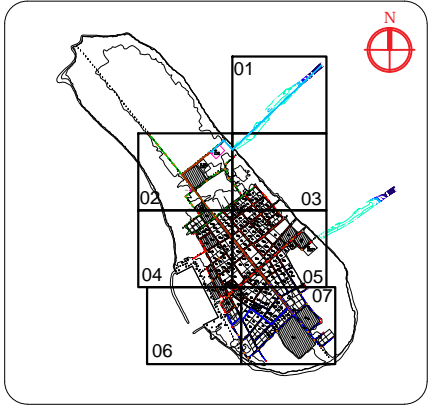
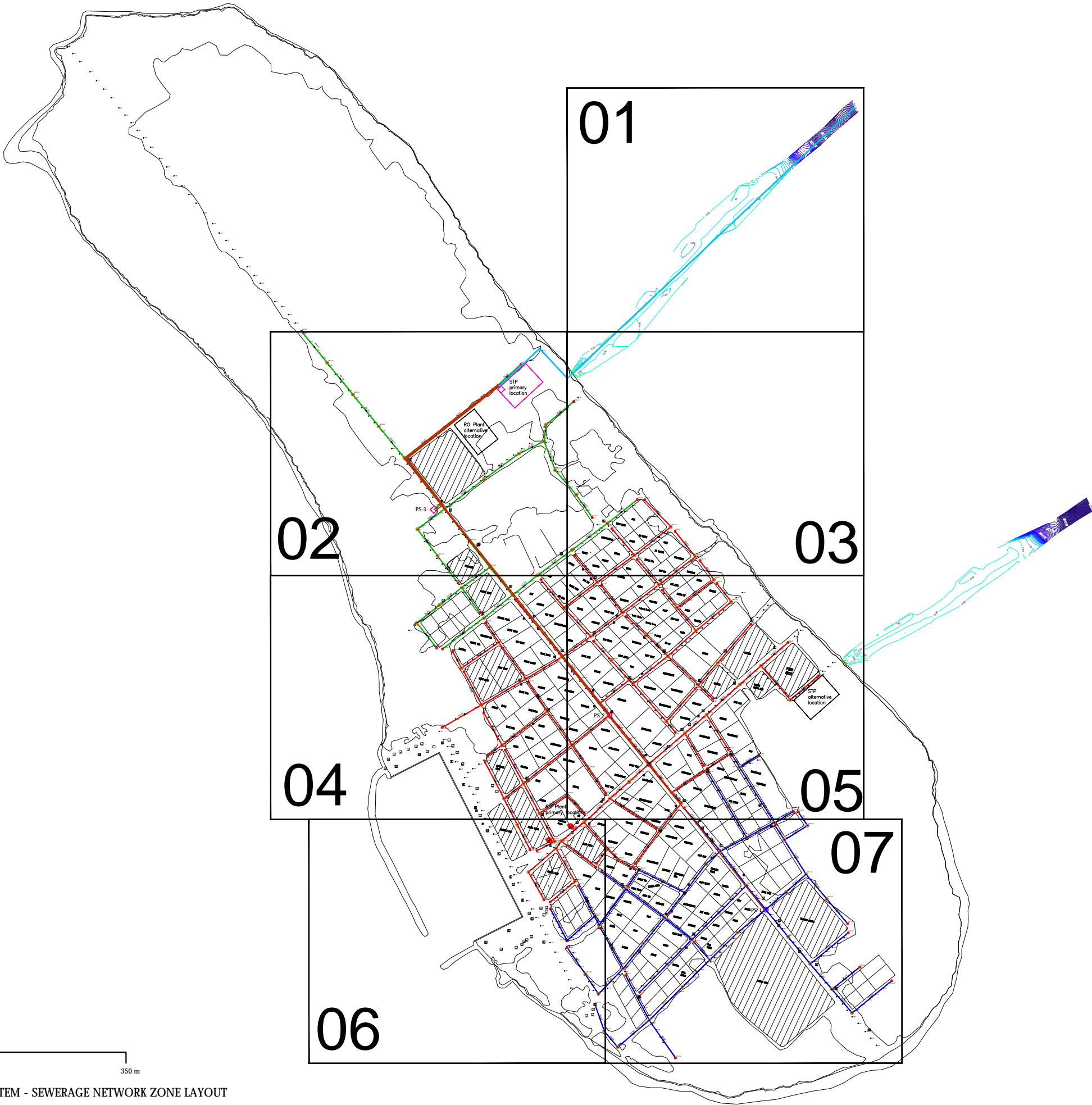


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GA. NILANDHOO SEWERAGE SYSTEM - SEWERAGE NETWORK ZONE LAYOUT
1:5000



Legend

- 160mm Ø uPVC PS1 Gravity Sewer Main (SN4, SDR41)
- 160mm Ø uPVC PS2 Gravity Sewer Main (SN4, SDR41)
- 160mm Ø uPVC PS3 Gravity Sewer Main (SN4, SDR41)
- 600mm Ø PE/PP Maintenance Shaft
- 160mmØ uPVC Clean Out
- 160 mm Ø HDPE Pumping Main (PE100, PN16, SDR11)
- 160 mm Ø HDPE Sea Outfall Pipe (PE100, PN16, SDR11)

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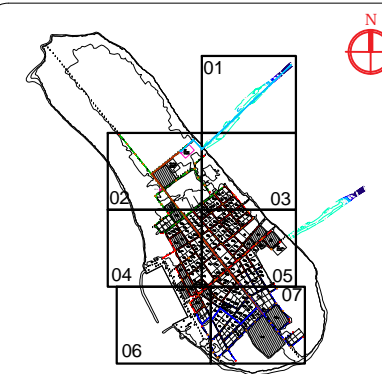
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Legend

- | | |
|---|---|
|  | 160mm Ø uPVC PS1 Gravity Sewer Main (SN4, SDR41) |
|  | 160mm Ø uPVC PS2 Gravity Sewer Main (SN4, SDR41) |
|  | 160mm Ø uPVC PS3 Gravity Sewer Main (SN4, SDR41) |
|  | 600mm Ø PE/PP Maintenance Shaft |
|  | 160mm Ø uPVC Clean Out |
|  | 160 mm Ø HDPE Pumping Main (PE100, PN16, SDR11) |
|  | 160 mm Ø HDPE Sea Outfall Pipe (PE100, PN16, SDR11) |

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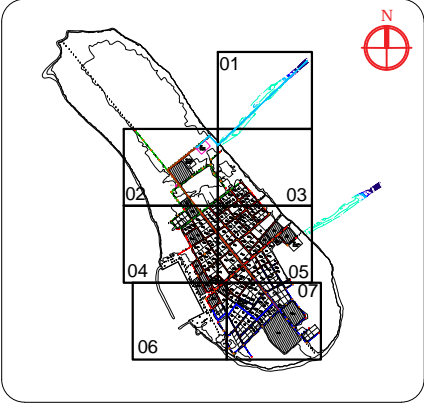
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GA. NILANDHOO SEWERAGE SYSTEM - SEWERAGE NETWORK LAYOUT - ZONE 02

1:1000



Legend

- 160mm Ø uPVC PS1 Gravity Sewer Main (SN4, SDR41)
- 160mm Ø uPVC PS2 Gravity Sewer Main (SN4, SDR41)
- 160mm Ø uPVC PS3 Gravity Sewer Main (SN4, SDR41)
- 600mm Ø PE/PP Maintenance Shaft
- 160mm Ø uPVC Clean Out
- 160 mm Ø HDPE Pumping Main (PE100, PN16, SDR11)
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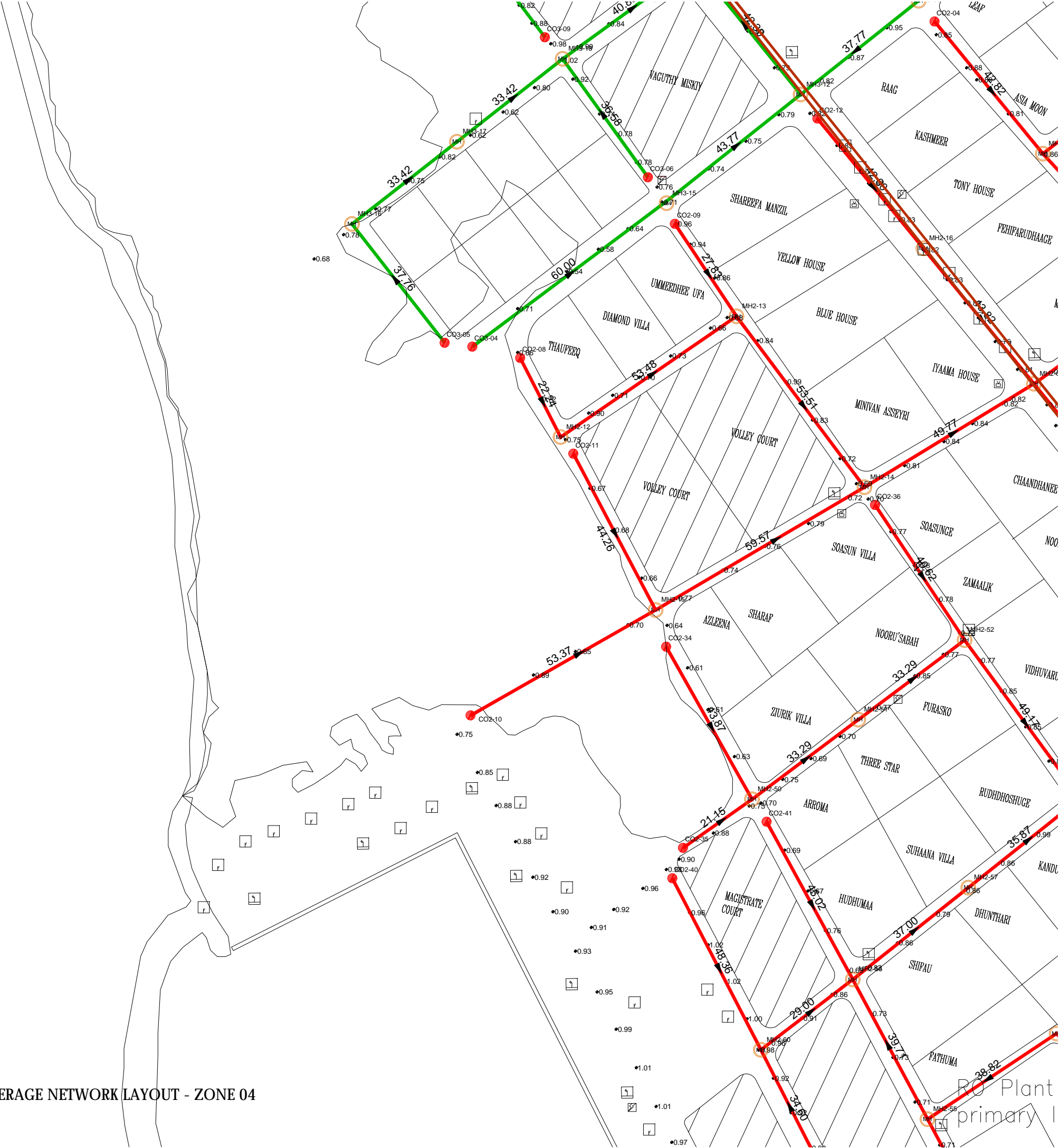
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GA. NILANDHOO SEWERAGE SYSTEM - SEWERAGE NETWORK LAYOUT - ZONE 04
1:1000



Legend

- 160mm Ø uPVC PS1 Gravity Sewer Main (SN4, SDR41)
- 160mm Ø uPVC PS2 Gravity Sewer Main (SN4, SDR41)
- 160mm Ø uPVC PS3 Gravity Sewer Main (SN4, SDR41)
- 600mm Ø PE/PP Maintenance Shaft
- 160mmØ uPVC Clean Out
- 160 mm Ø HDPE Pumping Main (PE100, PN16, SDR11)
- 160 mm Ø HDPE Sea Outfall Pipe (PE100, PN16, SDR11)

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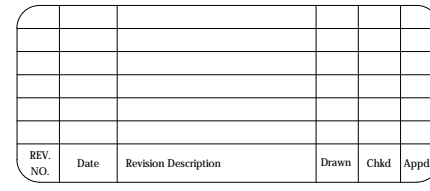
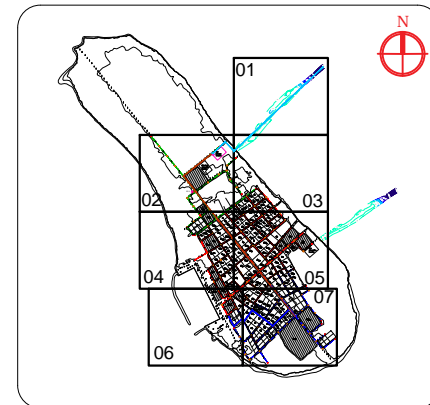
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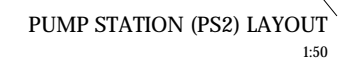
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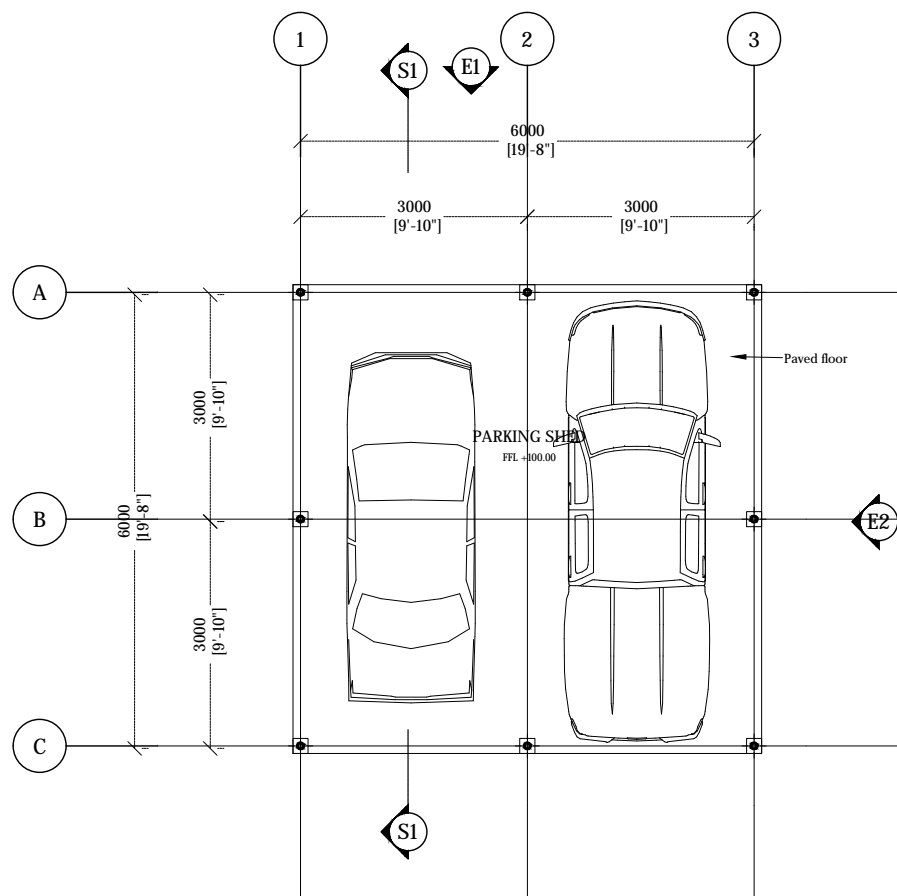
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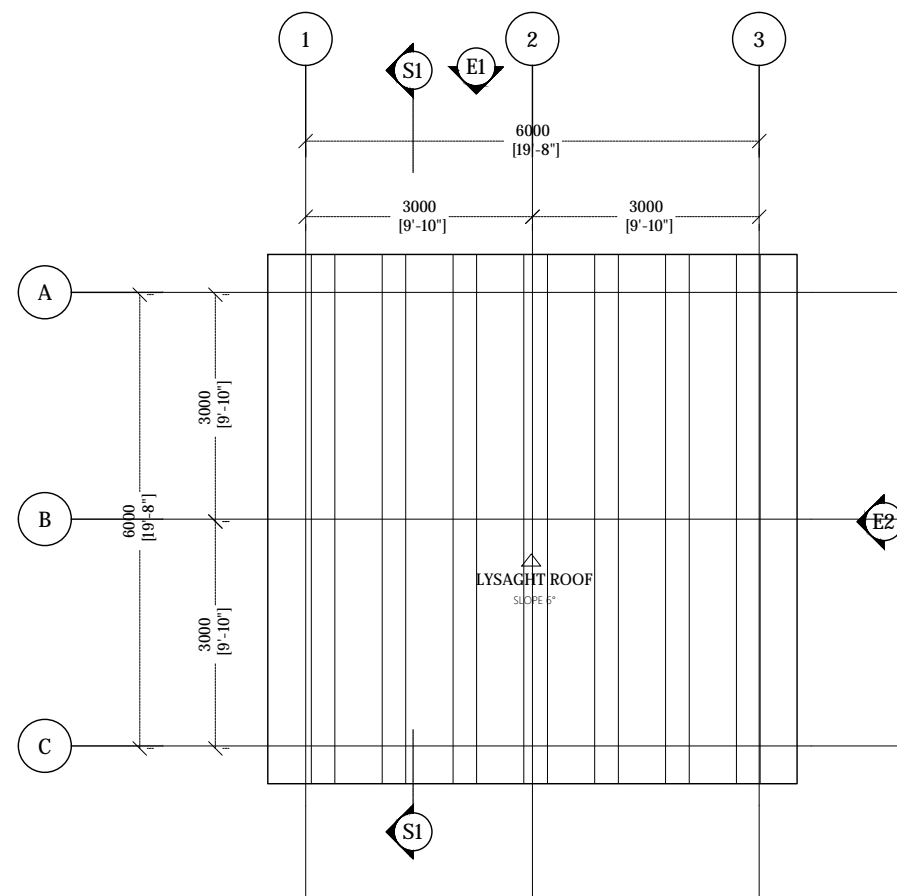


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VEHICLE SHED GROUND FLOOR PLAN

1:100



VEHICLE SHED ROOF PLAN

1:100



Legend

REV. NO.	Date	Revision Description	Drawn	Chkd	Appd.

Title:
Consultancy Services for Survey, Design and EIA works of Water Supply and Sewerage Facilities in 5 islands, Maldives - Package 2

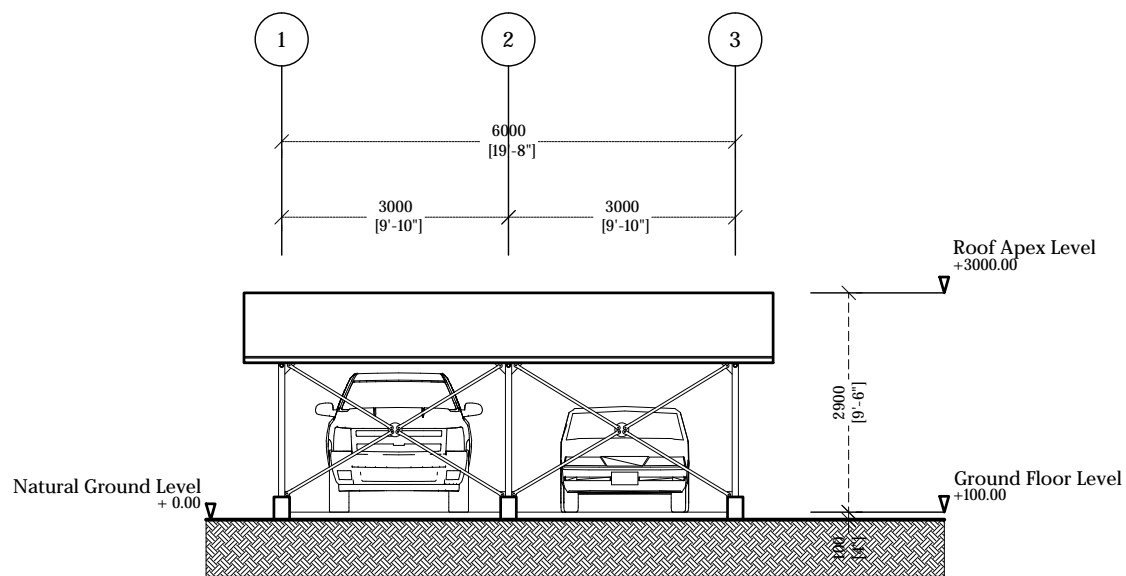
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Sewerage System in N. Maafaru

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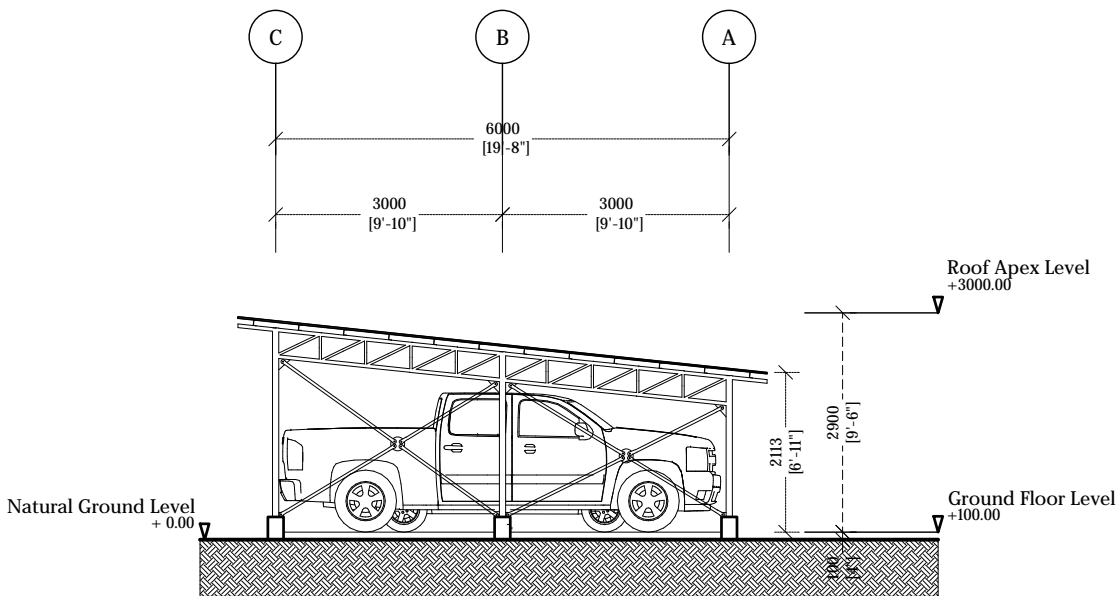
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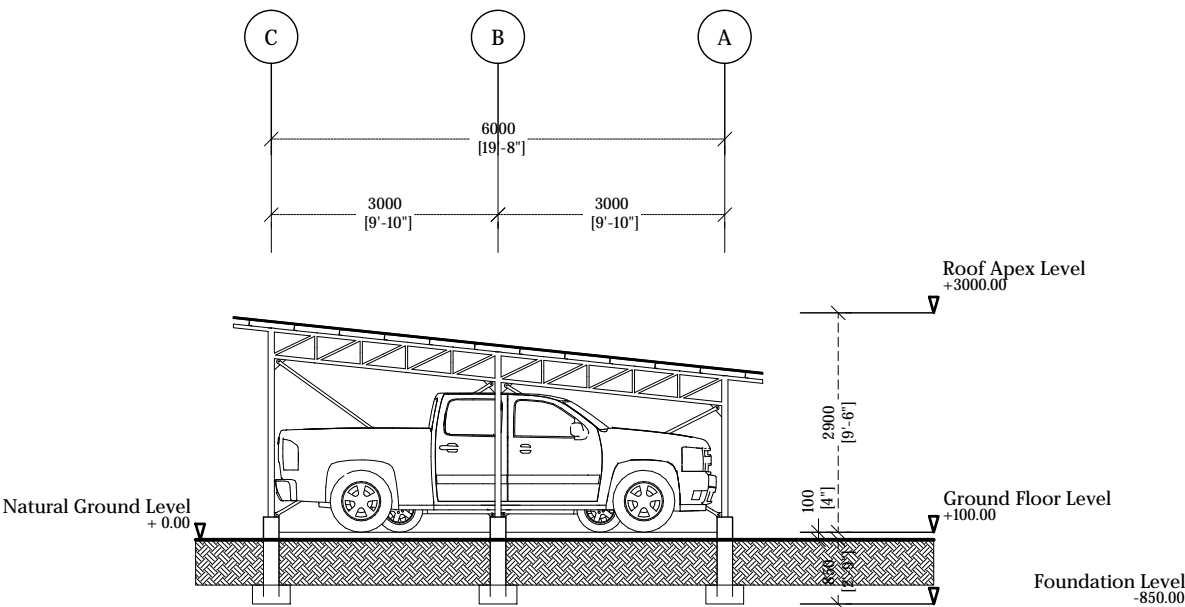
VEHICLE SHED ELEVATION E1

1:100



VEHICLE SHED ELEVATION E2

1:100



VEHICLE SHED SECTION S1

1:100



Legend

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Title:
Consultancy Services for Survey,
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Supply and Sewerage Facilities in
5 islands, Maldives - Package 2

Sub Title:
Sewerage System in N. Maafaru

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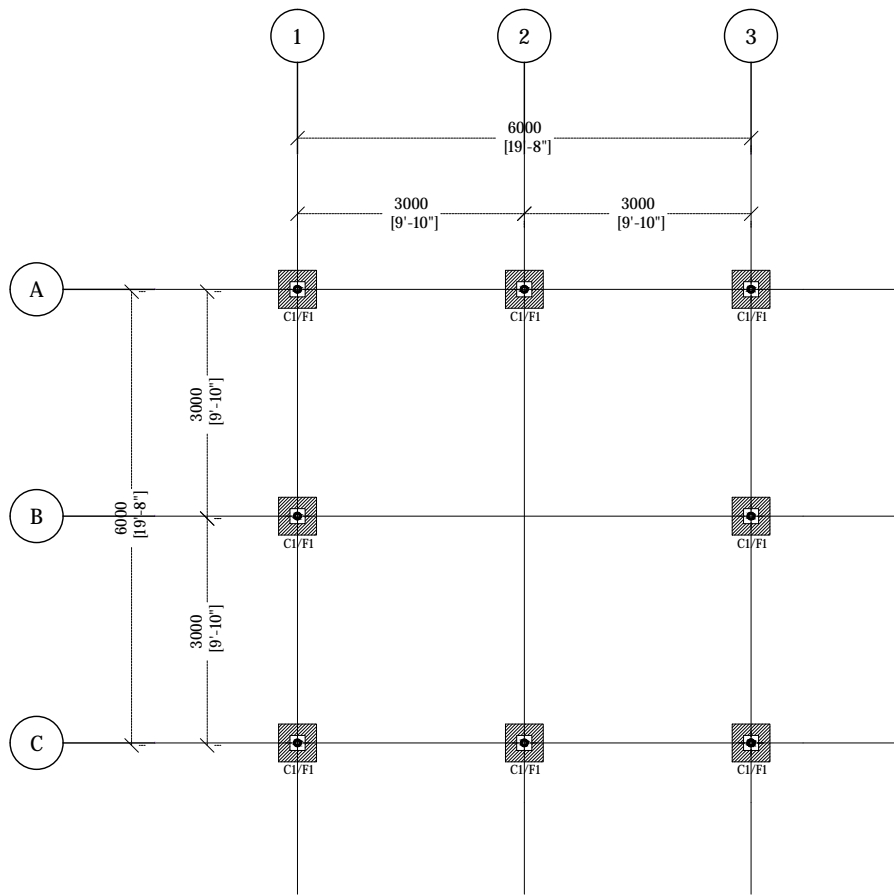
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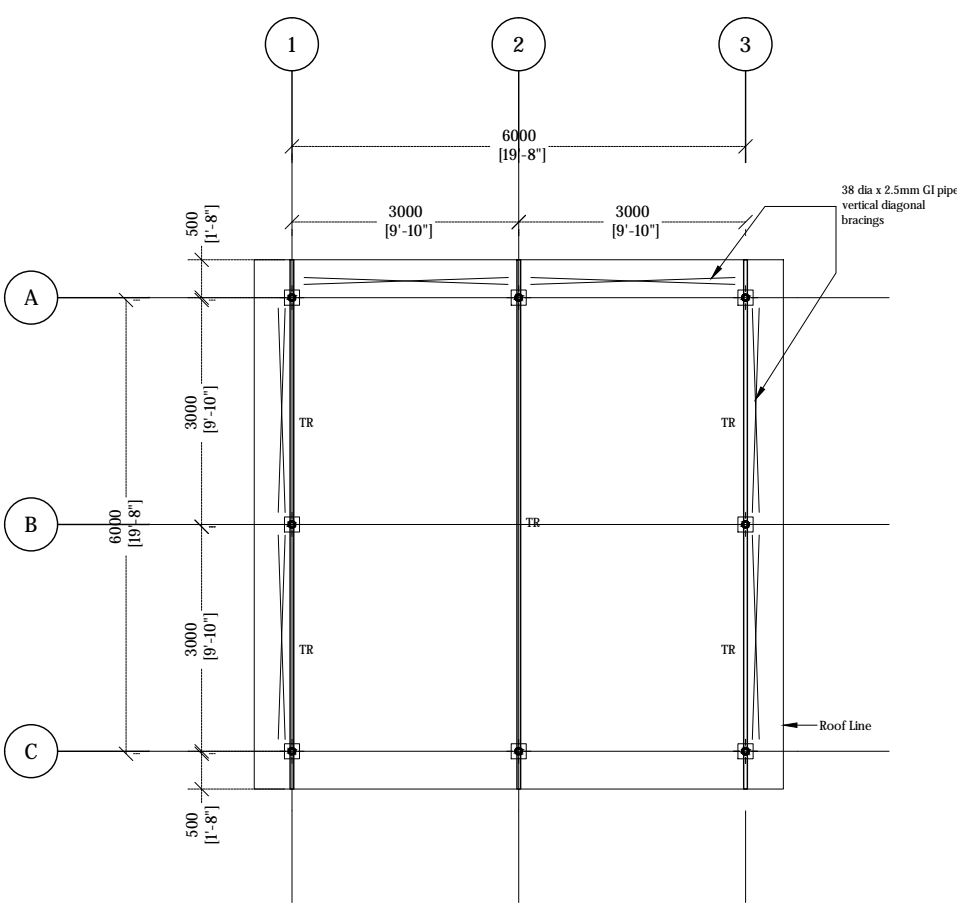
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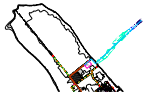
VS-A(2)



VEHICLE SHED FOUNDATION PLAN
1:100



VEHICLE SHED ROOF TRUSS PLAN
1:100



Legend

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Consultancy Services for Survey,
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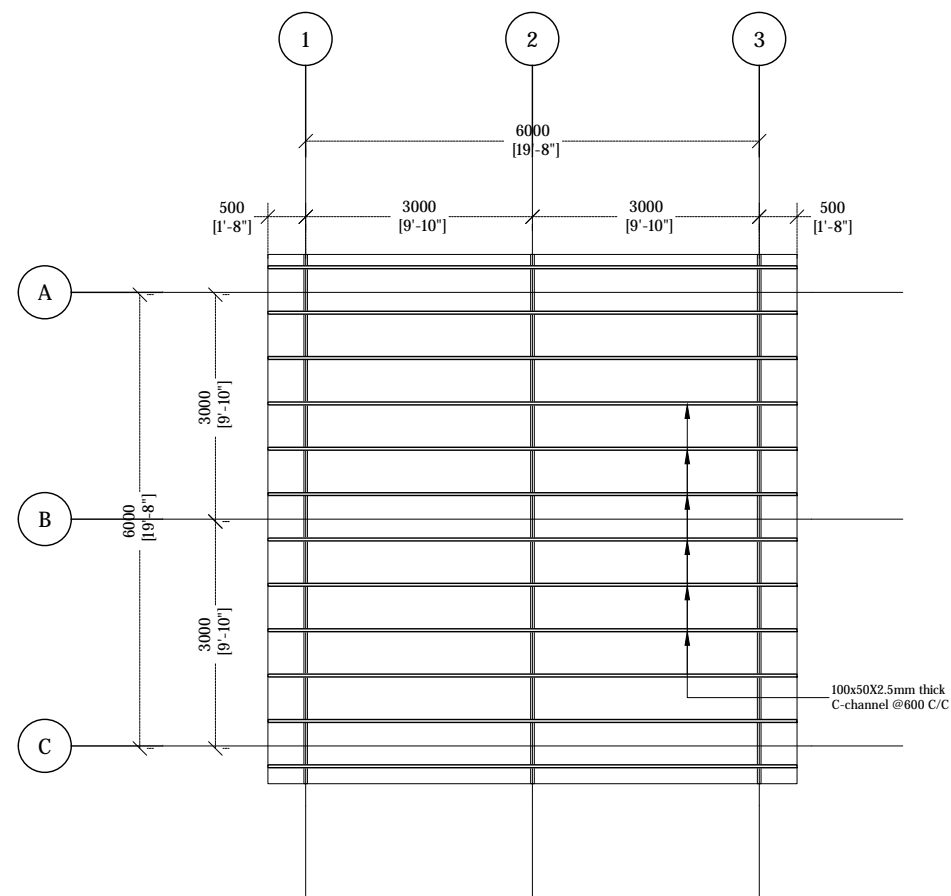


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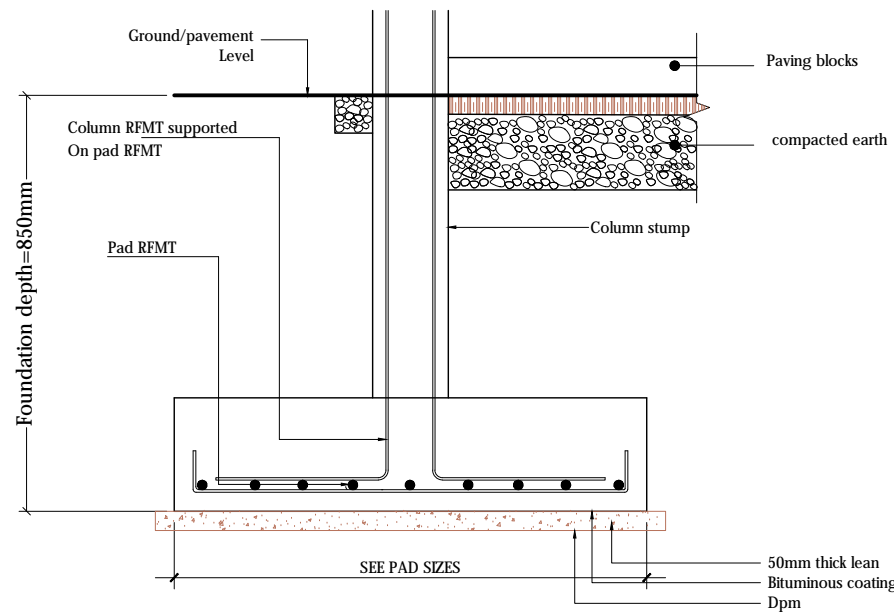
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Consultancy Services for Survey,
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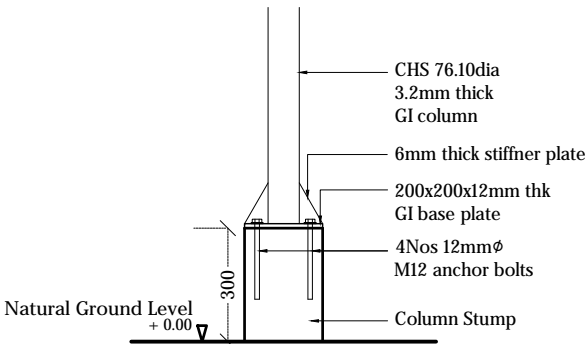


VEHICLE SHED FOOTING DETAIL

1:20

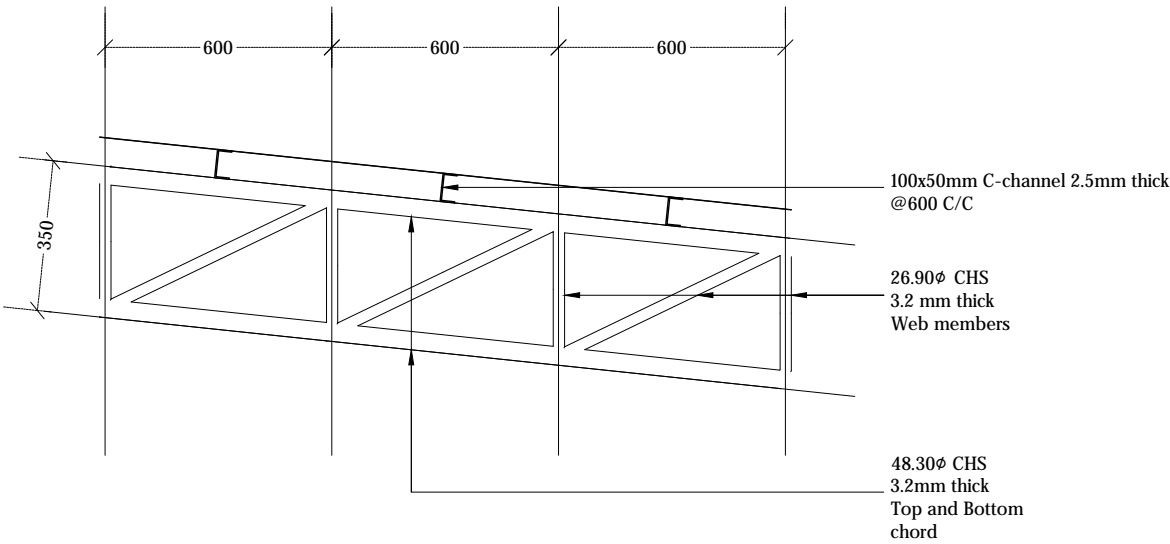
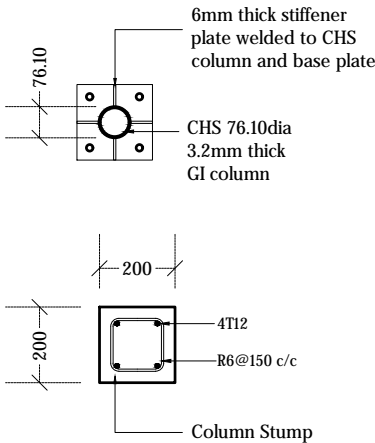
F1 - 500x500x250 - T10@150C/C B/W (B)

FOUNDATION PAD DETAILS



VEHICLE SHED COLUMN DETAIL

1:20



VEHICLE SHED TRUSS DETAIL

1:20



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
- *38 dia x 2.5mm GI pipe to be used for all bracings.
- *Cover for footings shall be 50mm.
- *Cover for columns shall be 40mm.
- *Concrete shall be of grade C25.

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Sewerage System in N. Maafaru

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Building Sustainable Infrastructure

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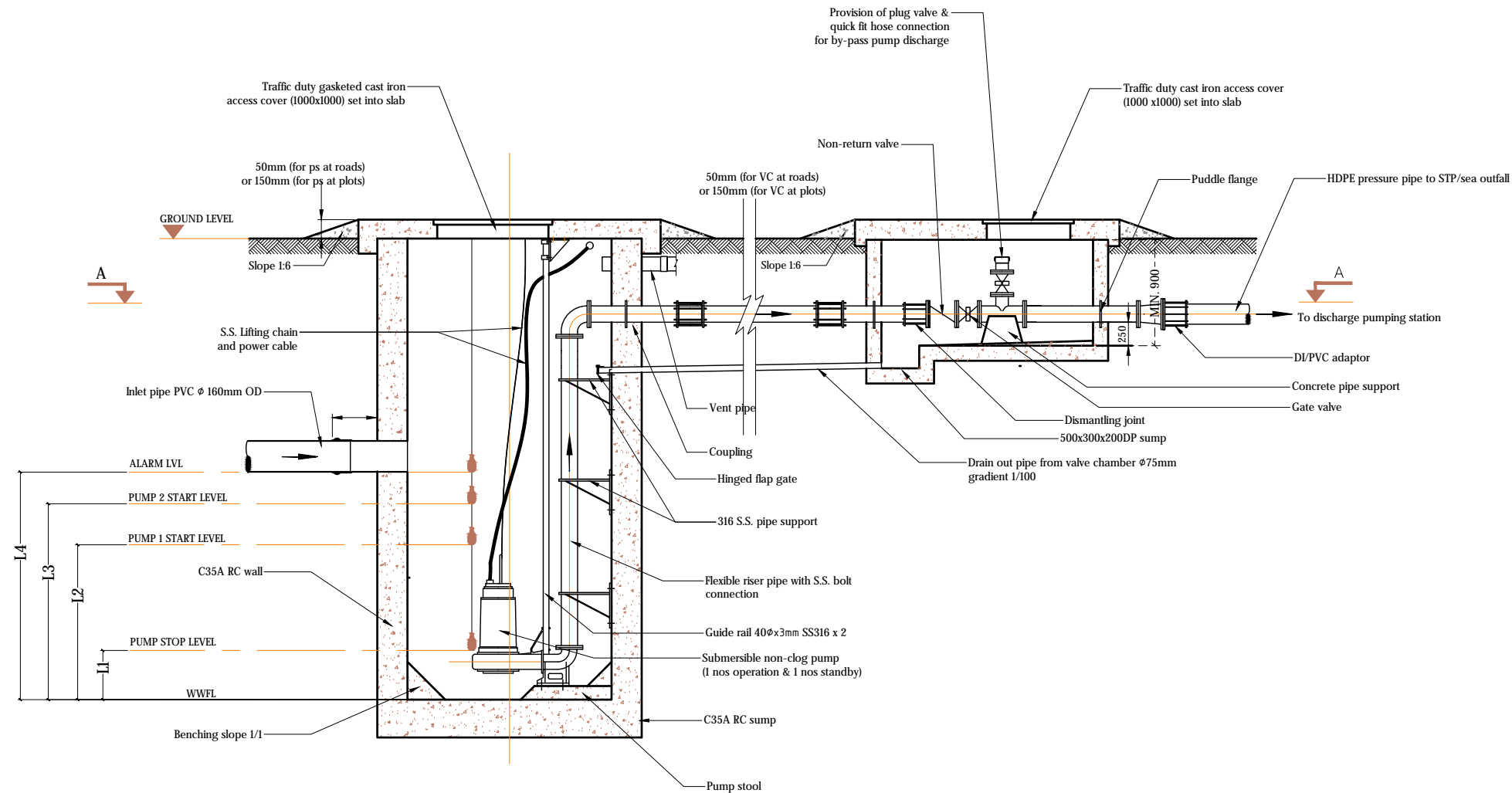
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VS-S(3)



PUMP STATION DESIGN DETAILS

(15 YEARS)

Pump Station	Diameter (ϕ)	Depth (D)	Inlet Depth	Pump Capacity	Head	Levels			
						L1	L2	L3	L4
PS1	2.0m	3.10m	2.3m, 1.9m, 1.4m, 1.5m	2.7 l/s	16.8 m	0.300m	0.605m	0.755m	0.905m
PS2	2.0m	3.10m	2.3m, 2.1m, 1.9m	4.5 l/s	12.7 m	0.300m	0.667m	0.817m	0.967m
PS3	2.0m	3.00m	2.2m	1.7 l/s	8.3 m	0.300m	0.609m	0.759m	0.909m

PUMP STATION DETAILS - LONGITUDINAL SECTION
NTS



Notes:

- Pumps, pipe work, fittings and control panel shall be installed in accordance with manufacturers recommendations.
- Orientation of valve chamber pipework to suit location.
- All structural concrete shall be of grade C35A.
- 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.
- Internal concrete surfaces to be coated with 5mm thickness of epoxy bonded glass fibre and finished with gel coat or 500 microns epoxy paint coating.
- External concrete surfaces to be painted with 3 coats of bitumen/rubber emulsion and protected by 500 micron polyethene.
- All concrete cold joints shall be casted with bonding agent

List of main instruments of pumping station:

1. Sewage pumps (1 duty & 1 standby)
2. Power cable
3. Auto-coupling with $40\phi \times 3\text{mm}$ SS316 guide rails
4. Stainless steel (316) suspension chain
5. Cable with float control and weight
6. Discharge pipe
7. Puddle flange
8. Bitumen emulsion and 500 micron polythene sheet protection to external concrete surfaces
9. Construction joint / water bars
10. Manhole cover double seal ductile heavy duty cast iron / SS 316 cover
11. Vent pipe with vent cowl

REV. NO.	Date	Revision Description	Drawn	Chkd	Appd.

Title:

Consultancy Services for Survey, Design and EIA works of Water Supply and Sewerage Facilities in 5 islands, Maldives - Package 6

Sub Title:

Sewerage System in GA. Nilandhoo

Client:

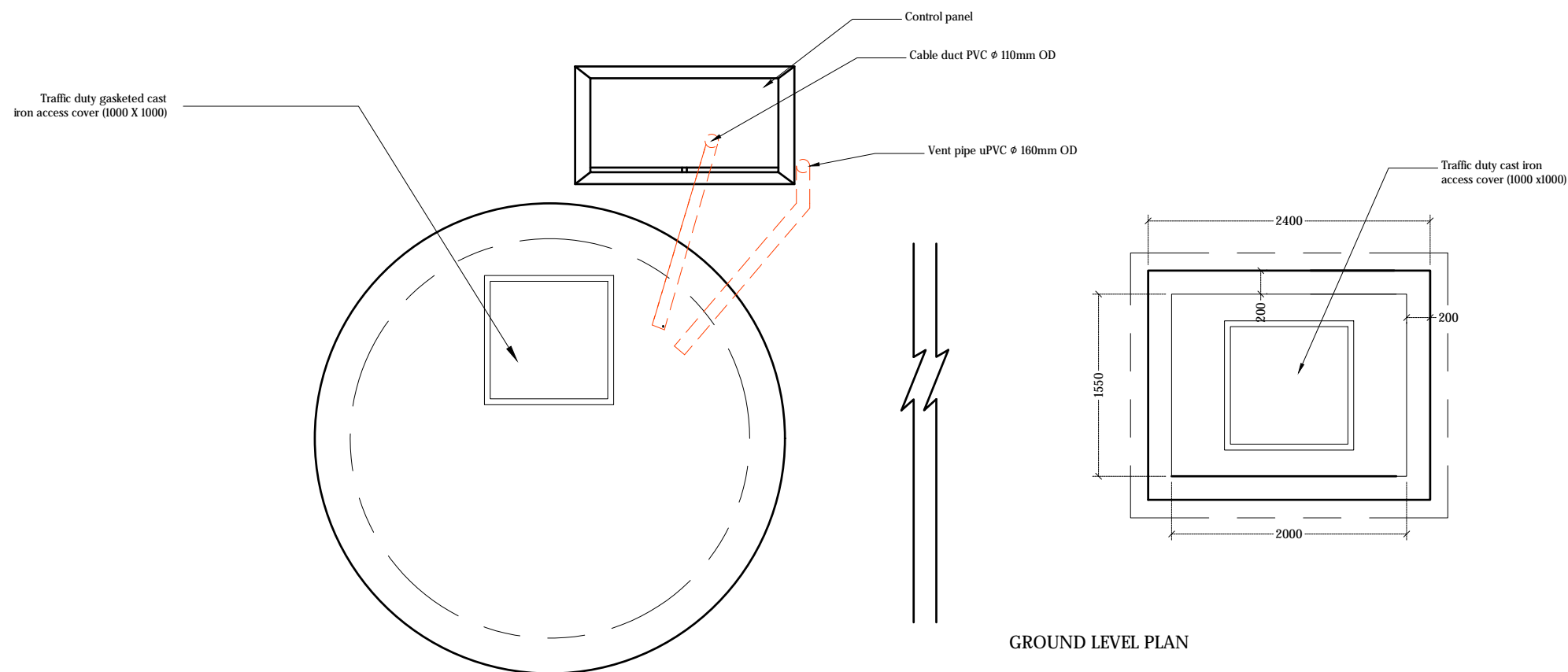
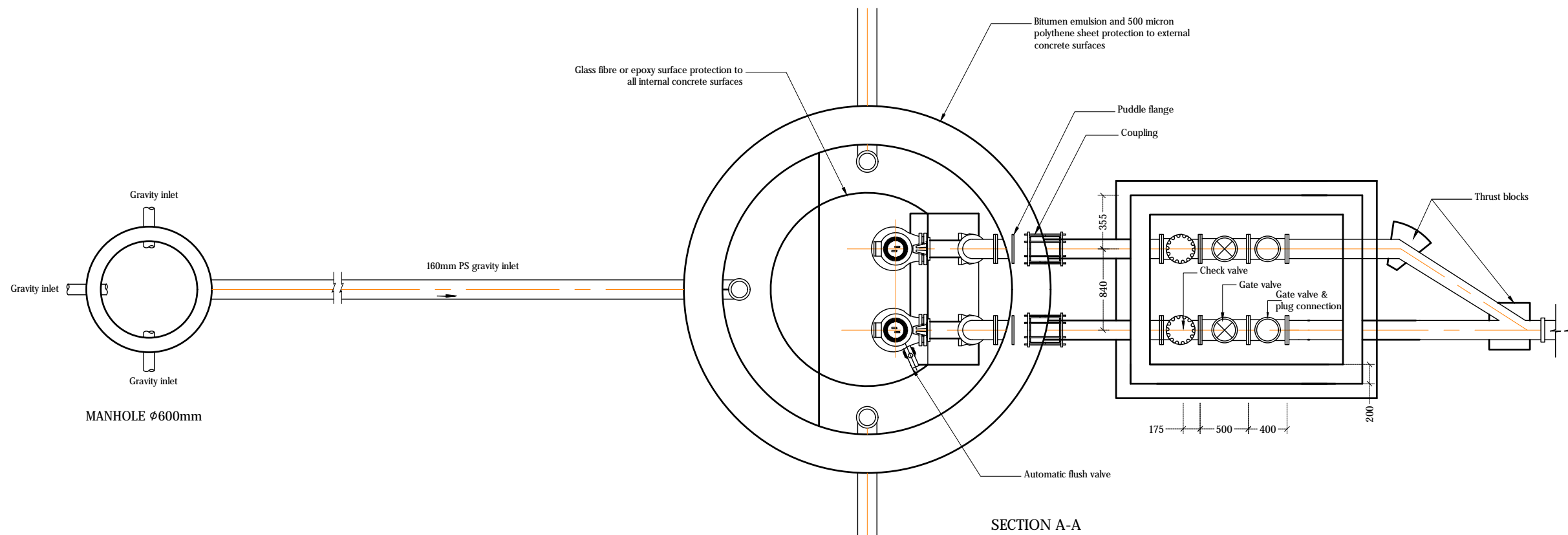
Ministry of National Planning, Housing and Infrastructure, Republic of Maldives



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Designed: F.I.A.	Approved: I.W.
Date: Sep 2020	SCALE (A3): NTS
Project No:	EP-WS/2019/06
Rev:	Page: W-(5)



PUMP STATION DETAILS - PLAN VIEW
NTS

Notes:

- Pumps, pipe work, fittings and control panel shall be installed in accordance with manufacturers recommendations.
- Orientation of valve chamber pipework to suit location.
- All structural concrete shall be of grade C35A.
- 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.
- Internal concrete surfaces to be coated with 5mm thickness of epoxy bonded glass fibre and finished with gel coat or 500 microns epoxy paint coating.
- External concrete surfaces to be painted with 3 coats of bitumen/rubber emulsion and protected by 500 micron polythene.
- All concrete cold joints shall casted with bonding agent

List of main instruments of pumping station:

1. Sewage pumps (1 duty & 1 standby)
2. Power cable
3. Auto-coupling with 400x3mm SS316 guide rails
4. Stainless steel (316) suspension chain
5. Cable with float control and weight
6. Discharge pipe
7. Puddle flange
8. Bitumen emulsion and 500 micron polythene sheet protection to external concrete surfaces
9. Construction joint / water bars
10. Manhole cover double seal ductile heavy duty cast iron / SS 316 cover
11. Vent pipe with vent cowl

REV. NO.	Date	Revision Description	Drawn	Chkd	Appd.
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Title:

Consultancy Services for Survey, Design and EIA works of Water Supply and Sewerage Facilities in 5 islands, Maldives - Package 6

Sub Title:

Sewerage System in GA. Nilandhoo

Client:

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Designed: F.I.A.

Approved: I.W.

Date: Sep 2020

SCALE (A3): NTS

Project No:

EP-WS/2019/06

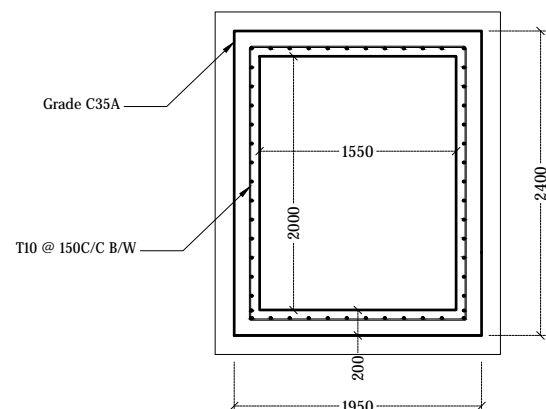
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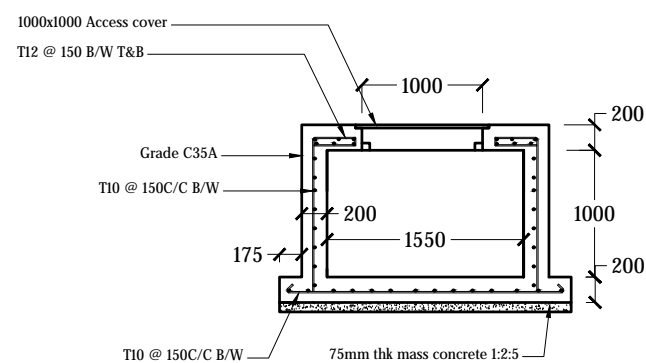
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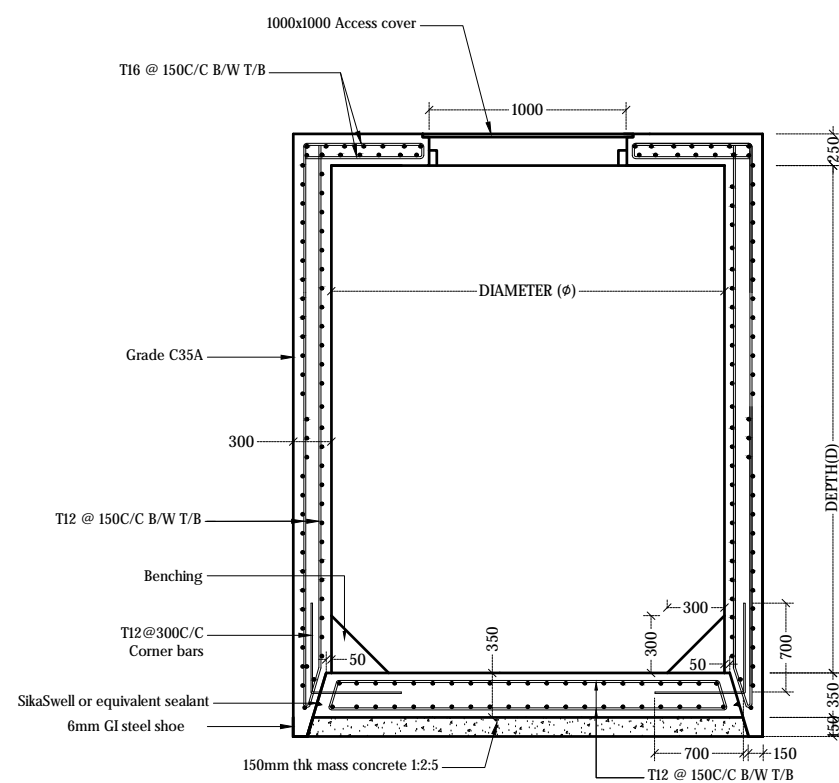
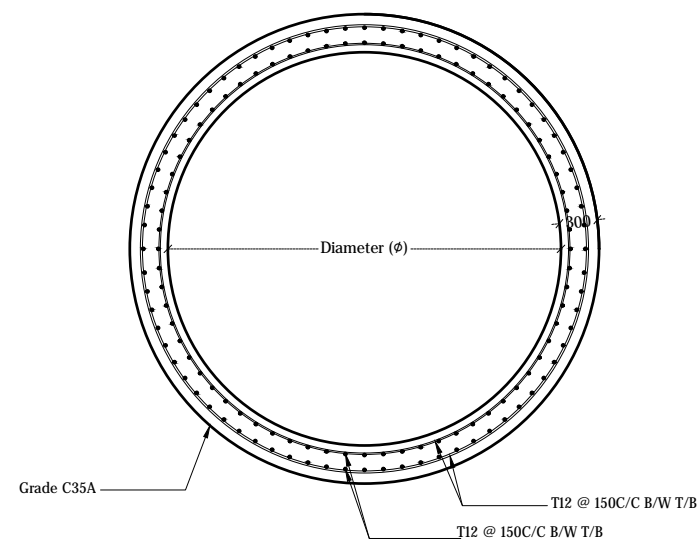
PLAN VIEW



SECTION



VALVE CHAMBER DETAIL



PUMP STATION DETAIL

Pump Station	Diameter (φ)	Depth (D)	Inlet Depth
PS1	2.0m	3.10m	2.332m, 1.876m, 1.338m, 1.463m
PS2	2.0m	3.10m	2.254m, 2.136m, 1.874m
PS3	2.0m	3.00m	2.177m

PUMP STATION STRUCTURAL DETAILS

NTS

Notes:

- Pumps, pipe work, fittings and control panel shall be installed in accordance with manufacturers recommendations.
- Orientation of valve chamber pipework to suit location.
- All structural concrete shall be of grade C35A.
- 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.
- Internal concrete surfaces to be coated with 5mm thickness of epoxy bonded glass fibre and finished with gel coat or 500 microns epoxy paint coating.
- External concrete surfaces to be painted with 3 coats of bitumen/rubber emulsion and protected by 500 micron polyethene.
- All concrete cold joints shall casted with bonding agent
- Corner bars (3T16 @ 75C/C T/B) shall be provided around top slab openings

List of main instruments of pumping station:

1. Sewage pumps (1 duty & 1 standby)
2. Power cable
3. Auto-coupling with 400x3mm SS316 guide rail
4. Stainless steel (316) suspension chain
5. Cable with float control and weight
6. Discharge pipe
7. Puddle flange
8. Bitumen emulsion and 500 micron polythene sheet protection to external concrete surfaces
9. Construction joint / water bars
10. Manhole cover double seal ductile heavy duty cast iron / SS 316 cover
11. Vent pipe with vent cowl

Title:

Consultancy Services for Survey,
Design and EIA works of Water
Supply and Sewerage Facilities in
5 islands, Maldives - Package 6

Sub Title:

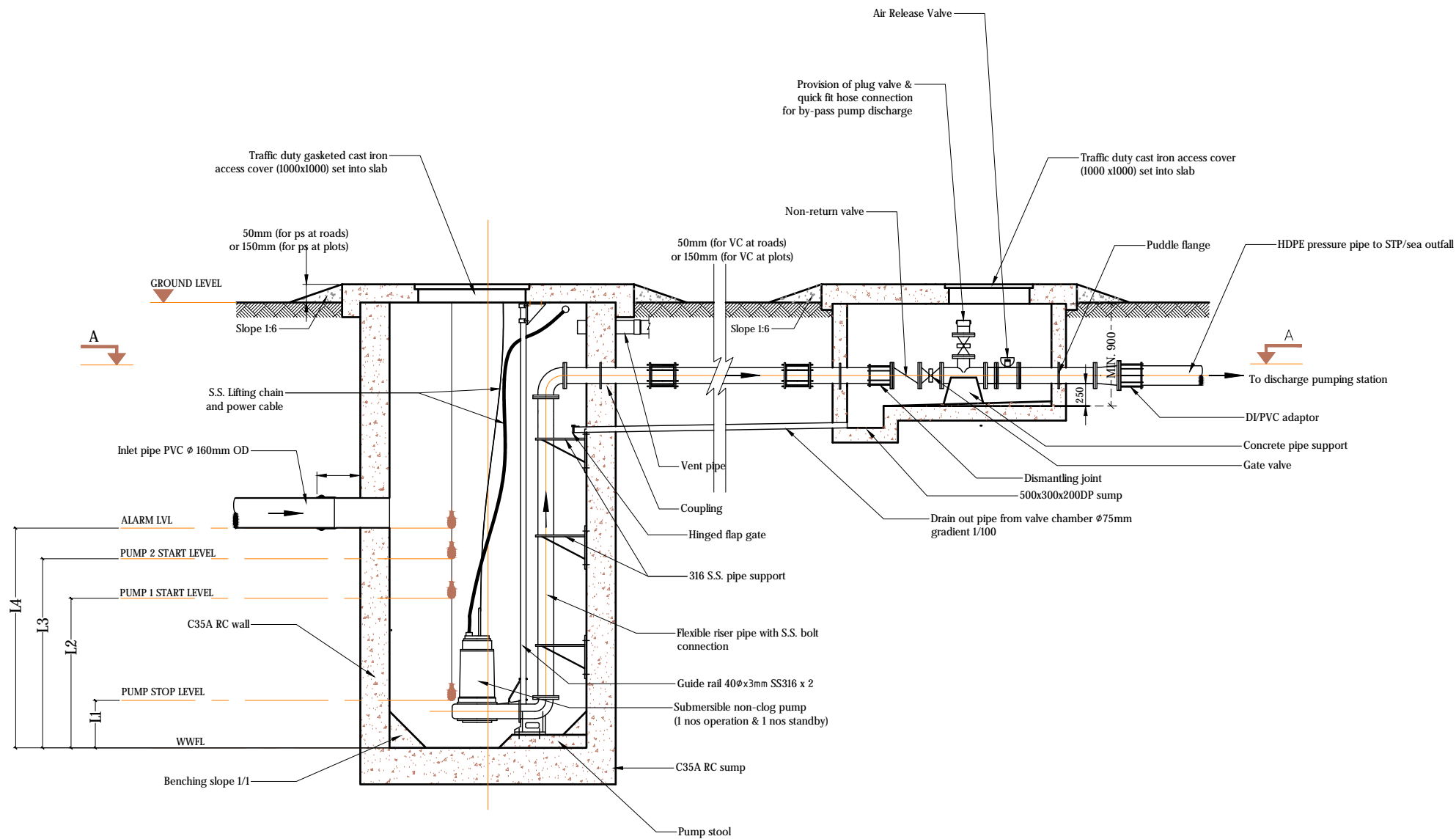
Sewerage System in GA. Nilandhoo

Client:

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



Drawn: F.I.A.	Checked: M.S.S.
Designed: F.I.A.	Approved: I.W.
Date: Sep 2020	SCALE (A3): NTS
Project No: EP-WS/2019/06	Page: W-(7)

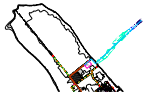


DISCHARGE PUMP STATION DESIGN DETAILS (15 YEARS)

Pump Station	Diameter (φ)	Depth (D)	Inlet Depth	Pump Capacity	Head	Levels			
						L1	L2	L3	L4
DPS	2.5m	3.00m	0.8m	8.9 l/s	23.4 m	0.300m	0.722m	0.872m	1.022m

DISCHARGE PUMP STATION DETAILS - LONGITUDINAL SECTION

NTS



Legend

SCHOOL

Notes:

- Pumps, pipe work, fittings and control panel shall be installed in accordance with manufacturers recommendations.
- Orientation of valve chamber pipework to suit location.
- All structural concrete shall be of grade C35A.
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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
5 islands, Maldives - Package 2

Sub Title:
Sewerage System in N. Maafaru

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Working Safely, Constructing Happily

Drawn: F.I.A. Checked: M.S.S.

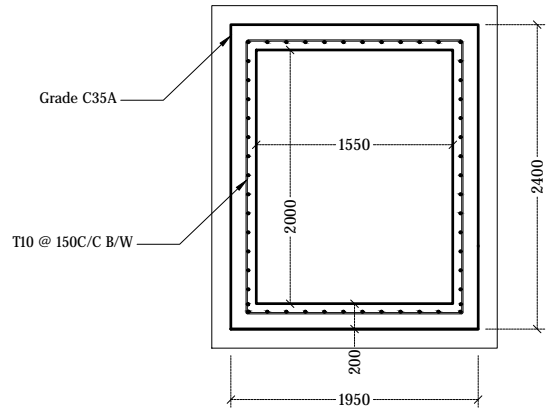
Designed: F.I.A. Approved: I.W.

Date: Sep 2020 SCALE (A3): NTS

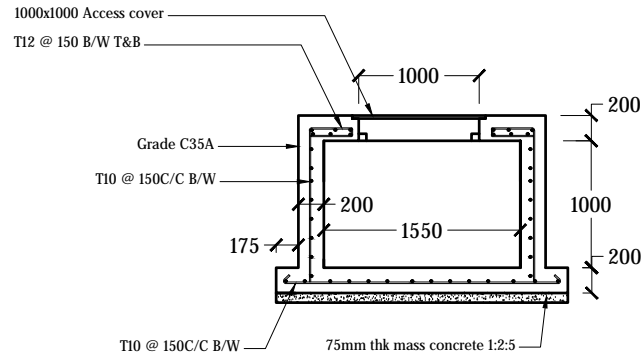
Project No: EP-WS/2019/02

Rev: Page: W-(25)

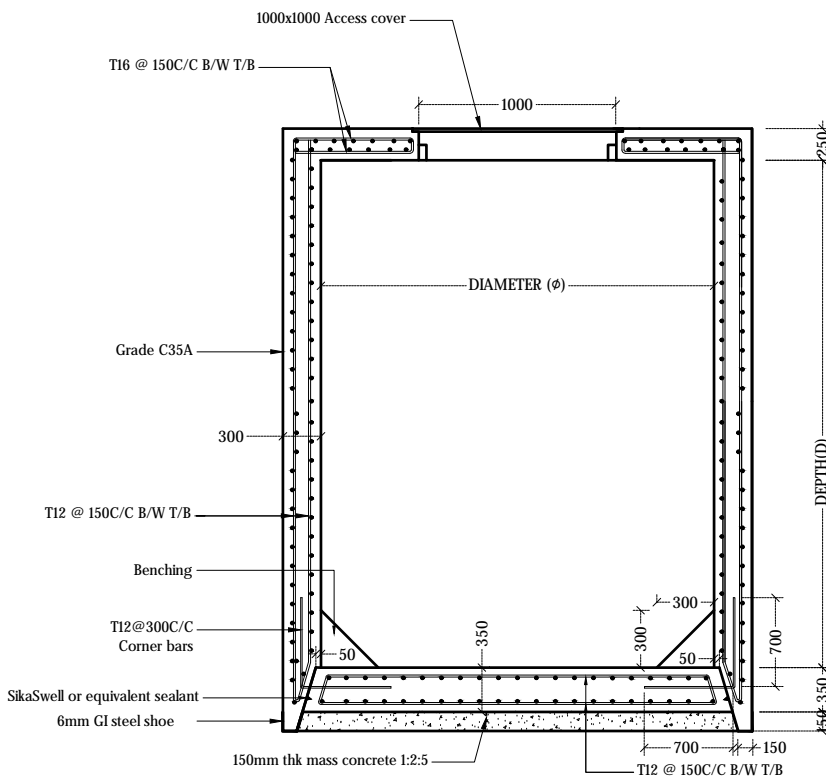
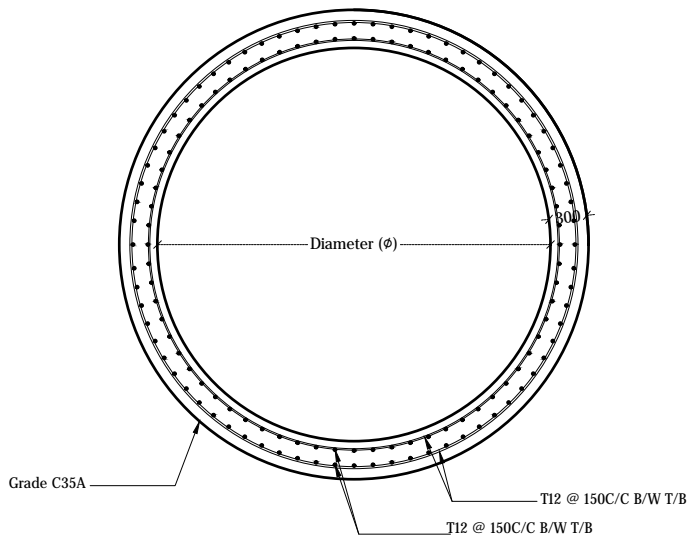
PLAN VIEW



SECTION



VALVE CHAMBER DETAIL

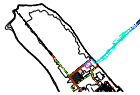


PUMP STATION DETAIL

Pump Station	Diameter (ϕ)	Depth (D)	Inlet Depth
DPS	2.5m	3.00m	0.8m

DISCHARGE PUMP STATION STRUCTURAL DETAILS

NTS



Legend



SCHOOL

Notes:

- Pumps, pipe work, fittings and control panel shall be installed in accordance with manufacturers recommendations.
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6. Discharge pipe
7. Puddle flange
8. Bitumen emulsion and 500 micron polythene sheet protection to external concrete surfaces
9. Construction joint / water bars
10. Manhole cover double seal ductile heavy duty cast iron / SS 316 cover
11. Vent pipe with vent cowl

REV. NO.	Date	Revision Description	Drawn	Chkd	Appd.

Title:
Consultancy Services for Survey,
Design and EIA works of Water
Supply and Sewerage Facilities in
5 islands, Maldives - Package 2

Sub Title:
Sewerage System in N. Maafaru

Client:
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DBACK INFRA
Maldivian Infrastructure Development

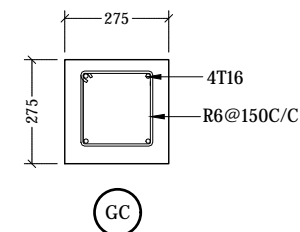
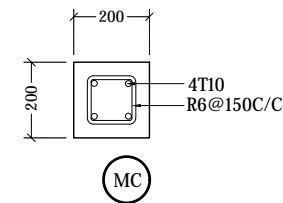
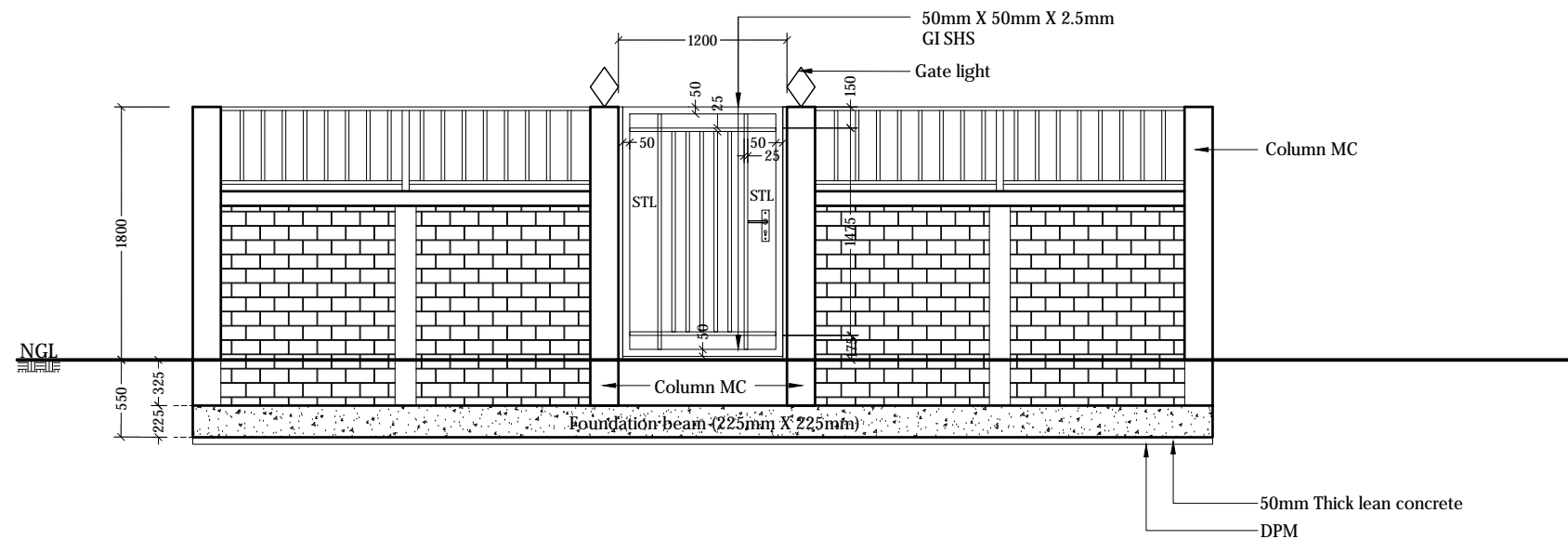
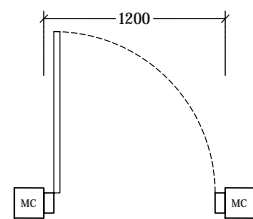
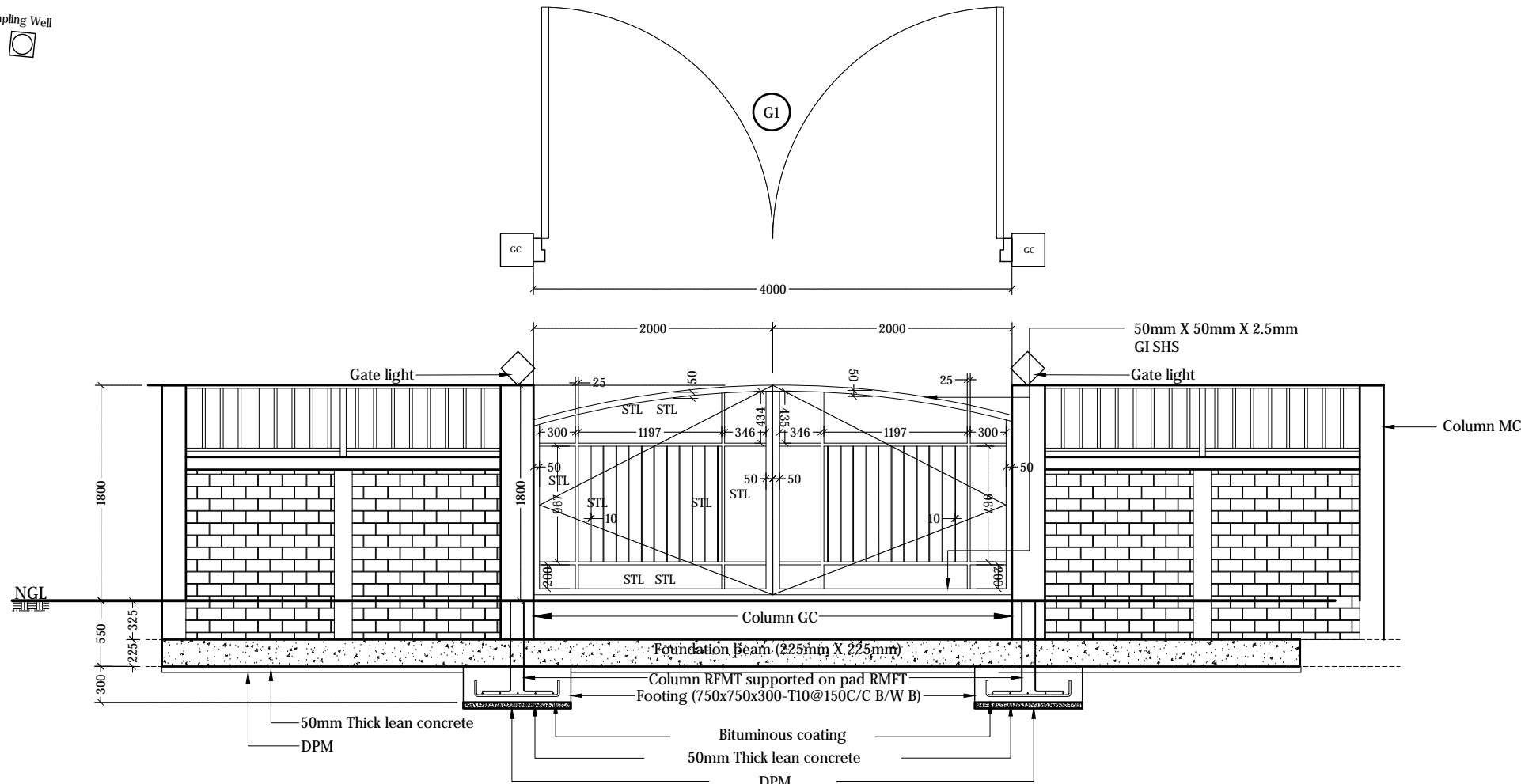
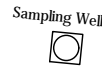
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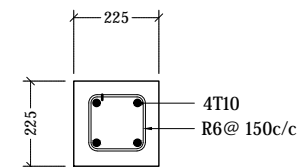
Date: Sep 2020 SCALE (A3): NTS

Project No: EP-WS/2019/02

Rev: Page: W-(27)



COLUMN DETAILS
1:20



FOUNDATION BEAM DETAIL
1:20

GATE DETAILS
1:50



Notes:

- FRAME MATERIAL : Steel gate frame
2.5mm thick GI sections RHS
- PANEL MATERIAL : Steel frame with steel
panels (STL) as shown on elevation view
- 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
- Cover for foundation pads and foundation
beams shall be 50mm
- Cover for columns (GC) and(MC) shall be
40mm
- Concrete shall be of grade C25
- All concrete cold joints shall casted with
bonding agent

REV. NO.	Date	Revision Description	Drawn	Chkd	Appd.

Title:
Consultancy Services for Survey,
Design and EIA works of Water
Supply and Sewerage Facilities in
5 islands, Maldives - Package 6

Sub Title:
Sewerage System in GA. Nilandhoo

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

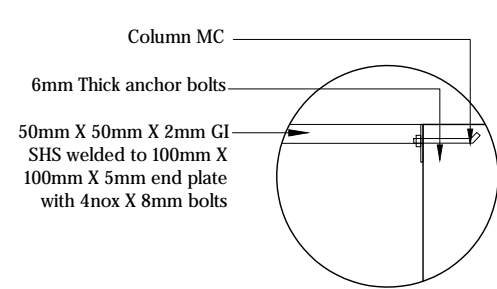
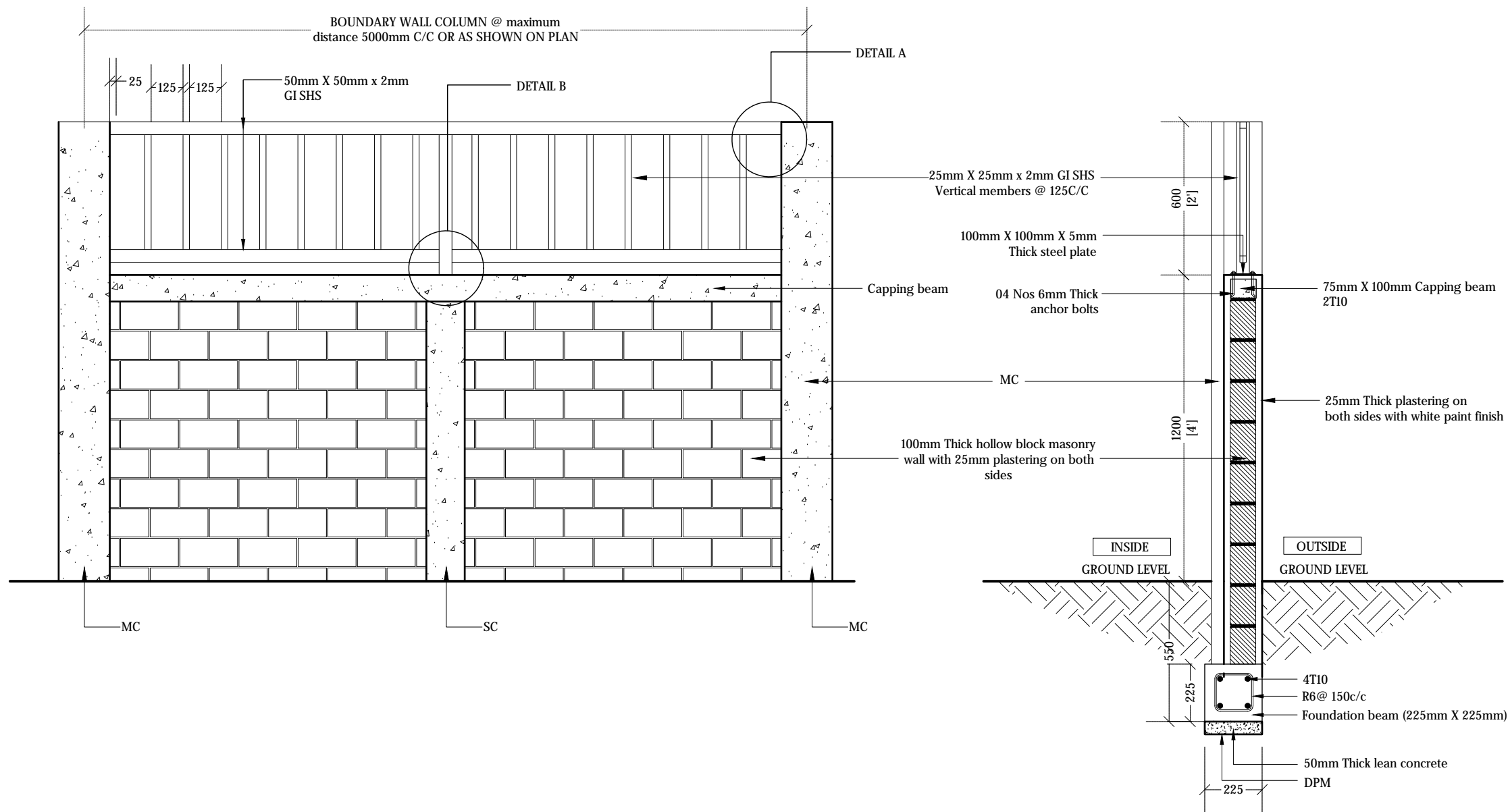


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A: G. Rosary West,
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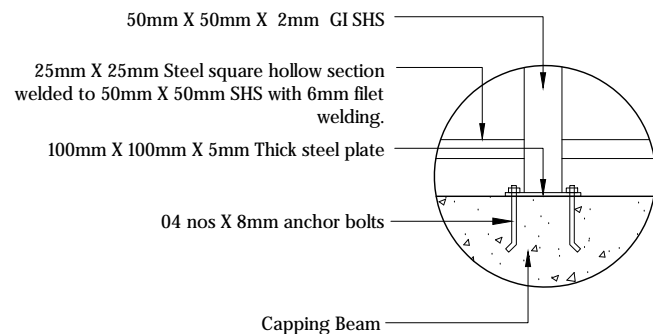
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Project No: EP-WS/2019/06	Page:

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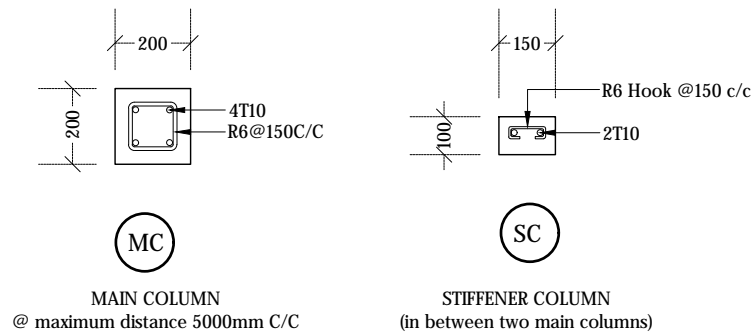
DETAIL A

1:10



DETAIL B

1:10



PS & STP BOUNDARY WALL AND FENCING DETAILS

1:20

Notes:

- 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
- Cover for foundation beams shall be 50mm
- Cover for columns (MC) shall be 40mm
- Concrete shall be of grade C25
- All concrete cold joints shall be casted with bonding agent

REV. NO.	Date	Revision Description	Drawn	Chkd	Appd.

Title:
Consultancy Services for Survey, Design and EIA works of Water Supply and Sewerage Facilities in 5 islands, Maldives - Package 6

Sub Title:
Sewerage System in GA. Nilandhoo

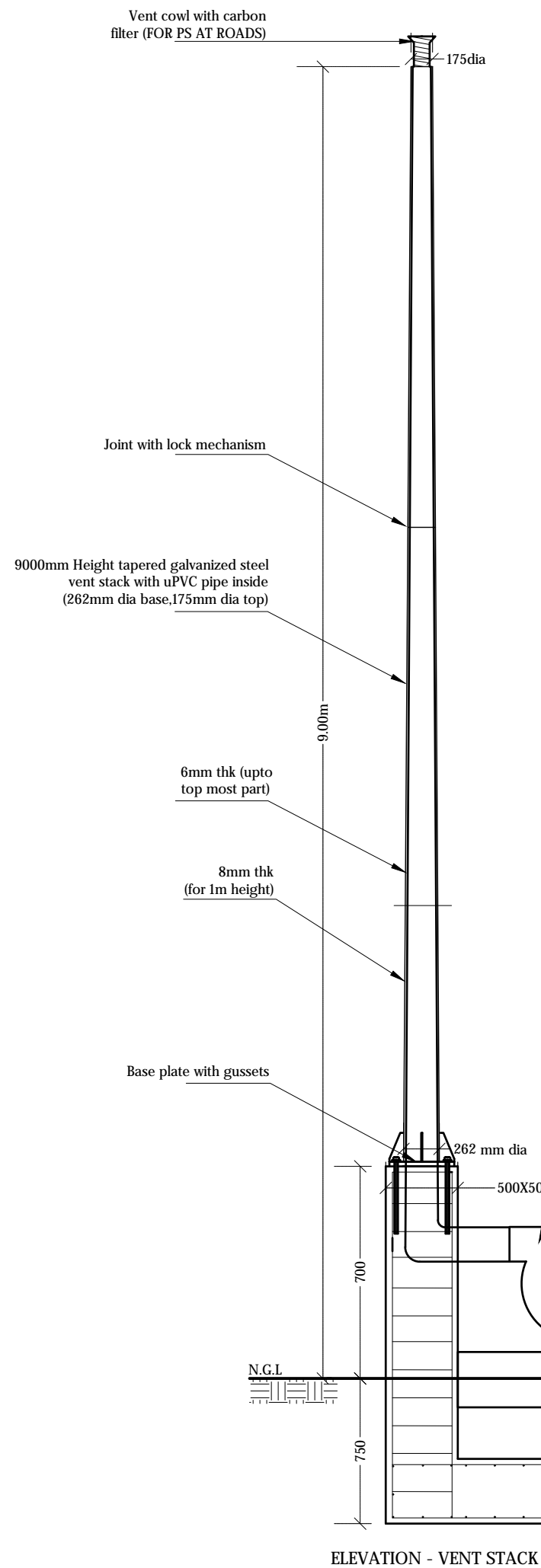
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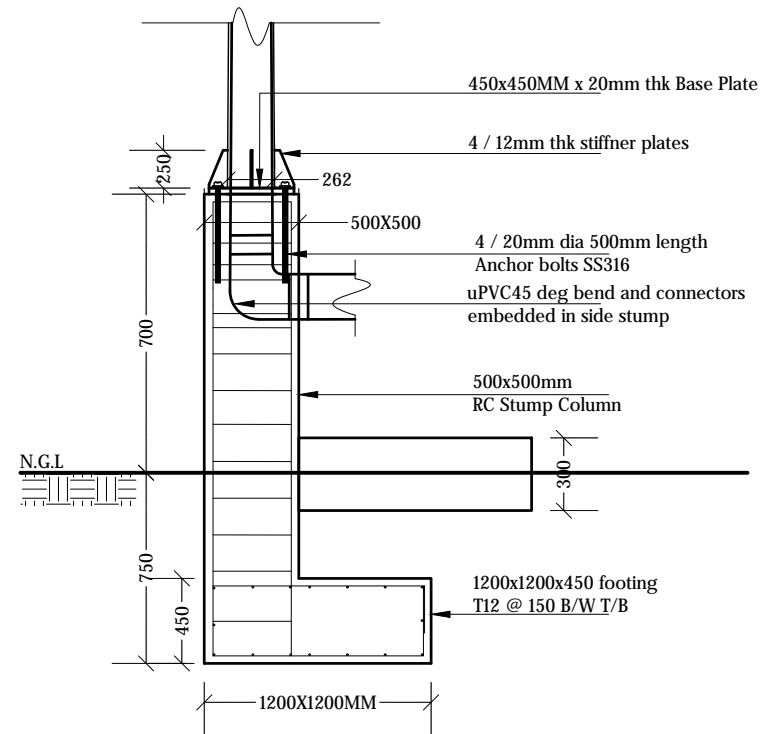
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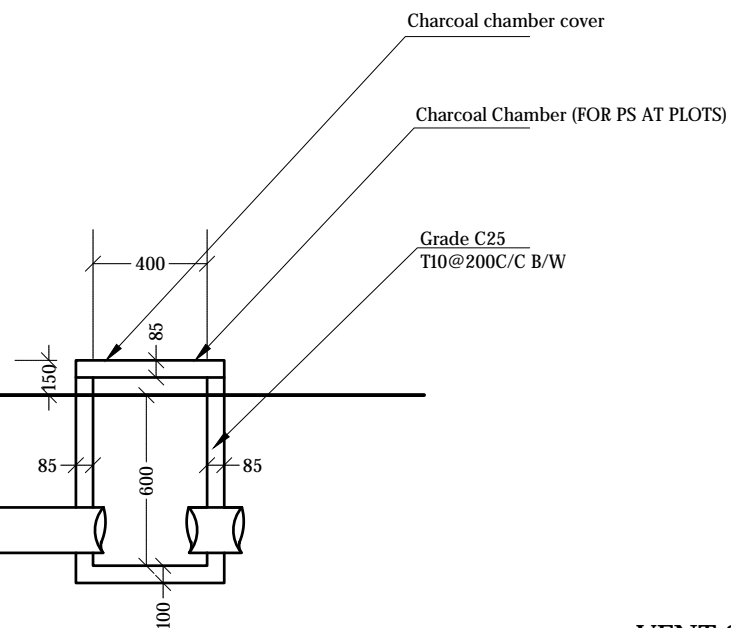
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Project No:	EP-WS/2019/06
Rev:	Page: W-(9)



ELEVATION - VENT STACK



SECTION - S



VENT STACK DETAILS

NTS



Notes:

- Vent stack shall be galvanized (minimum 250 micron) and finished with epoxy paint
- All anchor bolts shall be SS316
- Cover for footings shall be 50mm
- Cover for stump shall be 40mm
- Concrete shall be of grade C25
- All concrete cold joints shall be casted with bonding agent

REV. NO.	Date	Revision Description	Drawn	Chkd	Appd.

Title:
Consultancy Services for Survey, Design and EIA works of Water Supply and Sewerage Facilities in 5 Islands, Maldives - Package 6

Sub Title:
Sewerage System in GA. Nilandhoo

Client:
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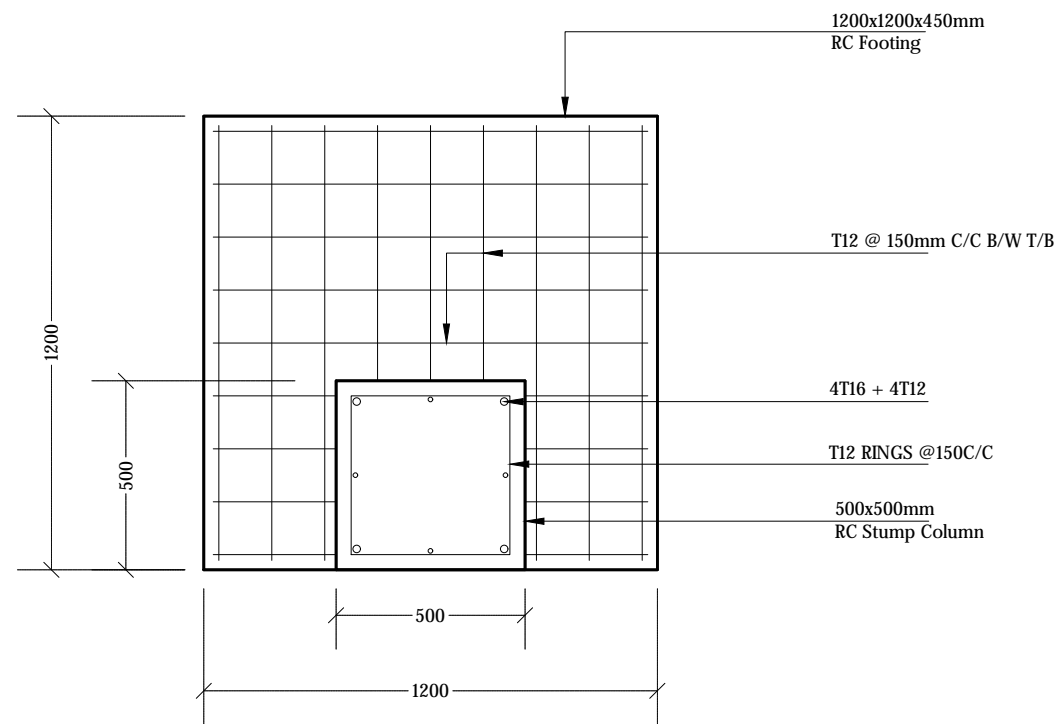
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Date: Sep 2020 SCALE (A3): NTS

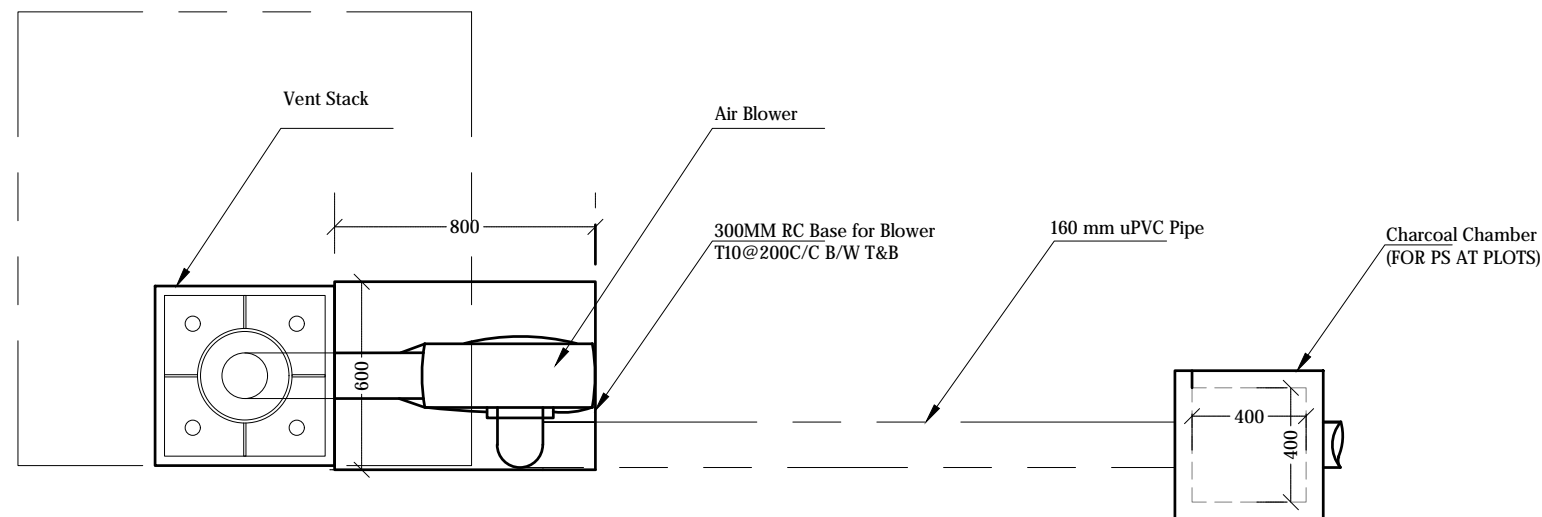
Project No: EP-WS/2019/06

Rev: Page:

W-(10)



FOOTING & STUMP DETAILS OF VENT STACK



AIR BLOWER DETAILS (Plan View)

VENT STACK AND AIR BLOWER DETAILS

NTS



Notes:

- All anchor bolts shall be SS316
- Cover for footings shall be 50mm
- Cover for stump shall be 40mm
- Concrete shall be of grade C25
- All concrete cold joints shall be casted with bonding agent

REV. NO.	Date	Revision Description	Drawn	Chkd	Appd.

Title:
Consultancy Services for Survey,
Design and EIA works of Water
Supply and Sewerage Facilities in
5 islands, Maldives - Package 6

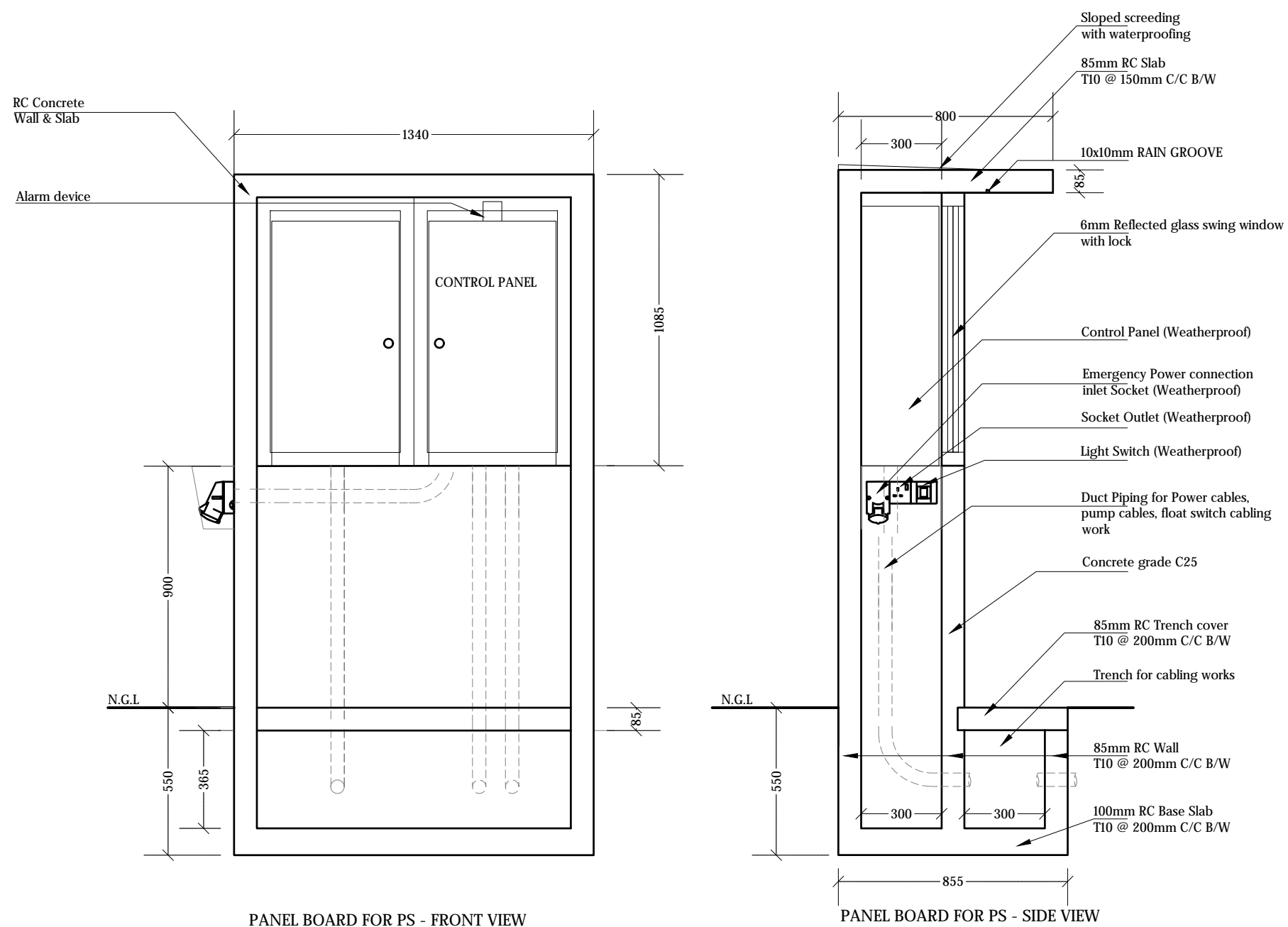
Sub Title:
Sewerage System in GA. Nilandhoo

Client:
Ministry of National Planning, Housing and
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FOODBACK INFRA
Maldivu 21st Century Infrastructure

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Date: Sep 2020	SCALE (A3): NTS
Project No: EP-WS/2019/06	
Rev:	Page: W-(11)



CONTROL PANEL BOARD DETAILS

NTS

REV. NO.	Date	Revision Description	Drawn	Chkd	Appr'd

Title:
Consultancy Services for Survey,
Design and EIA works of Water
Supply and Sewerage Facilities in
5 islands, Maldives - Package 6

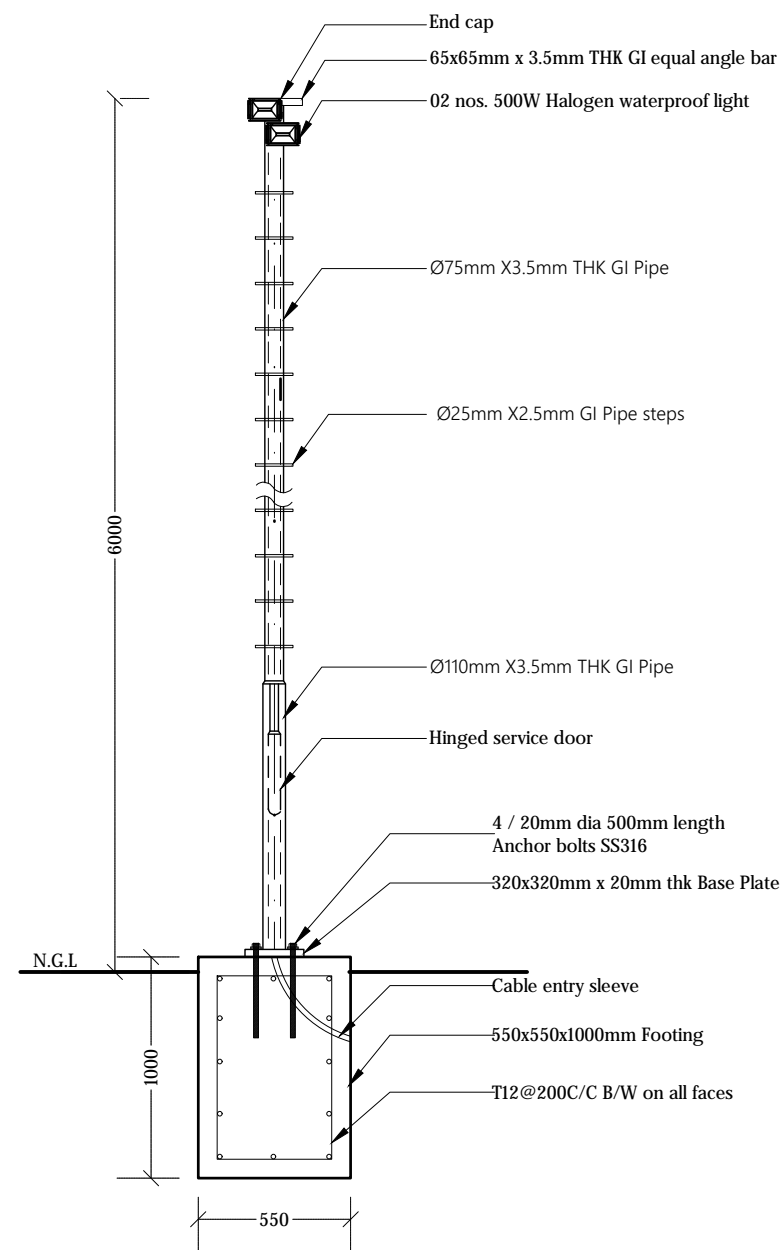
Sub Title:
Sewerage System in GA. Nilandhoo

Client:
Ministry of National Planning, Housing and
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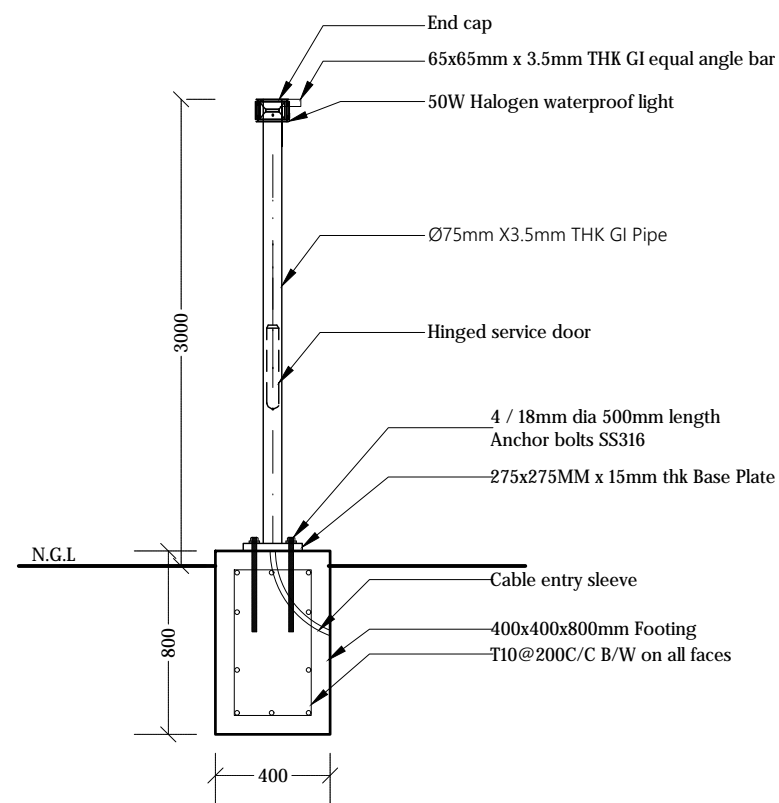


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Date: Sep 2020	SCALE (A3): NTS
Project No: EP-WS/2019/06	
Rev:	Page:

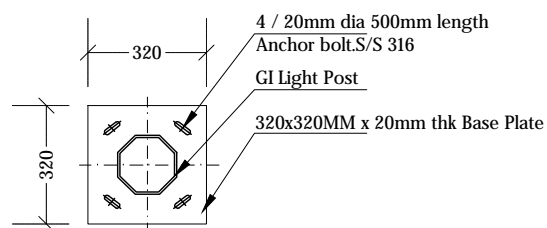
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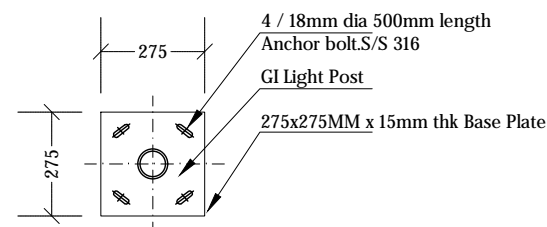
LIGHT POST DETAILS FOR STP COMPOUND (LP1)



LIGHT POST DETAILS FOR PUMP STATION (LP2)



BASE PLATE (LP1)



BASE PLATE (LP2)

LIGHT POST DETAILS

NTS

Notes:

- Light posts shall be galvanized (minimum 200 micron) and finished with epoxy paint
- All anchor bolts shall be SS316
- Cover for footings shall be 50mm
- Concrete shall be of grade C25
- All steel members and GI members to be applied with 2 coats of anti-corrosive paint with epoxy finishing paint
- All concrete cold joints shall be casted with bonding agent

REV. NO.	Date	Revision Description	Drawn	Chkd	Appd.

Title:
**Consultancy Services for Survey,
Design and EIA works of Water
Supply and Sewerage Facilities in
5 islands, Maldives - Package 6**

Sub Title:
Sewerage System in GA. Nilandhoo

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

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W: www.epochassociates
A: G. Rosary West,
Husnuheena Magu, Male', Maldives

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Maldivian Infrastructure Development

Drawn: F.I.A. Checked: M.S.S.

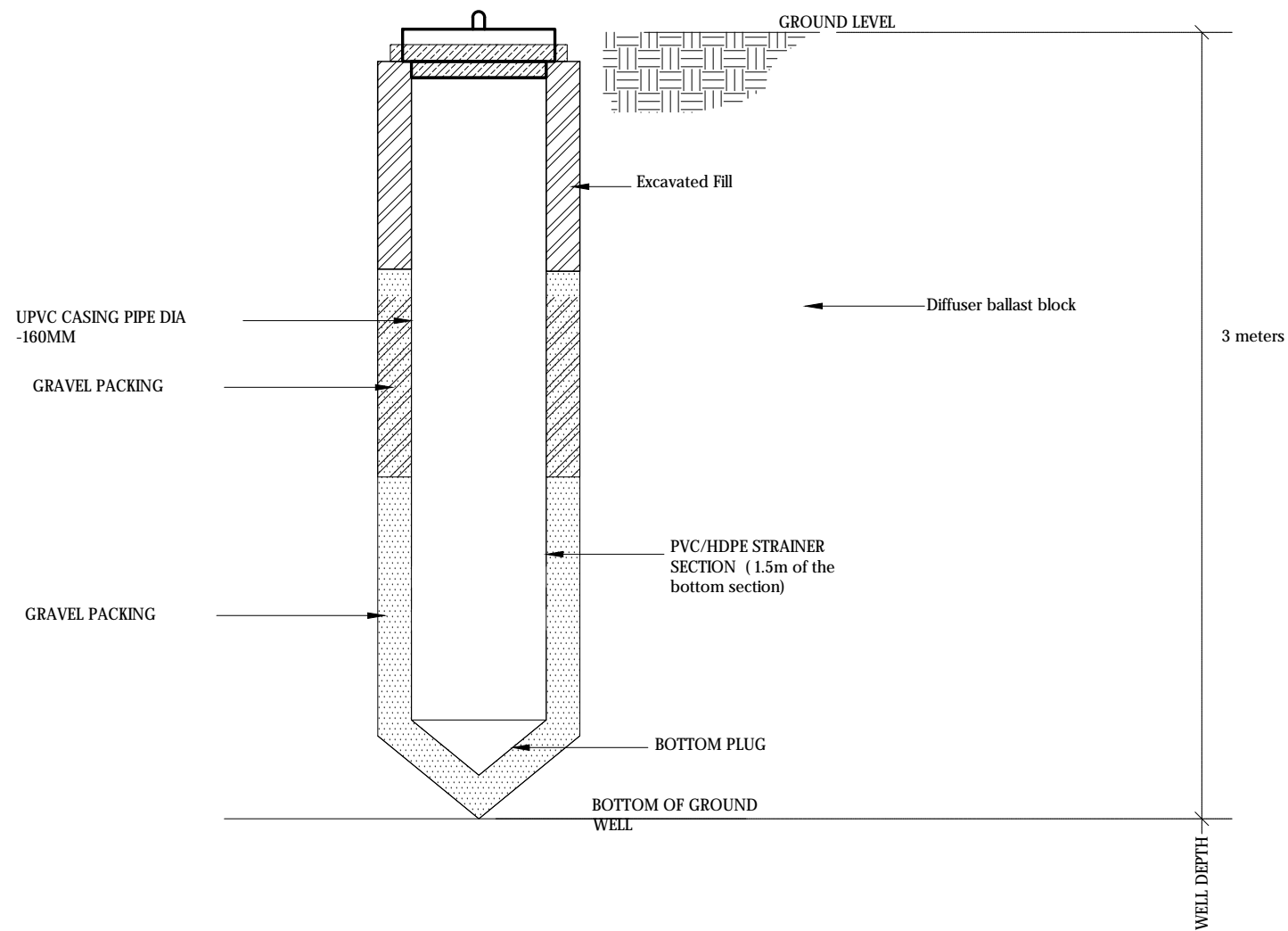
Designed: F.I.A. Approved: I.W.

Date: Sep 2020 SCALE (A3): NTS

Project No: EP-WS/2019/06

Rev: Page:

W-(13)



SAMPLING WELL SECTION
NTS



Legend

REV. NO.	Date	Revision Description	Drawn	Chkd	Appd.

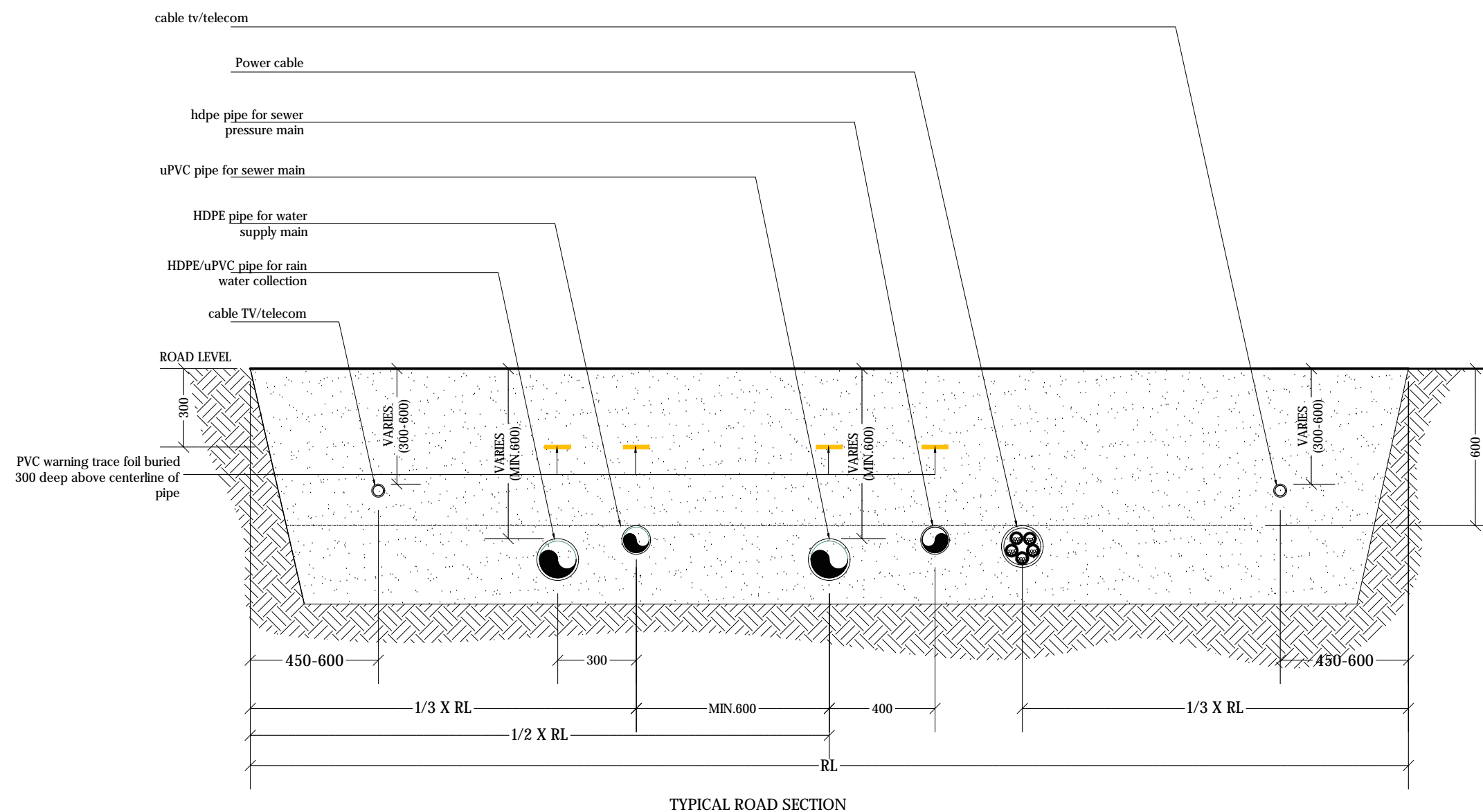
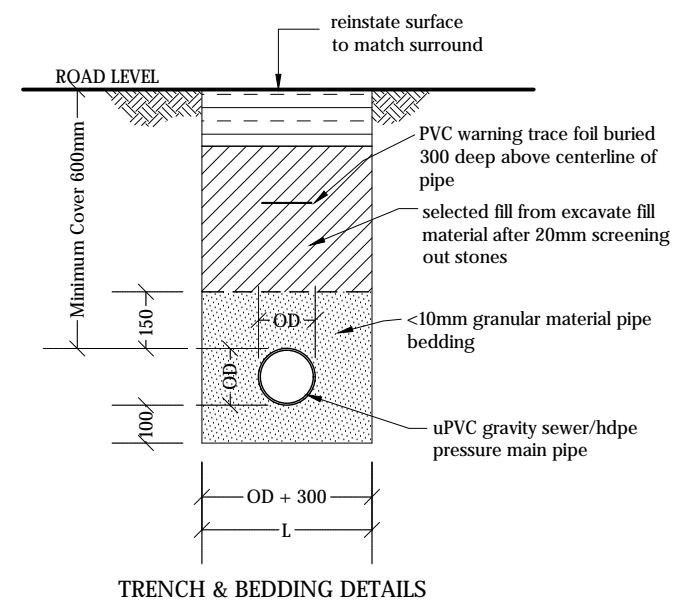
Title:
Consultancy Services for Survey,
Design and EIA works of Water
Supply and Sewerage Facilities in
5 islands, Maldives - Package 2

Sub Title:
Sewerage System in N. Maafaru

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



Drawn: F.I.A.	Checked: M.S.S.
Designed: F.I.A.	Approved: I.W.
Date: Sep 2020	SCALE (A3): NTS
Project No: EP-WS/2019/02	
Rev:	Page: W-(24)

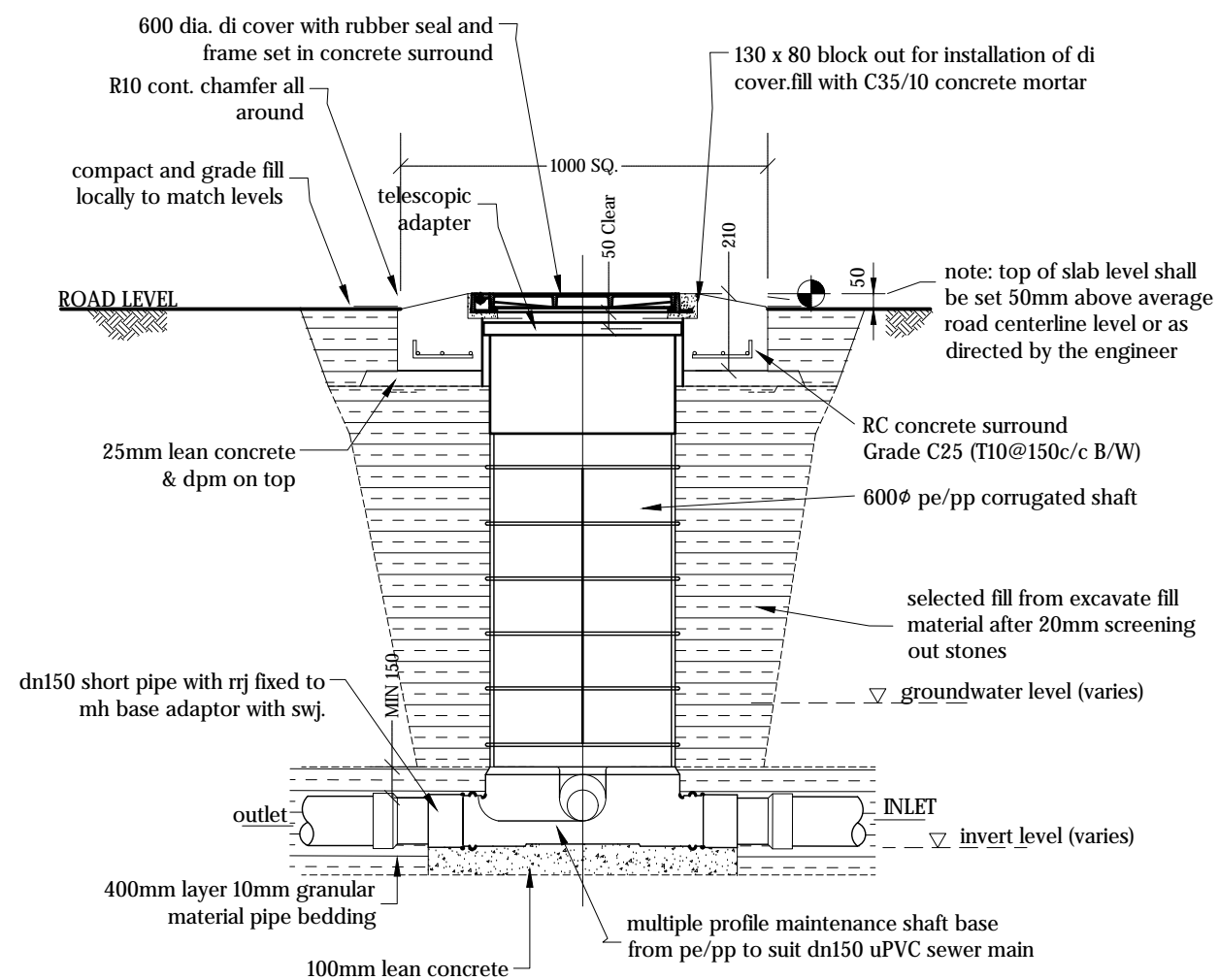


Title:
Consultancy Services for Survey,
Design and EIA works of Water
Supply and Sewerage Facilities in
5 islands, Maldives - Package 6

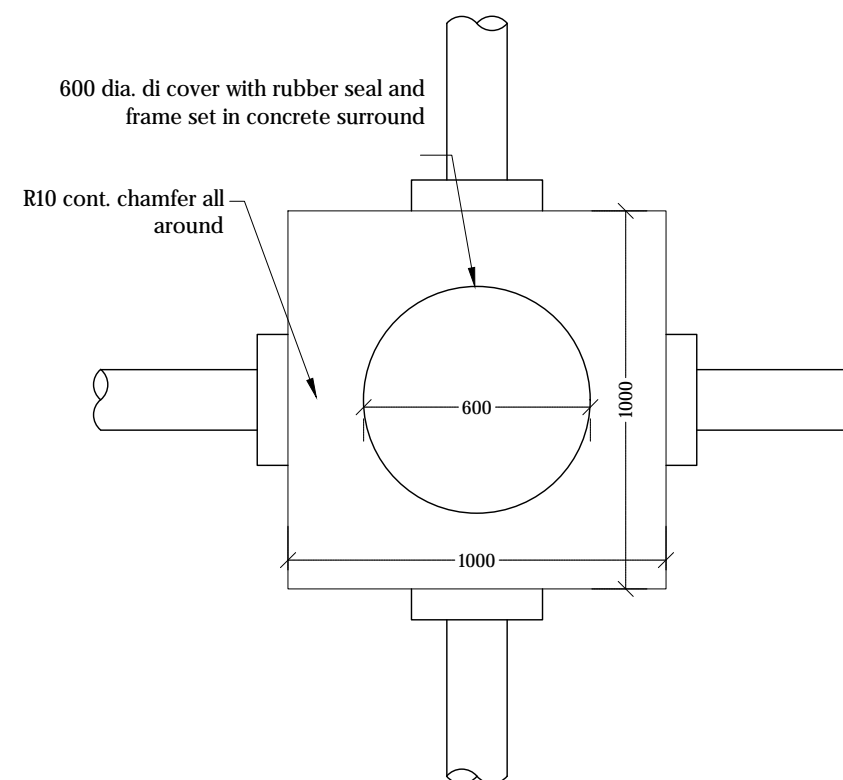
Sub Title:
Sewerage System in GA. Nilandhoo

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

 <p>EPOCH ASSOCIATES</p> <p>T: +960 333 3328 E: info@epoch.associates W: www.epoch.associates A: G. Rosary West, Hushumhena Magaa, Male', Maldives</p>	 <p>FEEDBACK INFRA <i>Making Infrastructure Happen</i></p>
<p>Drawn: F.I.A.</p> <p>Designed: F.I.A.</p> <p>Date: Sep 2020</p>	<p>Checked: M.S.S.</p> <p>Approved: I.W.</p> <p>SCALE (A3): 1:20</p>
<p>Project No: EP-WS/2019/06</p>	
<p>Rev:</p>	<p>Page: W-(14)</p>



ELEVATION - MAINTENANCE SHAFT (MH)



PLAN VIEW - MAINTENANCE SHAFT (MH)

MAINTENANCE SHAFT (MH) DETAILS

1:20

REV. NO.	Date	Revision Description	Drawn	Chkd	Appd.

Title:
Consultancy Services for Survey,
Design and EIA works of Water
Supply and Sewerage Facilities in
5 Islands, Maldives - Package 6

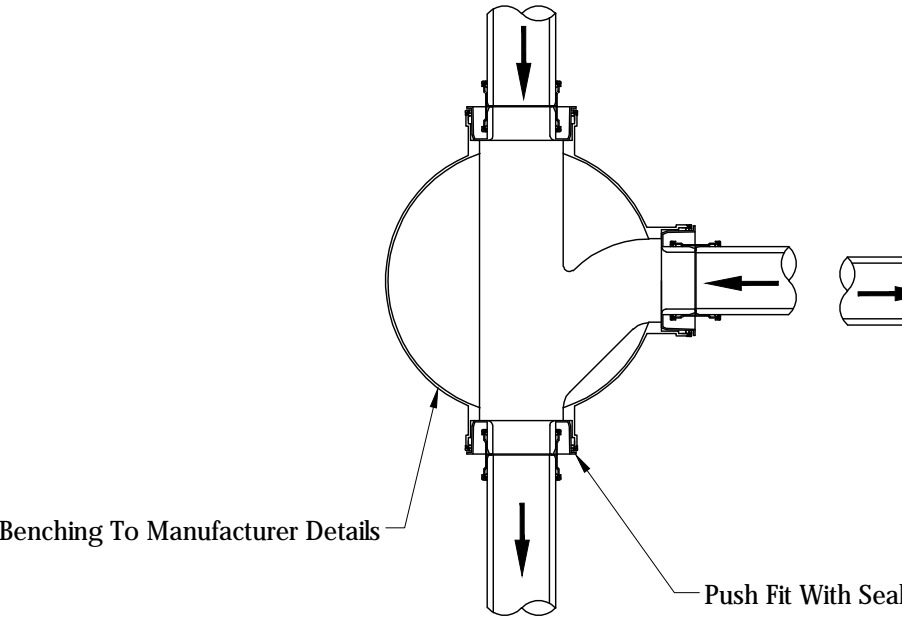
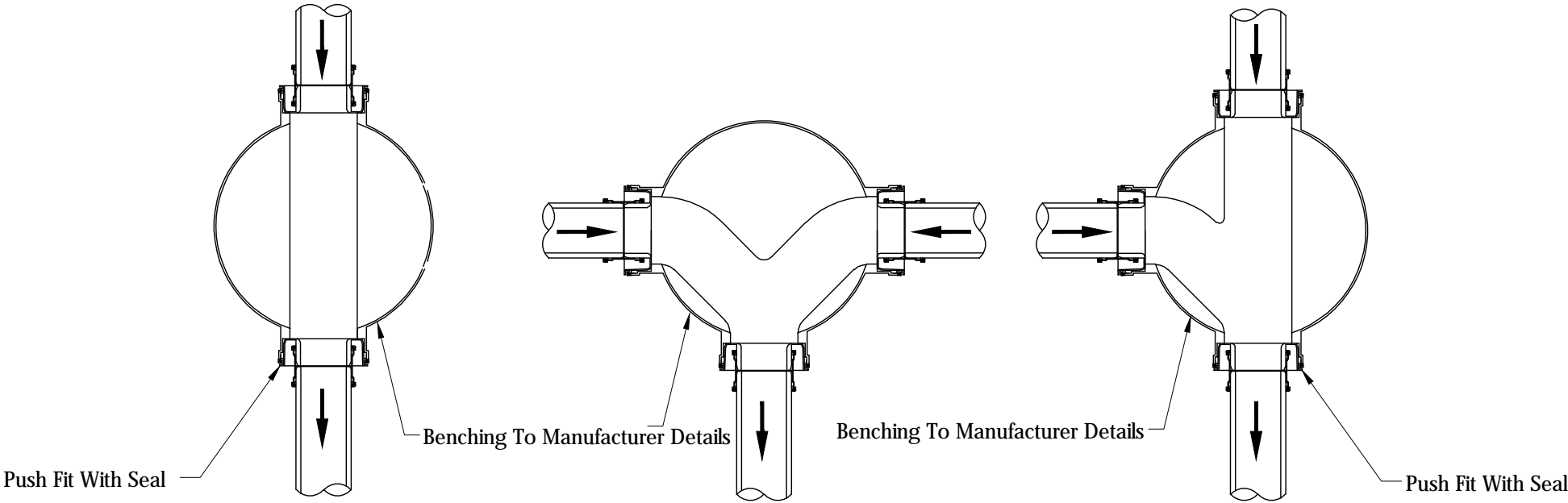
Sub Title:
Sewerage System in GA. Nilandhoo

Client:
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Infrastructure, Republic of Maldives

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FEDBACK INFRA
Maldivu Shifanstruktura alappu

Drawn: F.I.A.	Checked: M.S.S.
Designed: F.I.A.	Approved: I.W.
Date: Sep 2020	SCALE (A3): 1:20
Project No: EP-WS/2019/06	Page: W-(15)



TYPICAL MANHOLE BASE DETAILS

NTS

REV.	Date	Revision Description	Drawn	Chkd	Appd.

Title:
Consultancy Services for Survey,
Design and EIA works of Water
Supply and Sewerage Facilities in
5 Islands, Maldives - Package 6

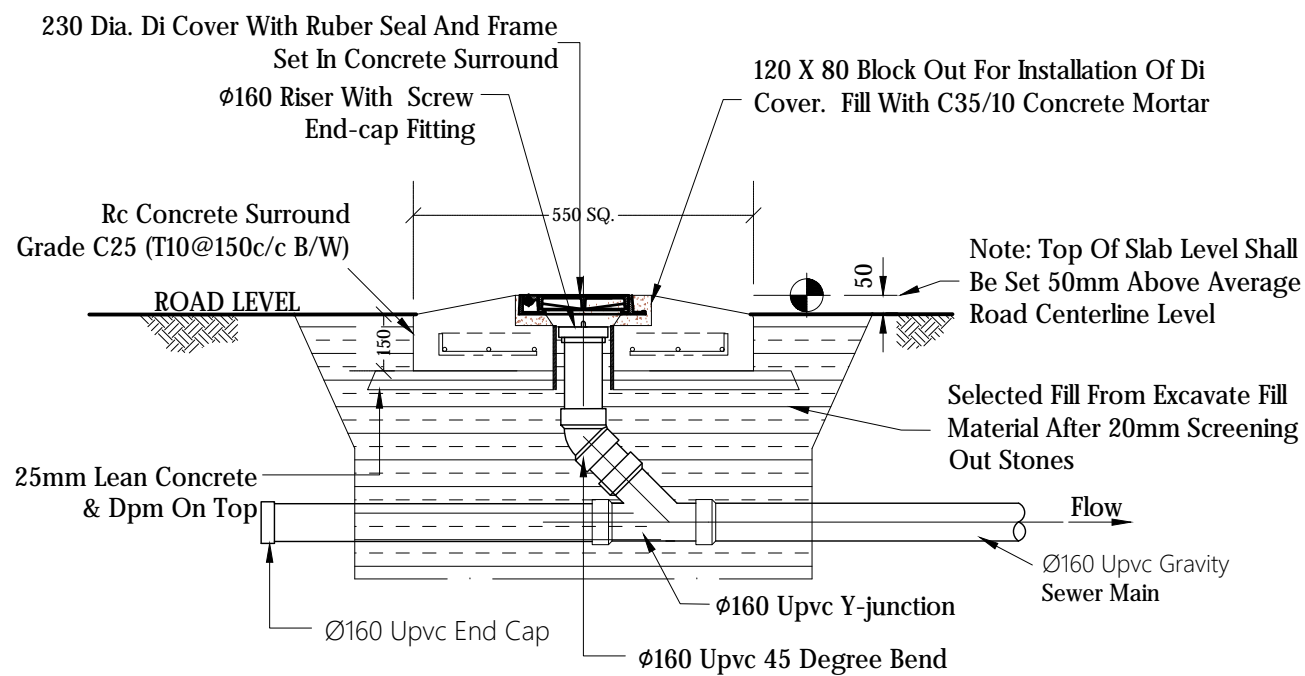
Sub Title:
Sewerage System in GA. Nilandhoo

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

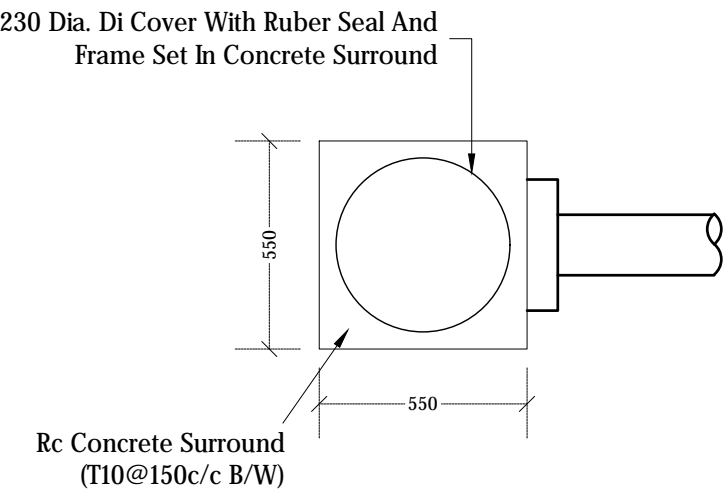
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Maldivu Infrastructure Developments

Drawn: F.I.A.	Checked: M.S.S.
Designed: F.I.A.	Approved: I.W.
Date: Sep 2020	SCALE (A3): NTS
Project No: EP-WS/2019/06	
Rev:	Page: W-(16)



ELEVATION - CLEANOUT (CO)



PLAN VIEW - CLEANOUT (CO)

CLEAN OUT DETAILS

NTS

REV. NO.	Date	Revision Description	Drawn	Chkd	Appd.

Title:
Consultancy Services for Survey,
Design and EIA works of Water
Supply and Sewerage Facilities in
5 islands, Maldives - Package 6

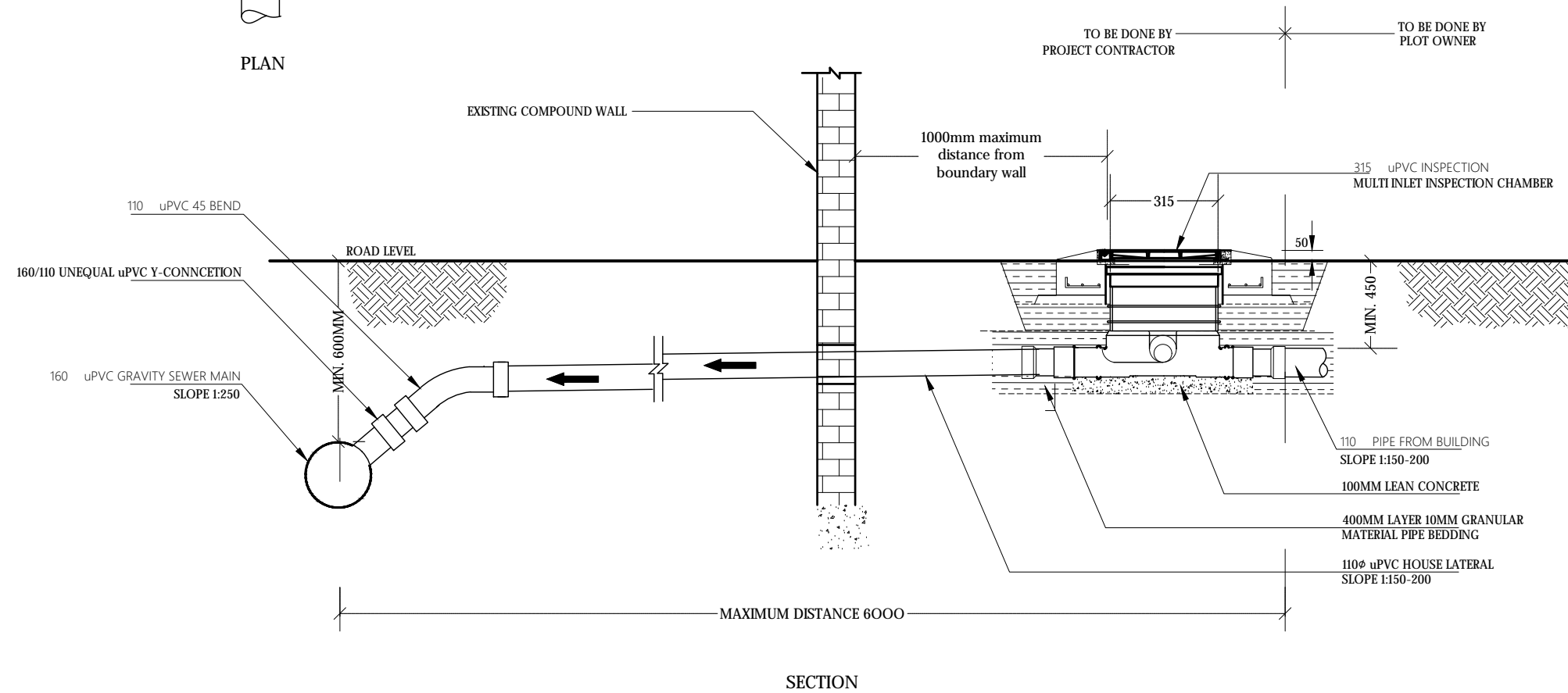
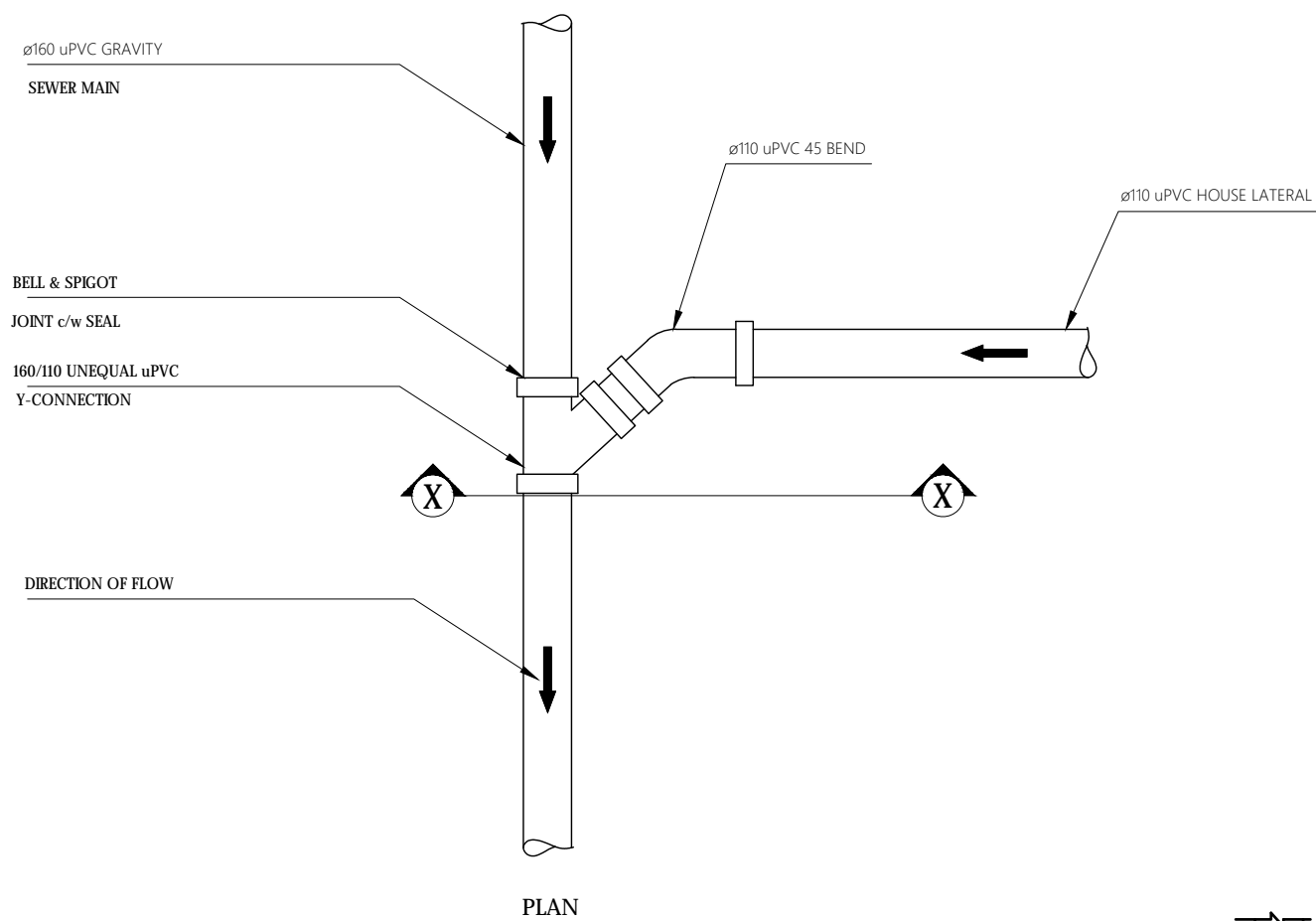
Sub Title:
Sewerage System in GA. Nilandhoo

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

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Maldives Infrastructure Developments

Drawn: F.I.A.	Checked: M.S.S.
Designed: F.I.A.	Approved: I.W.
Date: Sep 2020	SCALE (A3): NTS
Project No: EP-WS/2019/06	
Rev:	Page: W-(17)



TYPICAL HOUSE CONNECTION DETAIL

NTS



connection survey and invert level should be adjusted in order to facilitate gravity flow from house inspection chamber to sewer main.

REV. NO.	Date	Revision Description	Drawn	Chkd	Appd.

Title:
Consultancy Services for Survey,
Design and EIA works of Water
Supply and Sewerage Facilities in
5 islands, Maldives - Package 6

Sub Title:
Sewerage System in GA. Nilandhoo

Client:
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Infrastructure, Republic of Maldives



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Drawn: F.I.A. Checked: M.S.S.

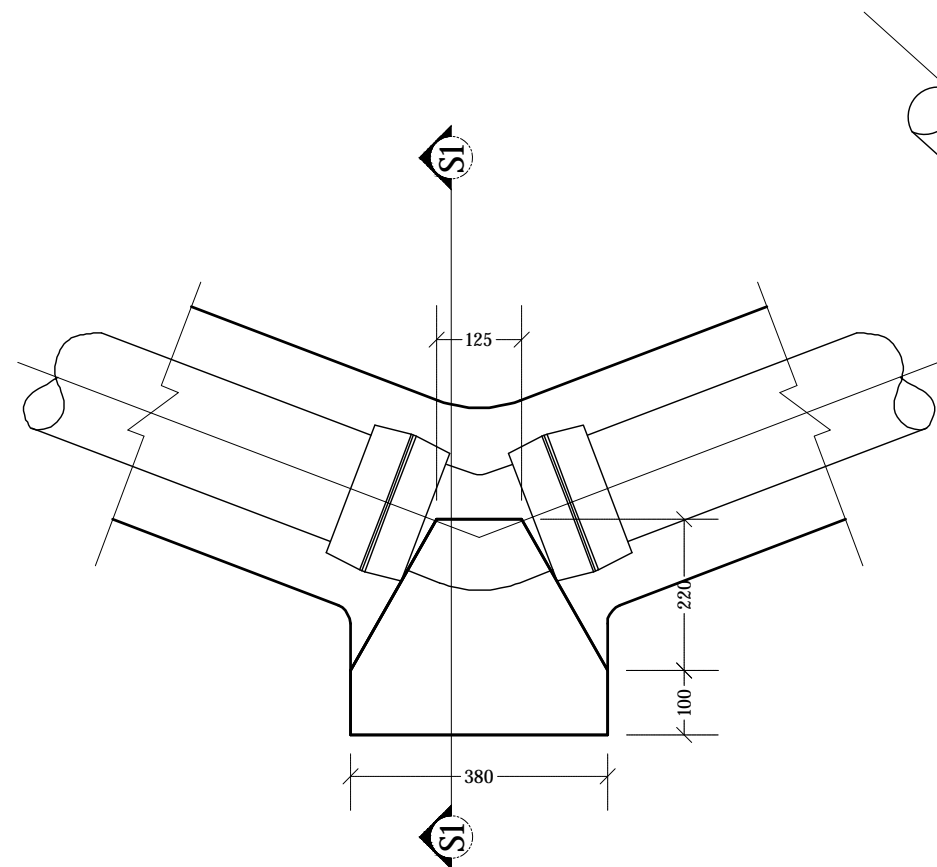
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Date: Sep 2020 SCALE (A3): NTS

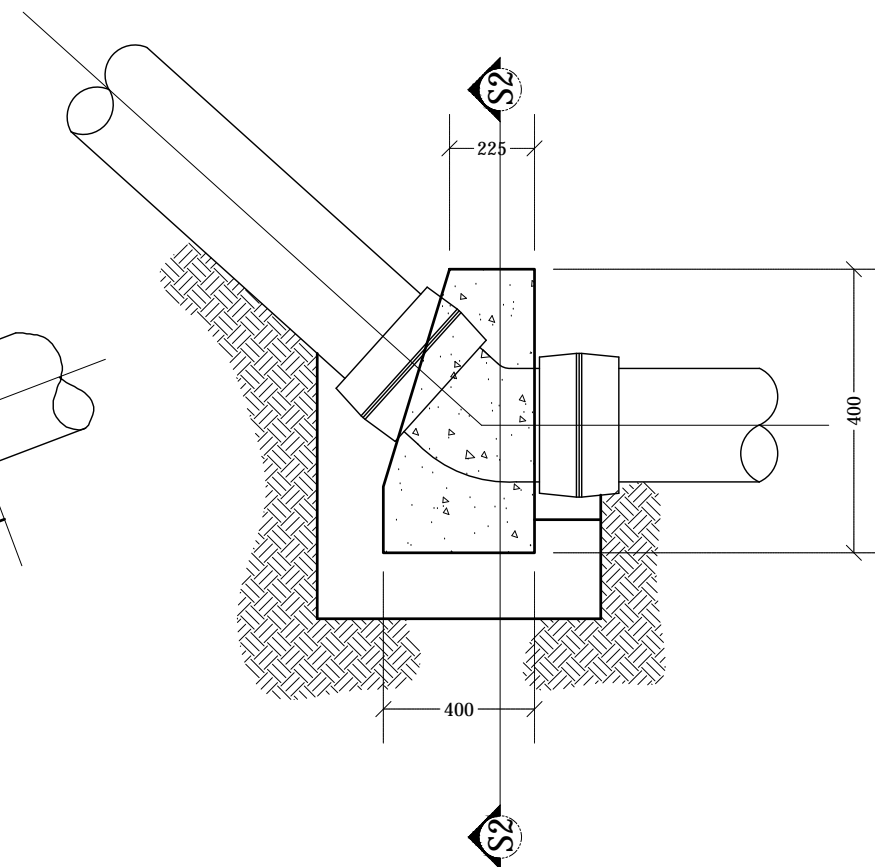
Project No: EP-WS/2019/06

Rev: Page:

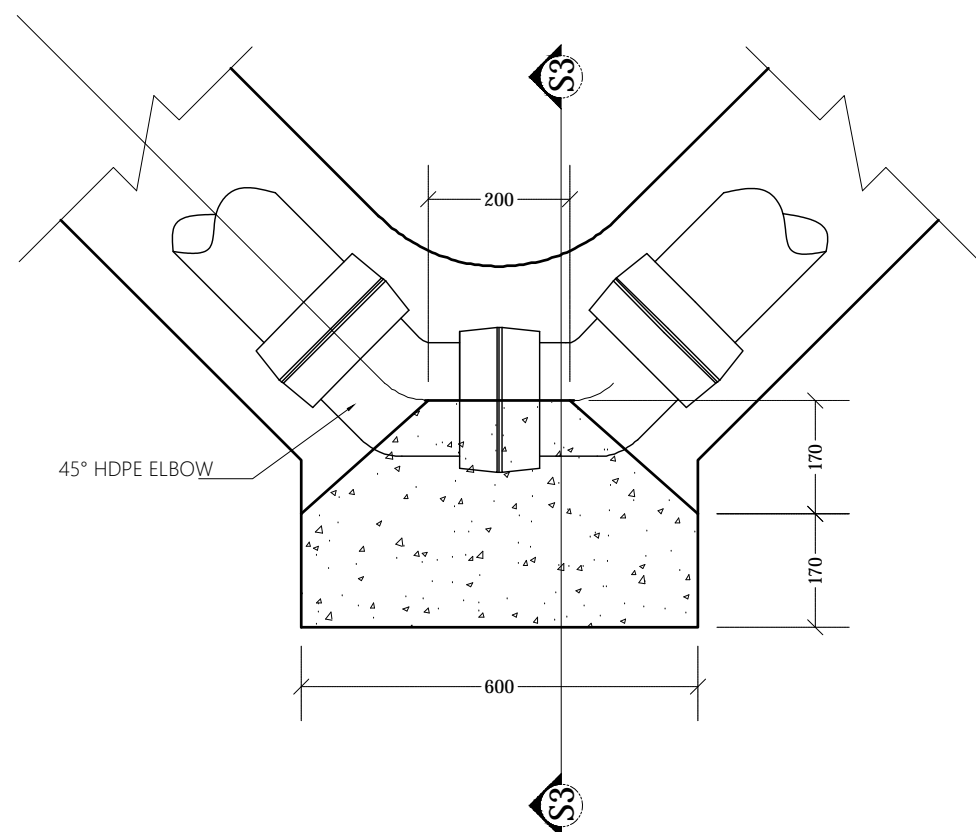
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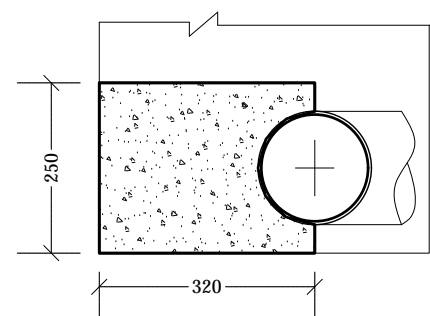
HORIZONTAL 45° BEND
NTS



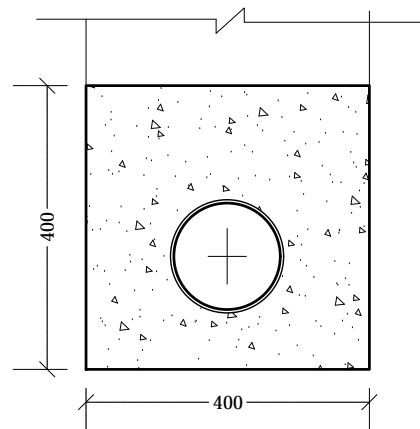
VERTICAL 45° BEND
NTS



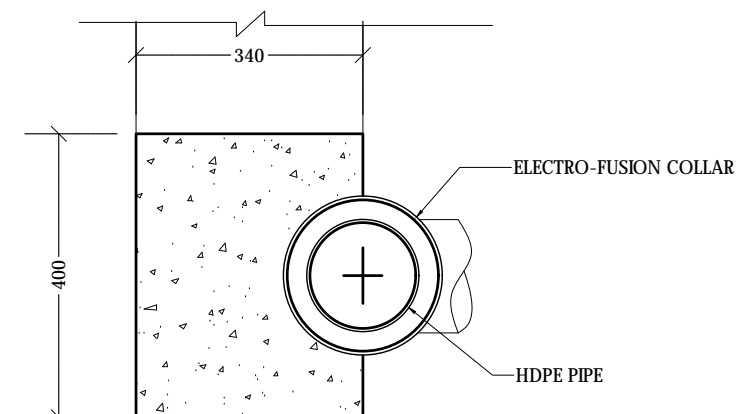
HORIZONTAL 90° BEND
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SECTION S1-S1
NTS



SECTION S2-S2
NTS



SECTION S3-S3
NTS

THRUST BLOCK DETAILS
NTS

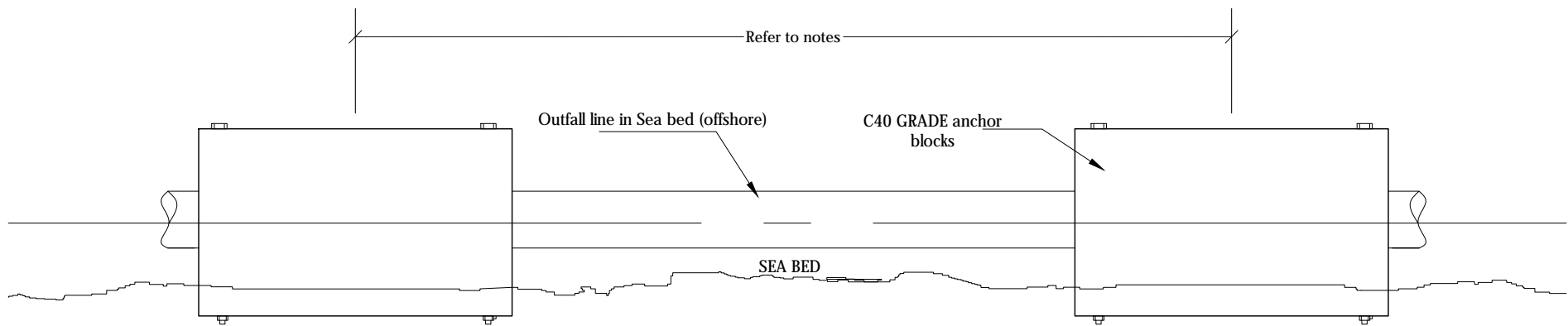
REV. NO.	Date	Revision Description	Drawn	Chkd	Appd.

Title:
Consultancy Services for Survey,
Design and EIA works of Water
Supply and Sewerage Facilities in
5 islands, Maldives - Package 6

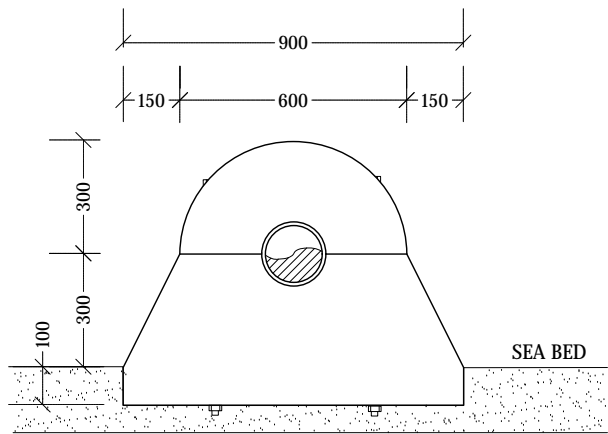
Sub Title:
Sewerage System in GA. Nilandhoo

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

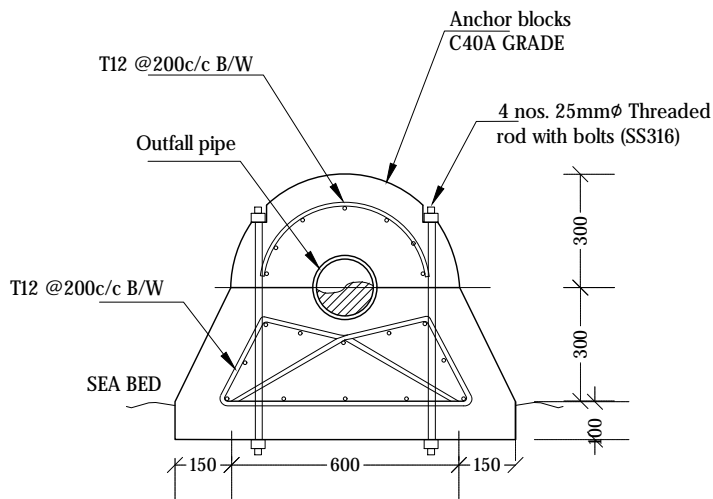
EPOCH ASSOCIATES T: +960 333 3528 E: info@epoch.associates W: www.epoch.associates A: G. Rosary West, Husnuheenua Magu, Male', Maldives		INFRA Maldives Working with you to build a better future	
Drawn: F.I.A.	Checked: M.S.S.		
Designed: F.I.A.	Approved: LW.		
Date: Sep 2020	SCALE (A3): NTS		
Project No: EP-WS/2019/06			
Rev:	Page: W-(19)		



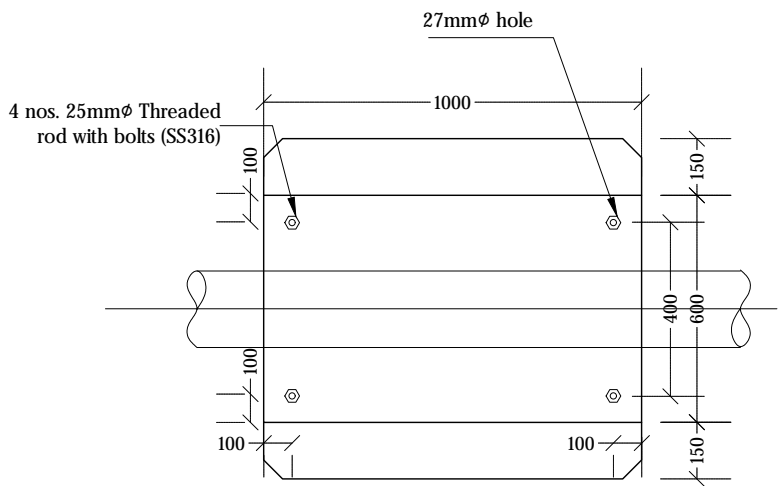
BALLAST BLOCK SIDE ELEVATION



BALLAST BLOCK FRONT ELEVATION



BALLAST BLOCK SECTION



BALLAST BLOCK PLAN

BALLAST BLOCK DETAILS

NTS



REV. NO.	Date	Revision Description	Drawn	Chkd	Appd.

Title:
Consultancy Services for Survey,
Design and EIA works of Water
Supply and Sewerage Facilities in
5 islands, Maldives - Package 6

Sub Title:
Sewerage System in GA. Nilandhoo

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

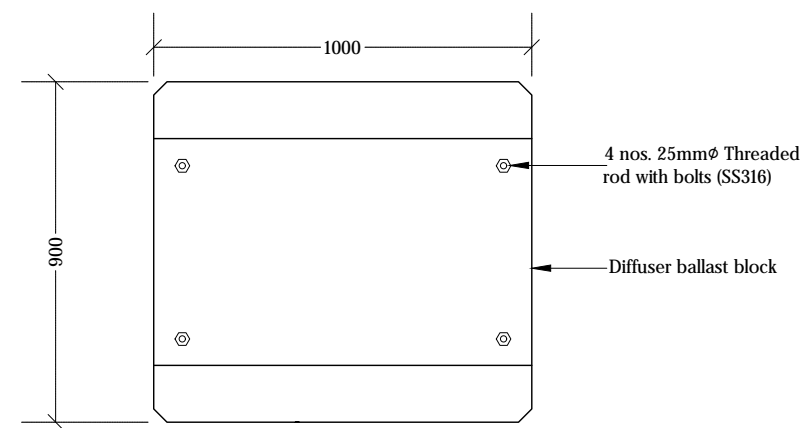
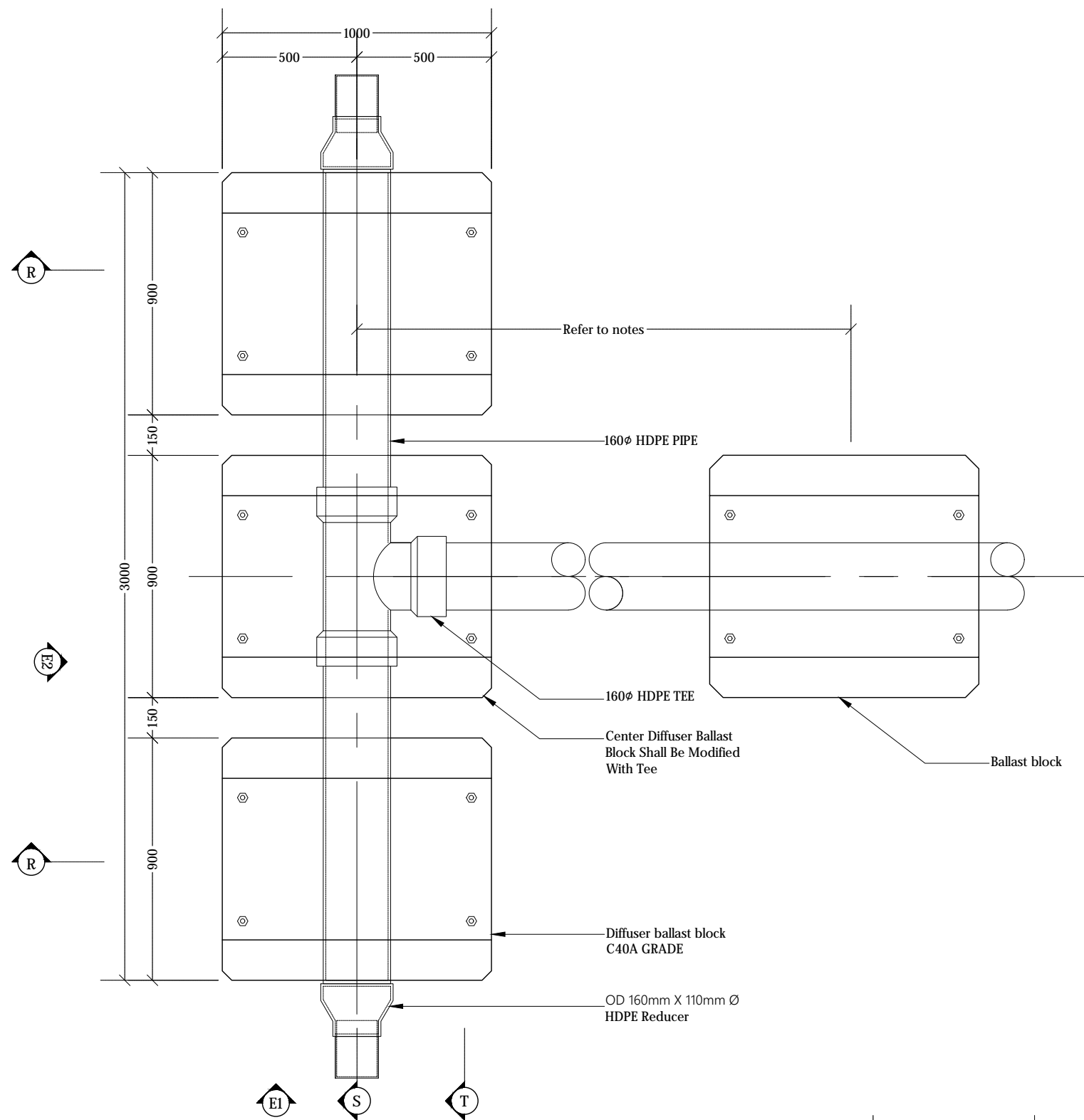


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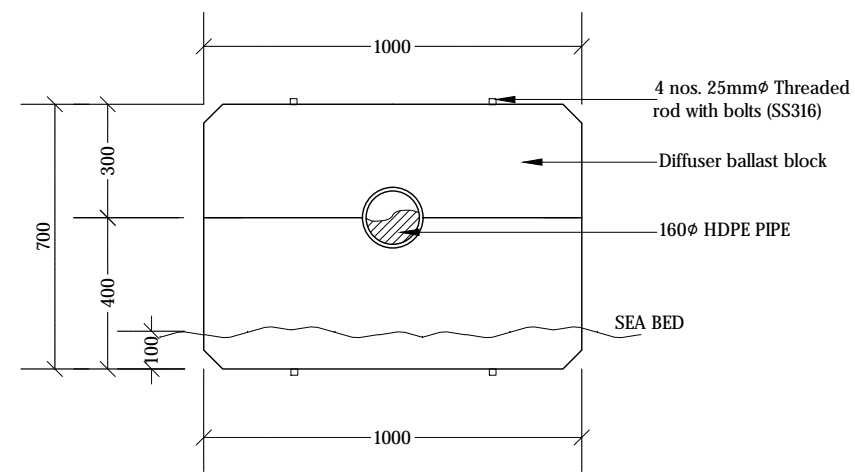


Maldivian Infrastructure Development

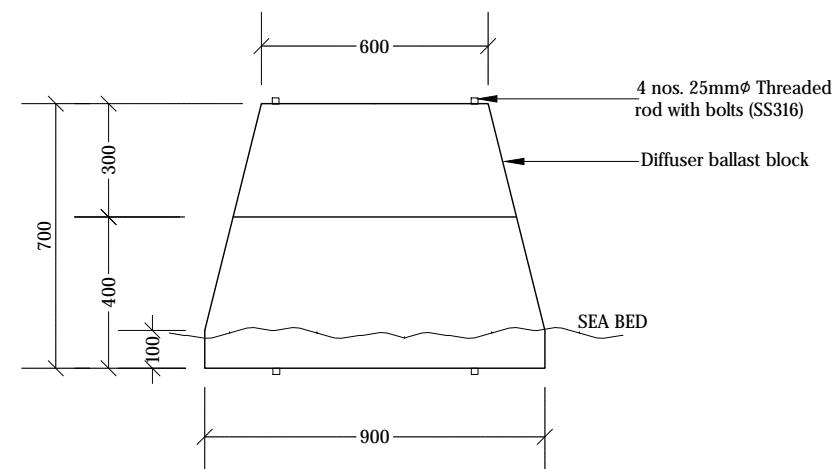
Drawn: F.I.A.	Checked: M.S.S.
Designed: F.I.A.	Approved: I.W.
Date: Sep 2020	SCALE (A3): NTS
Project No: EP-WS/2019/06	Page: W-(20)



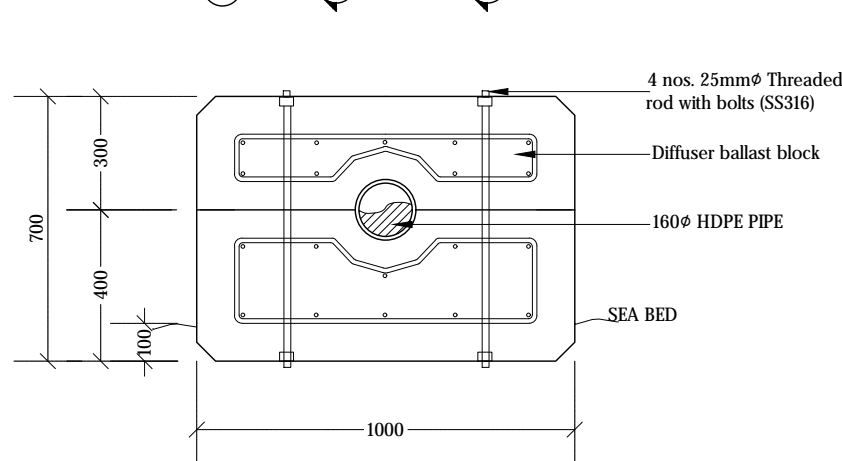
DIFFUSER BALLAST BLOCK PLAN



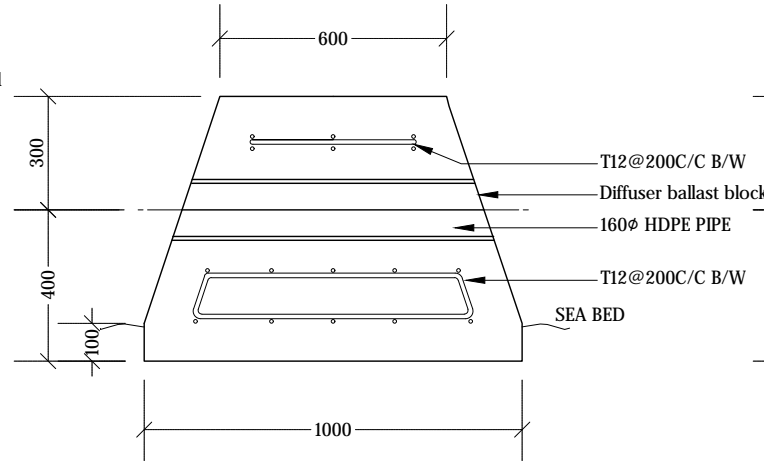
DIFFUSER BALLAST BLOCK FRONT ELEVATION - E1



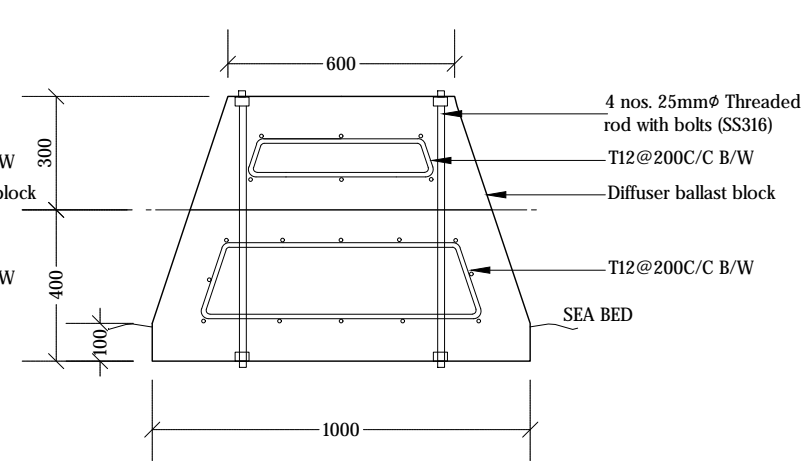
DIFFUSER BALLAST BLOCK FRONT ELEVATION - E2



DIFFUSER BALLAST BLOCK SECTION - R




DIFFUSER BALLAST BLOCK SECTION - S



DIFFUSER BALLAST BLOCK SECTION - T

DIFFUSER DETAILS
NTS




REV. NO.	Date	Revision Description	Drawn	Chkd	Appd.


Title:
Consultancy Services for Survey, Design and EIA works of Water Supply and Sewerage Facilities in 5 islands, Maldives - Package 6

Sub Title:
Sewerage System in GA. Nilandhoo

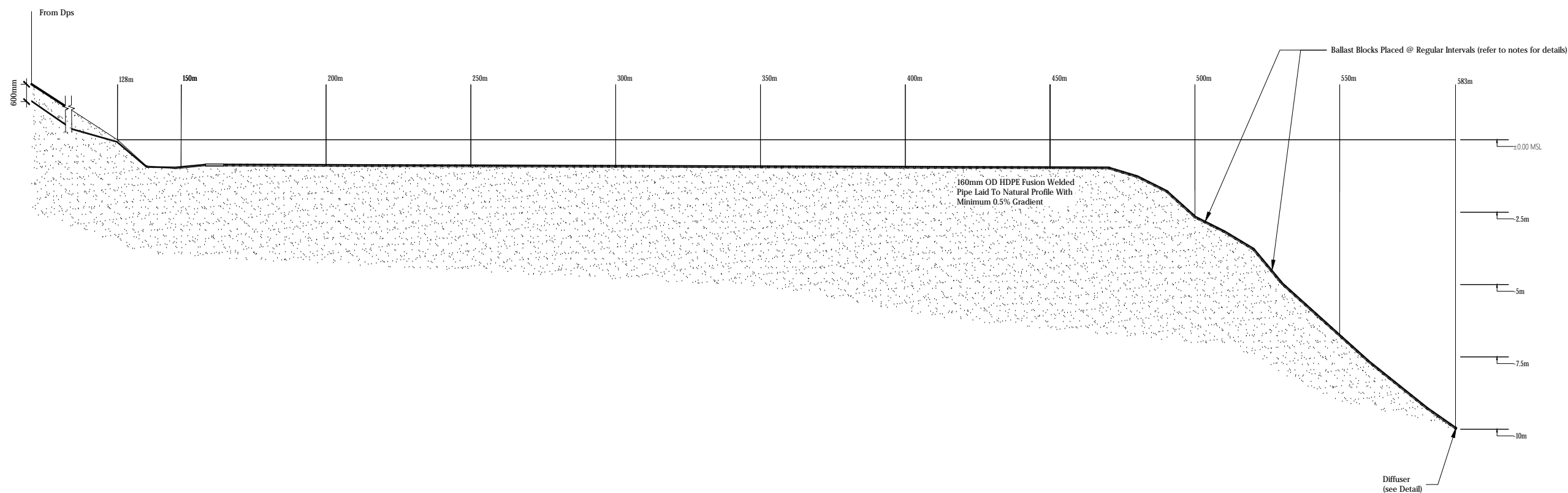
Client:
Ministry of National Planning, Housing and Infrastructure, Republic of Maldives



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Drawn: F.I.A.	Checked: M.S.S.
Designed: F.I.A.	Approved: LW.
Date: Sep 2020	SCALE (A3): NTS
Project No: EP-WS/2019/06	
Rev:	Page: W-(21)



NTS

REV. NO.	Date	Revision Description	Drawn	Chkd	Appd

Title:
Consultancy Services for Survey,
Design and EIA works of Water
Supply and Sewerage Facilities in
5 islands, Maldives - Package 6

Sub Title:
Sewerage System in GA. Nilandhoo

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



Drawn: F.I.A.	Checked: M.S.S.
Designed: F.I.A.	Approved: I.W.
Date: Sep 2020	SCALE (A3): NTS
Project No: EP-WS/2019/06	
Rev:	Page:

Rev:	Page: W-(22)
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GA. NILANDHOO SEWERAGE SYSTEM - PRESSURE NETWORK LAYOUT
1:5000



- 110 mm Ø HDPE Pumping Main (PE100, PN16, SDR11)
- 160 mm Ø HDPE Sea Outfall Pipe (PE100, PN16, SDR11)

REV. NO.	Date	Revision Description	Drawn	Chkd	Appd.

Title:
Consultancy Services for Survey,
Design and EIA works of Water
Supply and Sewerage Facilities in
5 islands, Maldives - Package 6

Sub Title:
Sewerage System in GA. Nilandhoo

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



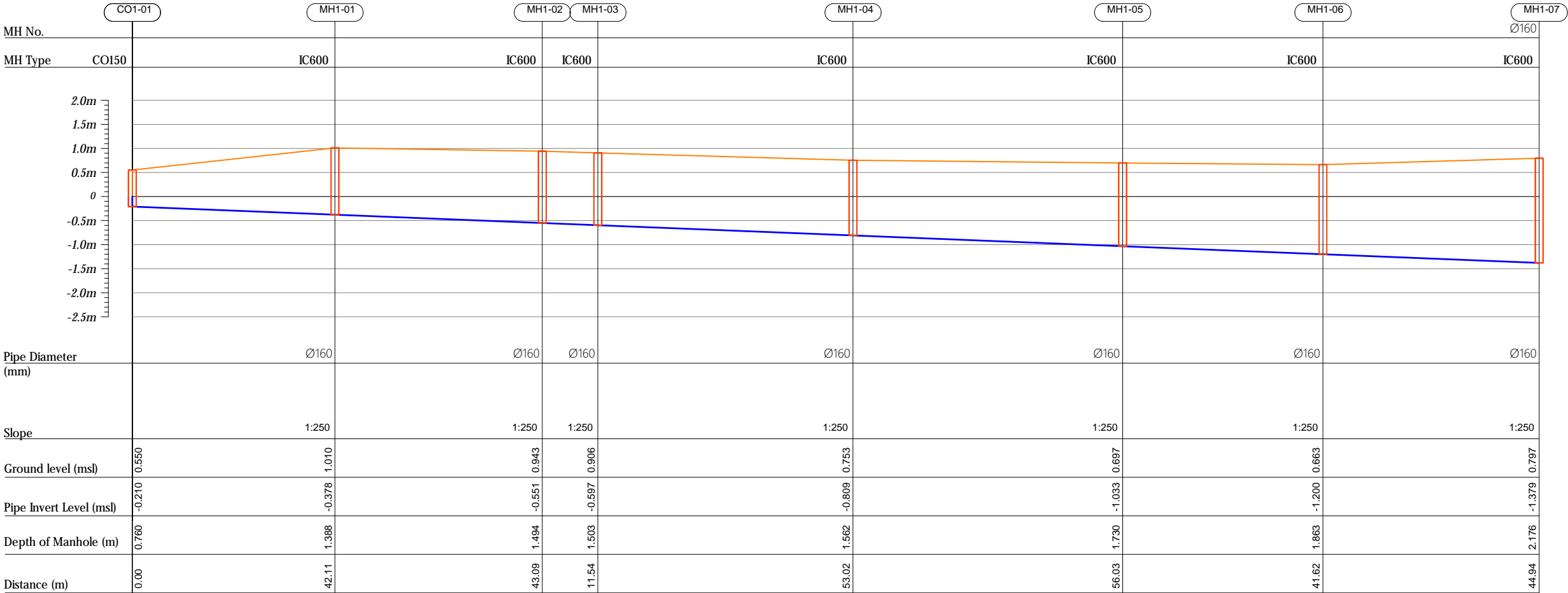
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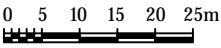
Maldivian Infrastructure Development

Drawn: F.I.A.	Checked: M.S.S.
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Date: Sep 2020	SCALE (A3): 1:5000
Project No: EP-WS/2019/06	Page: W-(23)

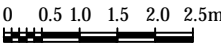
Profile 01



HORIZONTAL SCALE



VERTICAL SCALE



- CO160 — Cleanout Ø160
- IC600 — HDPE Manhole Ø600
- PS — Pump Station

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

Title:
Consultancy Services for Survey,
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Supply and Sewerage Facilities in
5 islands, Maldives - Package 6

Sub Title:
Sewerage System in GA.Nilandhoo

Client:
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Maldivuq Infrastructure Hoppu

Drawn: A.R.W Checked: M.S.S

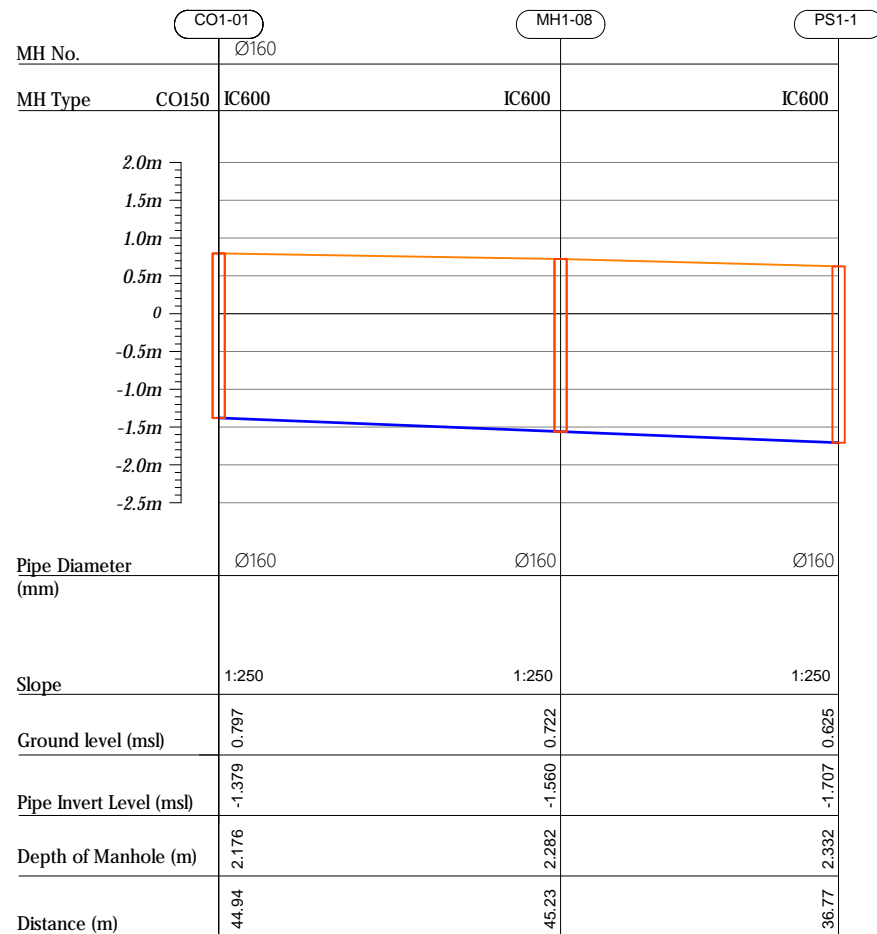
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Date: Aug 2020 SCALE (A3): 1:100

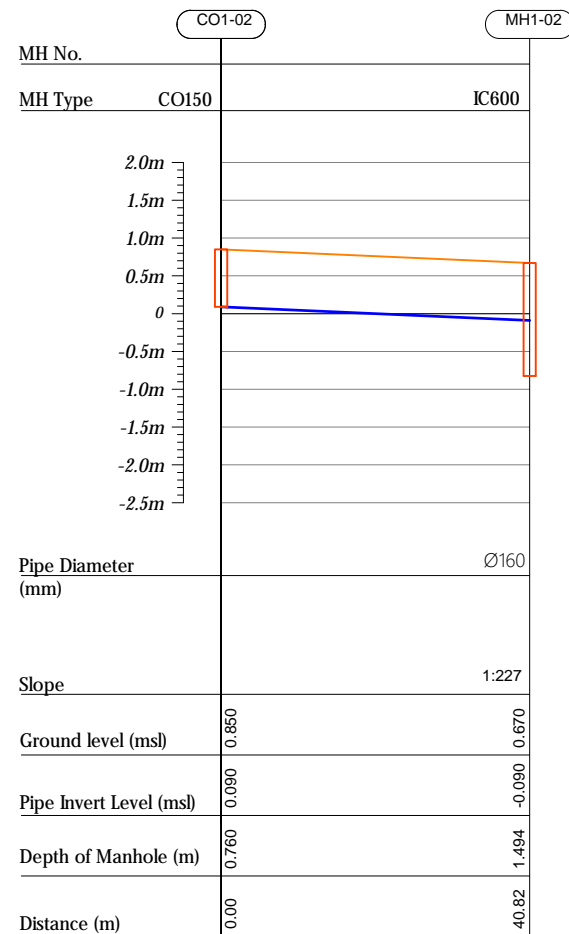
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Rev: R-01 Page: PS1-01

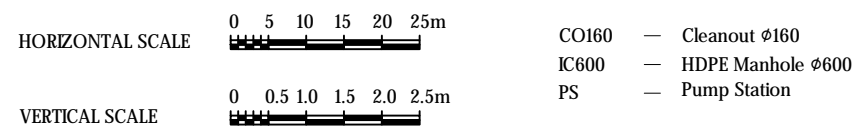
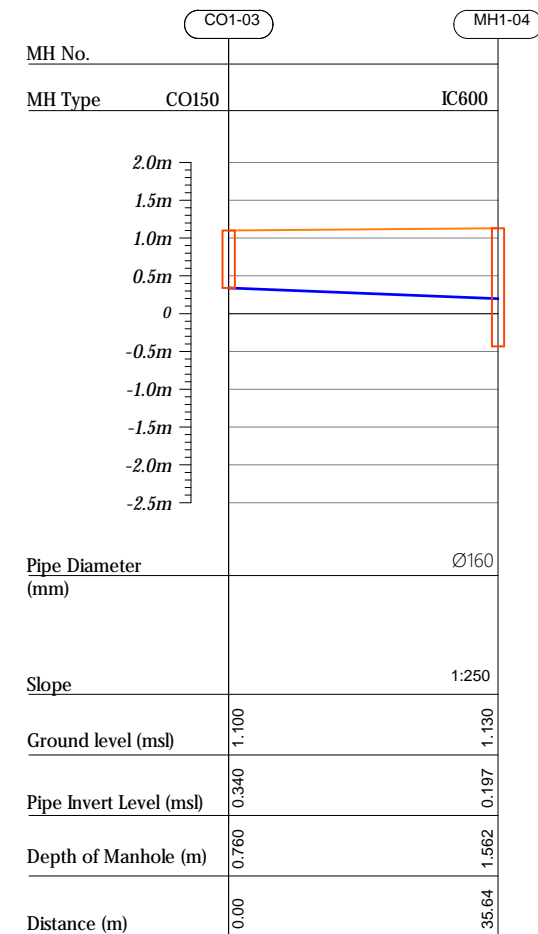
Profile 01



Profile 02



Profile 03



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
5 islands, Maldives - Package 6*

Sub Title:
Sewerage System in GA.Nilandhoo

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



Drawn: A.R.W	Checked: M.S.S
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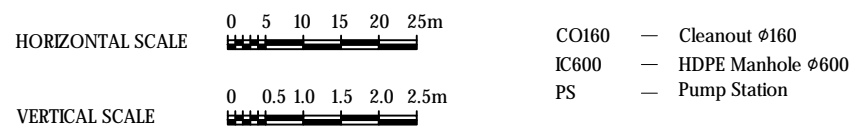
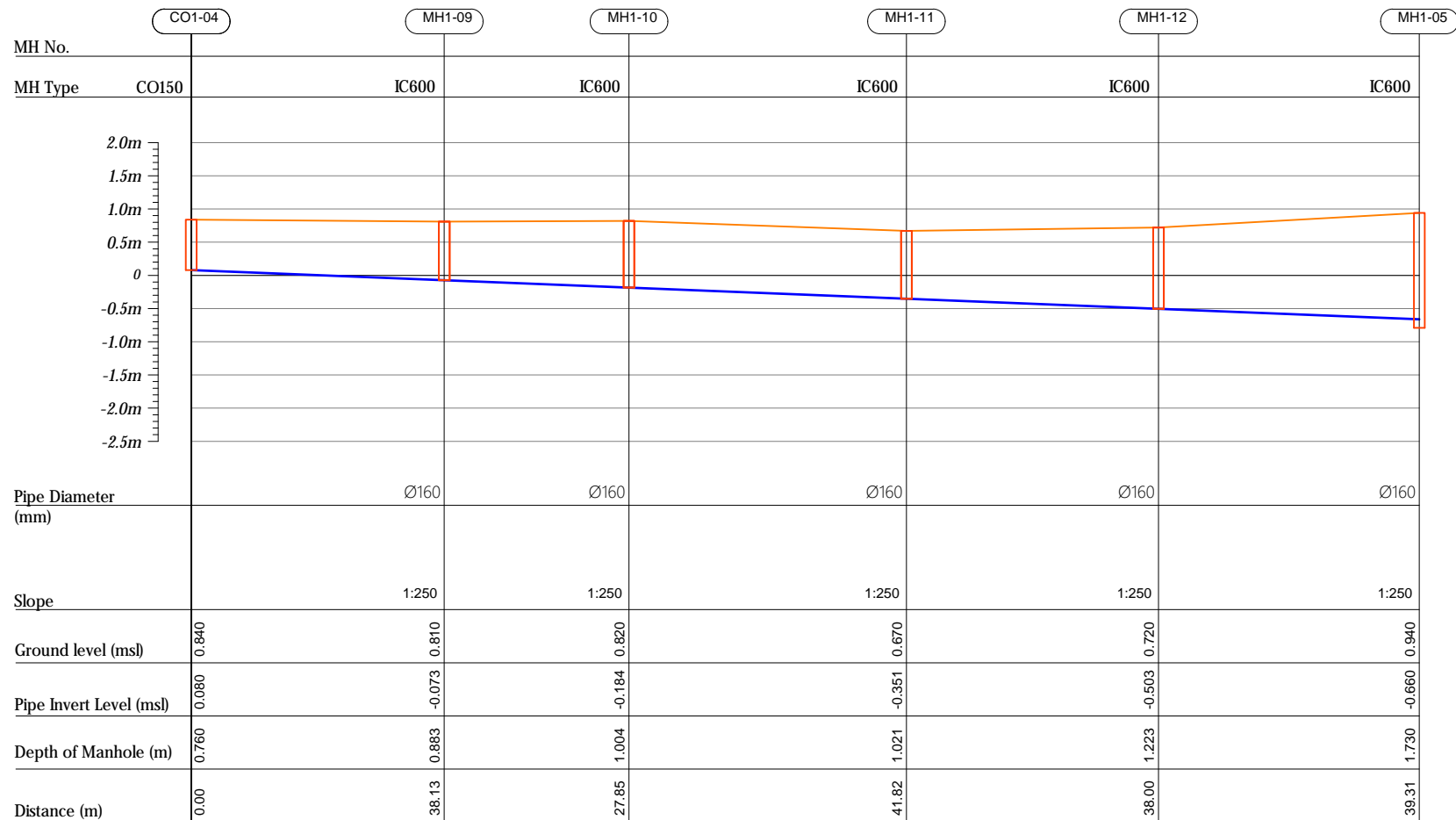
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Date: Aug 2020	SCALE (A3): 1:100
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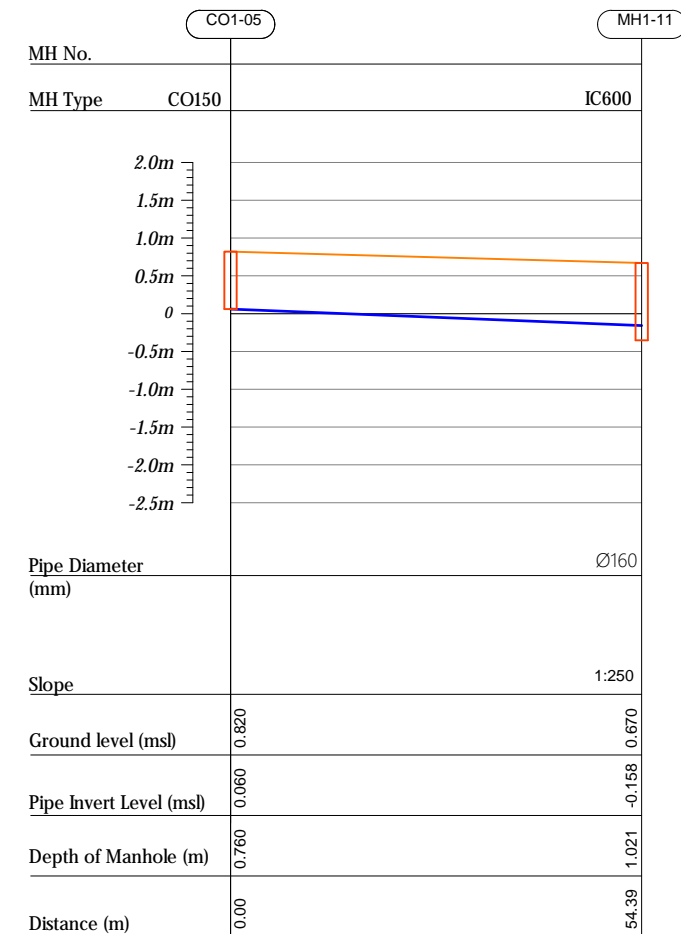
Project No: 01010101

Rev:	Page:
R-01	PS1-02

Profile 04



Profile 05



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
5 islands, Maldives - Package 6*

Sub Title:
Sewerage System in GA.Nilandhoo

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

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Making Infrastructure Happen

Drawn: A.R.W	Checked: M.S.S
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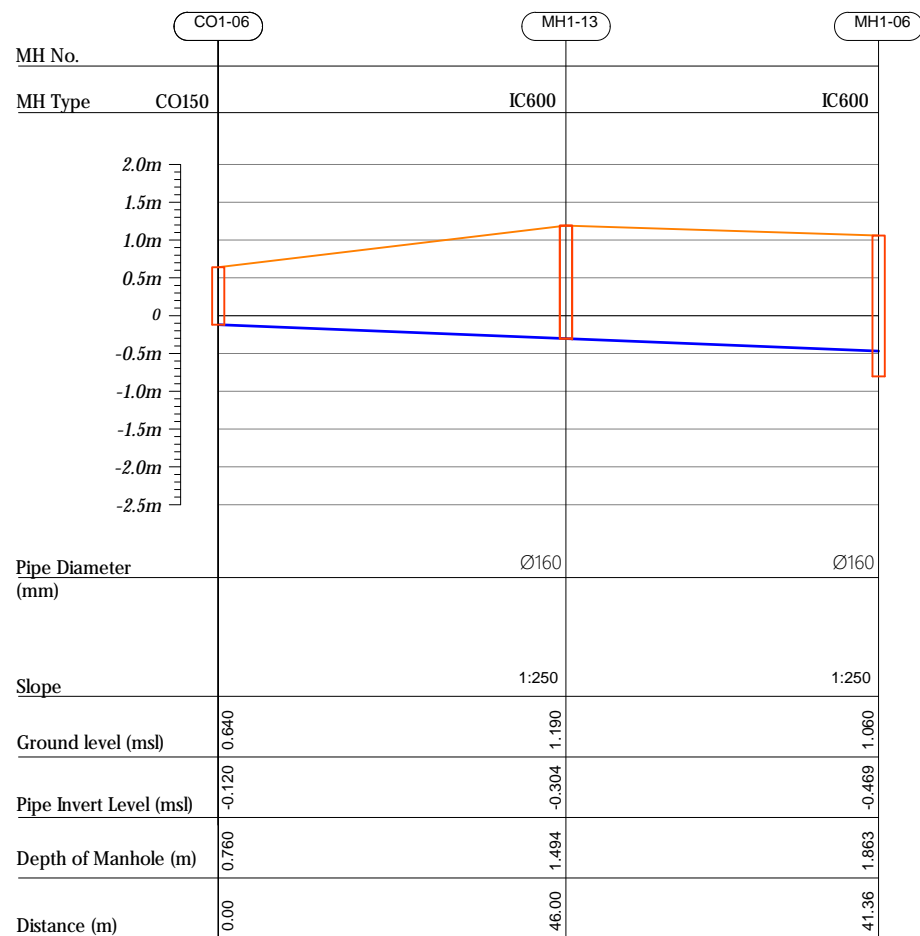
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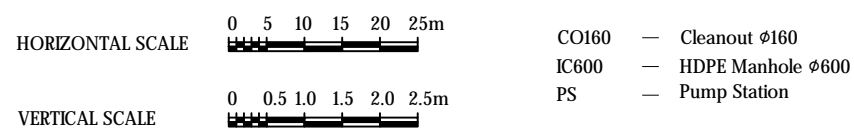
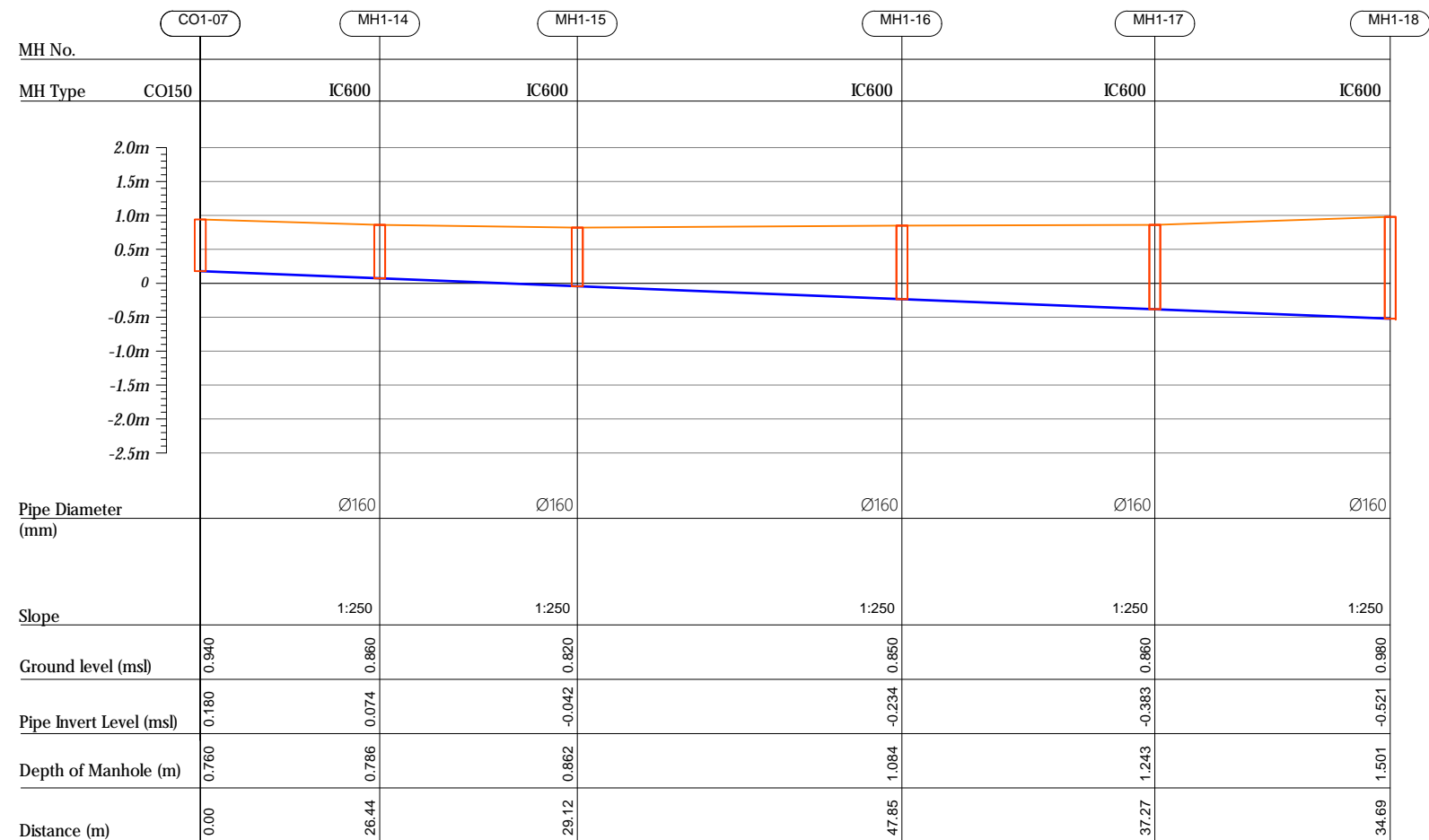
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Rev:	Page:
R-01	PS1-03

Profile 06



Profile 07



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
5 islands, Maldives - Package 6*

Sub Title:
Sewerage System in GA.Nilandhoo

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



Drawn: A.R.W	Checked: M.S.S
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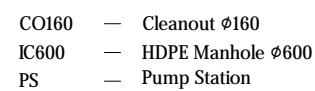
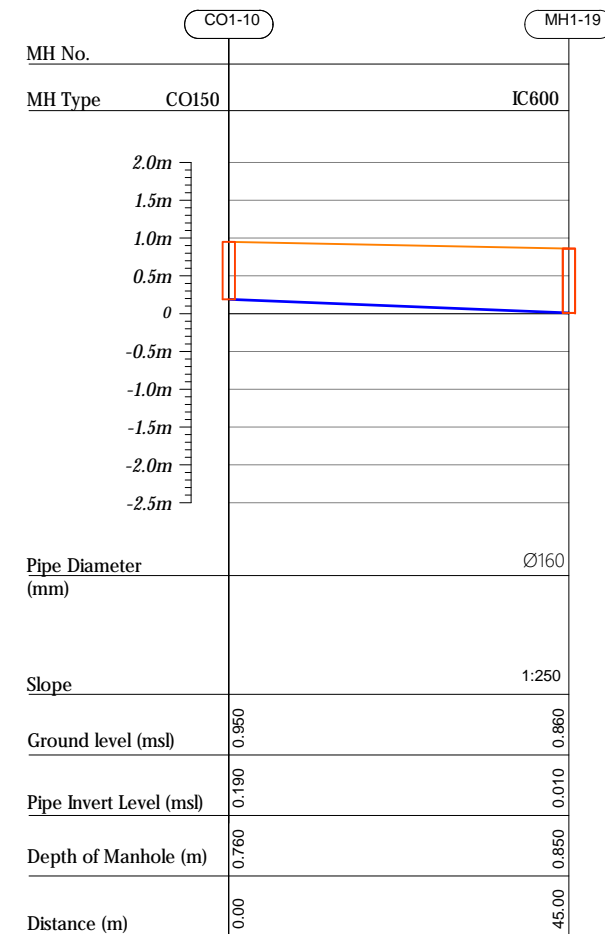
Designed: F.I.A	Approved: LW
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Date: Aug 2020	SCALE (A3): 1:100
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Project No: 01010101

Rev: <i>R-01</i>	Page: <i>PS1-04</i>
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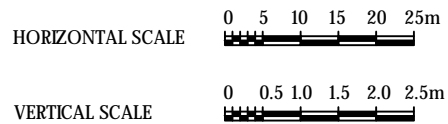
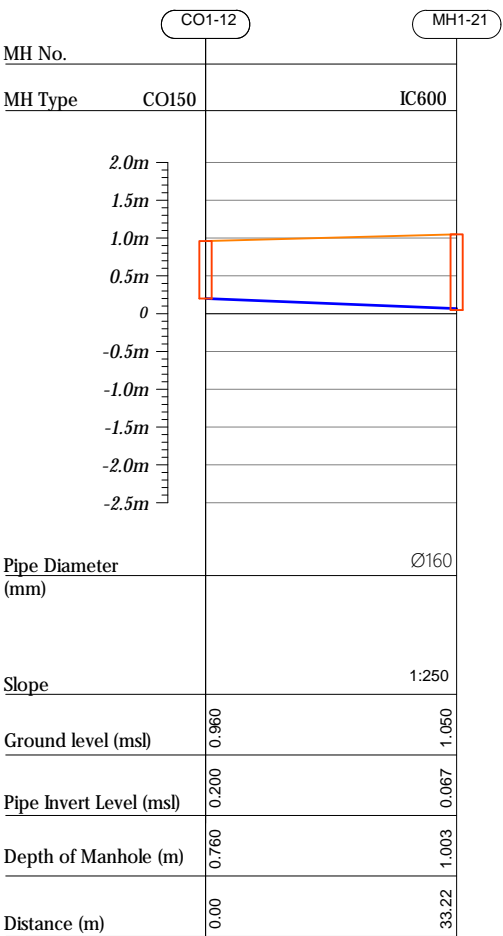
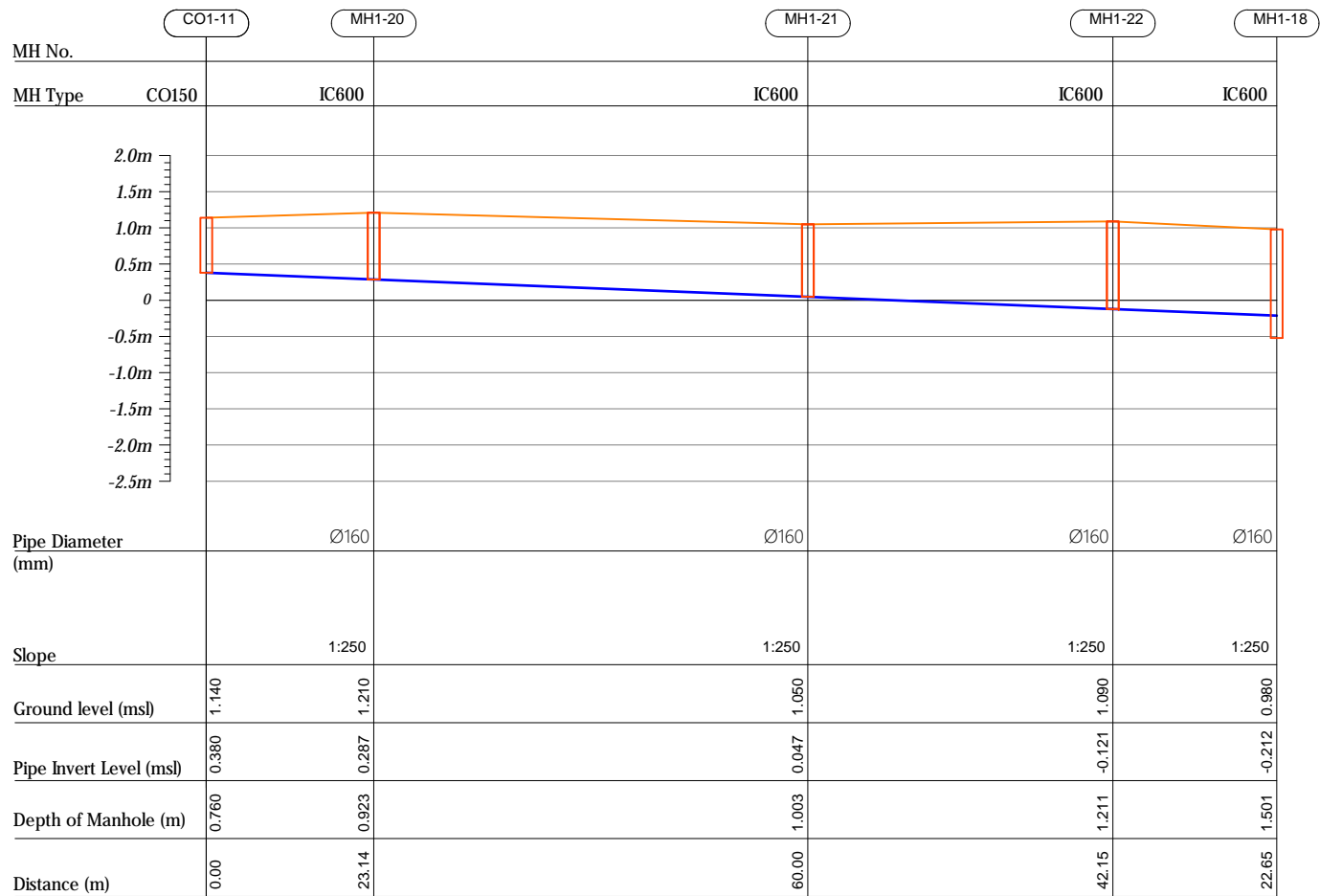
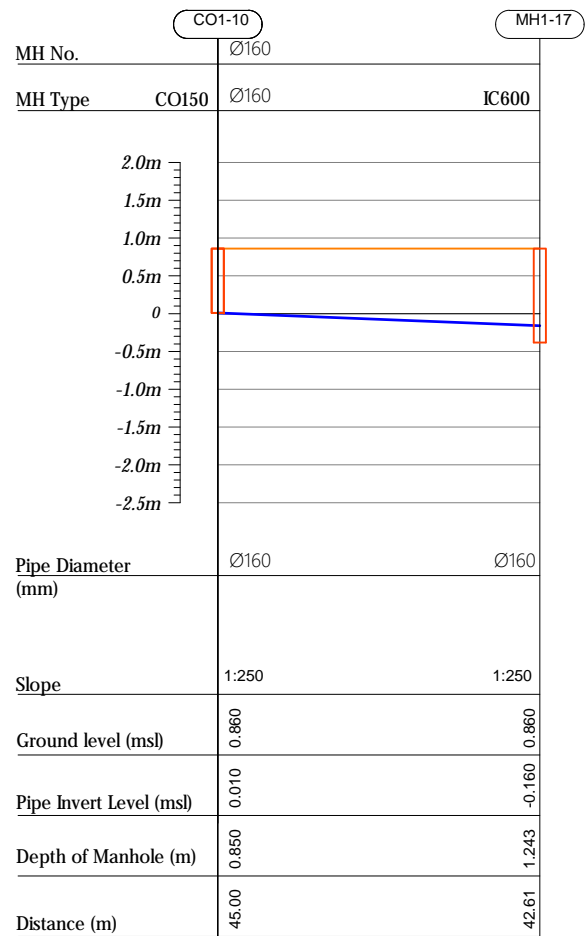
Profile 10



Title: <i>Consultancy Services for Survey, Design and EIA works of Water Supply and Sewerage Facilities in 5 islands, Maldives - Package 6</i>	
Sub Title: <i>Sewerage System in GA.Nilandhoo</i>	
Client: <i>Ministry of National Planning, Housing and Infrastructure, Republic of Maldives</i>	
 EPOCH <small>ASSOCIATES</small> T: +960 333 3528 E info@epoch.associates W: www.epoch.associates A: G. Rosary West, Husnuheena Magu, Male', Maldives	FIDBAC INFRA <i>Making Infrastructure Happen</i>
Drawn: A.R.W	Checked: M.S.S
Designed: F.I.A	Approved: I.W
Date: Aug 2020	SCALE (A3): 1:100
Project No: 01010101	
Rev: <i>R-01</i>	Page: <i>PS1-05</i>

Profile 11

Profile 12



CO160	—	Cleanout $\phi 160$
IC600	—	HDPE Manhole $\phi 600$
PS	—	Pump Station

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 5 islands, Maldives - Package 6*

Sub Title:
Sewerage System in GA.Nilandhoo

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



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Drawn: A.R.W	Checked: M.S.S
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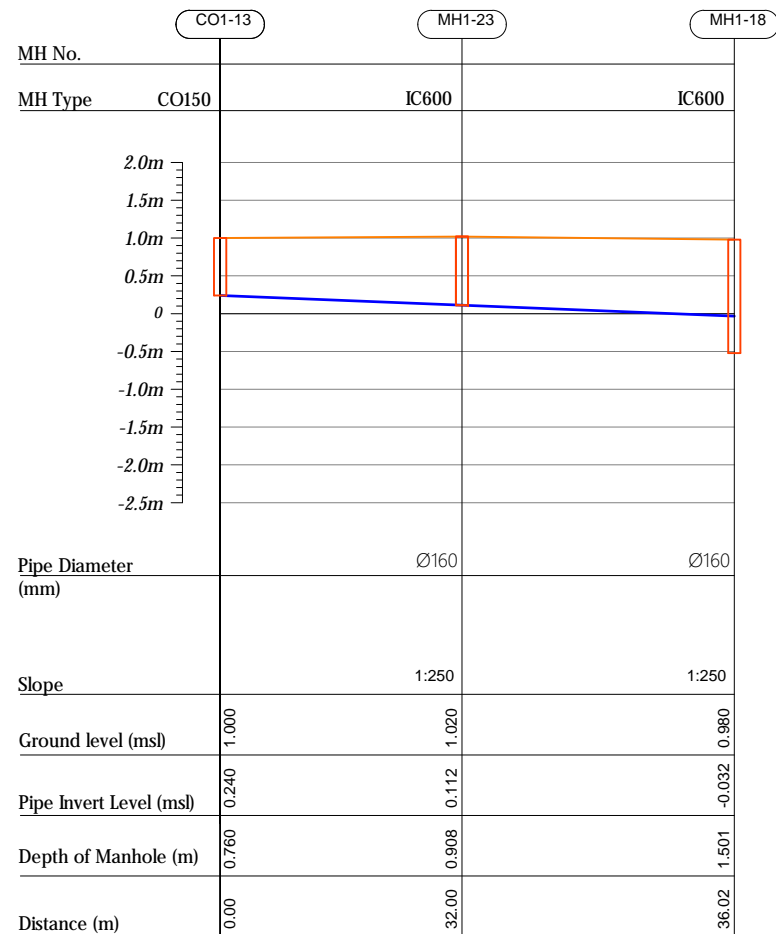
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Date: Aug 2020	SCALE (A3): 1:100
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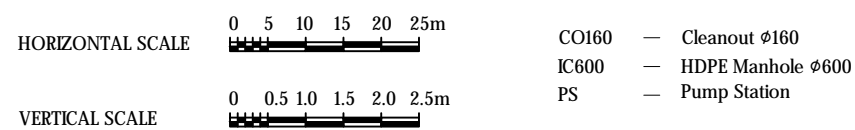
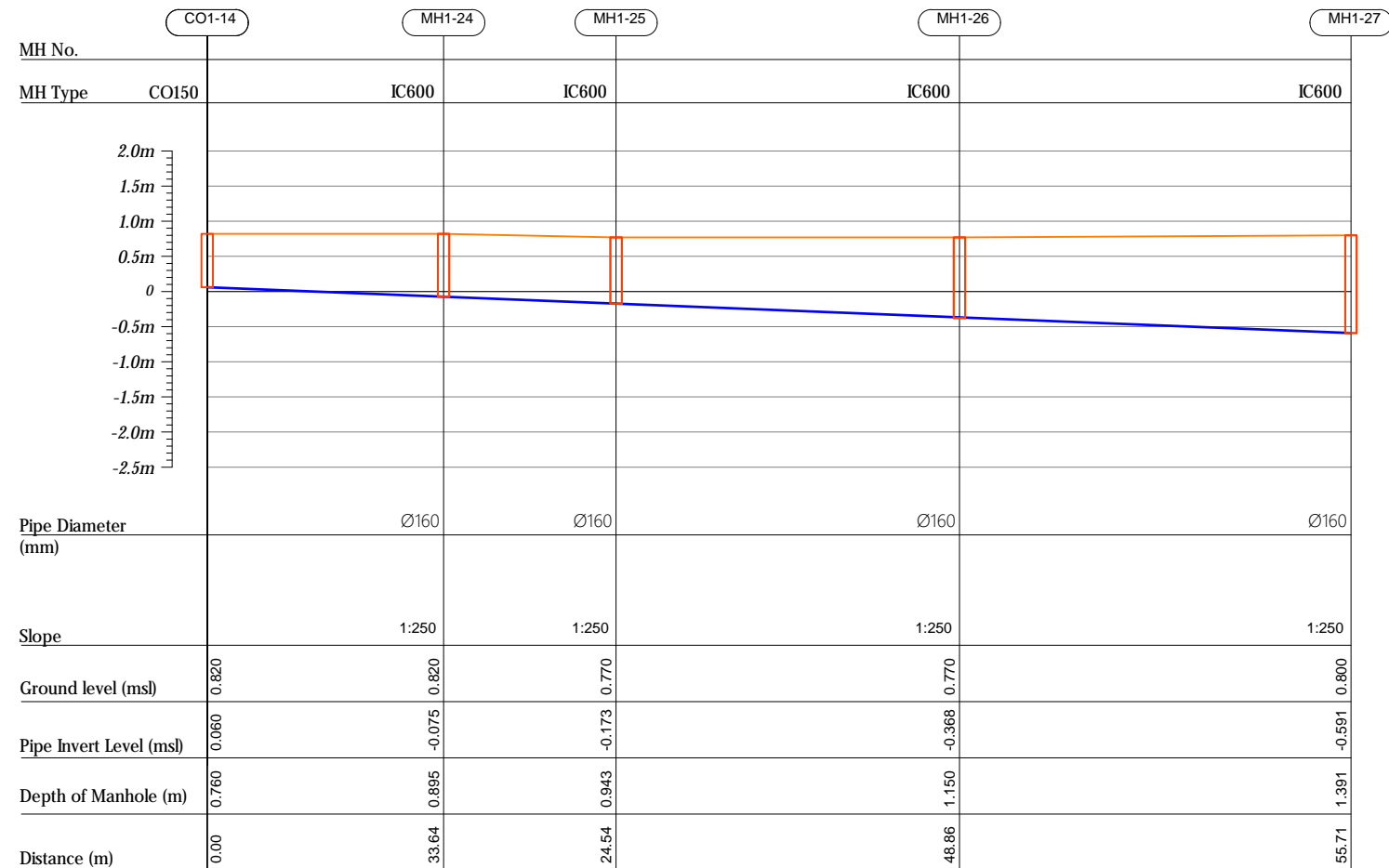
Project No: 01010101

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R-01	PS1-06

Profile 13



Profile 14



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
5 islands, Maldives - Package 6*

Sub Title:
Sewerage System in GA.Nilandhoo

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

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Drawn: A.R.W	Checked: M.S.S
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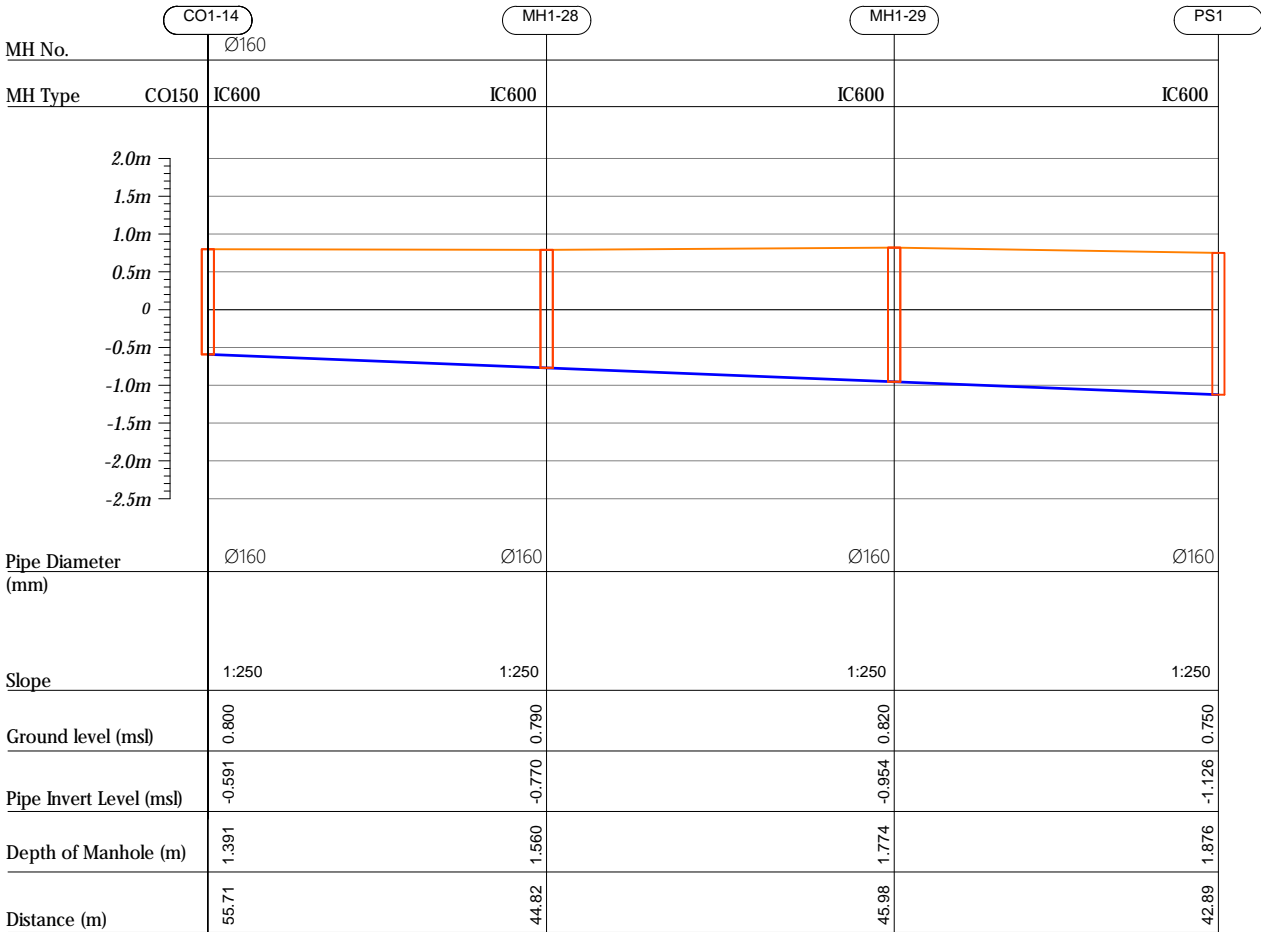
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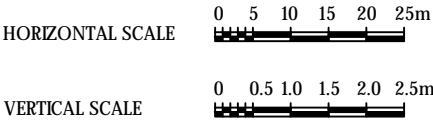
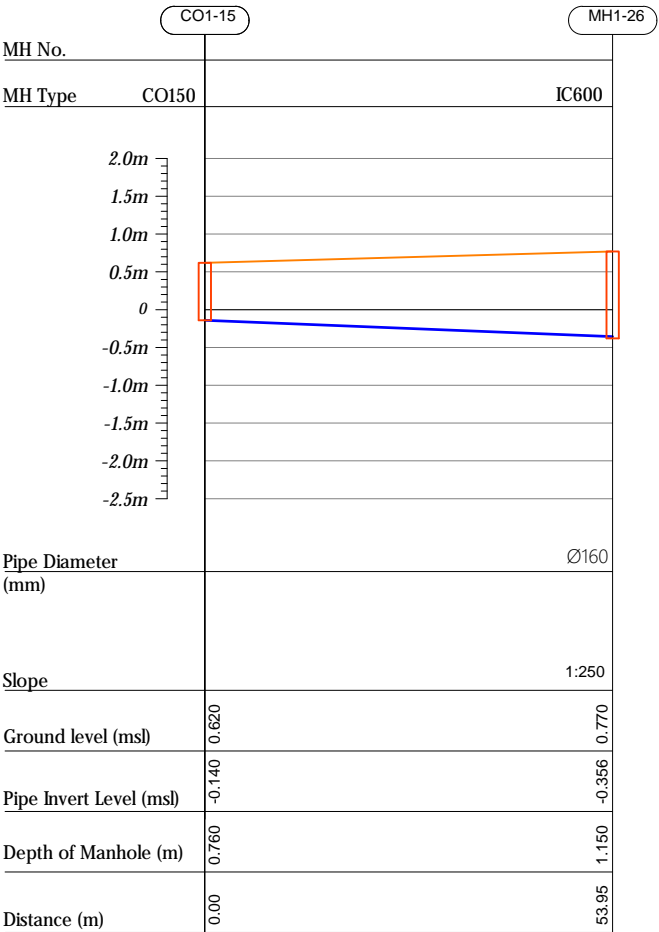
Project No: 01010101

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Profile 14



Profile 15



CO160 — Cleanout Ø160
IC600 — HDPE Manhole Ø600
PS — Pump Station

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

Title:
Consultancy Services for Survey,
Design and EIA works of Water
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Sub Title:
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Hussuiveemaa Magu, Male', Maldives

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Drawn: A.R.W Checked: M.S.S

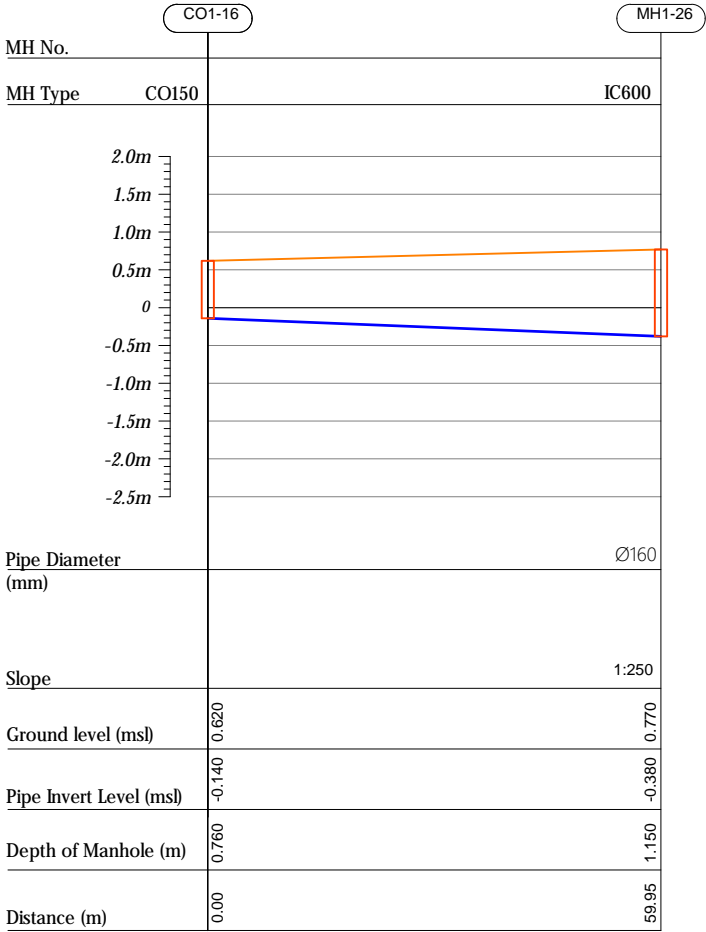
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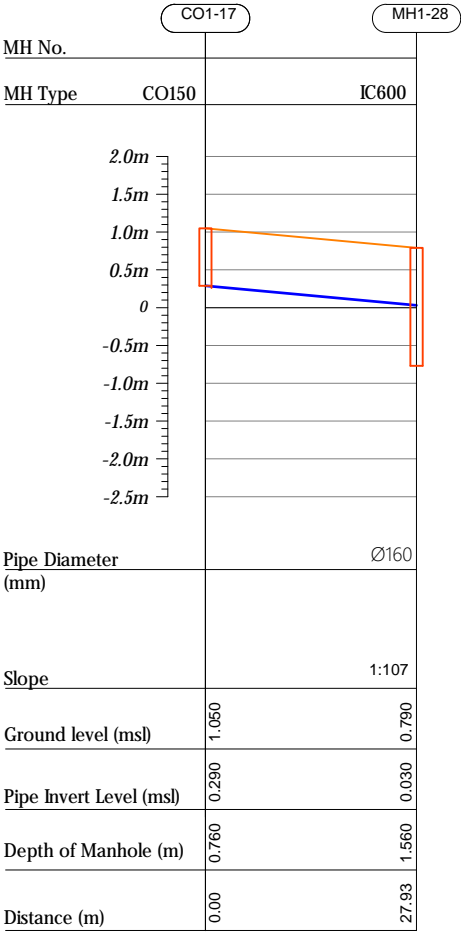
Project No: 01010101

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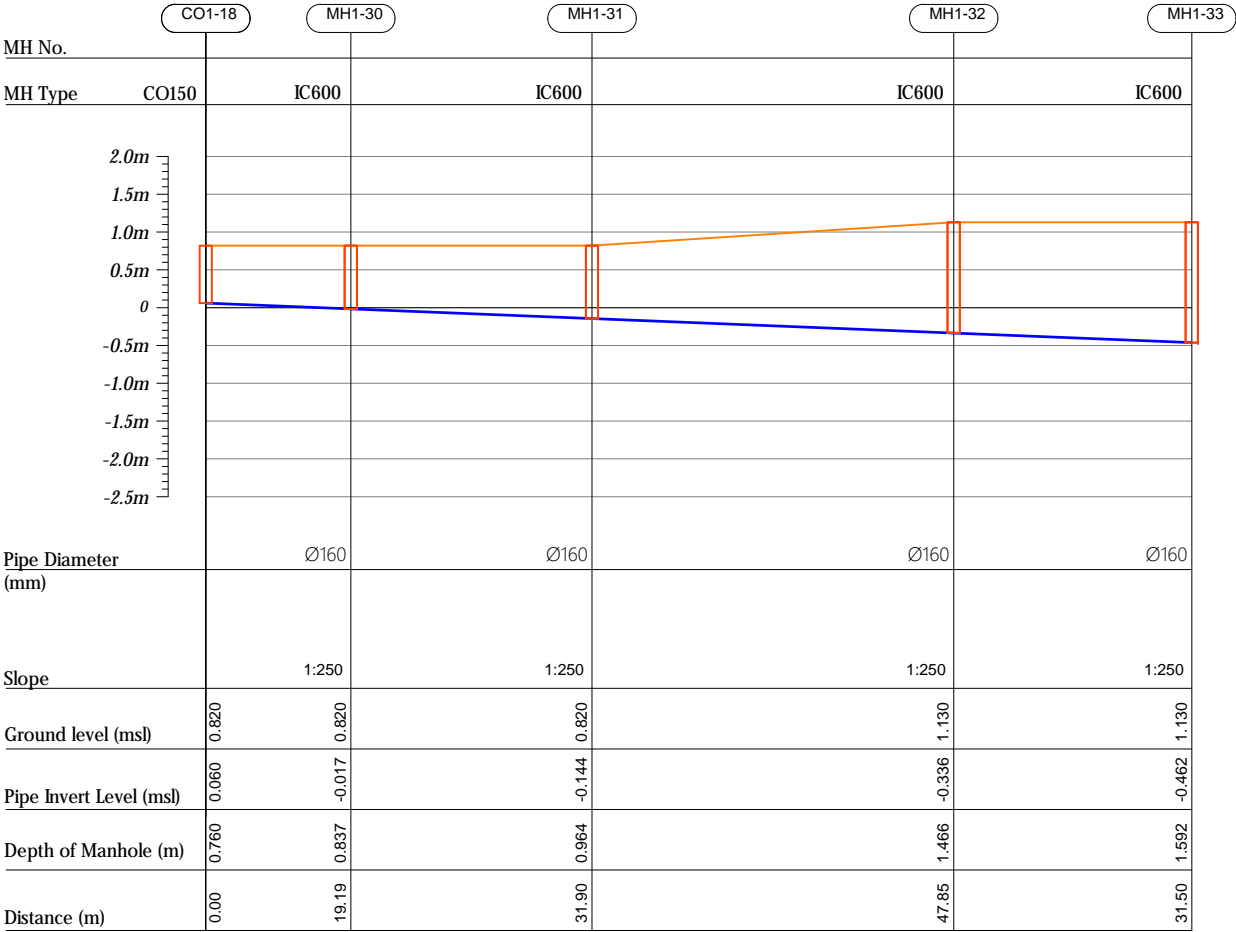
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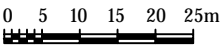
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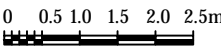
Profile 18



HORIZONTAL SCALE



VERTICAL SCALE



- CO160 — Cleanout Ø160
- IC600 — HDPE Manhole Ø600
- PS — Pump Station

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

Title:
Consultancy Services for Survey,
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Supply and Sewerage Facilities in
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Sub Title:
Sewerage System in GA.Nilandhoo

Client:
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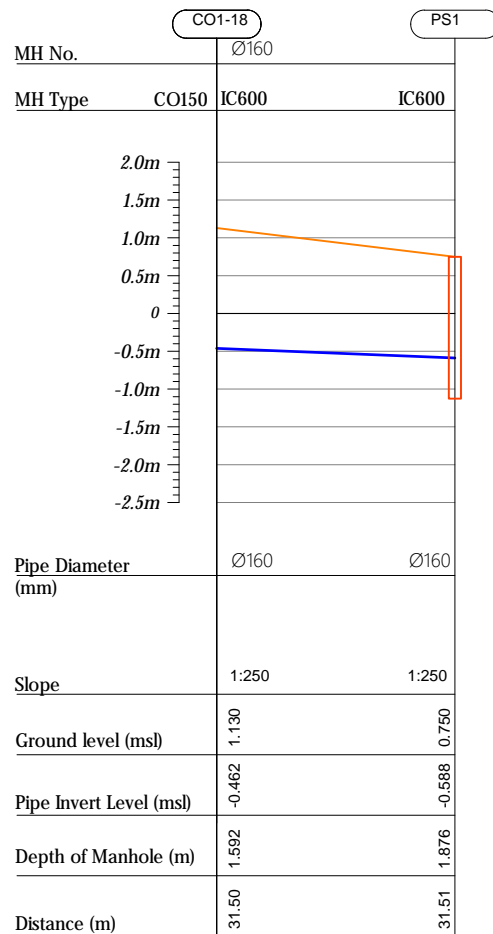
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Date: Aug 2020 SCALE (A3): 1:100

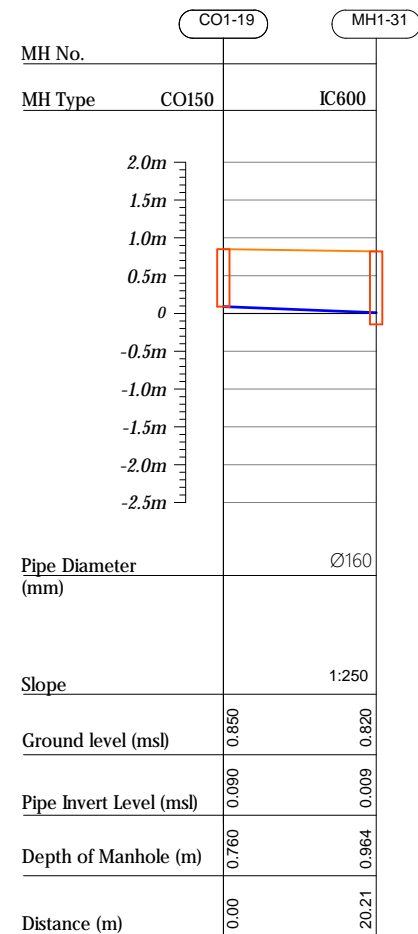
Project No: 01010101

Rev: R-01 Page: PS1-09

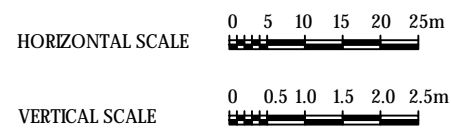
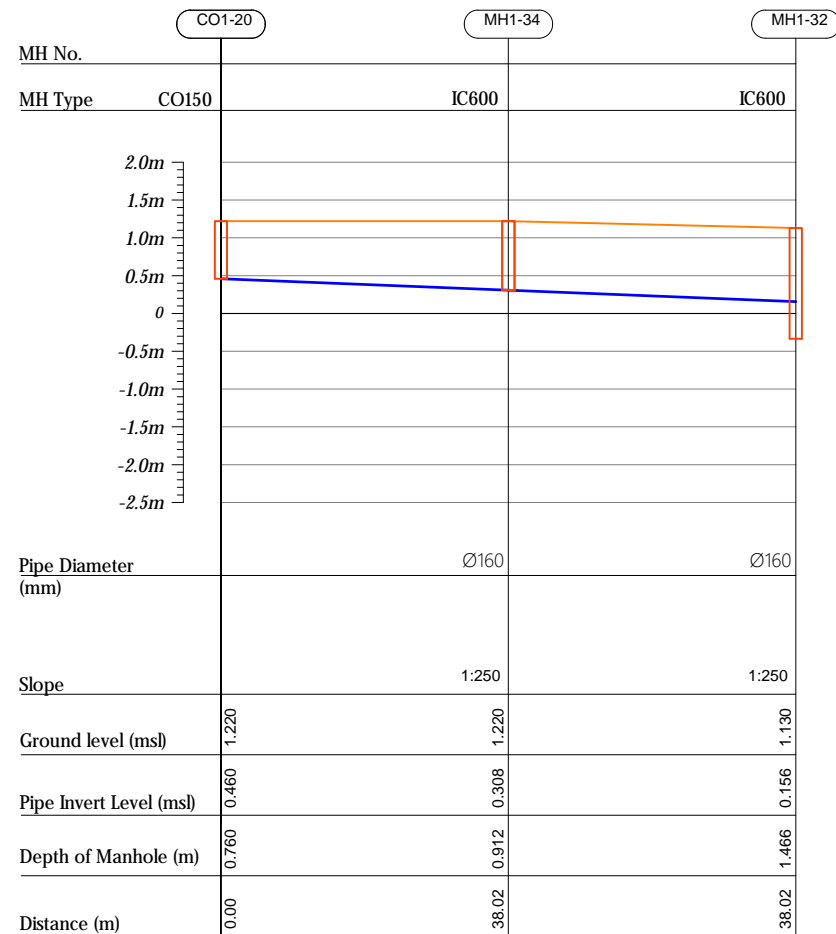
Profile 18



Profile 19



Profile 20



CO160	—	Cleanout Ø160
IC600	—	HDPE Manhole Ø600
PS	—	Pump Station

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
5 islands, Maldives - Package 6*

Sub Title:
Sewerage System in GA.Nilandhoo

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



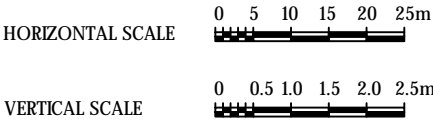
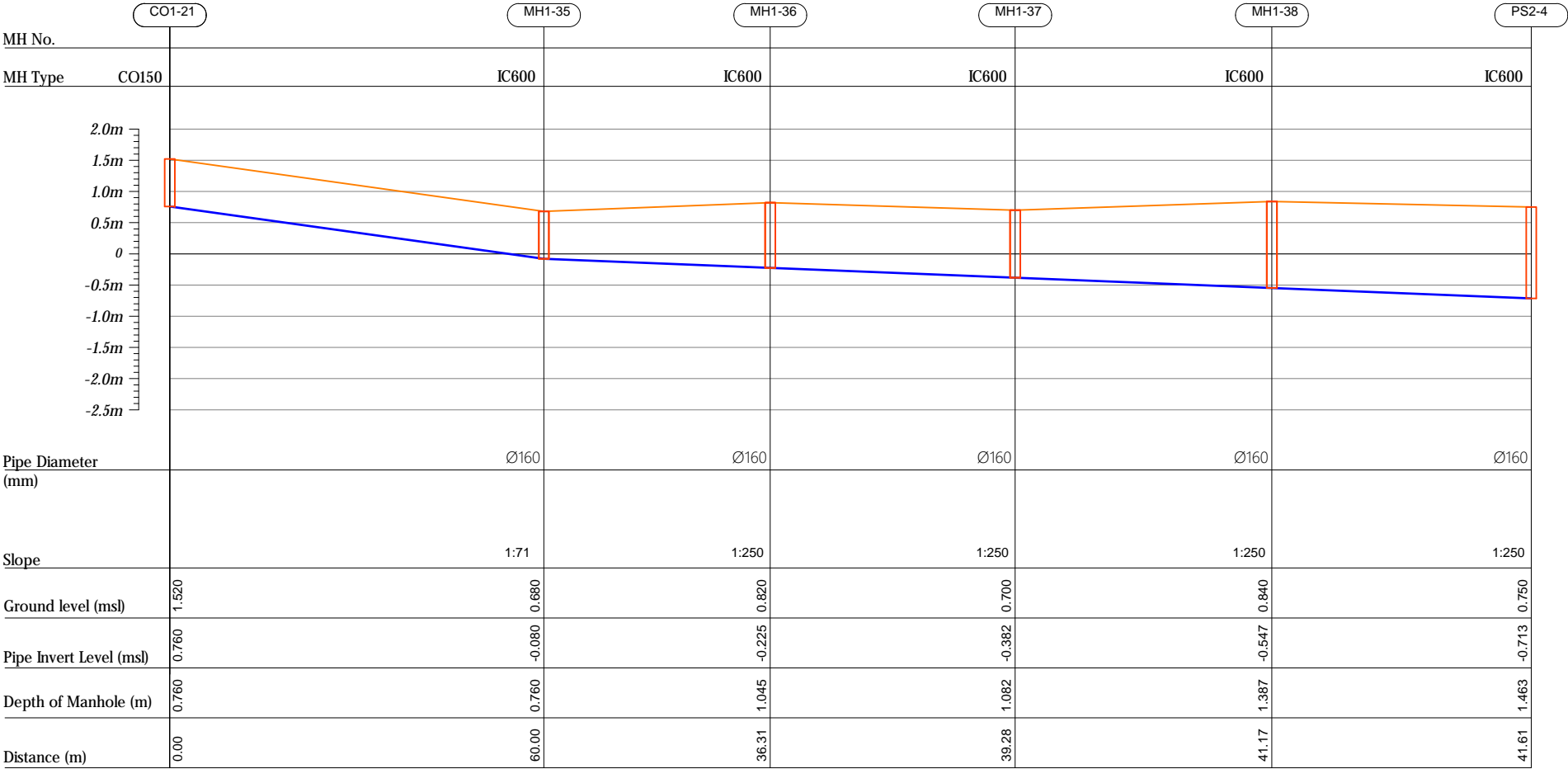
Drawn: A.R.W	Checked: M.S.S
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Designed: F.I.A	Approved: LW
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Date: Aug 2020	SCALE (A3): 1:100
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Profile 21



CO160 — Cleanout Ø160
IC600 — HDPE Manhole Ø600
PS — Pump Station

R00	JUNE 2020	STAGE -I	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
5 islands, Maldives - Package 6

Sub Title:
Sewerage System in GA.Nilandhoo

Client:
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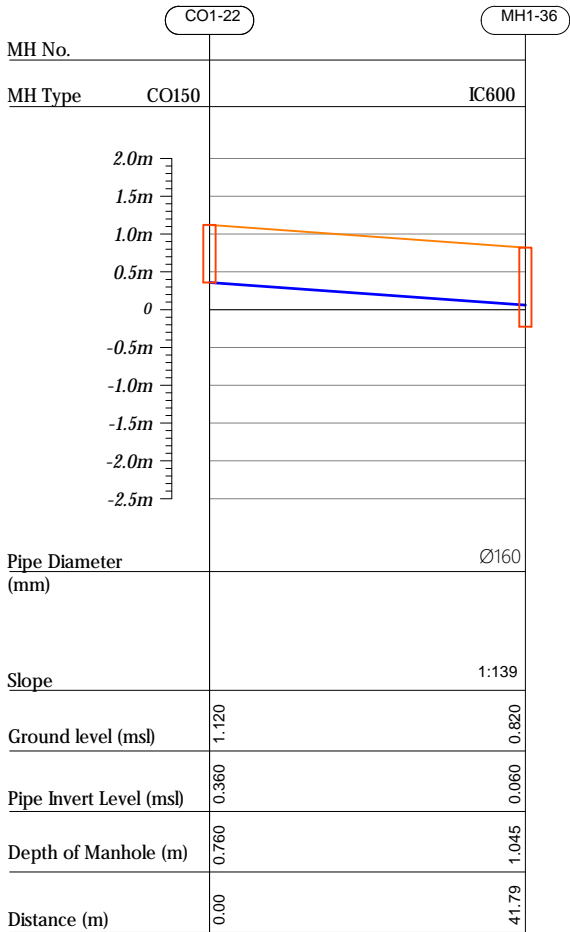
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Date: Aug 2020 SCALE (A3): 1:100

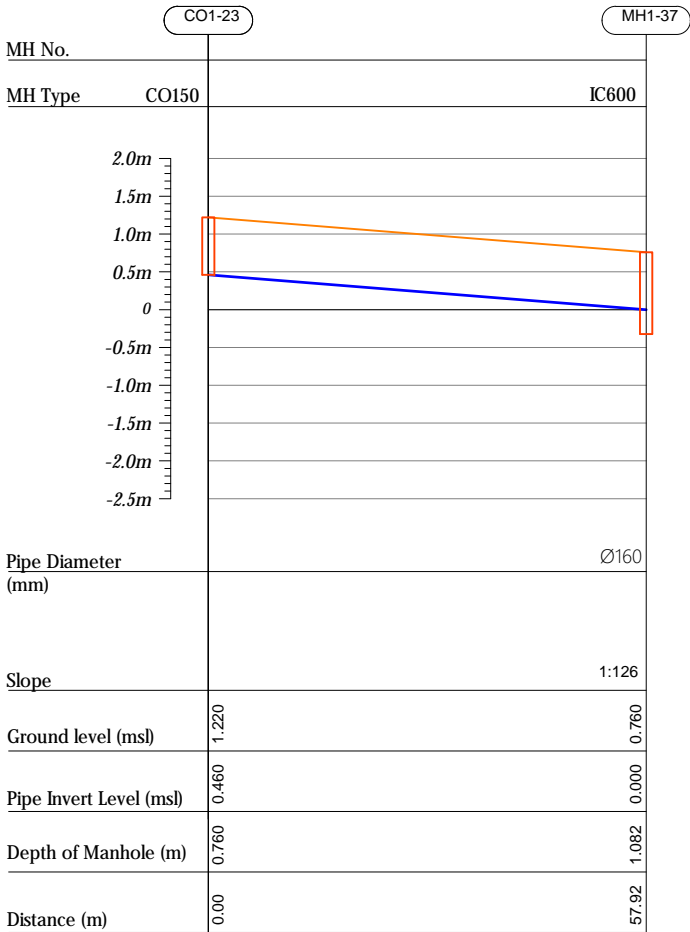
Project No: 01010101

Rev: R-01 Page: PS1-11

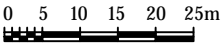
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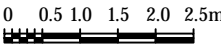
Profile 23



HORIZONTAL SCALE



VERTICAL SCALE



- CO160 — Cleanout Ø160
- IC600 — HDPE Manhole Ø600
- PS — Pump Station

R00	JUNE 2020	STAGE -I	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
5 islands, Maldives - Package 6

Sub Title:
Sewerage System in GA.Nilandhoo

Client:
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Infrastructure, Republic of Maldives



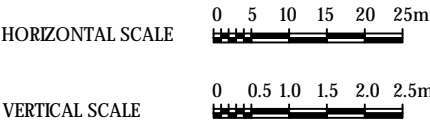
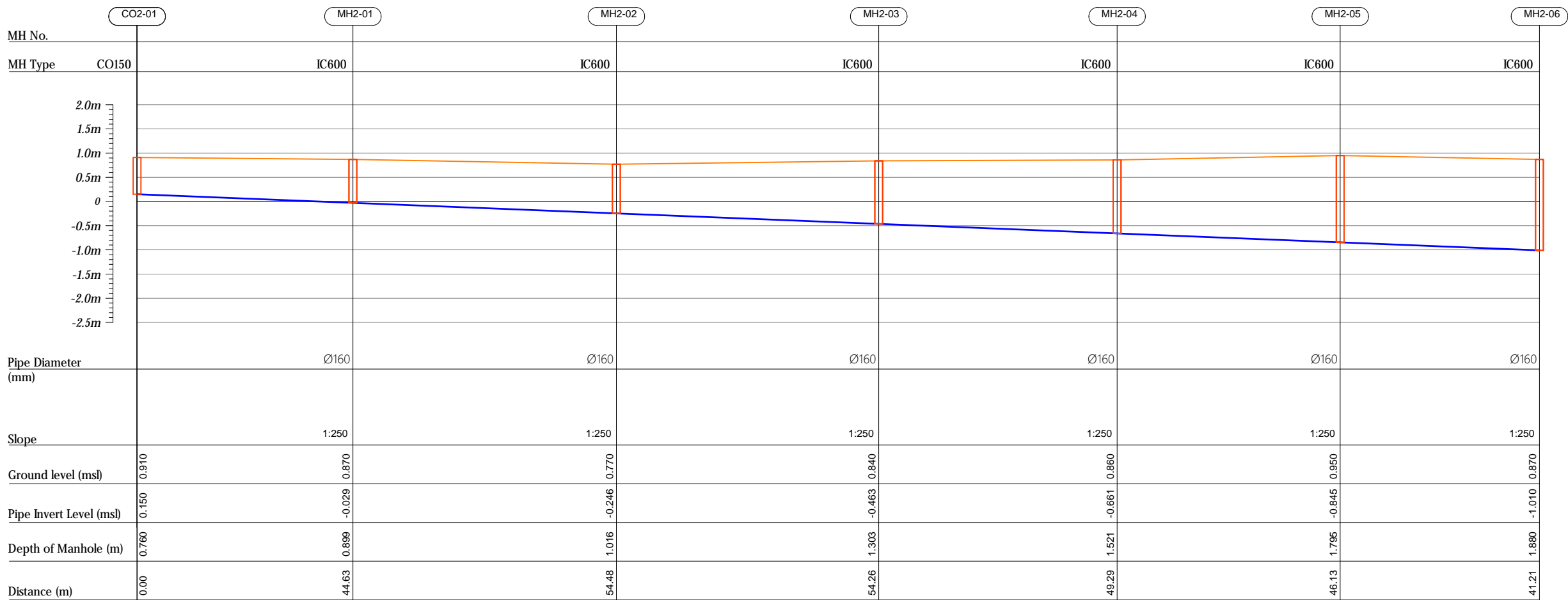
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Designed: F.L.A	Approved: L.W
Date: Aug 2020	SCALE (A3): 1:100
Project No: 01010101	
Rev: R-01	Page: PS1-12

Profile 01



CO160 — Cleanout Ø160
IC600 — HDPE Manhole Ø600
PS — Pump Station

R00	JUNE 2020	STAGE -I	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
5 islands, Maldives - Package 6

Sub Title:
Sewerage System in GA.Nilandhoo

Client:
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Infrastructure, Republic of Maldives



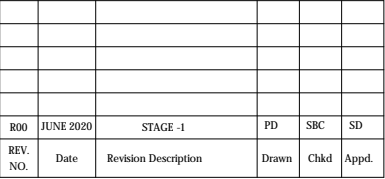
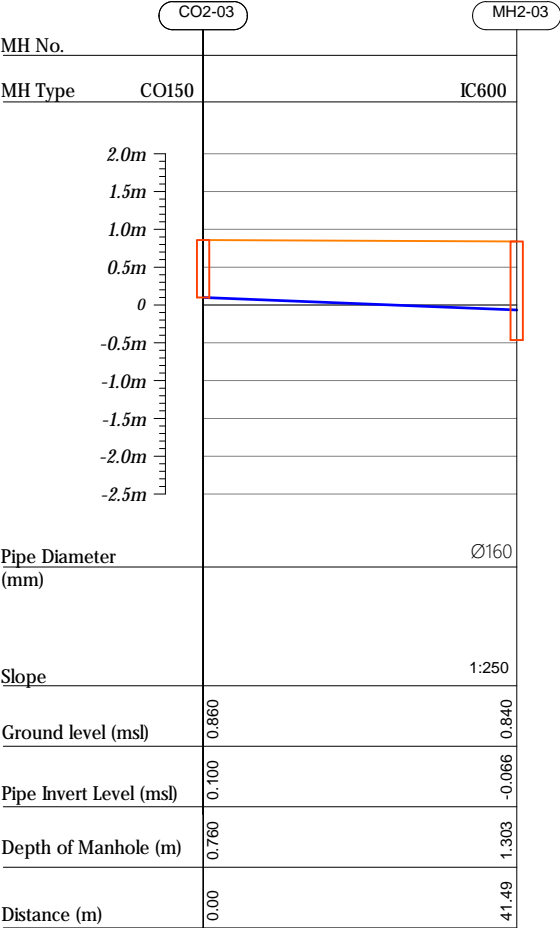
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Designed: F.L.A	Approved: L.W
Date: Aug 2020	SCALE (AS): 1:100
Project No: 01010101	
Rev: R-01	Page: PS2-01


Profile 03



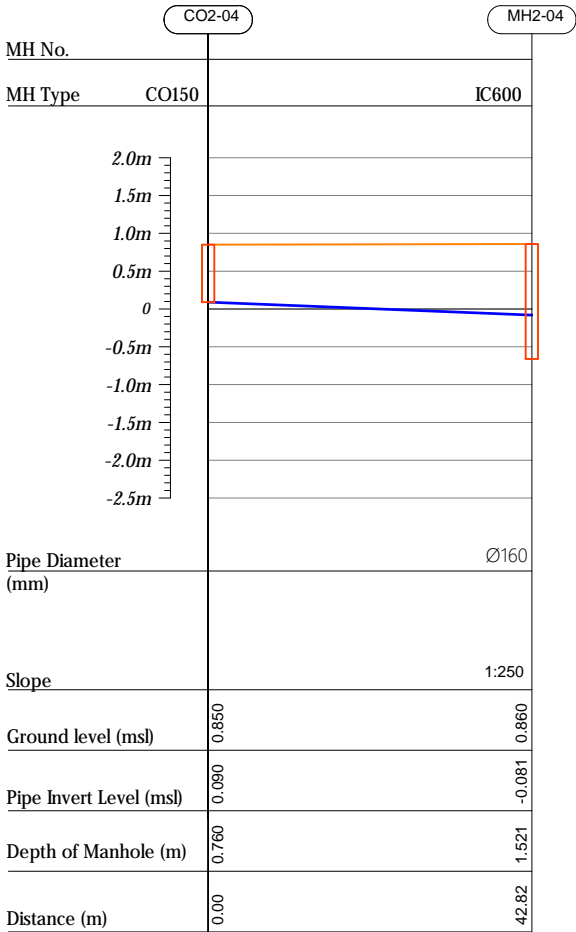
Title:
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Design and EIA works of Water
Supply and Sewerage Facilities in
5 islands, Maldives - Package 6*

Sub Title:
Sewerage System in GA.Nilandhoo

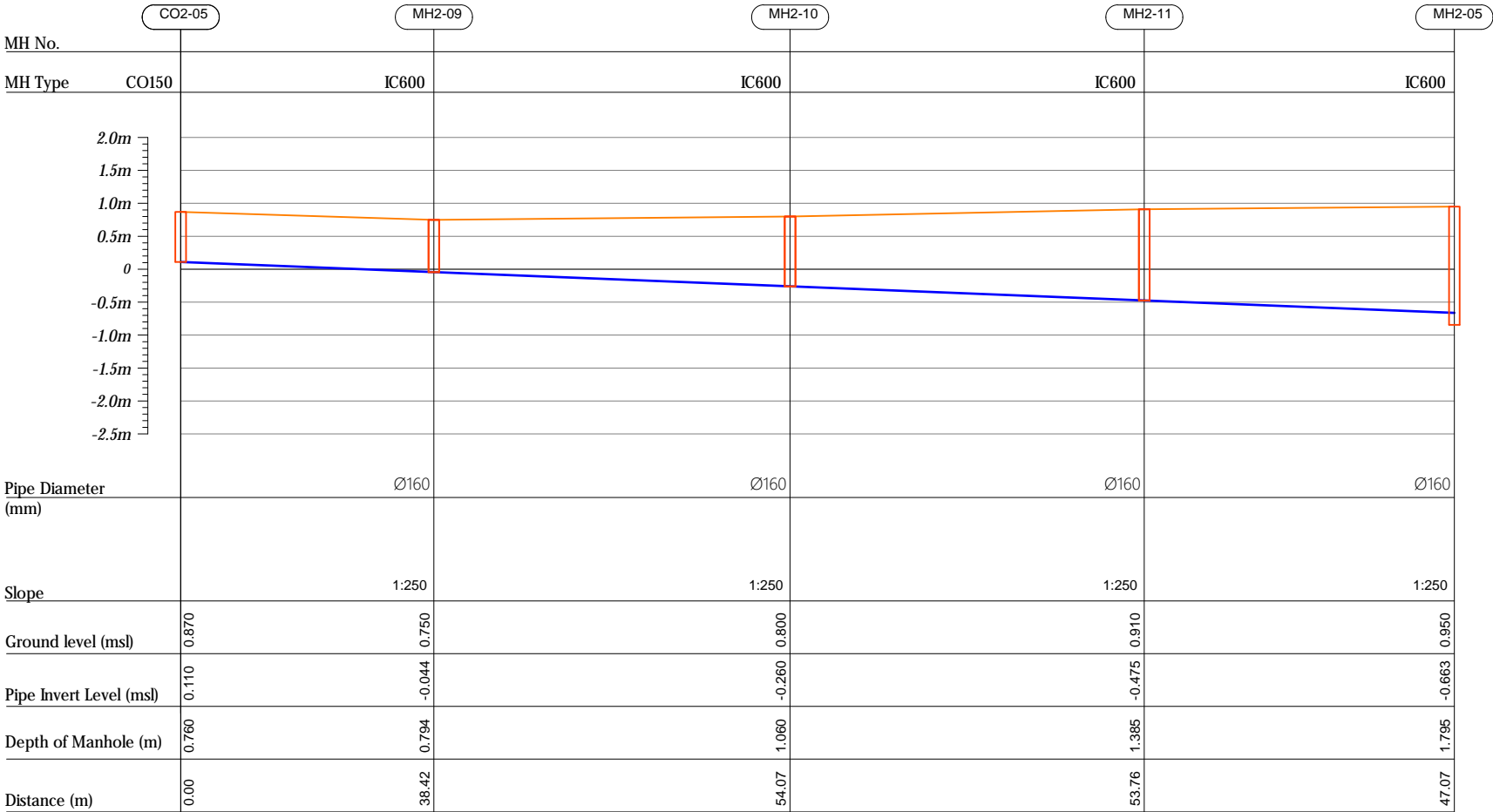
Client:
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Drawn: A.R.W	Checked: M.S.S
Designed: F.L.A	Approved: L.W
Date: Aug 2020	SCALE (A3): 1:100
Project No: 01010101	
Rev: R-01	Page: PS2-02

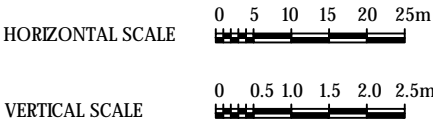
Profile 04



Profile 05



Profile 04



CO160 — Cleanout Ø160
IC600 — HDPE Manhole Ø600
PS — Pump Station

R00	JUNE 2020	STAGE -I	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
5 islands, Maldives - Package 6

Sub Title:
Sewerage System in GA.Nilandhoo

Client:
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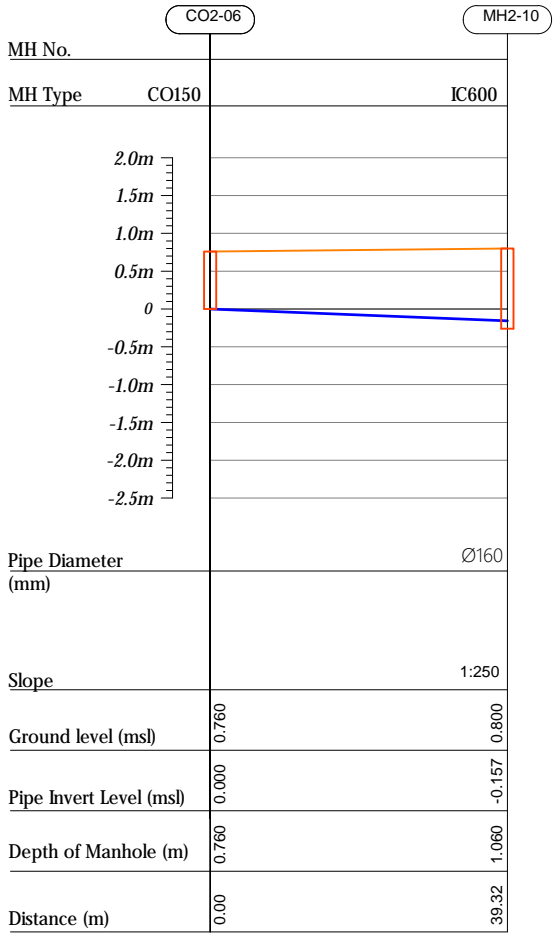
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Hussuvehena Magu, Male', Maldives



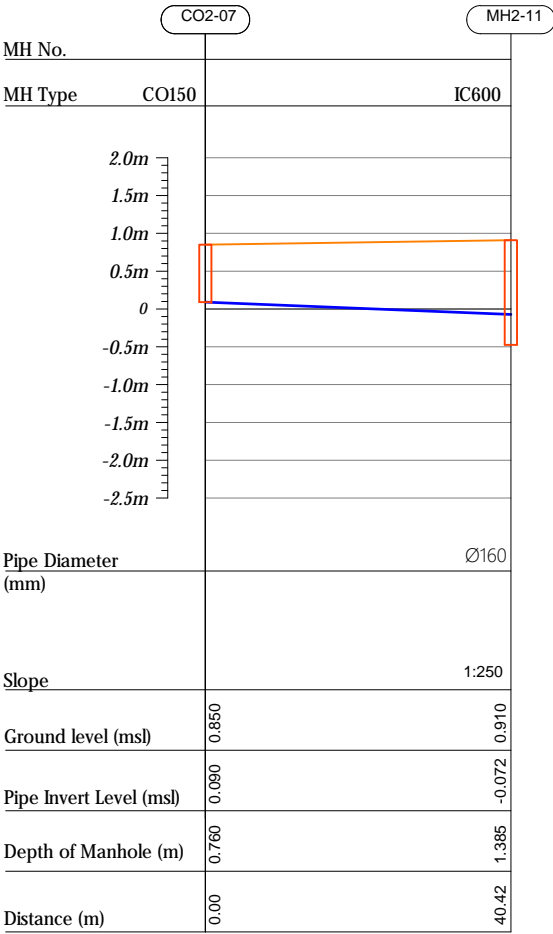
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Date: Aug 2020	SCALE (A3): 1:100
Project No: 01010101	
Rev: R-01	Page: PS2-03

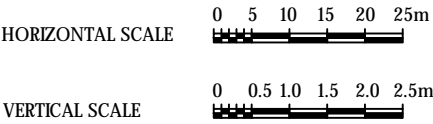
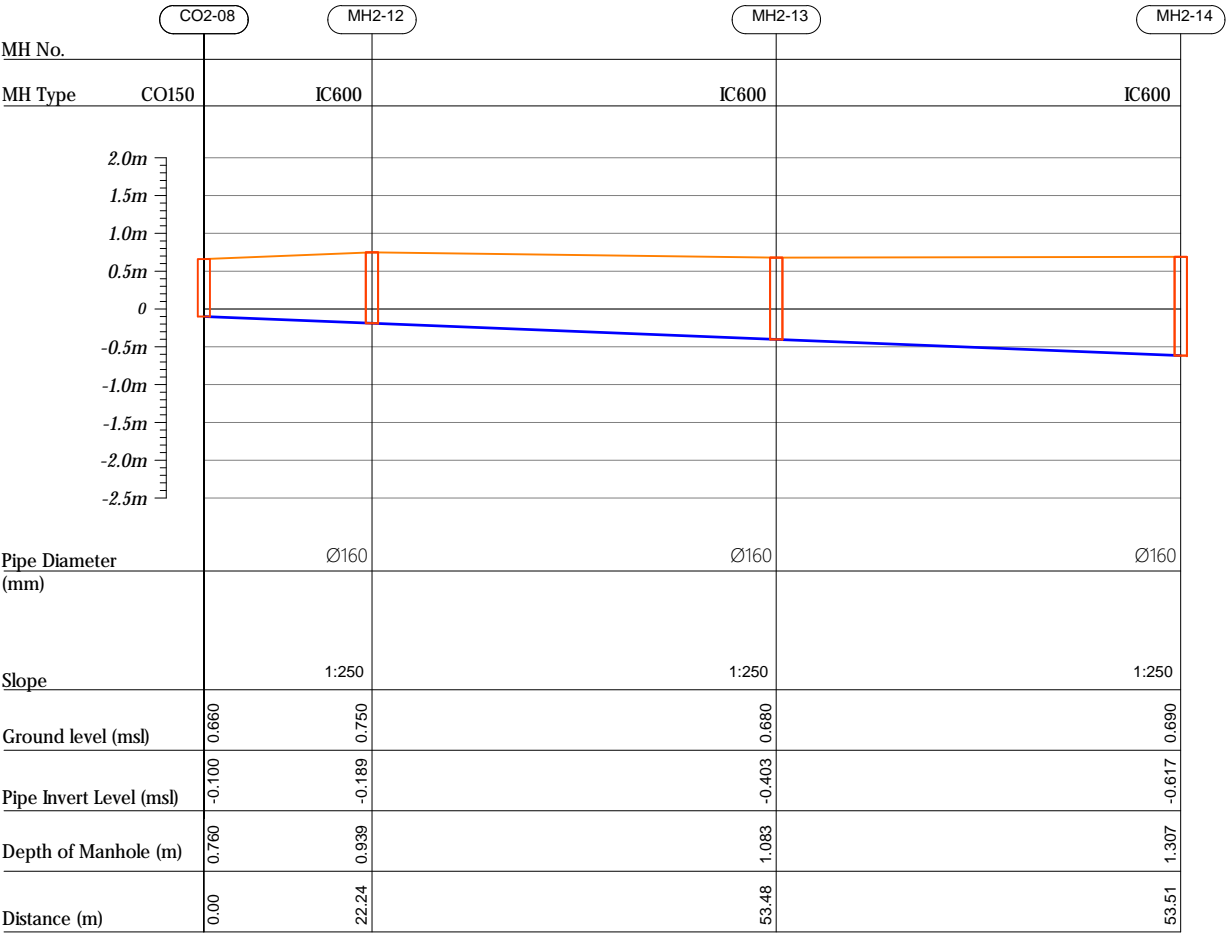
Profile 06



Profile 07



Profile 08



CO160 — Cleanout Ø160
IC600 — HDPE Manhole Ø600
PS — Pump Station

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

Title:
Consultancy Services for Survey,
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Sub Title:
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Drawn: A.R.W Checked: M.S.S

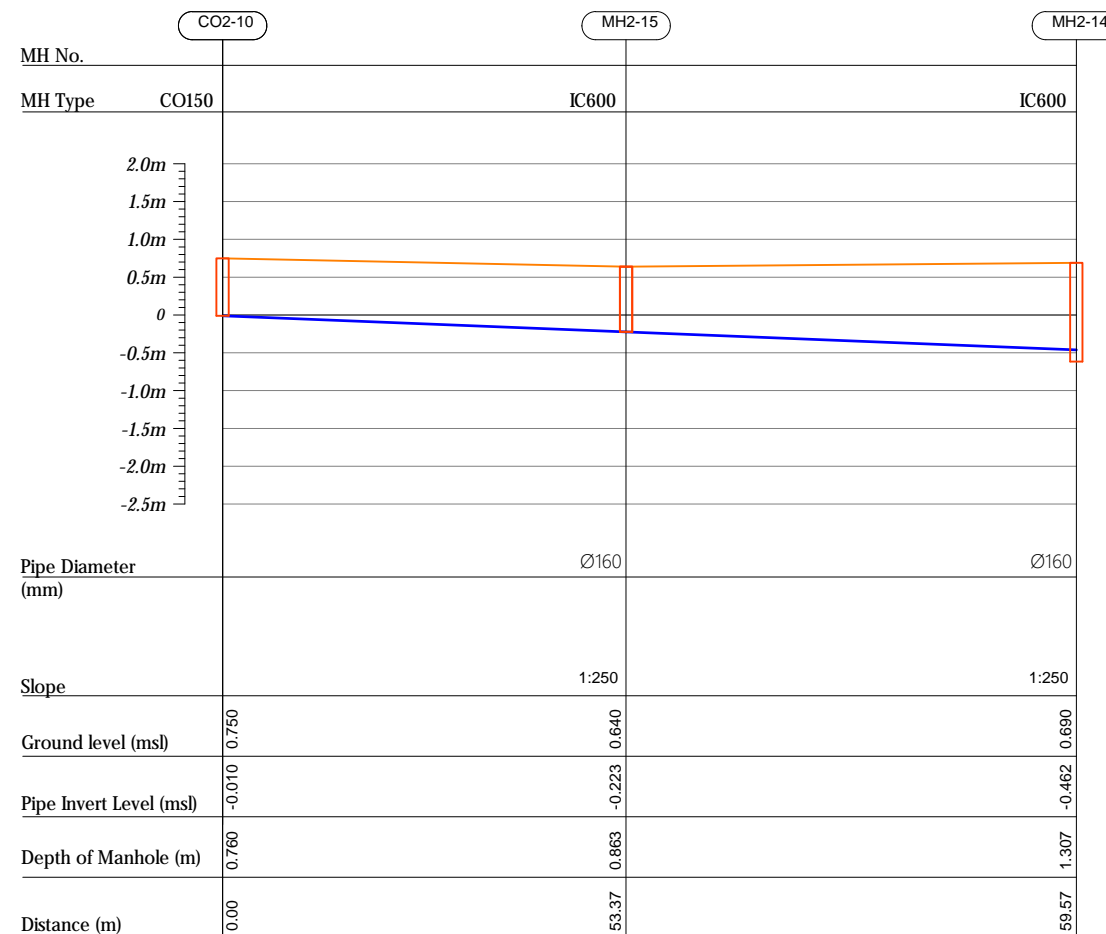
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Date: Aug 2020 SCALE (A3): 1:100

Project No: 01010101

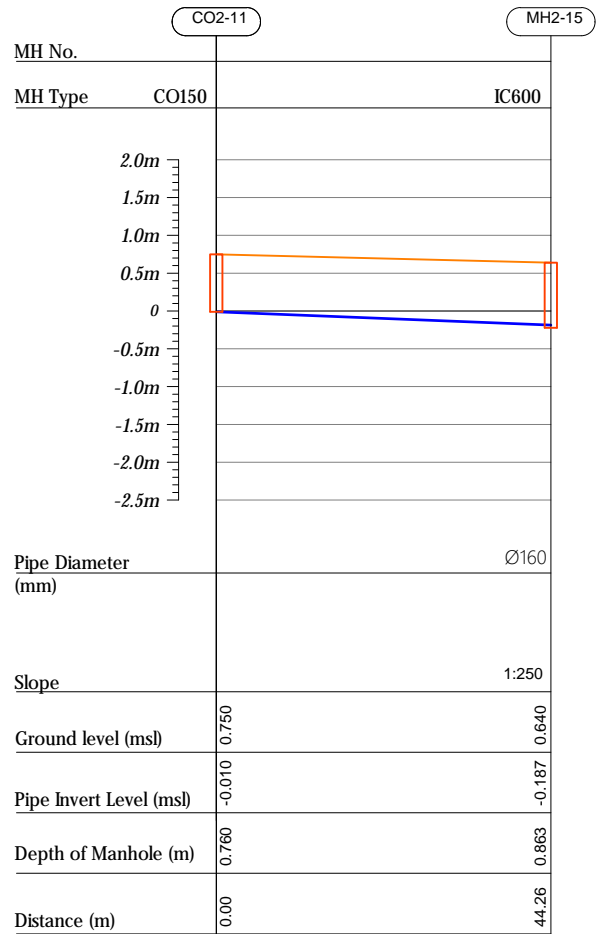
Rev: R-01 Page: PS2-04

Profile 10

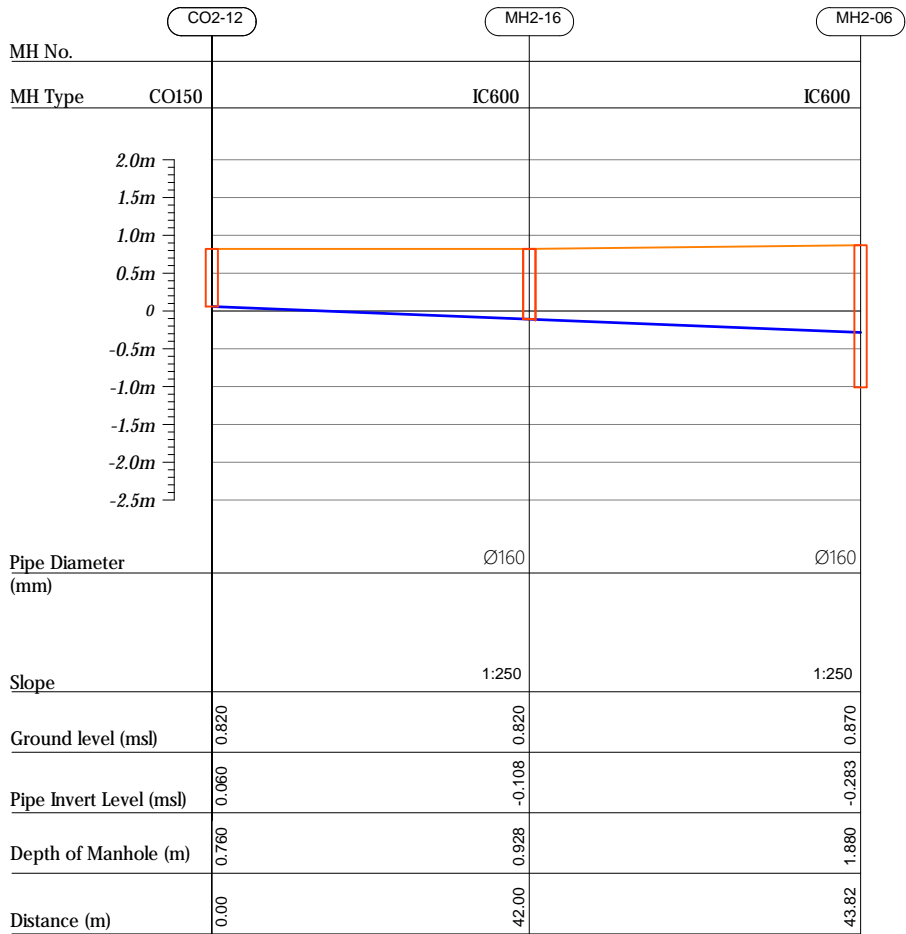


<p>Title: <i>Consultancy Services for Survey, Design and EIA works of Water Supply and Sewerage Facilities in 5 islands, Maldives - Package 6</i></p>	
<p>Sub Title: <i>Sewerage System in GA.Nilandhoo</i></p>	
<p>Client: <i>Ministry of National Planning, Housing and Infrastructure, Republic of Maldives</i></p>	
	
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<p>Drawn: <i>A.R.W</i></p>	<p>Checked: <i>M.S.S</i></p>
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<p>Date: <i>Aug 2020</i></p>	<p>SCALE (A3): <i>1:100</i></p>
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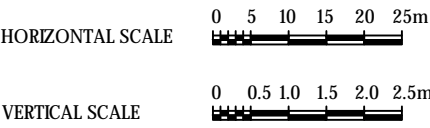
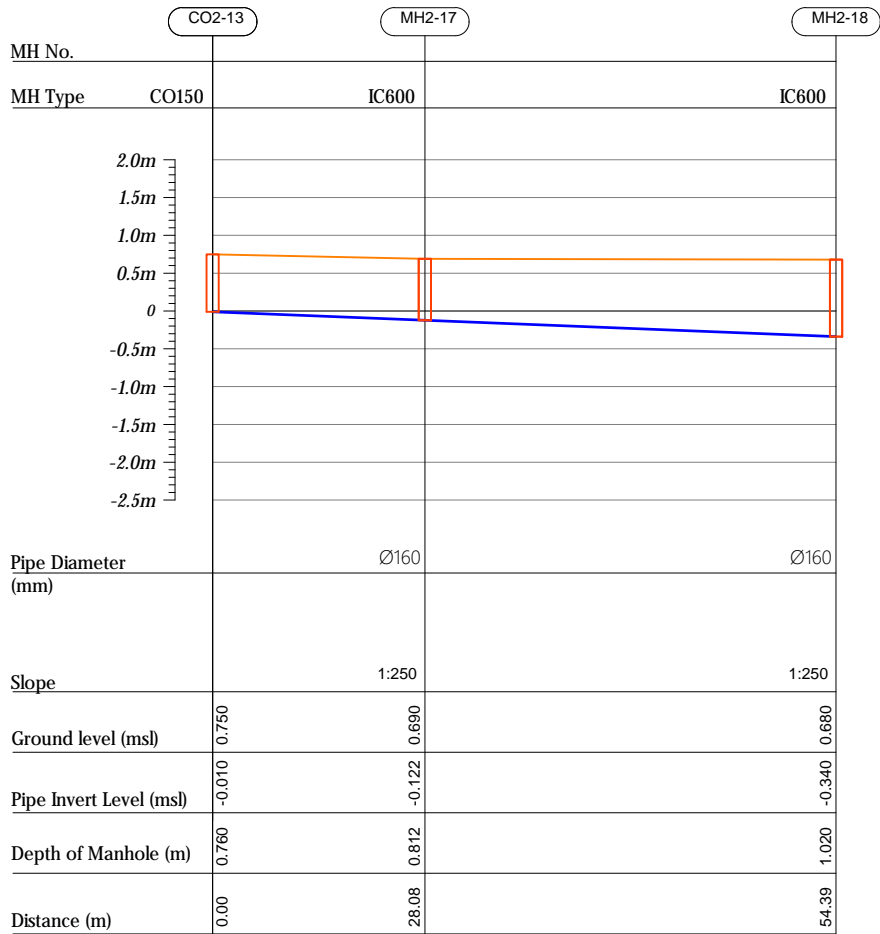
Profile 11



Profile 12



Profile 13



CO160 — Cleanout Ø160
IC600 — HDPE Manhole Ø600
PS — Pump Station

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

Title:
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Sub Title:
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Hussuhermaa Magu, Male', Maldives

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Drawn: A.R.W Checked: M.S.S

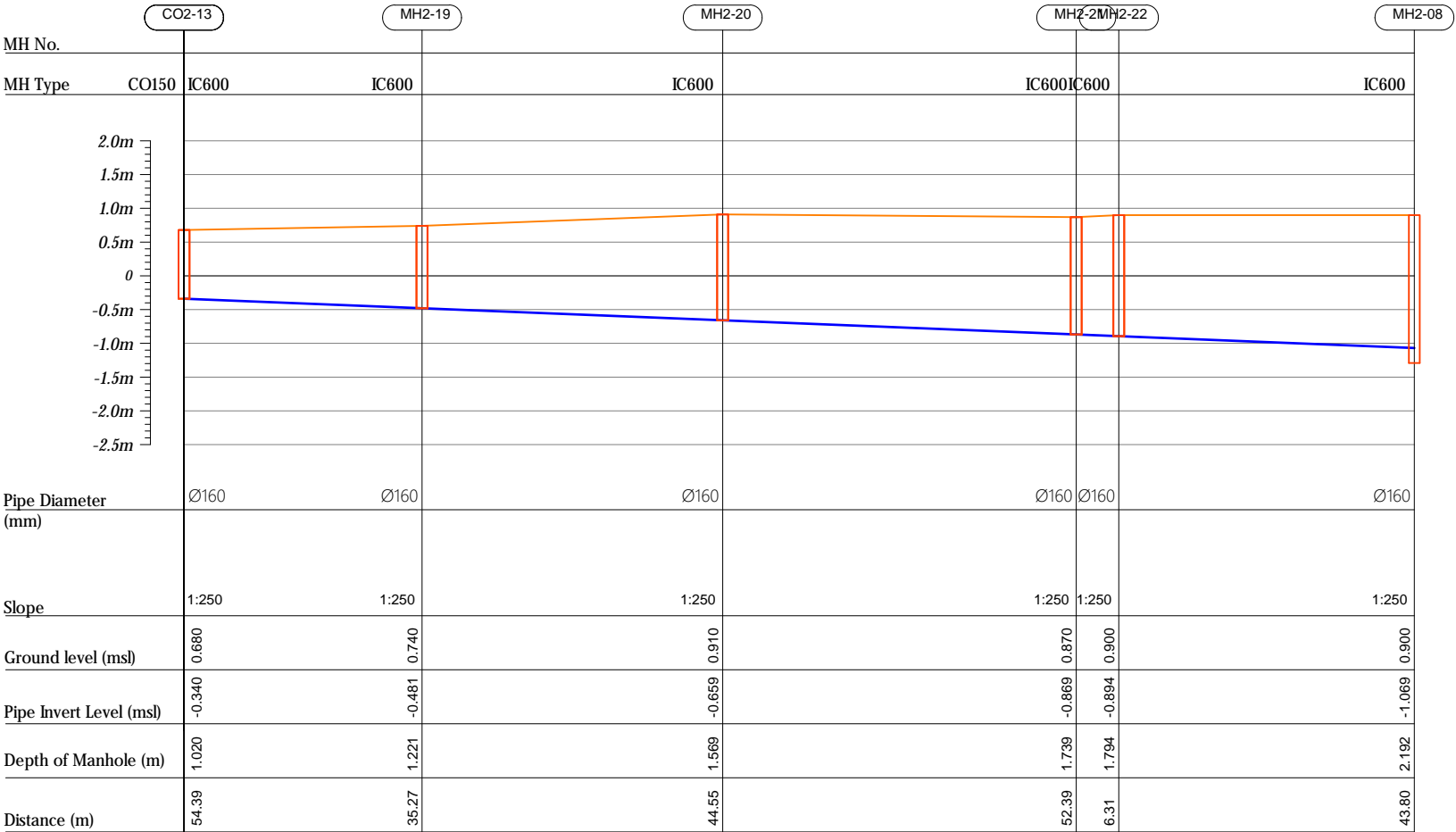
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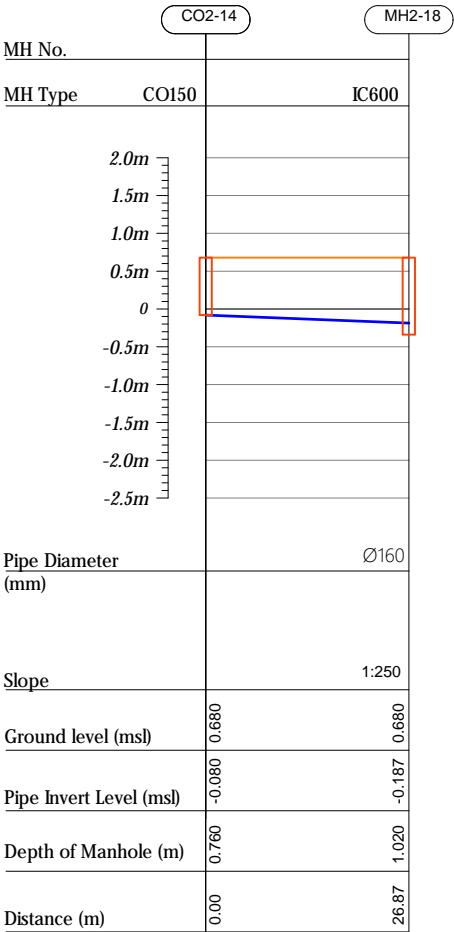
Project No: 01010101

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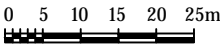
Profile 13



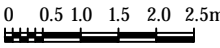
Profile 14



HORIZONTAL SCALE



VERTICAL SCALE



- CO160 — Cleanout Ø160
- IC600 — HDPE Manhole Ø600
- PS — Pump Station

R00	JUNE 2020	STAGE -I	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
5 islands, Maldives - Package 6

Sub Title:
Sewerage System in GA.Nilandhoo

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



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A: G. Rosary West,
Hussuvehemaa Magu, Male', Maldives

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Drawn: A.R.W Checked: M.S.S

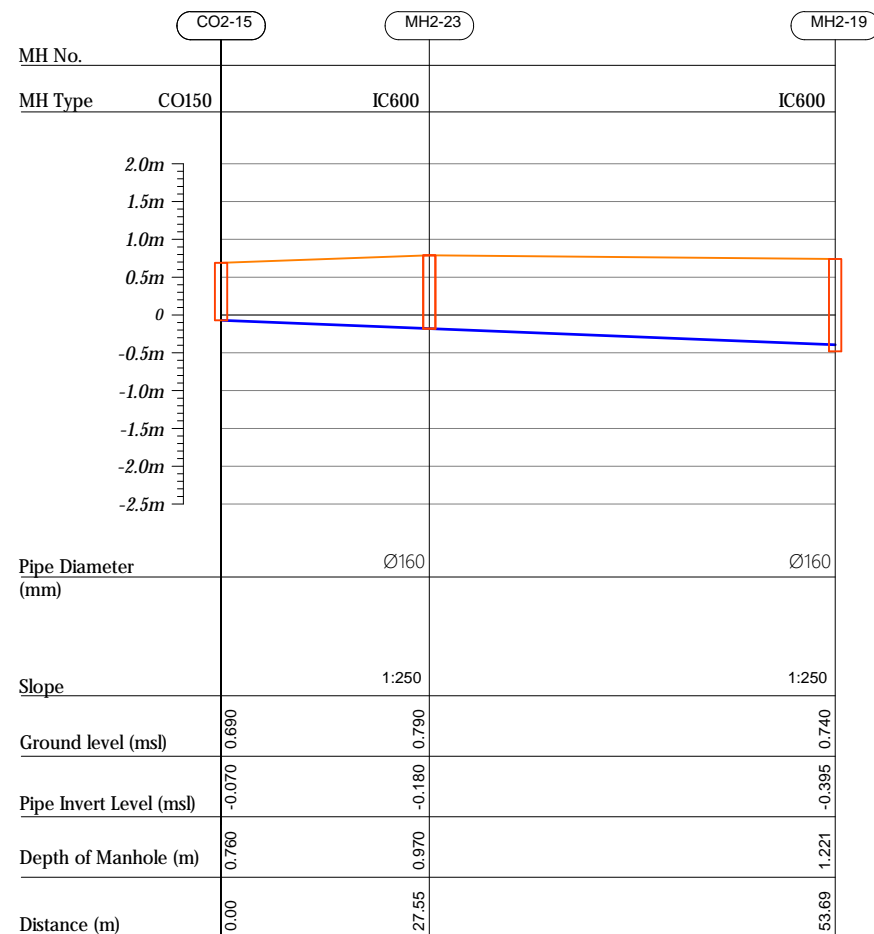
Designed: F.L.A Approved: L.W

Date: Aug 2020 SCALE (A3): 1:100

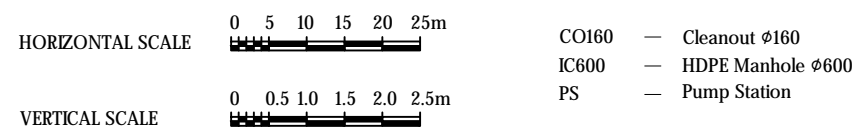
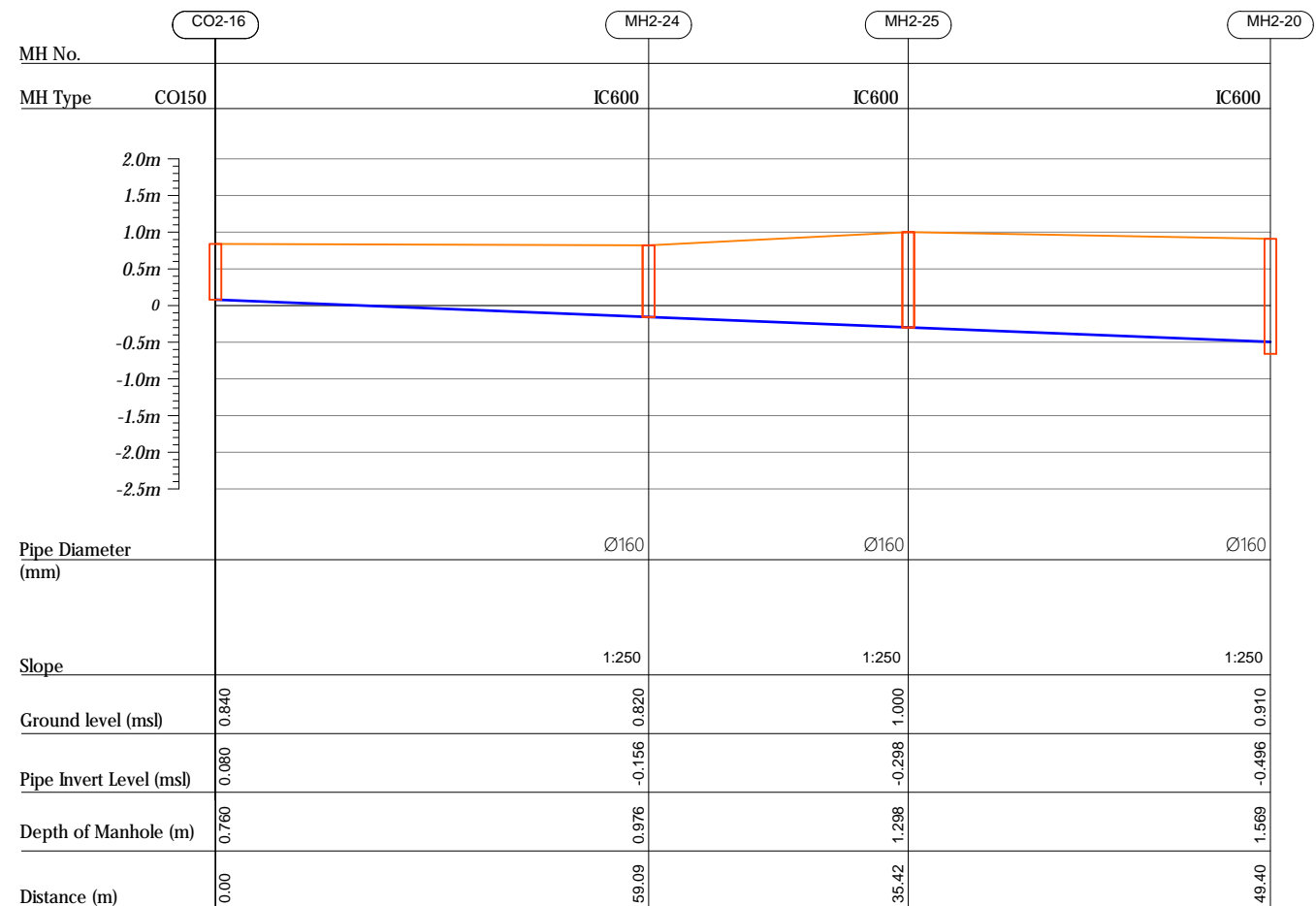
Project No: 01010101

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Profile 15



Profile 16



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
5 islands, Maldives - Package 6*

Sub Title:
Sewerage System in GA.Nilandhoo

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



Drawn: A.R.W	Checked: M.S.S
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Designed: F.L.A	Approved: LW
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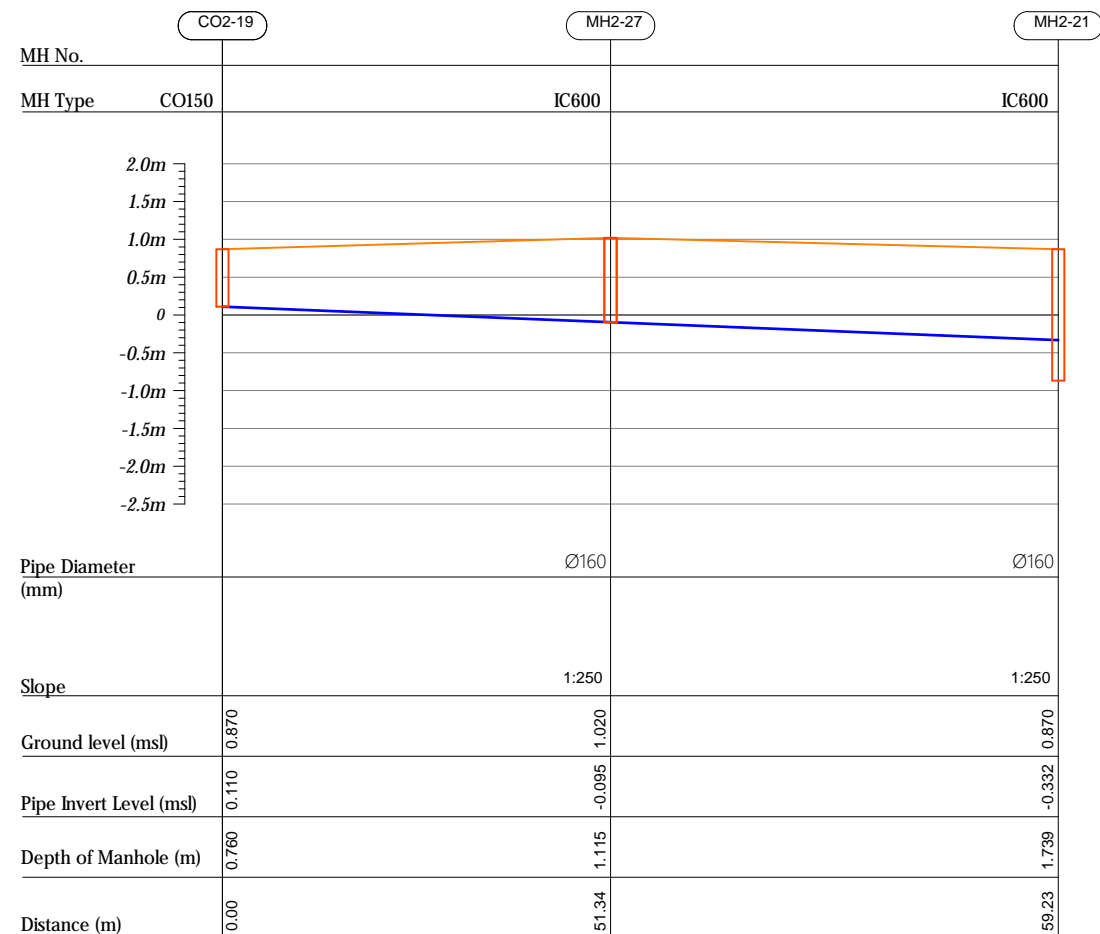
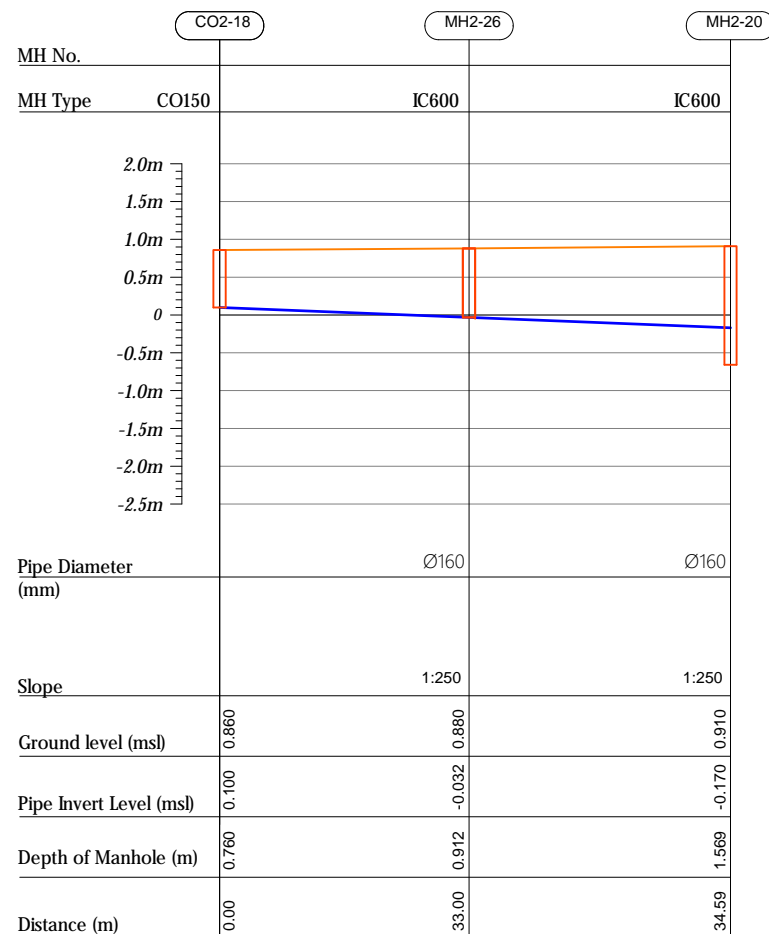
Date: Aug 2020	SCALE (A3): 1:100
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Project No: 01010101

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R-01	PS2-08

Profile 18

	CO2-17	MH2-25
MH No.		
MH Type	CO150	IC600
Pipe Diameter (mm)		Ø160
Slope		1:250
Ground level (msl)	0.780	0.760
Pipe Invert Level (msl)	0.020	-0.074
Depth of Manhole (m)	0.760	1.298
Distance (m)	0.00	23.60



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

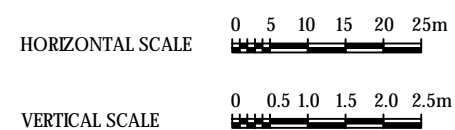
Sub Title:
Sewerage System in GA.Nilandhoo

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



Drawn: A.R.W	Checked: M.S.S
Designed: F.L.A	Approved: L.W
Date: Aug 2020	SCALE (A3): 1:100
Project No: 01010101	

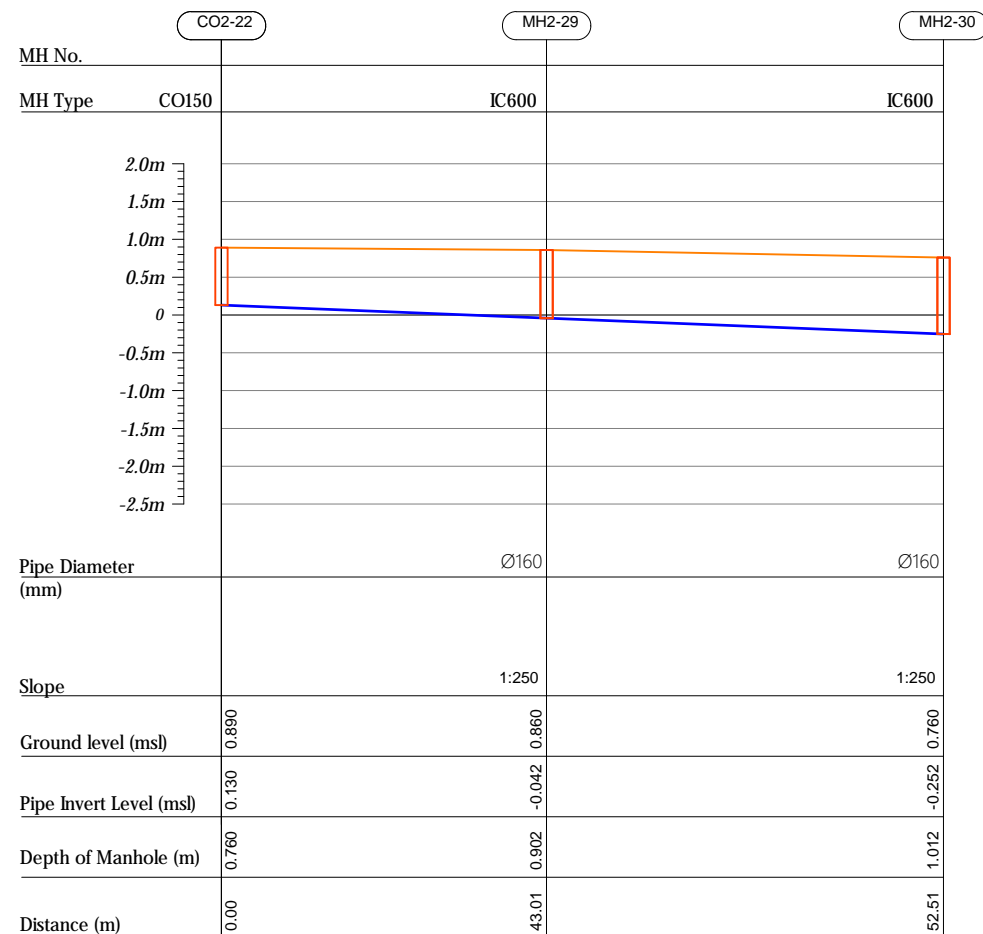
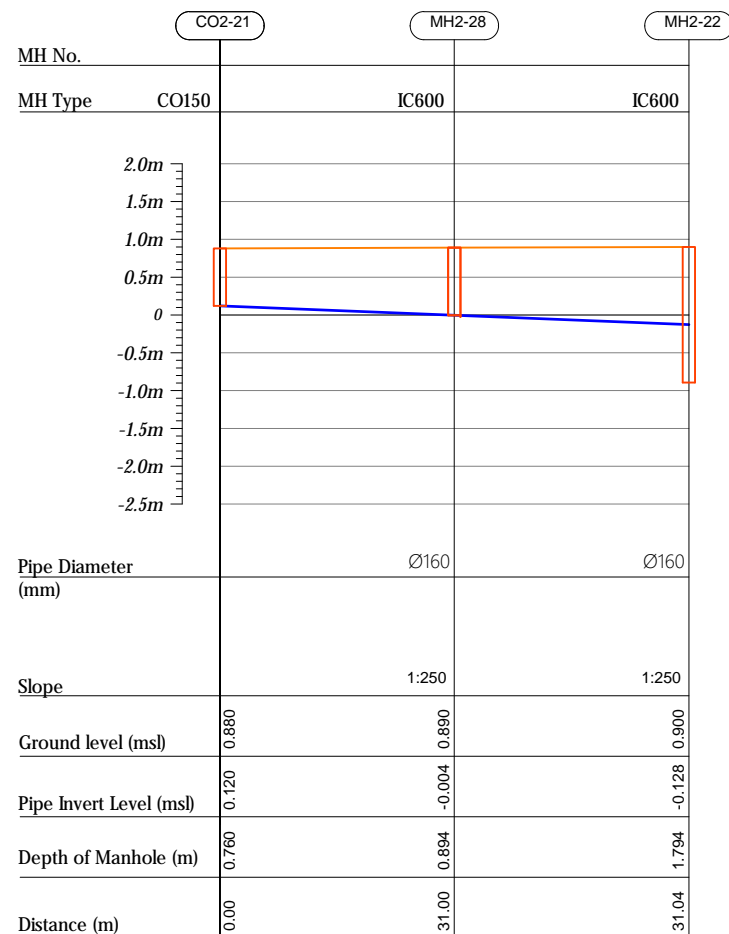
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CO160	—	Cleanout $\phi 160$
IC600	—	HDPE Manhole $\phi 600$
PS	—	Pump Station

Profile 21

	CO2-20	MH2-27
MH No.		
MH Type	CO150	IC600
Pipe Diameter (mm)		Ø160
Slope		1:250
Ground level (msl)	1.030	1.020
Pipe Invert Level (msl)	0.270	0.204
Depth of Manhole (m)	0.760	1.115
Distance (m)	0.00	16.46



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

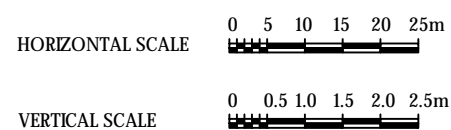
Sub Title:
Sewerage System in GA.Nilandhoo

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



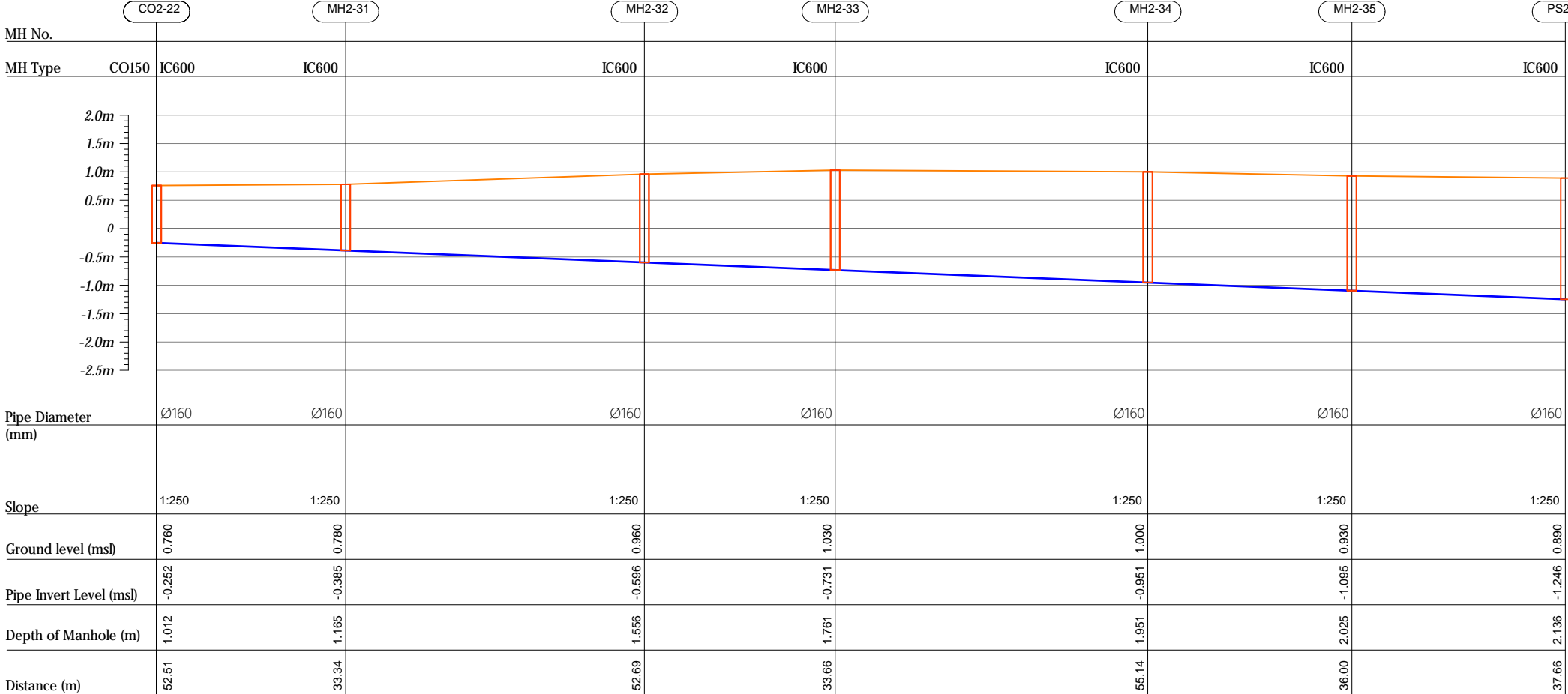
Drawn: A.R.W	Checked: M.S.S
Designed: F.L.A	Approved: L.W
Date: Aug 2020	SCALE (A3): 1:100
Project No: 01010101	

Rev: <i>R-01</i>	Page: <i>PS2-10</i>
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CO160	—	Cleanout Ø160
IC600	—	HDPE Manhole Ø600
PS	—	Pump Station

Profile 22



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
5 islands, Maldives - Package 6*

Sub Title:
Sewerage System in GA.Nilandhoo

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

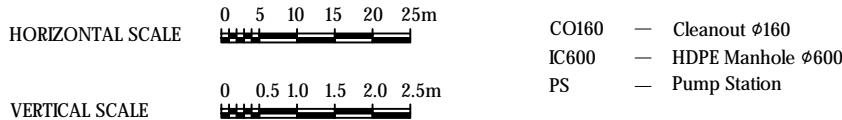


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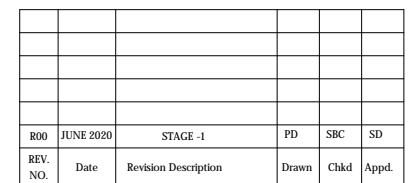
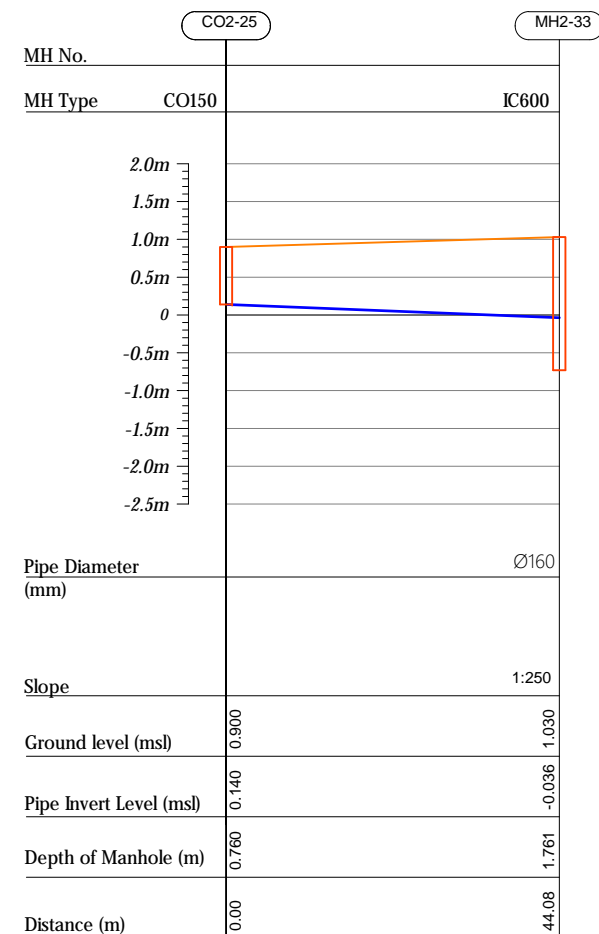
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Date: Aug 2020 SC

Project No. 01010101

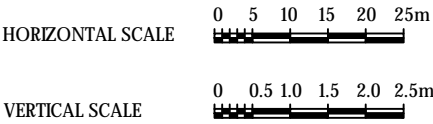
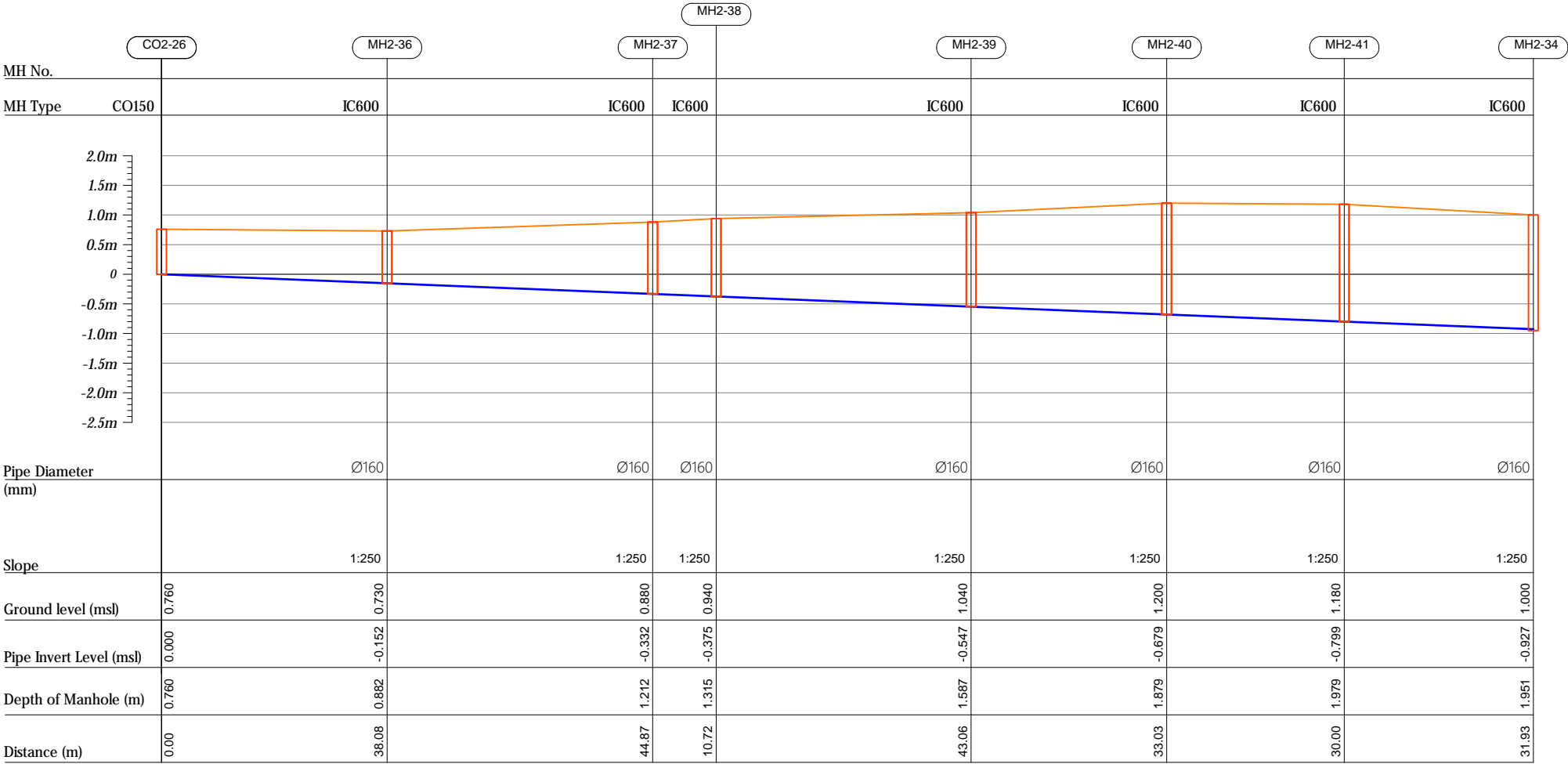
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Profile 25



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Profile 26



CO160 — Cleanout Ø160
IC600 — HDPE Manhole Ø600
PS — Pump Station

R00	JUNE 2020	STAGE -I	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 5 islands, Maldives - Package 6

Sub Title:
Sewerage System in GA.Nilandhoo

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



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Maldivu Sufastruktura Happa

Drawn: A.R.W. Checked: M.S.S.

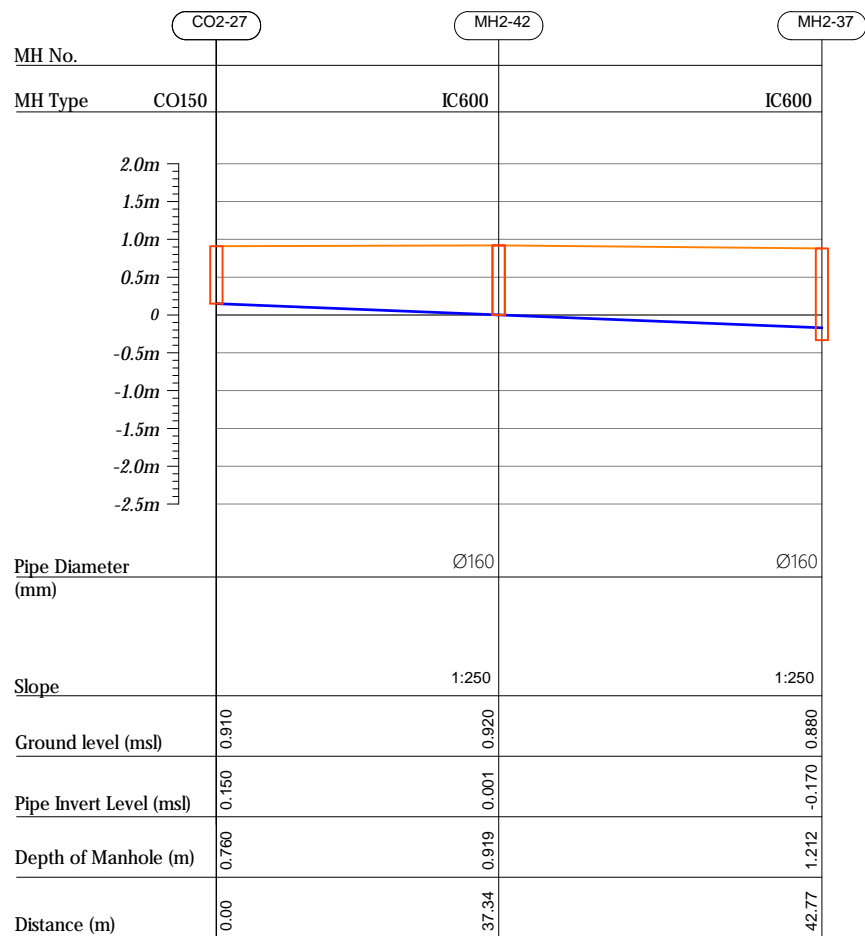
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Date: Aug 2020 SCALE (A3): 1:100

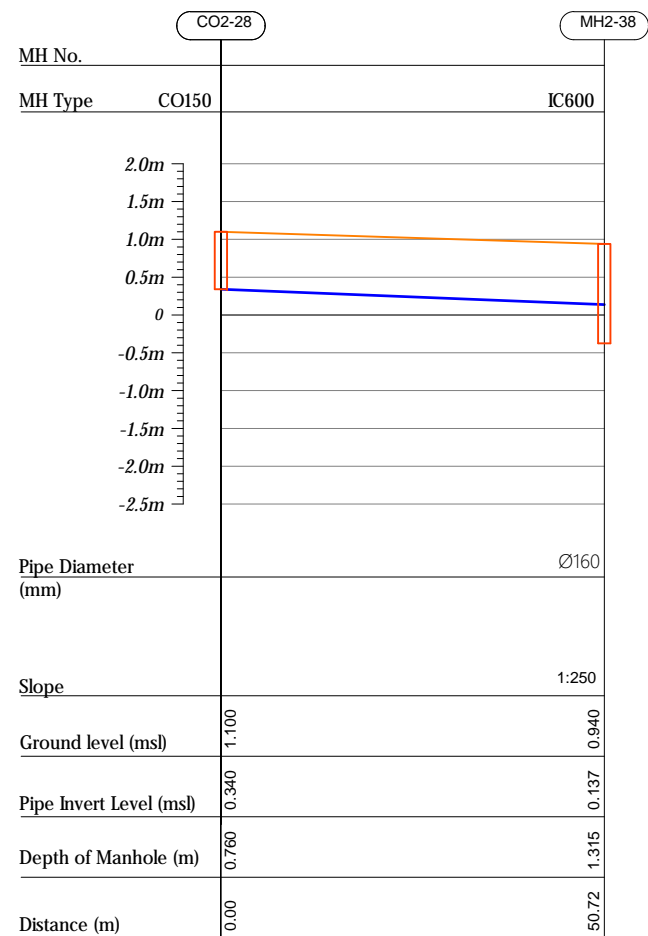
Project No: 01010101

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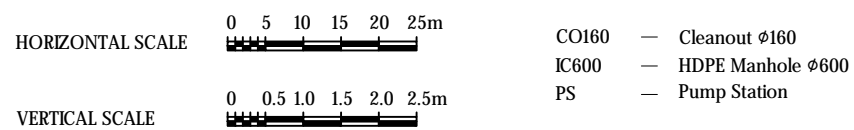
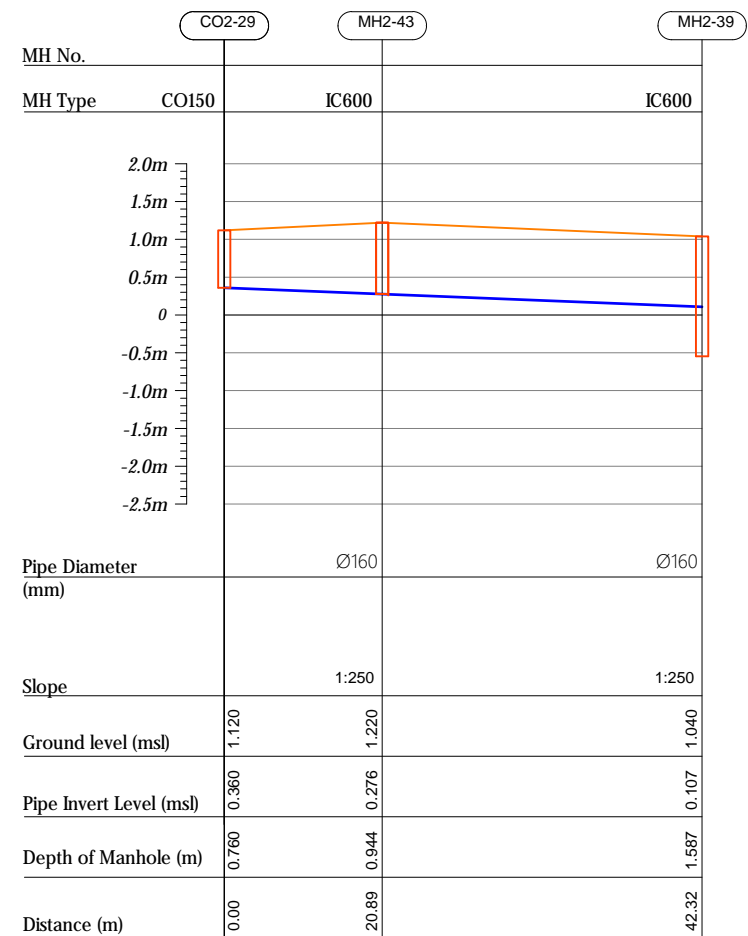
Profile 27



Profile 28



Profile 29



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
5 islands, Maldives - Package 6*

Sub Title:
Sewerage System in GA.Nilandhoo

Client:
*Ministry of National Planning, Housing and
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Designed: F.L.A	Approved: LW
Date: Aug 2020	SCALE (A3): 1:100

Project No: 01010101

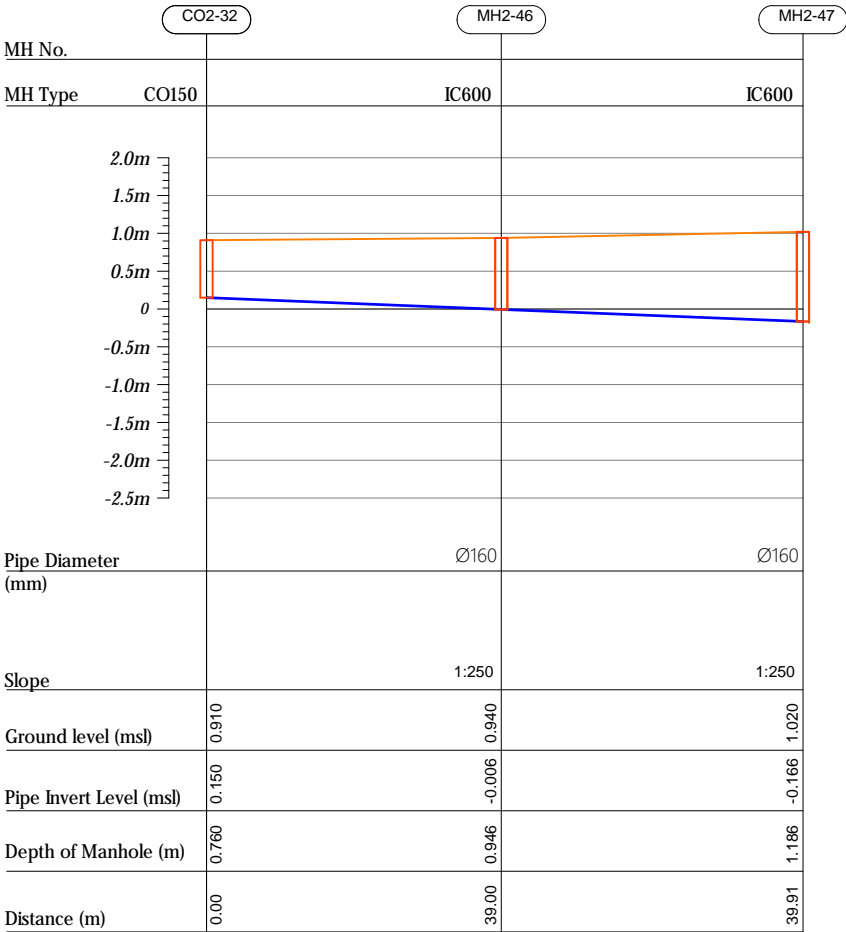
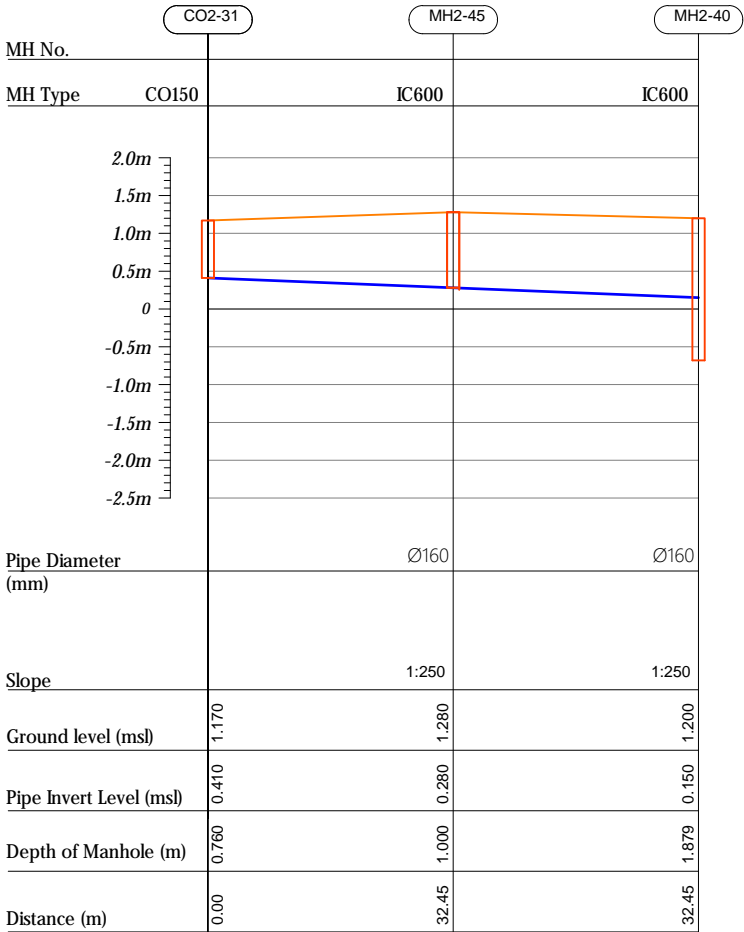
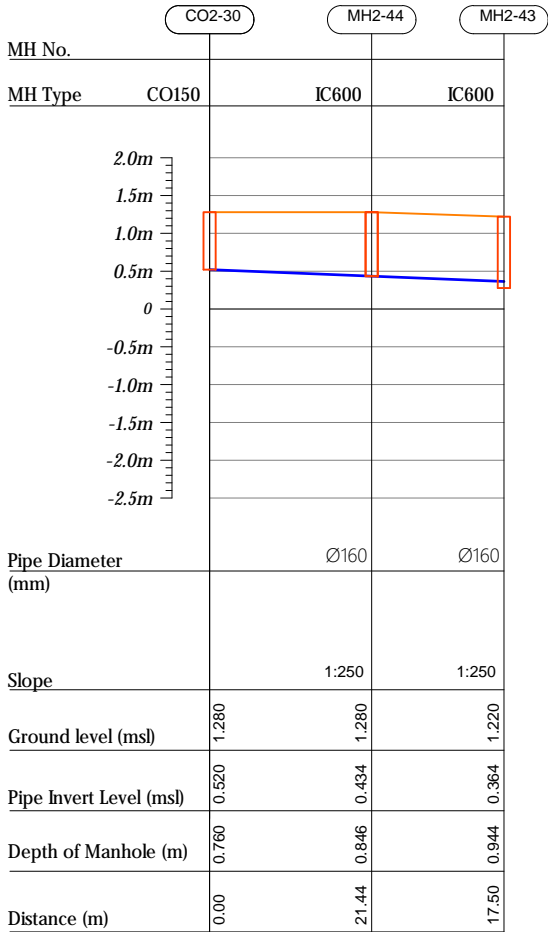
Rev.
R-01

PS2-14

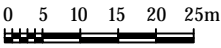
Profile 30

Profile 31

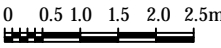
Profile 32



HORIZONTAL SCALE



VERTICAL SCALE



CO160 — Cleanout Ø160
IC600 — HDPE Manhole Ø600
PS — Pump Station

R00	JUNE 2020	STAGE -I	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
5 islands, Maldives - Package 6

Sub Title:
Sewerage System in GA.Nilandhoo

Client:
Ministry of National Planning, Housing and
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Drawn: A.R.W Checked: M.S.S

Designed: F.L.A Approved: L.W

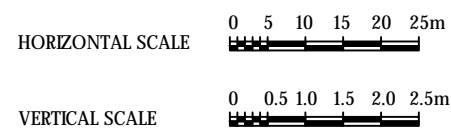
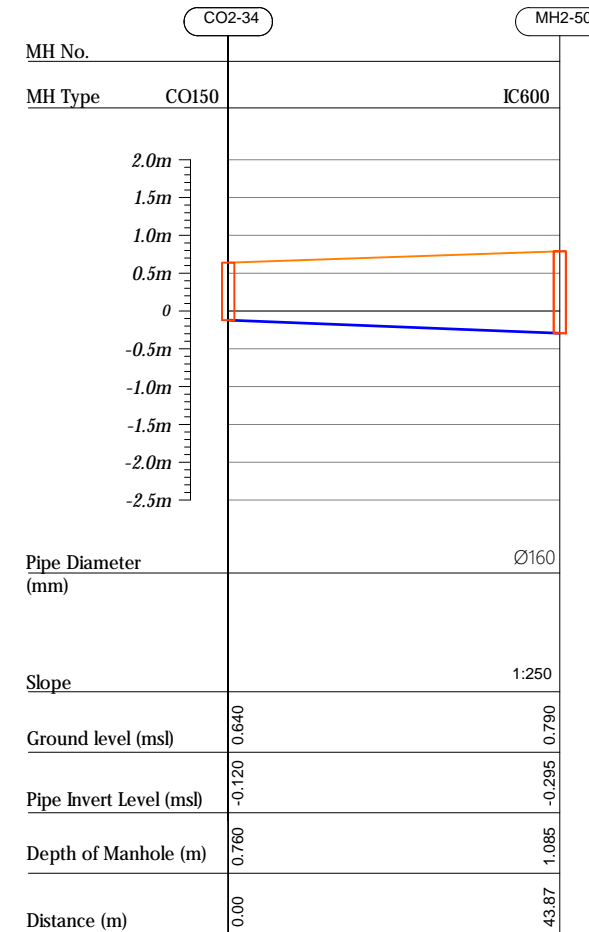
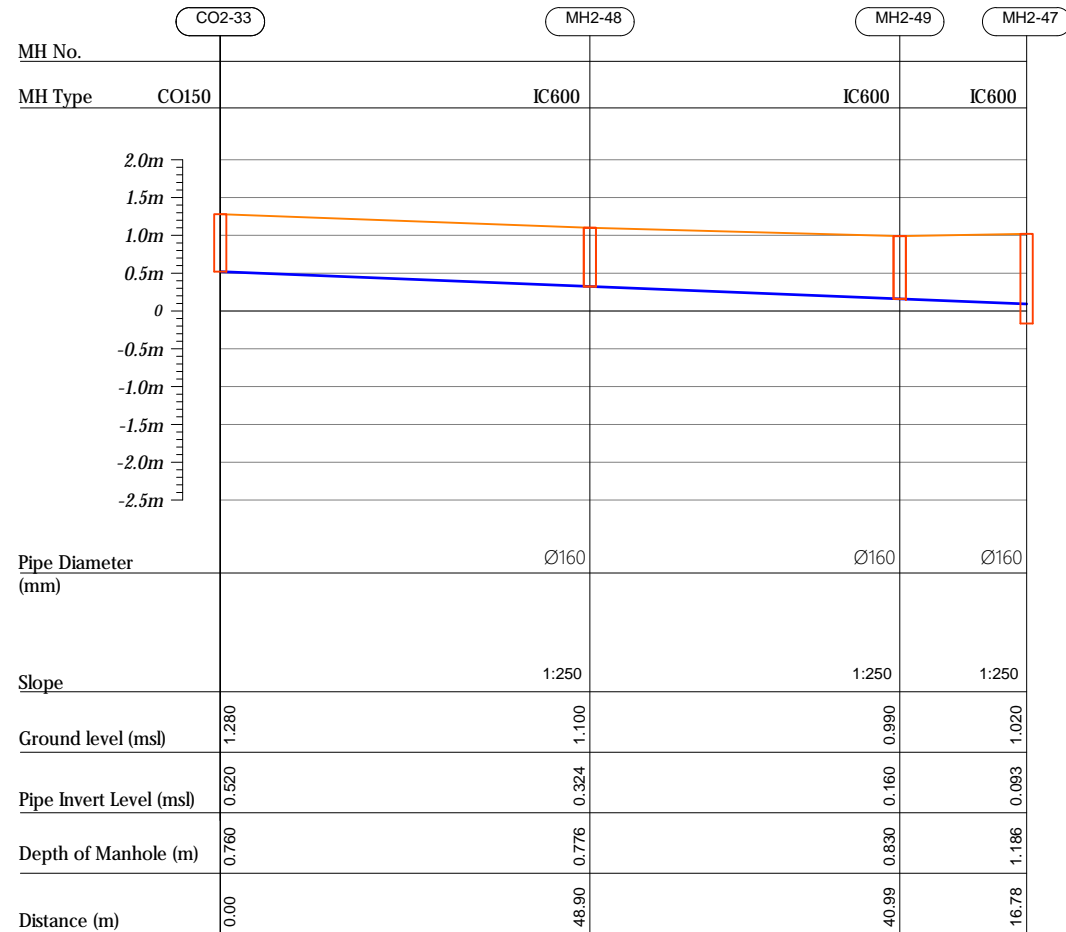
Date: Aug 2020 SCALE (A3): 1:100

Project No: 01010101

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Profile 33

MH No.	CO2-32		MH2-34
MH Type	CO150	IC600	IC600
Pipe Diameter (mm)		Ø160	Ø160
Slope		1:250	1:250
Ground level (msl)		1.020	1.000
Pipe Invert Level (msl)		-0.166	-0.339
Depth of Manhole (m)		1.186	1.951
Distance (m)		39.91	43.31



CO160	—	Cleanout $\phi 160$
IC600	—	HDPE Manhole $\phi 600$
PS	—	Pump Station

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
5 islands, Maldives - Package 6*

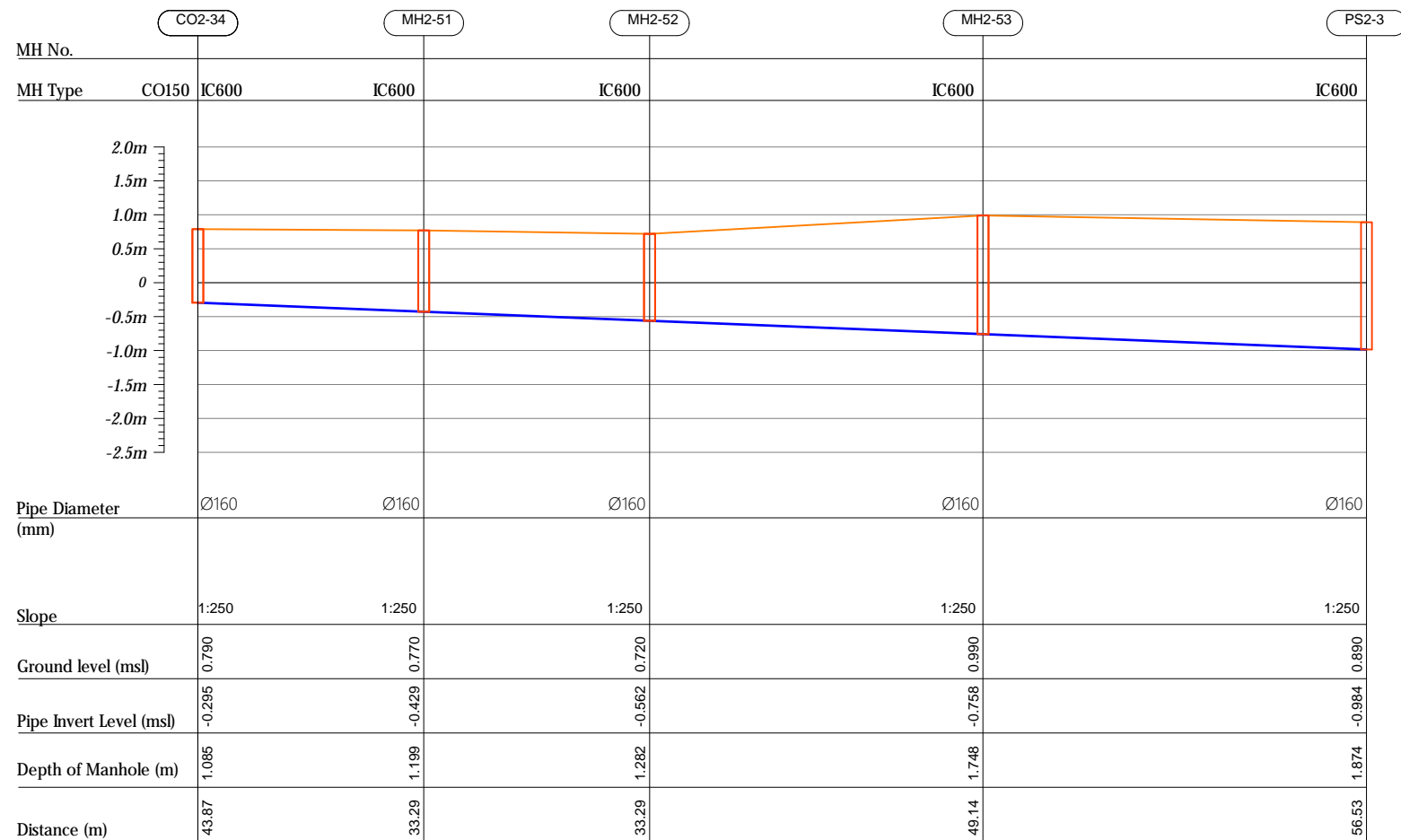
Sub Title:
Sewerage System in GA.Nilandhoo

Client:
*Ministry of National Planning, Housing and
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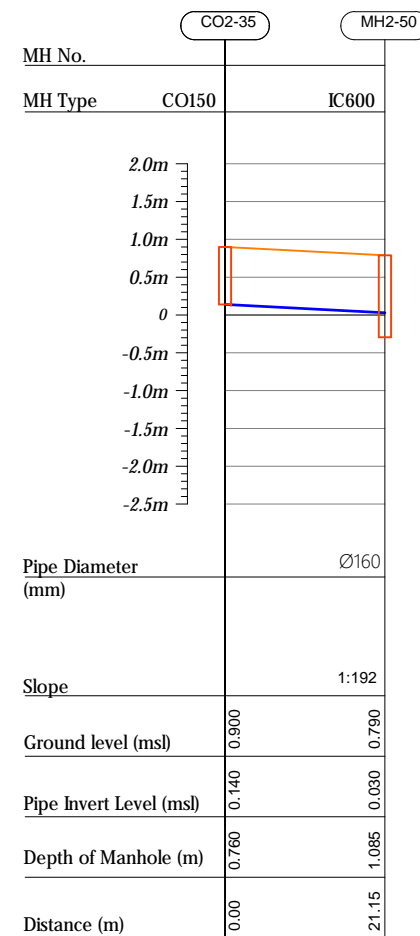


Drawn: A.R.W	Checked: M.S.S
Designed: F.L.A	Approved: L.W
Date: Aug 2020	SCALE (A3): 1:100
Project No: 01010101	
Rev: R-01	Page: PS2-16

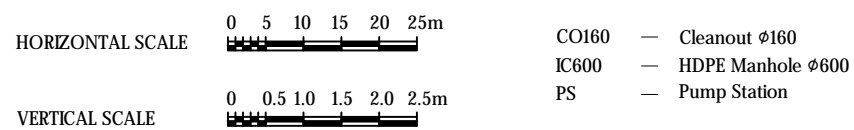
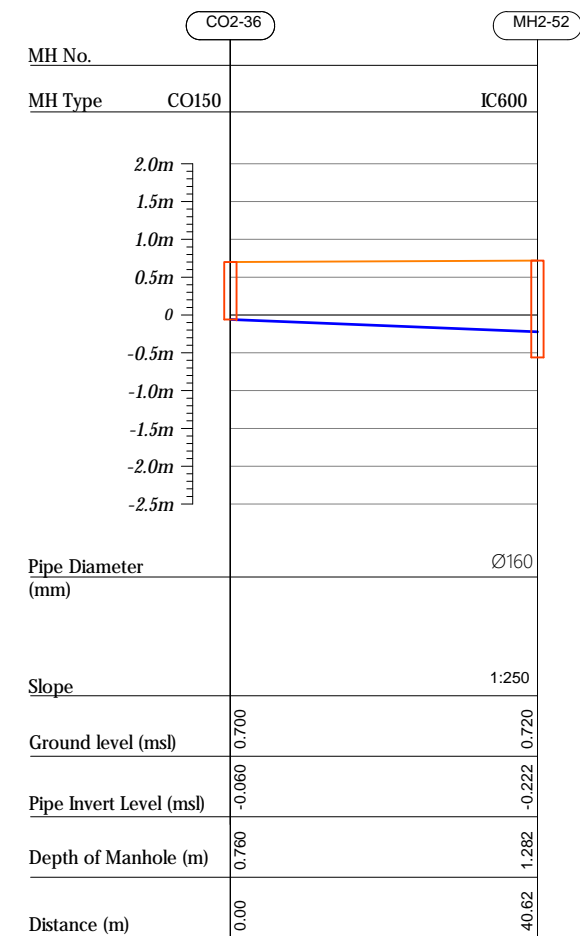
Profile 34



Profile 35



Profile 36



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
5 islands, Maldives - Package 6*

Sub Title:
Sewerage System in GA.Nilandhoo

Client:
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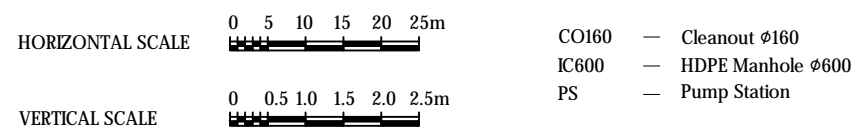
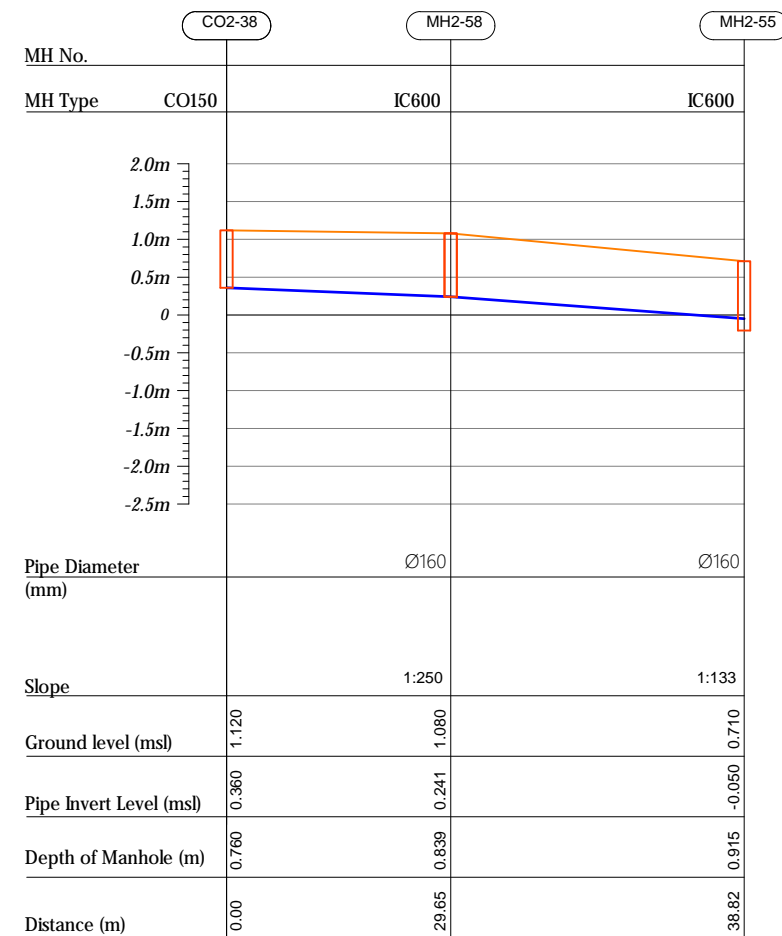
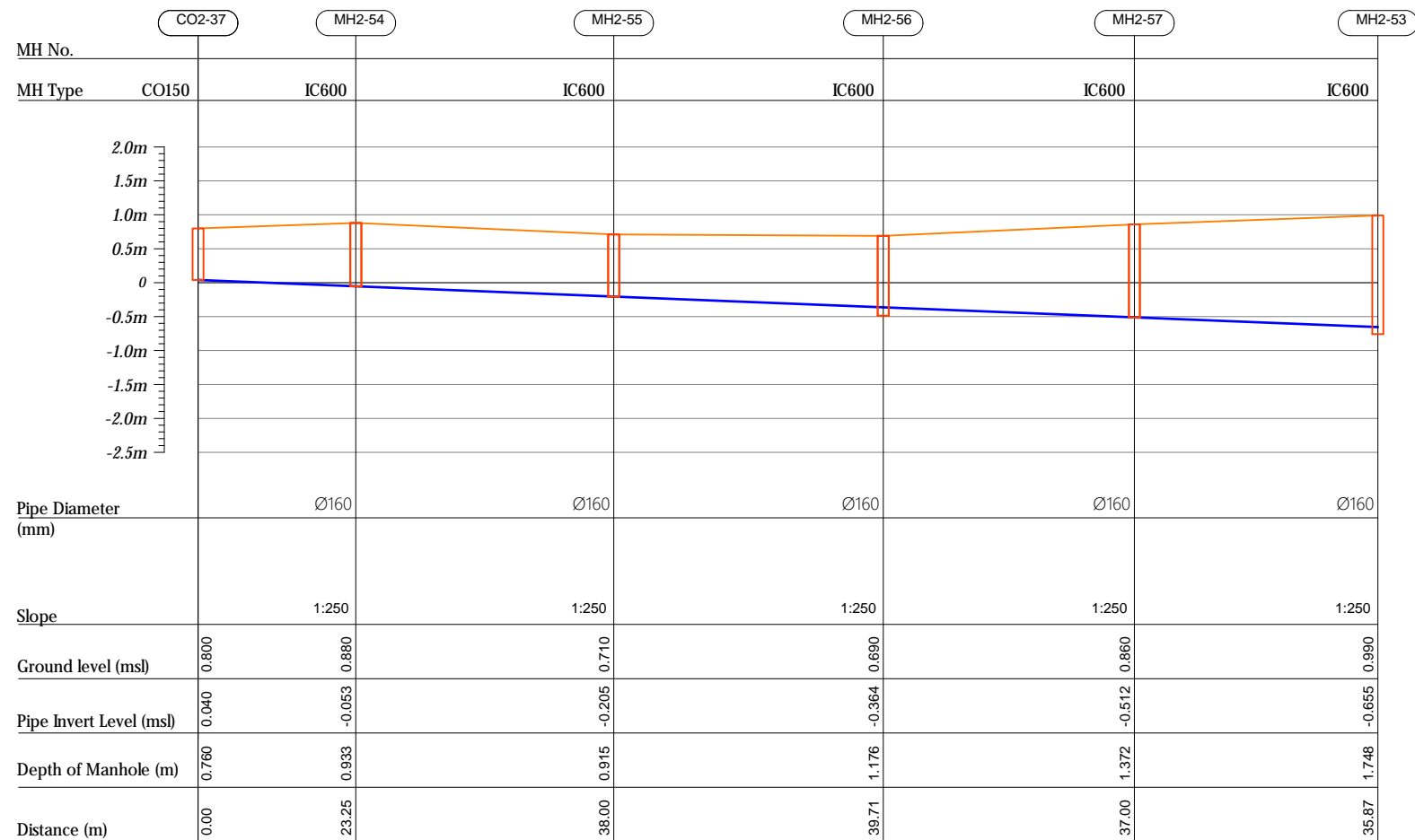
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Designed: F.L.A	Approved: I.W
Date: Aug 2020	SCALE (A3): 1:100
Project No: 01010101	
Rev: R-01	Page: PS2-17

Profile 37



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
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Sub Title:
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Client:
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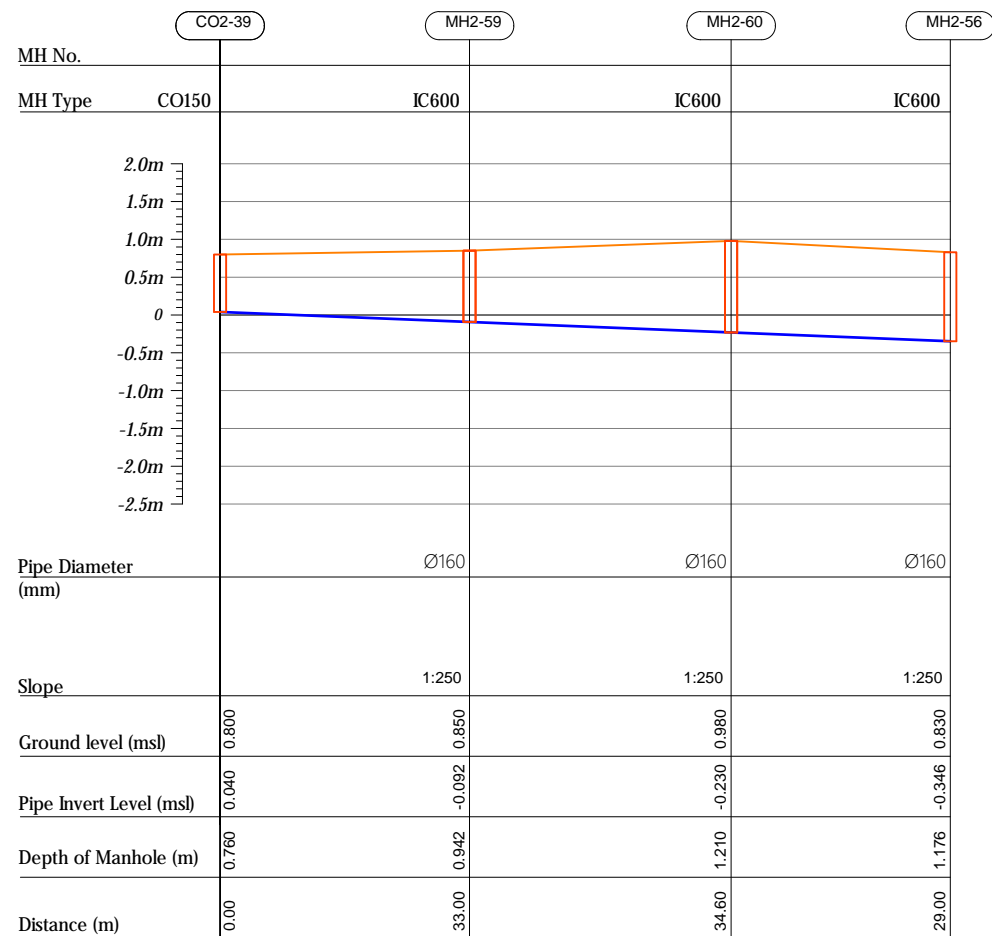
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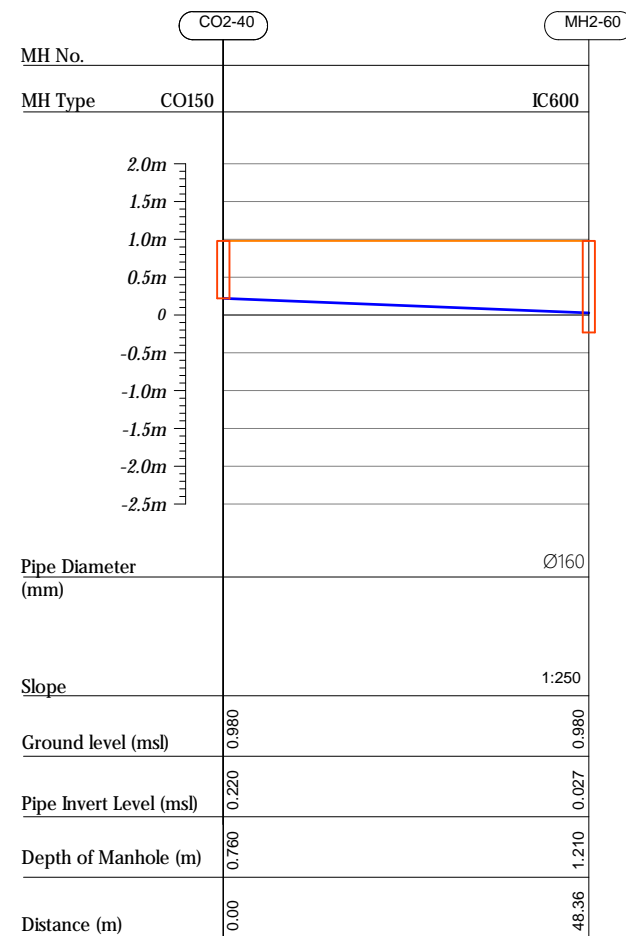
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Date: Aug 2020	SCALE (A3): 1:100
Project No: 01010101	

Rev. <i>R-01</i>	Page: <i>PS2-18</i>
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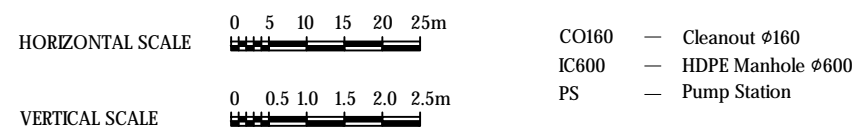
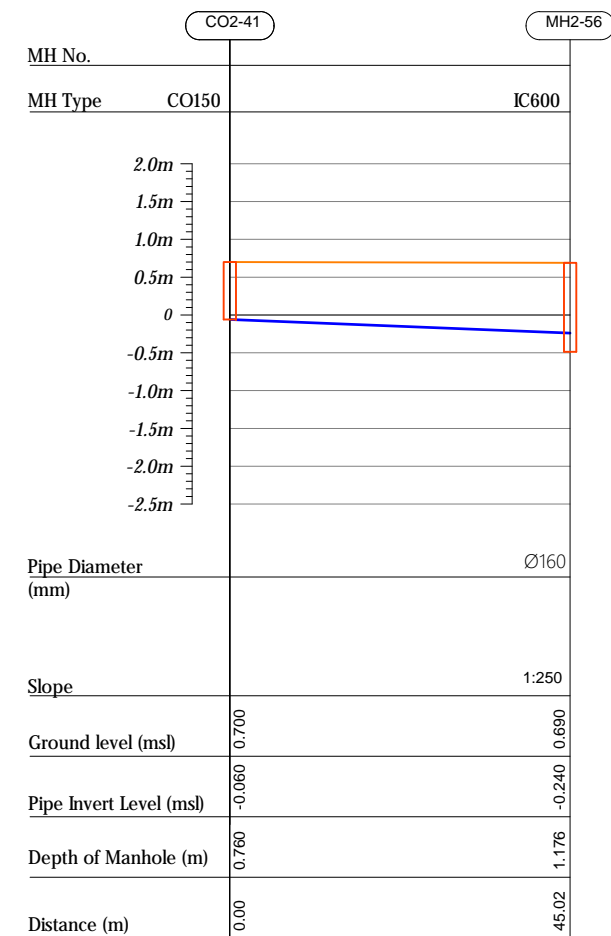
Profile 39



Profile 40



Profile 41



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
5 islands, Maldives - Package 6*

Sub Title:
Sewerage System in GA.Nilandhoo

Client:
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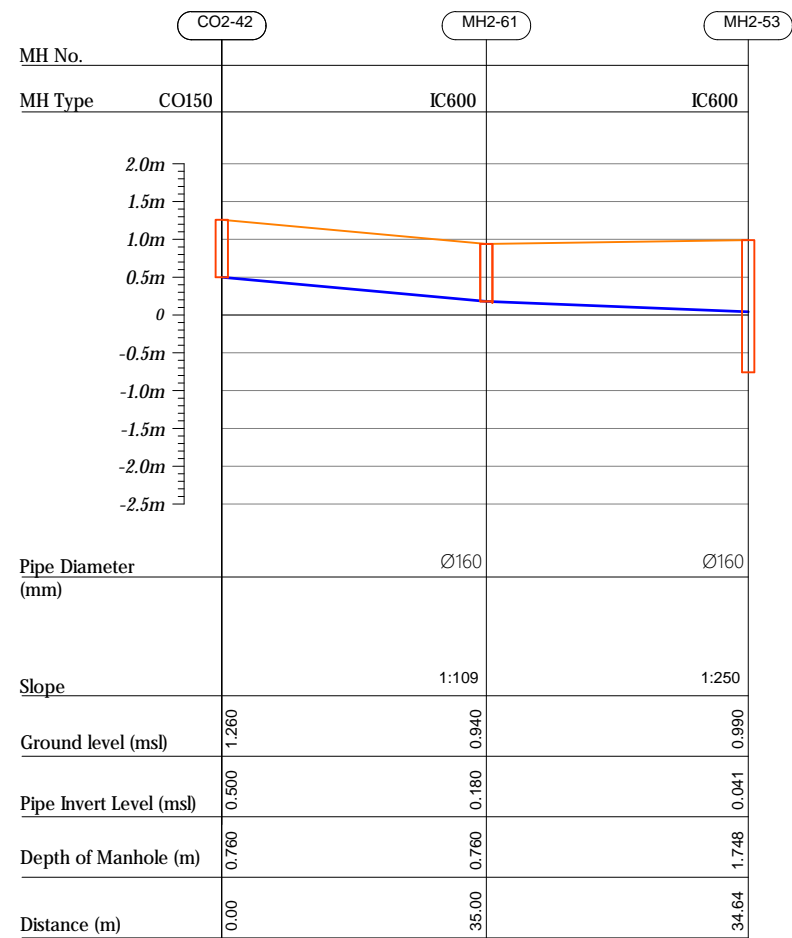
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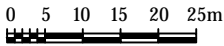
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Designed: F.I.A	Approved: L.W
Date: Aug 2020	SCALE (A3): 1:100
Project No: 01010101	

Rev. <i>R-01</i>	Page: <i>PS2-19</i>
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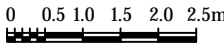
Profile 42



HORIZONTAL SCALE



VERTICAL SCALE



- CO160 — Cleanout Ø160
- IC600 — HDPE Manhole Ø600
- PS — Pump Station

R00	JUNE 2020	STAGE -I	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
5 islands, Maldives - Package 6

Sub Title:
Sewerage System in GA.Nilandhoo

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



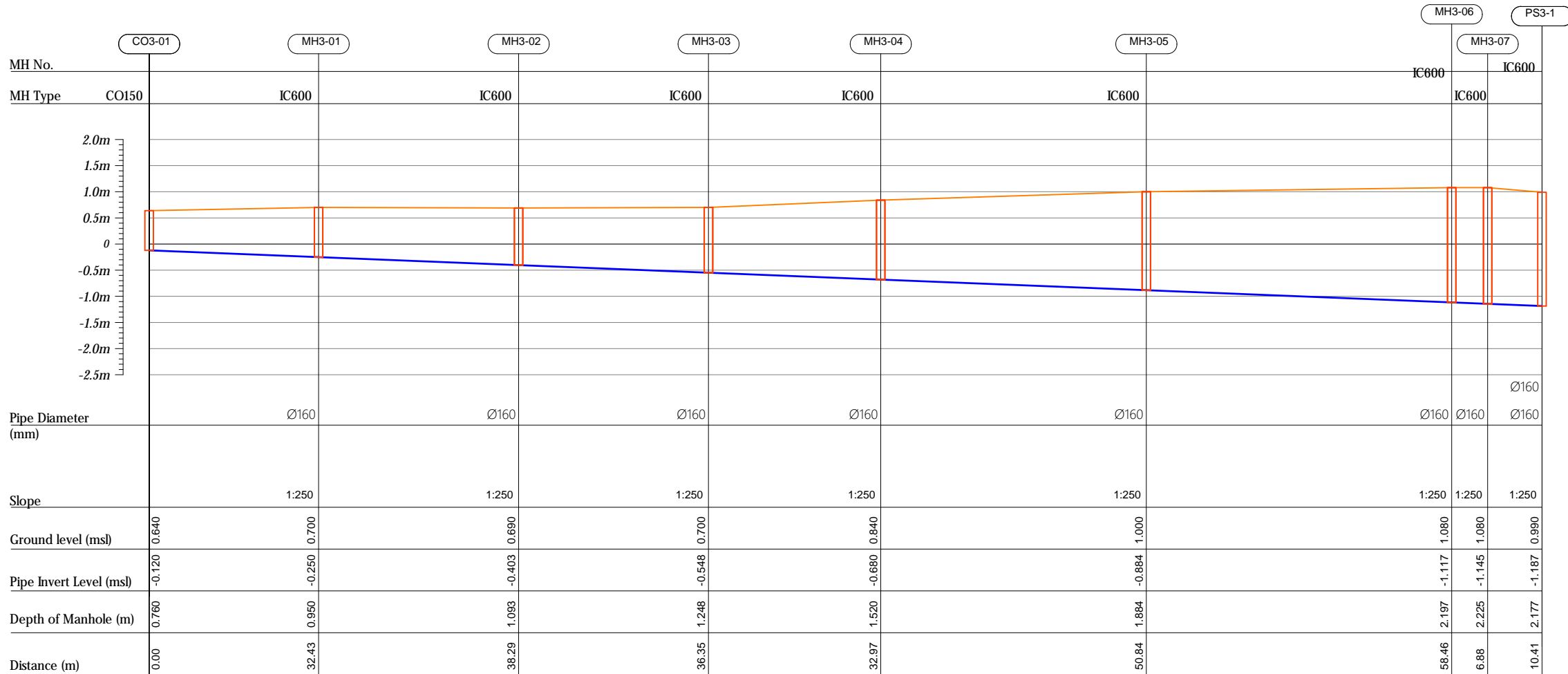
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Drawn: A.R.W	Checked: M.S.S
Designed: F.L.A	Approved: L.W
Date: Aug 2020	SCALE (A3): 1:100
Project No: 01010101	
Rev: R-01	Page: PS2-20

Profile 01



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
5 islands, Maldives - Package 6*

Sub Title:
Sewerage System in GA.Nilandhoo

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



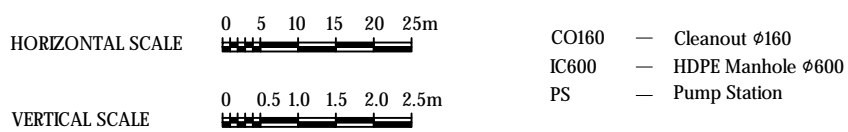
Drawn: A.R.W	Checked: M.S.S
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Designed: F.L.A.	Approved: LW
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Date: Aug 2020	SCALE (A3): 1:100
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Project No: 01010101

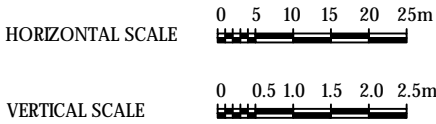
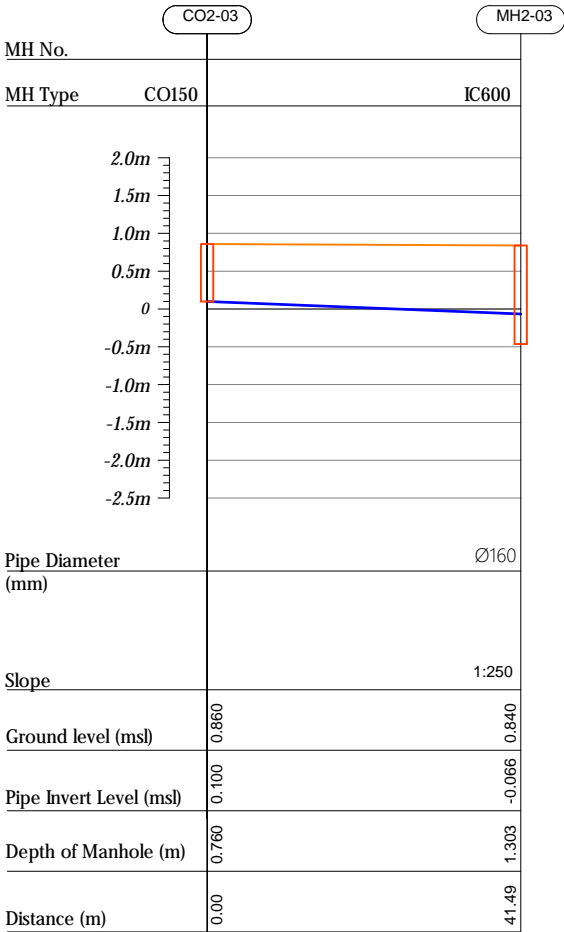
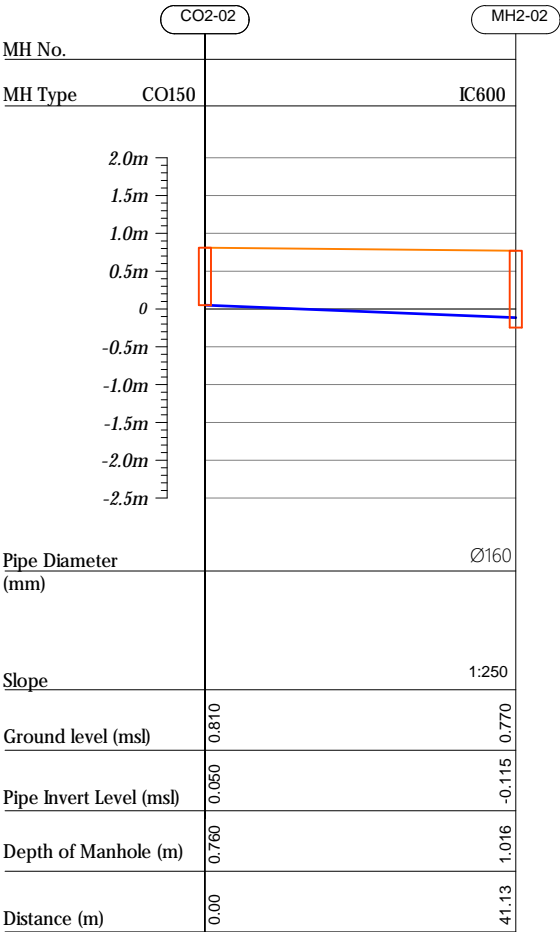
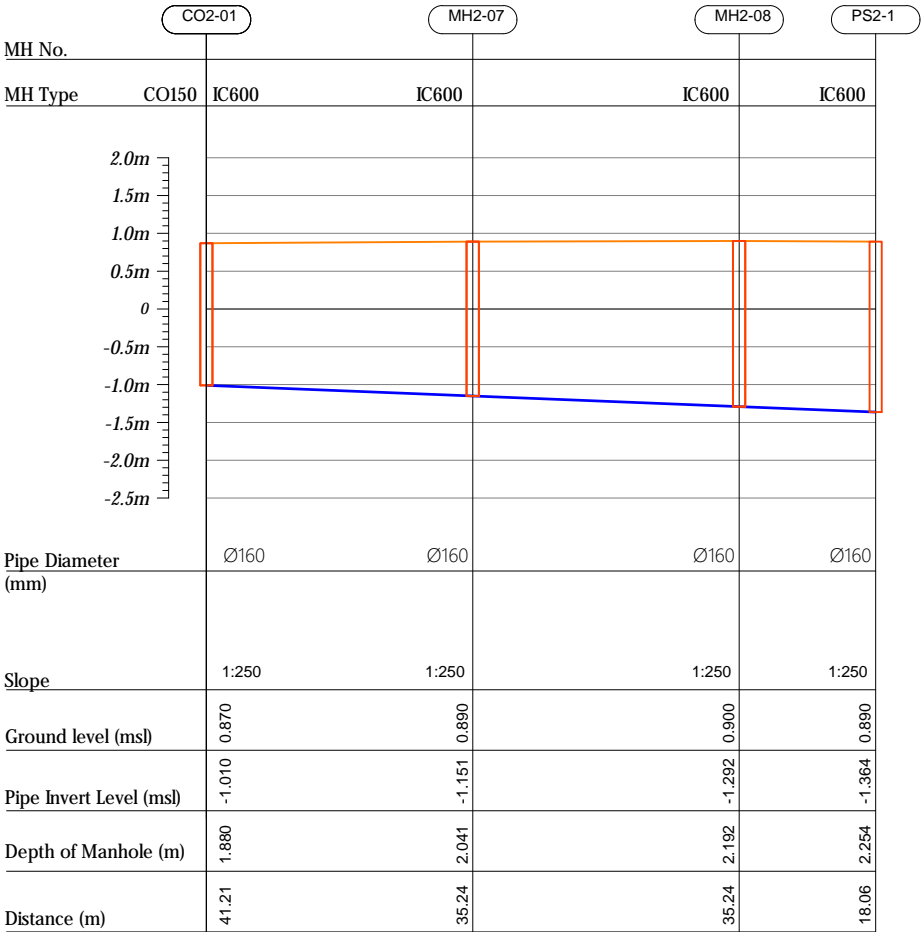
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Profile 01

Profile 02

Profile 03



CO160 — Cleanout Ø160
IC600 — HDPE Manhole Ø600
PS — Pump Station

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
5 islands, Maldives - Package 6

Sub Title:
Sewerage System in GA.Nilandhoo

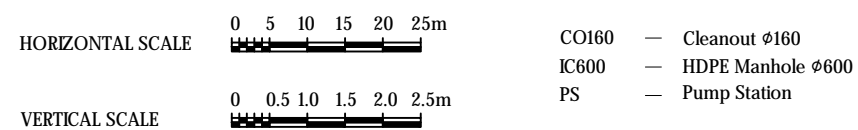
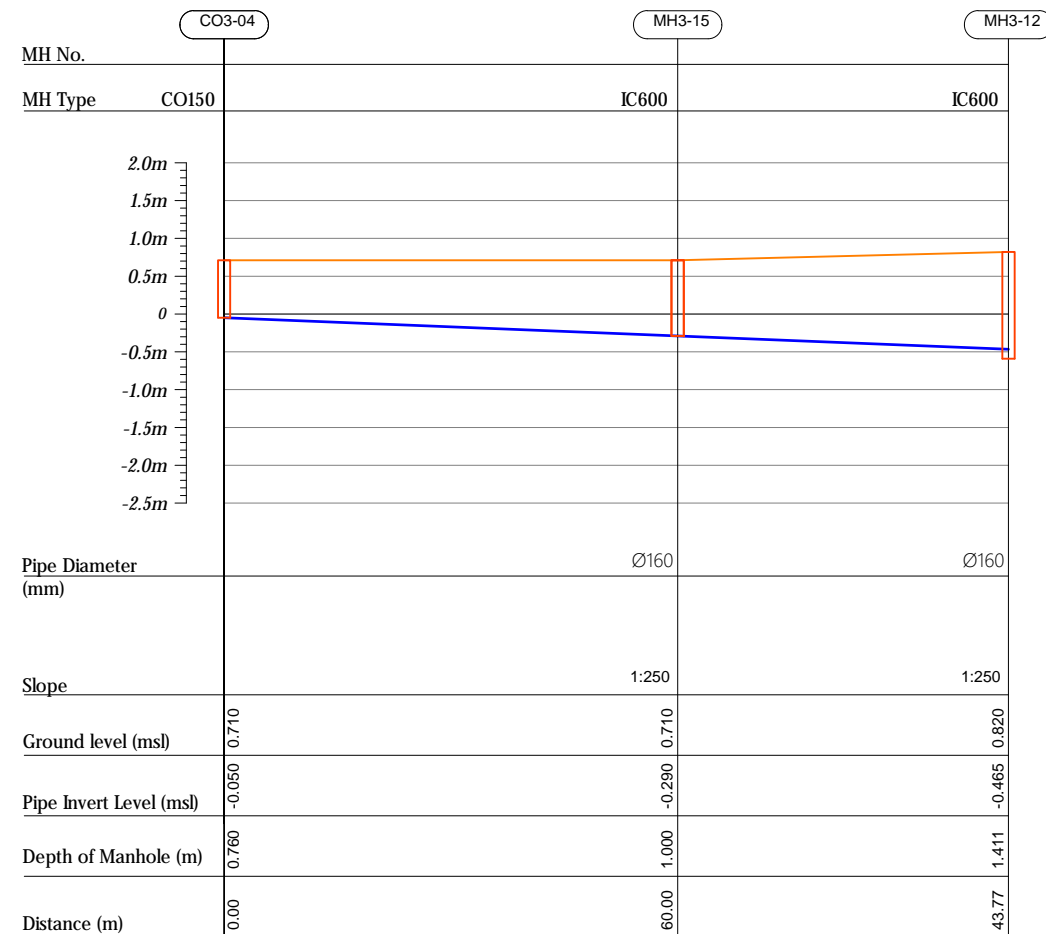
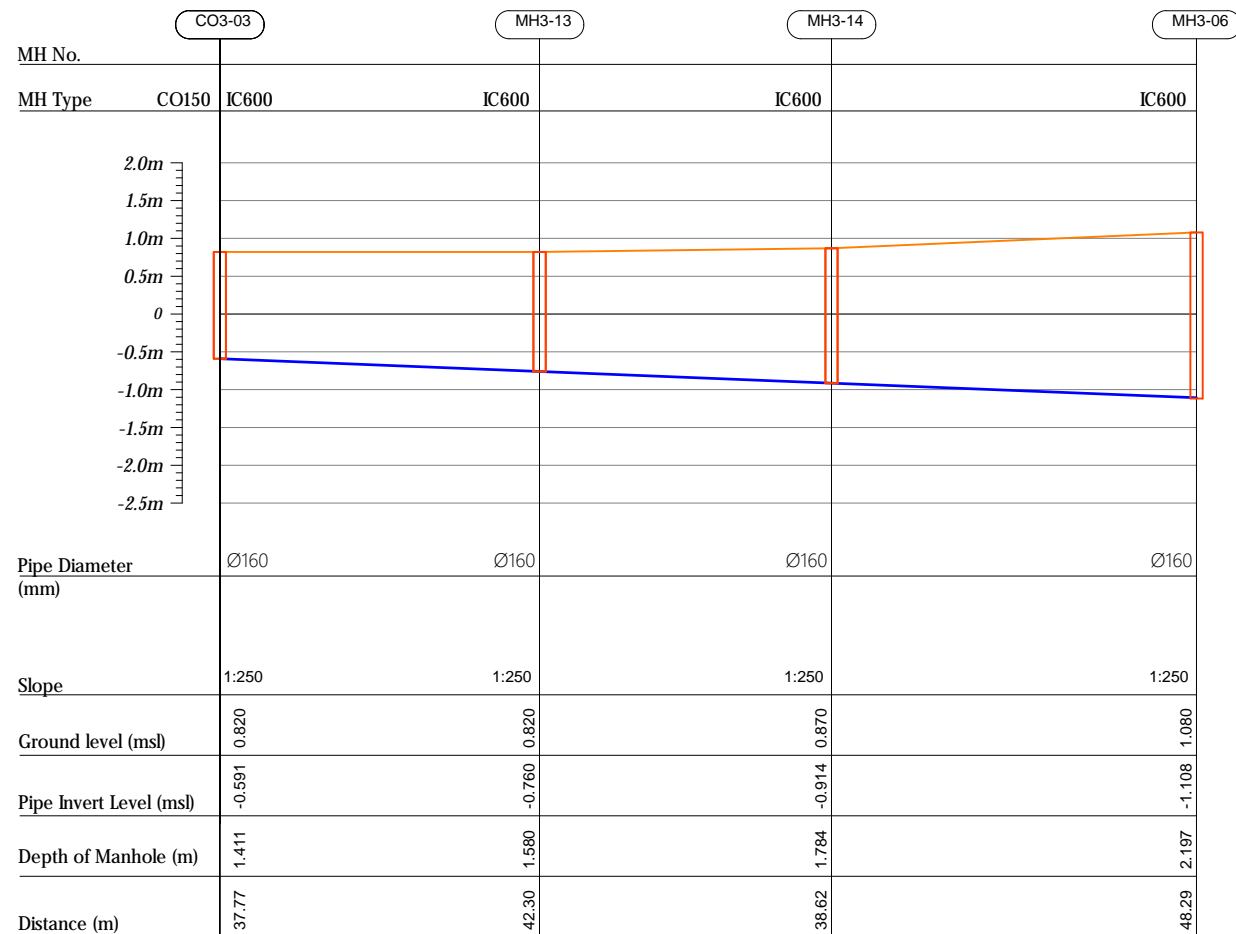
Client:
Ministry of National Planning, Housing and
Infrastructure, Republic of Maldives

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W: www.epoch.associates
A: G. Rosary West,
Hussuheemaa Magu, Male', Maldives

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Drawn: A.R.W	Checked: M.S.S
Designed: F.I.A	Approved: L.W
Date: Aug 2020	SCALE (A3): 1:100
Project No: 01010101	
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Profile 03



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

Title:
*Consultancy Services for Survey,
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5 islands, Maldives - Package 6*

Sub Title:
Sewerage System in GA.Nilandhoo

Client:
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Infrastructure, Republic of Maldives



Drawn: A.R.W	Checked: M.S.S
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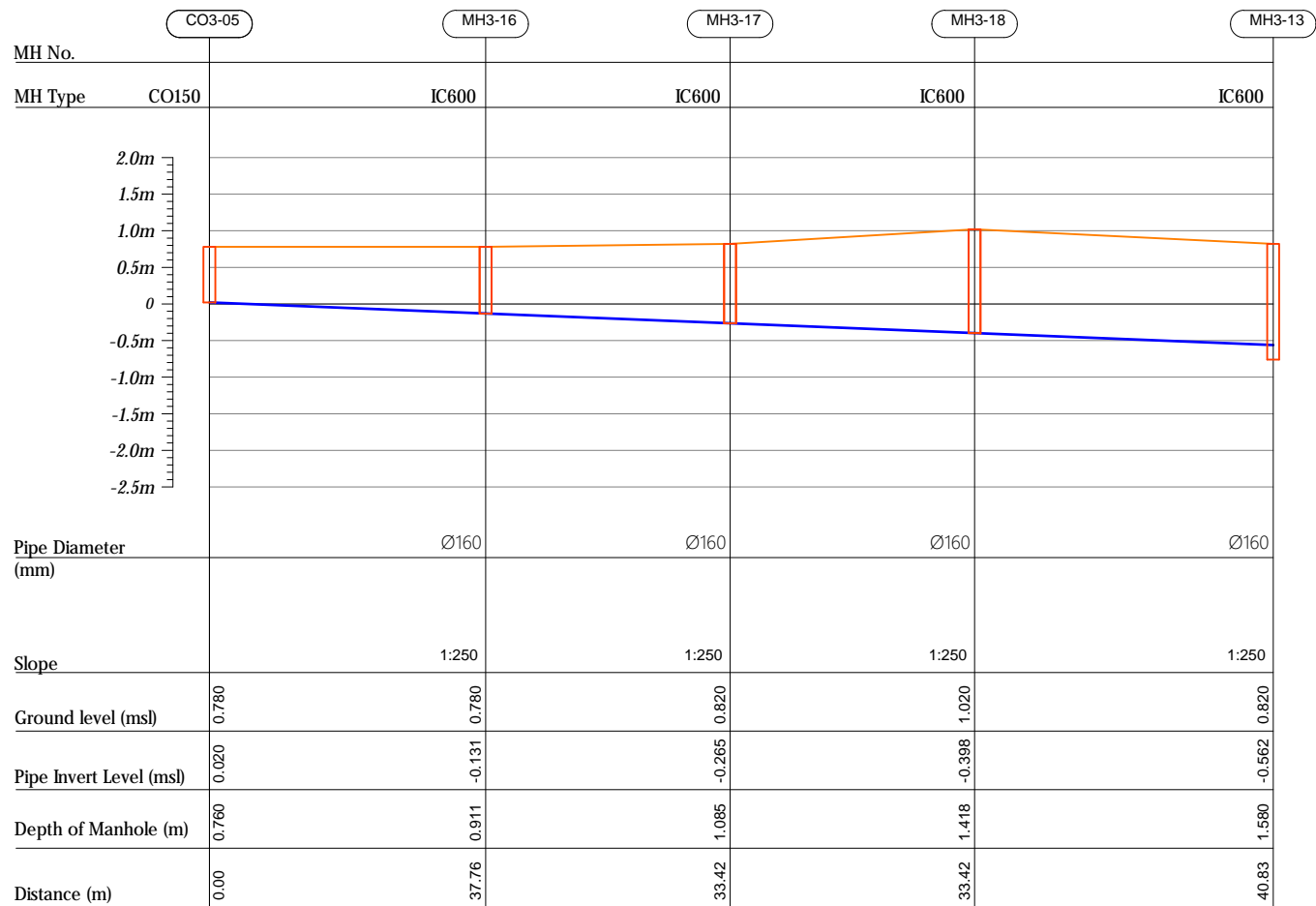
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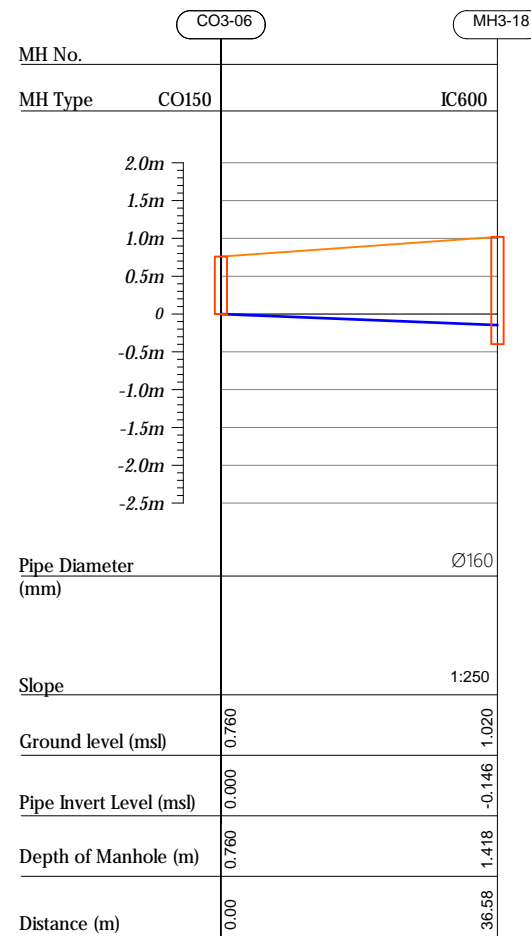
Project No: 01010101

Rev:	Page:
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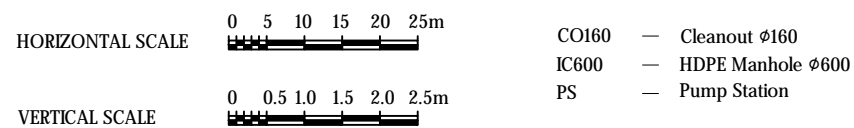
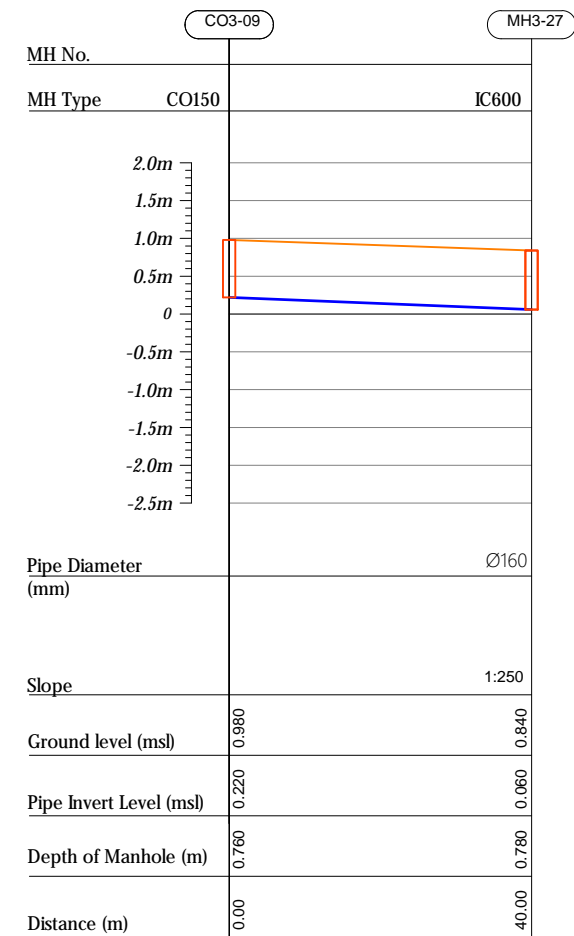
Profile 05



Profile 06



Profile 09



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

Title:
*Consultancy Services for Survey,
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Client:
Ministry of National Planning, Housing and
Infrastructure, Republic of Maldives



Drawn: A.R.W	Checked: M.S.S
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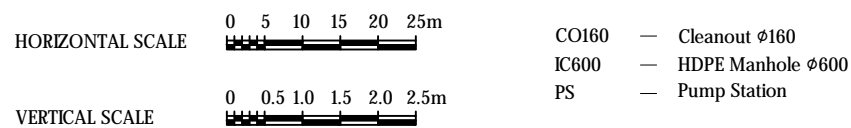
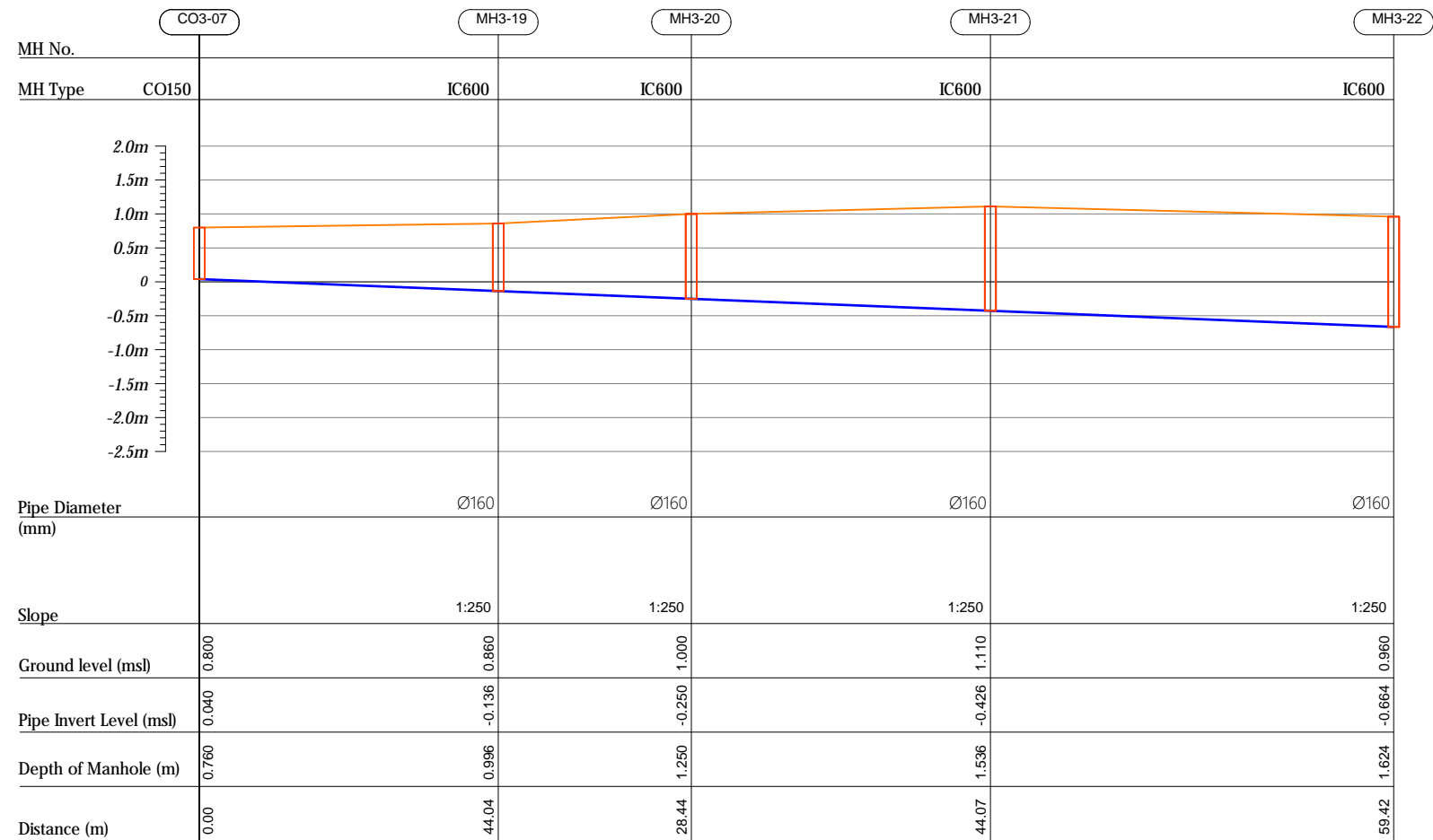
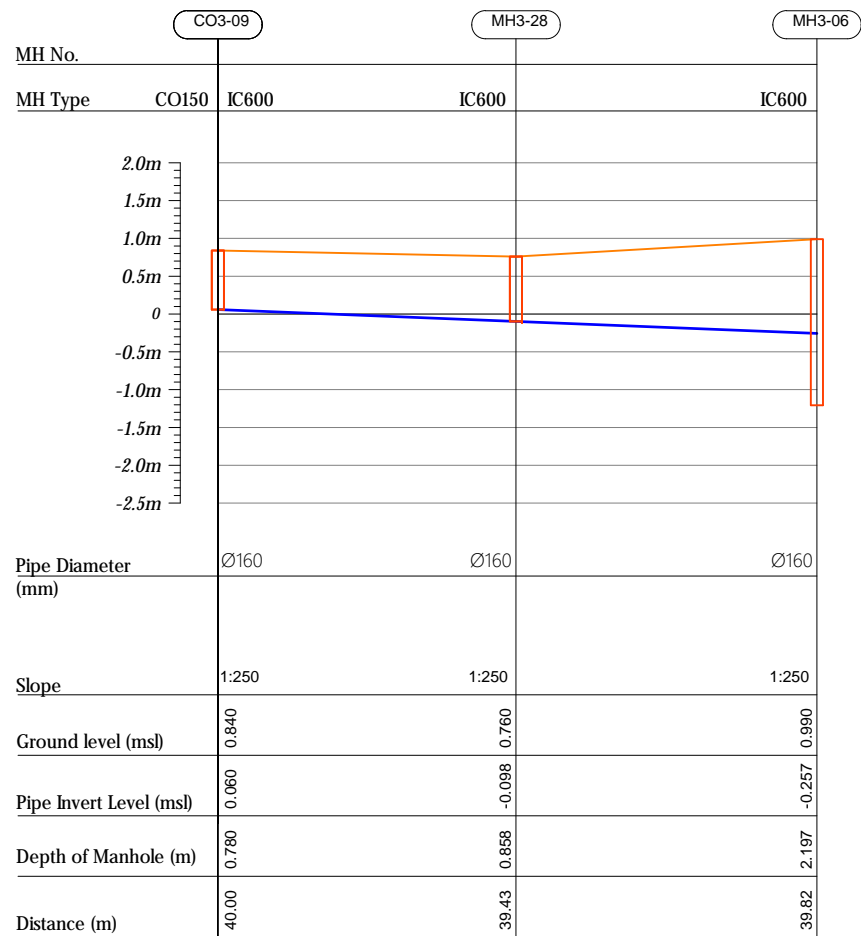
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Project No: 01010101

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Profile 09



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

Title:
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Sub Title:
Sewerage System in GA.Nilandhoo

Client:
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ASSOCIATES

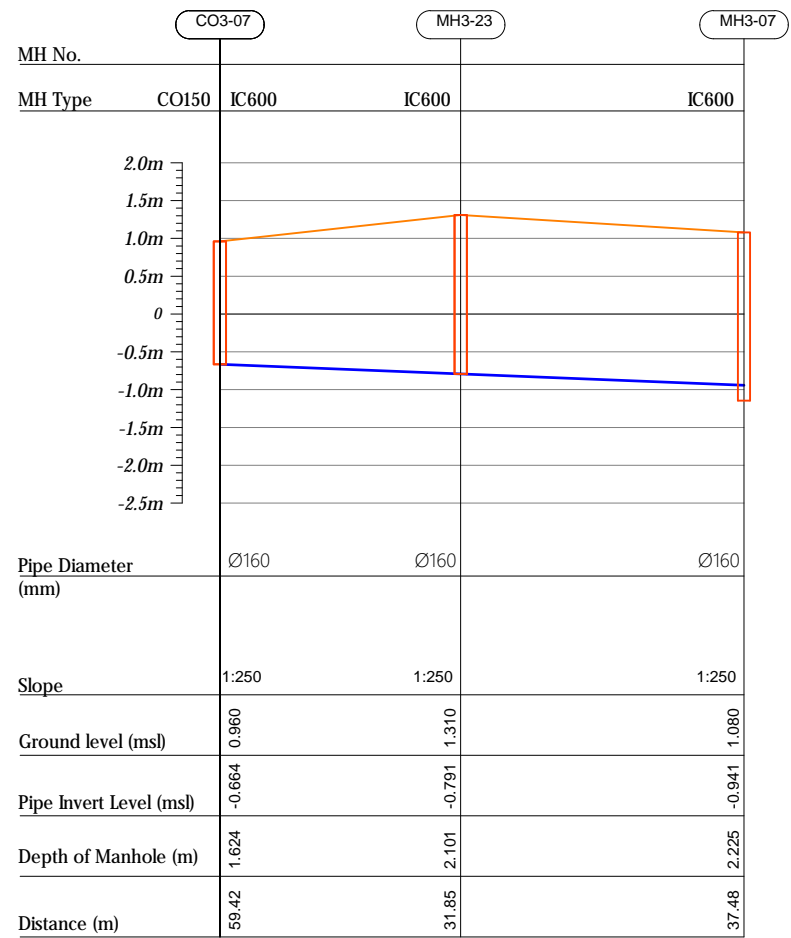
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Husnuheena Magu, Male', Maldives

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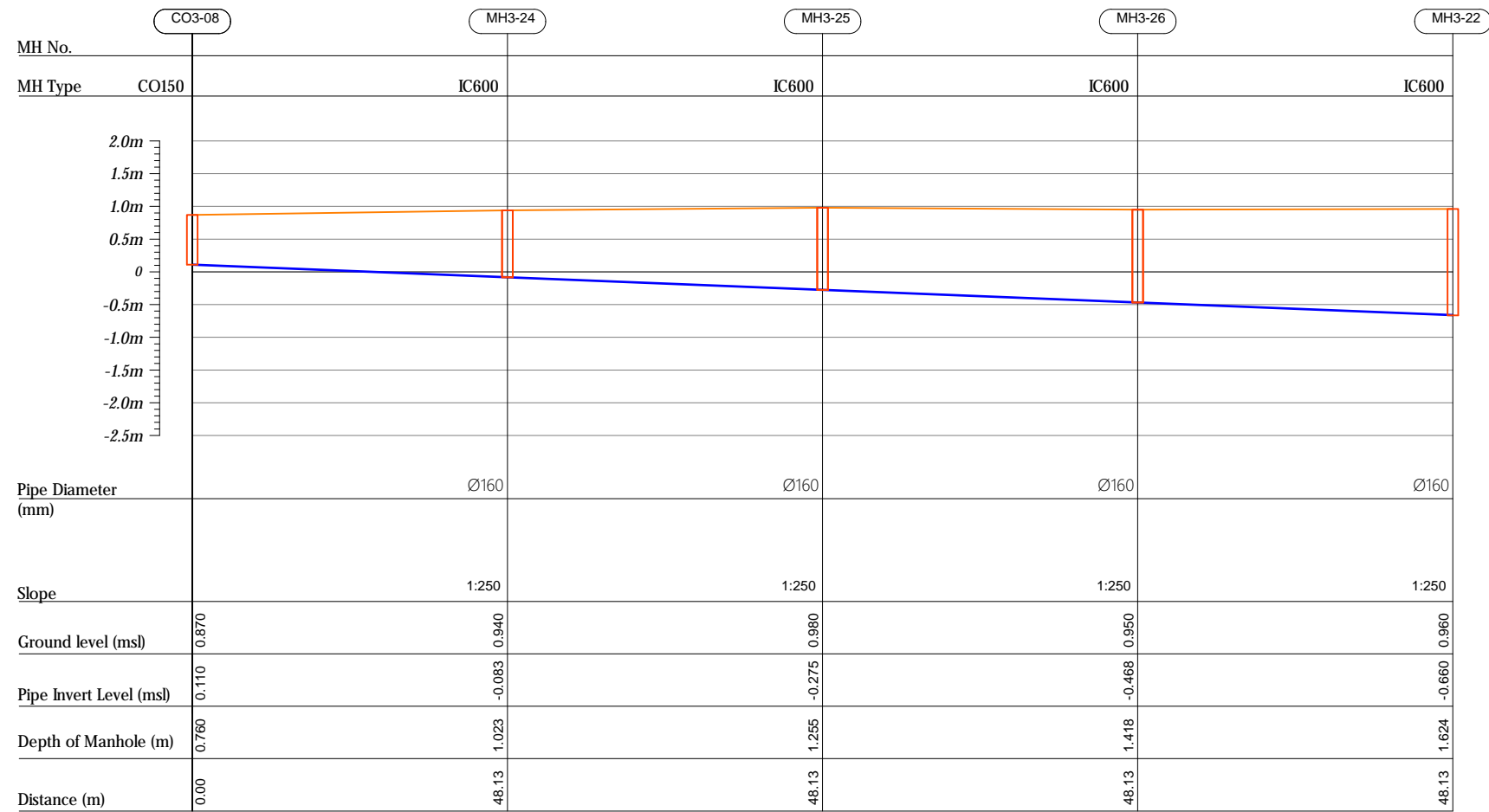
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Date: Aug 2020	SCALE (A3): 1:100
Project No: 01010101	

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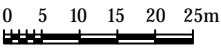
Profile 07



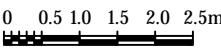
Profile 08



HORIZONTAL SCALE



VERTICAL SCALE



- CO160 — Cleanout Ø160
IC600 — HDPE Manhole Ø600
PS — Pump Station

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

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Sub Title:
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Client:
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FDBACINFRA
Maldivu Sufustructure Hoppu

Drawn: A.R.W Checked: M.S.S

Designed: F.L.A Approved: L.W

Date: Aug 2020 SCALE (A3): 1:100

Project No: 01010101

Rev: R-01 Page: PS3-06