MINISTRY OF ENVIRONMENT AND ENERGY

REPUBLIC OF MALDIVES

TENDER DRAWINGS

01 MARCH 2016

PROJECT :

PROVISION OF WATER SUPPLY FACILITIES IN TH. VILUFUSHI, MALDIVES

CONSULTANT:

Al-Habshi Consultant

Al-Habshi Consultants Office
Tel.: 2430103 / 2433131 - Fax : 2431136
P.O.Box 27154 Safat 13132 - Kuwait

LIST OF DRAWINGS

DWG. NOS	DRAWING TITLES
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TV-WS-103 (1 OF 2)	BRINE OUTFALL LAYOUT & SECTION
TV-WS-103 (2 OF 2)	BRINE OUTFALL DETAILS
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TV-WS-107	TUBE WELL DETAIL
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LIST OF DRAWINGS

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TV-EL-102	RO PLANT ELECTRICAL LAYOUT
TV-EL-103	SCHEMATIC DIAGRAM FOR RO PLANT
TVEL-104	ELECTRICAL DB SCHEDULE
TV-EL-105	ELECTRICAL TYPICAL DETAILS

REFERENCE DRAWINGS

SL.No.	DRAWING No.	DESCRIPTION

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0	09.12.'15	DETAILED DESIGN SUBMISSION	SR	MP	MA
0	22.10.'15	CONCEPT DESIGN SUBMISSION	SR	MP	MA
REV.	DATE	DESCRIPTION	DRAWN	CHKD.	APPRD.

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MINISTRY OF ENVIRONMENT & ENERGY
REPUBLIC OF MALDIVES

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ISO 9001:2008

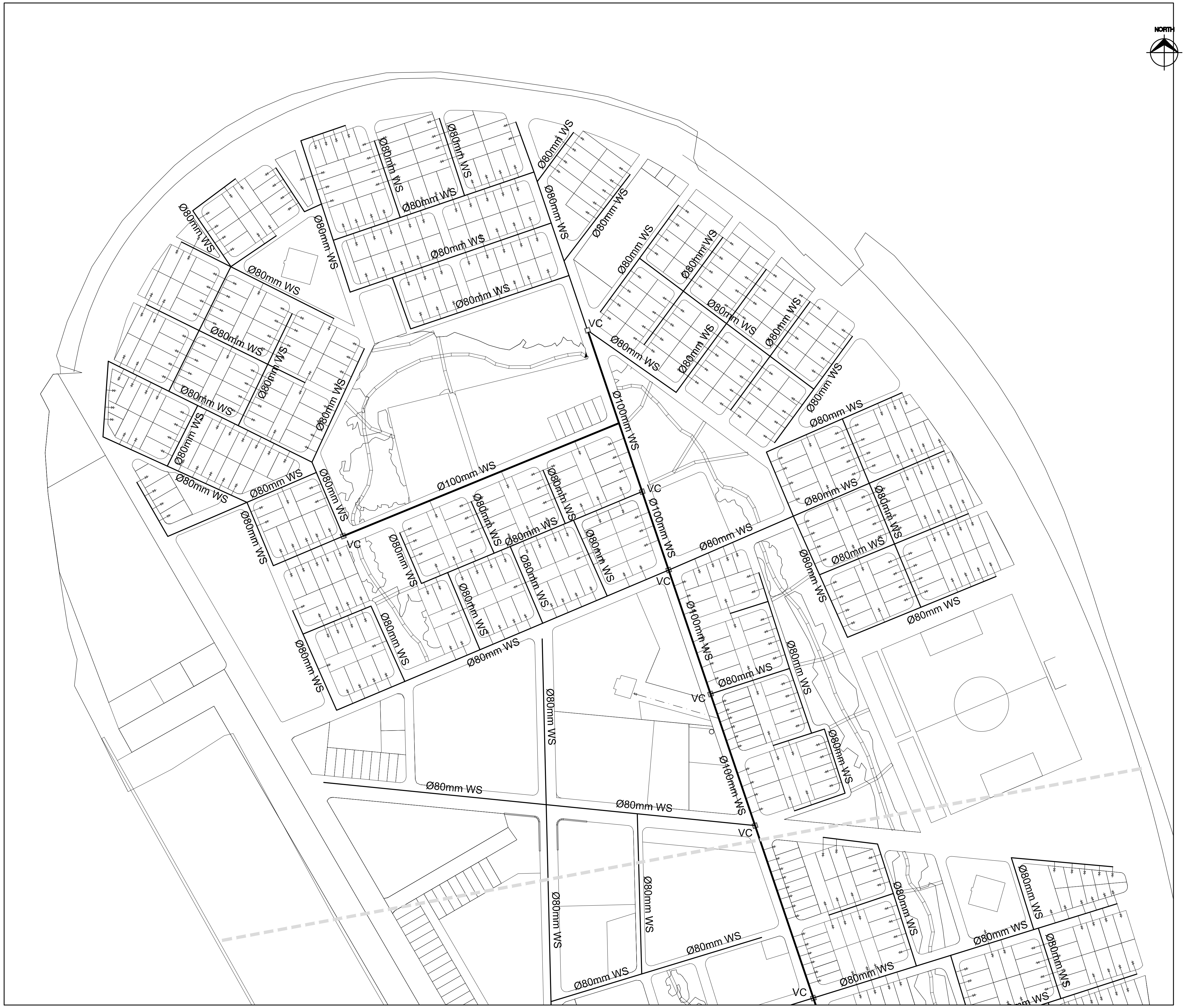
PROJECT:
Consultancy Services for Survey, Design of
Water supply Facilities in Tha.Vilifushi, F.Nilandhoo,
B.Eydhafushi and Adh. Hanyaameedhoo, Maldives

DRAWING TITLE:
LIST OF DRAWINGS
Tha.VILIFUSHI ISLAND

DESIGNED	DRAWN	CHECKED	APPROVED	SCALE	DATE
SK	SR	MP	MA	N.T.S	09.12.'15

PROJECT No.	SHEET No.	DRAWING No.
K-627	1 OF 1	TV-WS-100
REV. No.	0	

WATER SUPPLY DRAWINGS

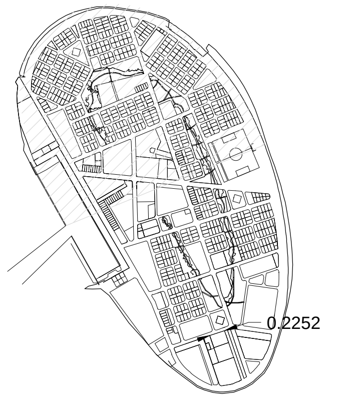

NORTH
Ø80mm WS
Ø80mm WS
Ø80mm WS
Ø80mm WS
Ø80mm WS
Ø80mm WS
Ø80mm WS
Ø80mm WS
Ø80mm WS
Ø80mm WS
VC
Ø100mm WS
Ø100mm WS
VC
Ø100mm WS
VC
Ø100mm WS
VC
Ø100mm WS
VC
Ø100mm WS
VC
Ø80mm WS
Ø80mm WS
Ø80mm WS
Ø80mm WS
Ø80mm WS
Ø80mm WS

NOTES:-

1. ALL DIMENSIONS SHOWN ARE IN MILLIMETERS (MM), UNLESS OTHERWISE SHOWN
2. ALL LEVELS SHOWN ARE IN METERS. ALL LEVELS SHOWN ARE FROM MEAN SEA LEVEL
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS,GENERAL NOTES AND SPECIFICATIONS.

LEGEND:

━━━━	-	Ø100 WATER SUPPLY MAIN LINE
— — — —	-	Ø80 WATER SUPPLY LINE
----▶----	-	Ø80 HDPE BRINE OUTFALL
WS	-	WATER SUPPLY
—⋈	-	HOUSE CONNECTION
▣	-	VALVE CHAMBER
—N—	-	CHECK VALVE



KEY PLAN

REFERENCE DRAWINGS

SL.No.	DRAWING No.	DESCRIPTION

REV.	DATE	DESCRIPTION	DRAWN	CHKD.	APPRD.
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..	..	..	.	..	..
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0	09.12.'15	DETAILED DESIGN SUBMISSION	SR	MP	MA
0	22.10.'15	CONCEPT DESIGN SUBMISSION	SR	MP	MA

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admin@alhabshikw.com P.O. Box 27154, Safat 13132, Kuwait
ISO 9001:2008

PROJECT:

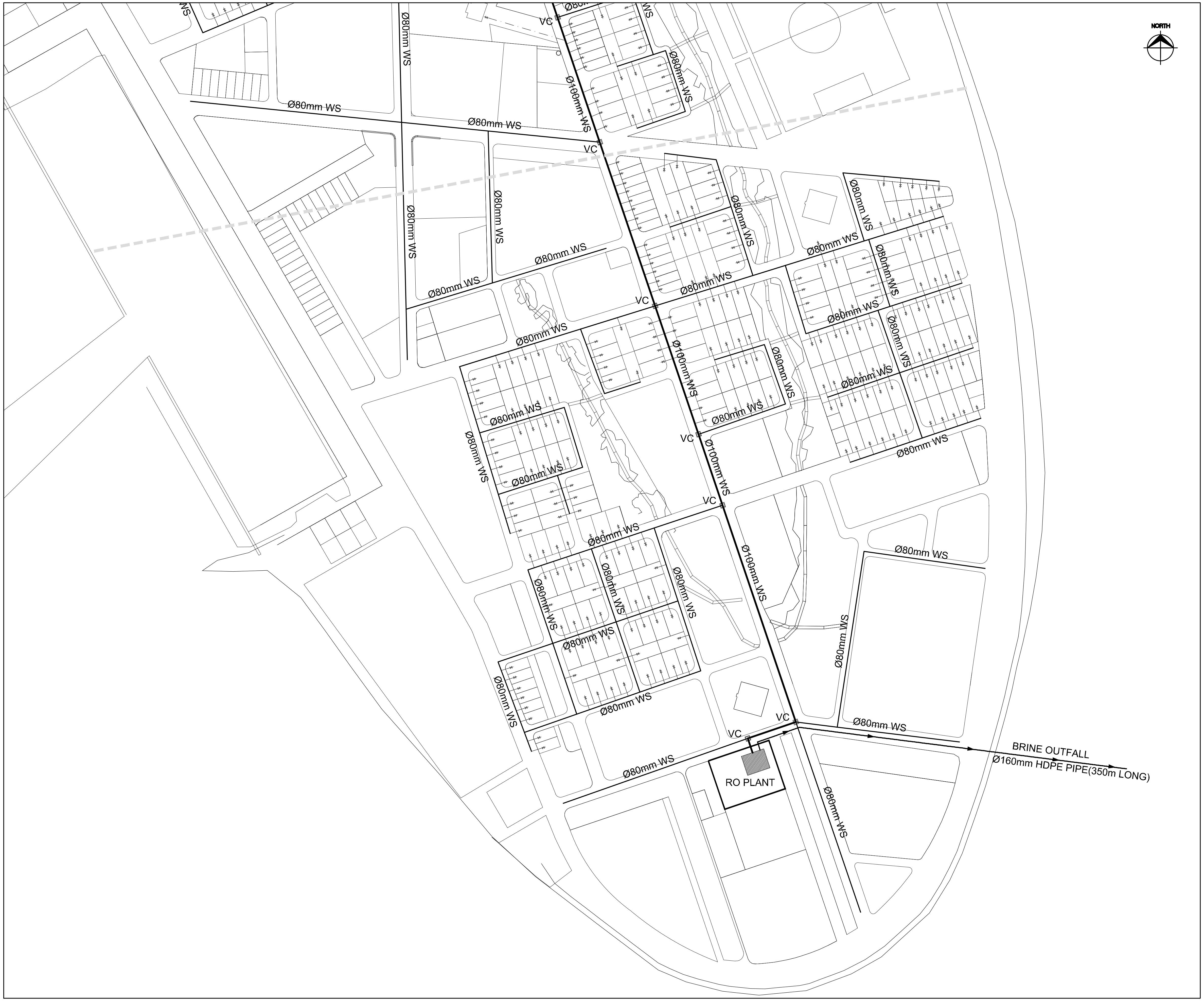
Consultancy Services for Survey, Design of Water supply Facilities in Tha.Vilifushi, F.Nilandhoo, B.Eydhafushi and Adh. Hanyaameedhoo, Maldives

DRAWING TITLE:

WATER SUPPLY LAYOUT-PART-A
Tha. VILIFUSHI ISLAND

DESIGNED	DRAWN	CHECKED	APPROVED	SCALE	DATE
SK	SR	MP	MA	1 : 2500	09.12.'15

PROJECT No.	SHEET No.	DRAWING No.
K-627	1 OF 2	TV-WS-101
REV. No.	0	


NORTH
Ø80mm WS
Ø80mm WS
Ø80mm WS
Ø100mm WS
VC
VC
Ø80mm WS
Ø80mm WS
Ø80mm WS
Ø80mm WS
Ø80mm WS
Ø80mm WS
Ø80mm WS
VC
Ø80mm WS
Ø80mm WS
Ø80mm WS
Ø80mm WS
Ø100mm WS
Ø80mm WS
Ø80mm WS
Ø80mm WS
Ø80mm WS
Ø80mm WS
VC
Ø100mm WS
Ø80mm WS
Ø80mm WS
Ø80mm WS
VC
Ø80mm WS
Ø100mm WS
Ø80mm WS
Ø80mm WS
Ø80mm WS
Ø80mm WS
Ø80mm WS
Ø80mm WS
Ø80mm WS
Ø80mm WS
VC
Ø80mm WS
VC
Ø80mm WS
RO PLANT
BRINE OUTFALL
Ø160mm HDPE PIPE(350m LONG)
Ø80mm WS

NOTES:-

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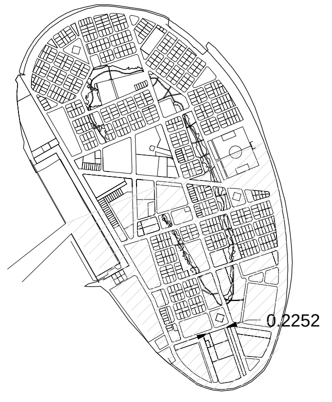
LEGEND:

━━━	-	Ø100 WATER SUPPLY MAIN LINE
— — —	-	Ø80 WATER SUPPLY LINE
──▶──	-	Ø80 HDPE BRINE OUTFALL
WS	-	WATER SUPPLY
─⋈─	-	HOUSE CONNECTION
▢	-	VALVE CHAMBER
─N─	-	CHECK VALVE



KEY PLAN

REFERENCE DRAWINGS

SL.No.	DRAWING No.	DESCRIPTION

REV.	DATE	DESCRIPTION	DRAWN	CHKD.	APPRD.
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0	22.10.'15	CONCEPT DESIGN SUBMISSION	SR	MP	MA

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PROJECT:
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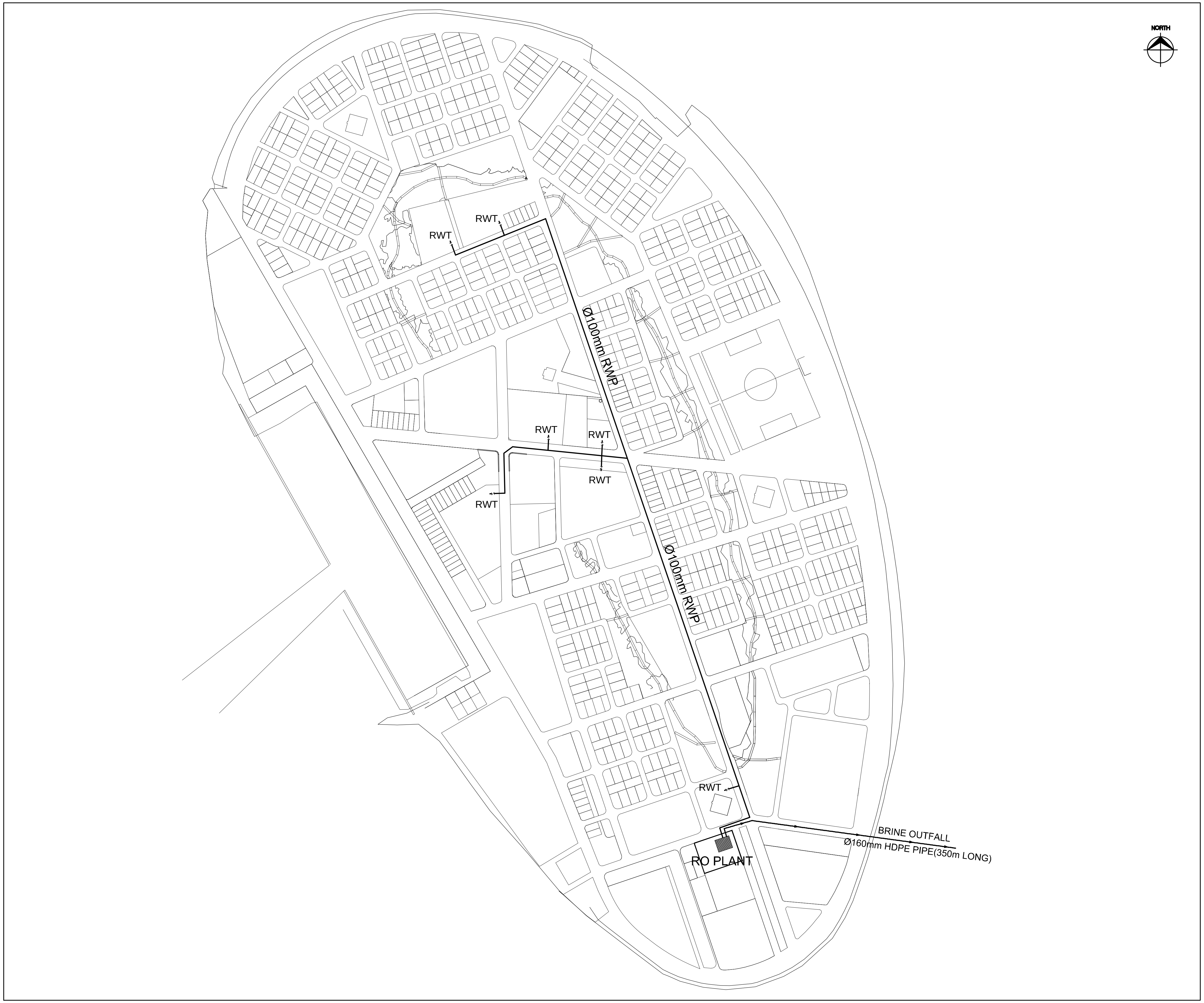
DRAWING TITLE:
WATER SUPPLY LAYOUT-PART-B
Tha. VILIFUSHI ISLAND

DESIGNED	DRAWN	CHECKED	APPROVED	SCALE	DATE
SK	SR	MP	MA	1 : 2500	09.12.'15
PROJECT No.	SHEET No.	DRAWING No.			
K-627	2 OF 2	TV-WS-101			
REV. No.	0				



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REFERENCE DRAWINGS

SL.No.	DRAWING No.	DESCRIPTION

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0	22.10.'15	CONCEPT DESIGN SUBMISSION	SR	MP	MA

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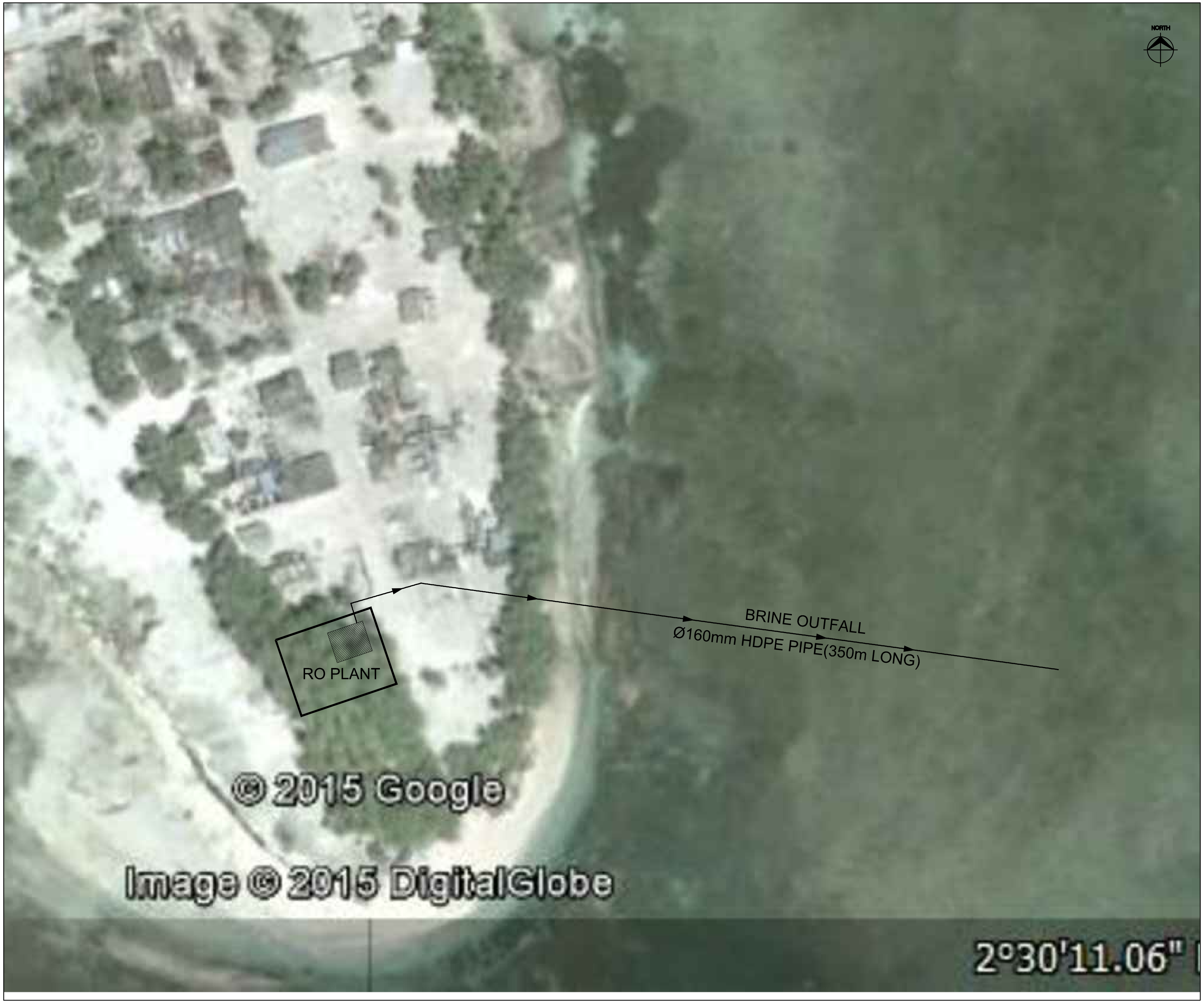
B.Eydhafushi and Adh. Hanyaameedhoo, Maldives

DRAWING TITLE:
RAIN WATER COLLECTION LAYOUT
Tha. VILIFUSHI ISLAND

DESIGNED	DRAWN	CHECKED	APPROVED	SCALE	DATE
SK	SR	MP	MA	1 : 2500	09.12.'15

PROJECT No.	SHEET No.	DRAWING No.
K-627	1 OF 1	TV-WS-102
REV. No.	0	



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Consultancy Services for Survey, Design of
Water supply Facilities in Tha.Vilifushi, F.Nilandhoo,
B.Eydhafushi and Adh. Hanyaameedhoo, Maldives

DRAWING TITLE:
BRINE OUTFALL LAYOUT & SECTION
Tha. VILIFUSHI ISLAND

DESIGNED	DRAWN	CHECKED	APPROVED	SCALE	DATE
SK	SR	MP	MA	1 : 2500	09.12.'15

PROJECT No.	SHEET No.	DRAWING No.
K-627	1 OF 2	TV-WS-103

REV. No.	
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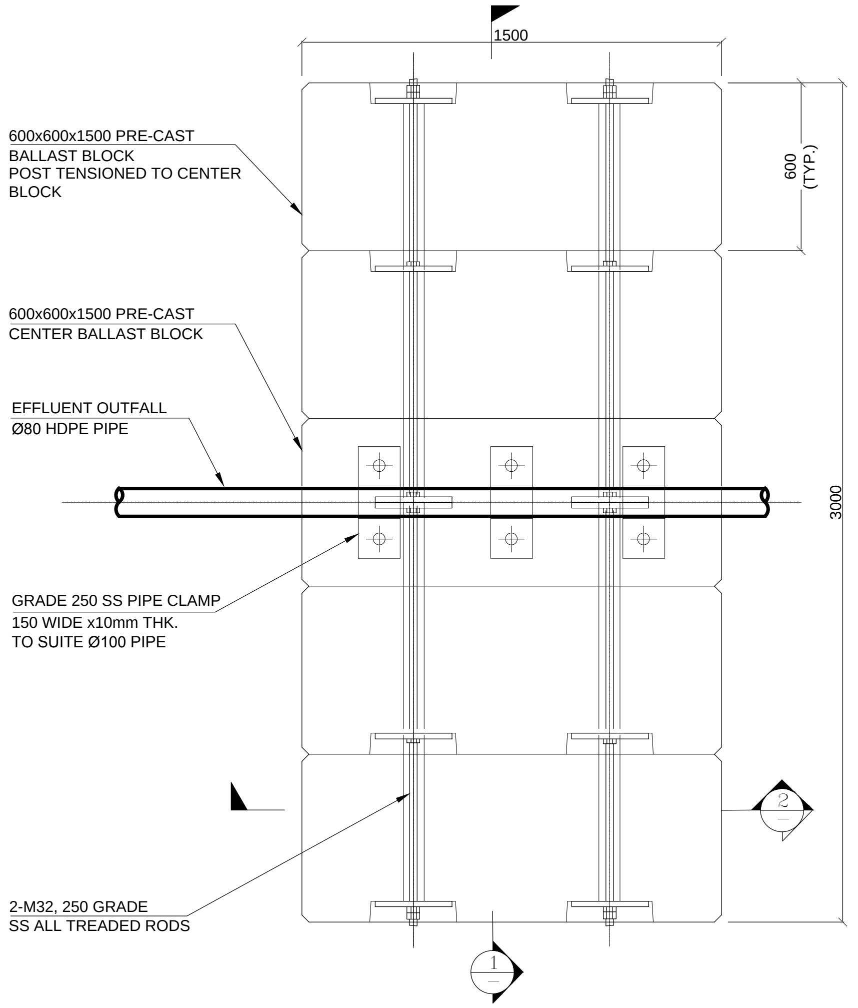
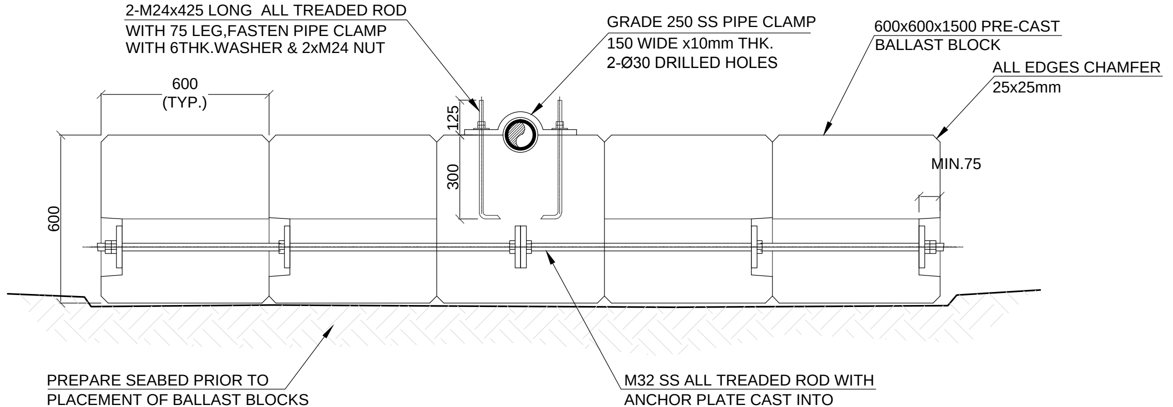
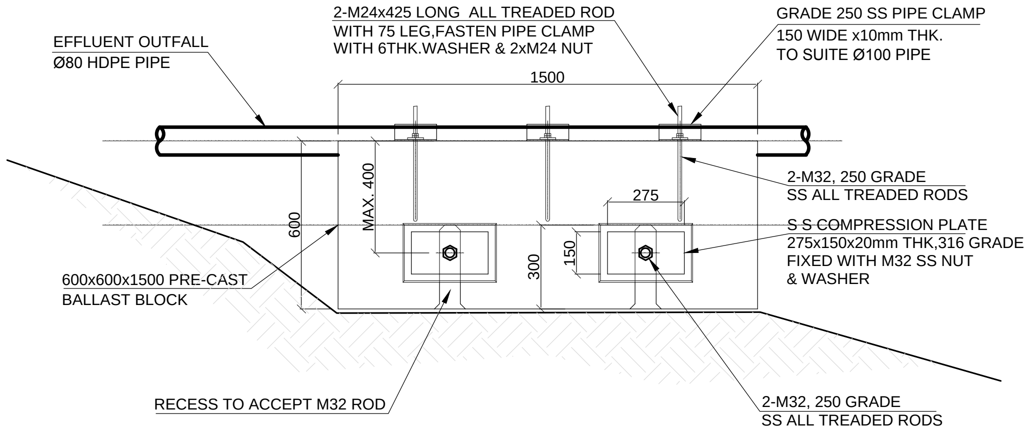

1500
600x600x1500 PRE-CAST
BALLAST BLOCK
POST TENSIONED TO CENTER
BLOCK
600 (TYP.)
600x600x1500 PRE-CAST
CENTER BALLAST BLOCK
EFFLUENT OUTFALL
Ø80 HDPE PIPE
3000
GRADE 250 SS PIPE CLAMP
150 WIDE x10mm THK.
TO SUITE Ø100 PIPE
2-M32, 250 GRADE
SS ALL TREADED RODS
2
1

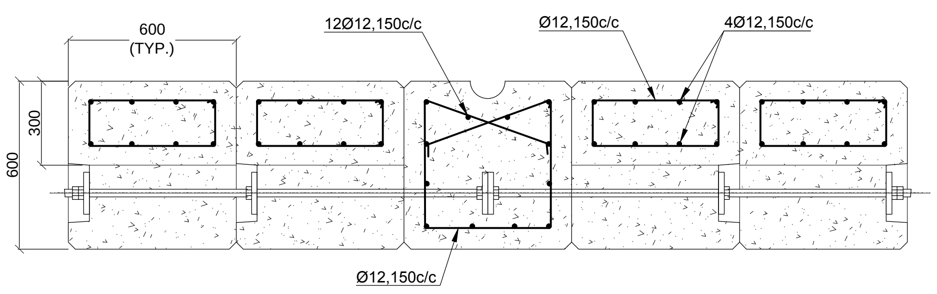
BALLAST BLOCK
SURF ZONE-DIFFUSER
SCALE 1:25


2-M24x425 LONG ALL TREADED ROD
WITH 75 LEG,FASTEN PIPE CLAMP
WITH 6THK.WASHER & 2xM24 NUT
GRADE 250 SS PIPE CLAMP
150 WIDE x10mm THK.
2-Ø30 DRILLED HOLES
600x600x1500 PRE-CAST
BALLAST BLOCK
ALL EDGES CHAMFER
25x25mm
600
(TYP.)
125
300
600
MIN.75
PREPARE SEABED PRIOR TO
PLACEMENT OF BALLAST BLOCKS
MAX.+/-25mm AMPLITUDE
M32 SS ALL TREADED ROD WITH
ANCHOR PLATE CAST INTO
CENTER BLOCK ONLY

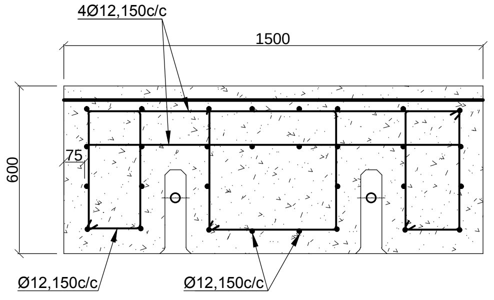
SECTION-1
SCALE 1:25


EFFLUENT OUTFALL
Ø80 HDPE PIPE
2-M24x425 LONG ALL TREADED ROD
WITH 75 LEG,FASTEN PIPE CLAMP
WITH 6THK.WASHER & 2xM24 NUT
GRADE 250 SS PIPE CLAMP
150 WIDE x10mm THK.
TO SUITE Ø100 PIPE
1500
2-M32, 250 GRADE
SS ALL TREADED RODS
275
S S COMPRESSION PLATE
275x150x20mm THK,316 GRADE
FIXED WITH M32 SS NUT
& WASHER
MAX. 400
600
300
150
600x600x1500 PRE-CAST
BALLAST BLOCK
RECESS TO ACCEPT M32 ROD
2-M32, 250 GRADE
SS ALL TREADED RODS

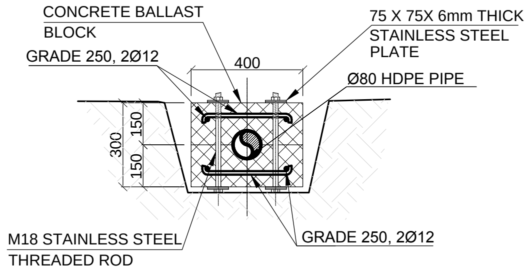
SECTION-2
SCALE 1:25


600
(TYP.)
12Ø12,150c/c
Ø12,150c/c
4Ø12,150c/c
300
600
Ø12,150c/c

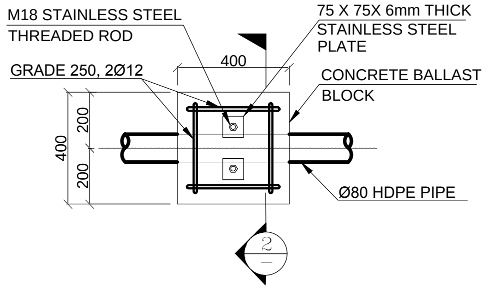
SECTION-1
REINFORCEMENT DETAILS
SCALE 1:25


4Ø12,150c/c
1500
600
75
Ø12,150c/c
Ø12,150c/c

SECTION-2
REINFORCEMENT DETAILS
SCALE 1:25


CONCRETE BALLAST
BLOCK
GRADE 250, 2Ø12
400
75 X 75X 6mm THICK
STAINLESS STEEL
PLATE
Ø80 HDPE PIPE
300
150
150
M18 STAINLESS STEEL
THREADED ROD
GRADE 250, 2Ø12

SECTION-3
SCALE 1:25


M18 STAINLESS STEEL
THREADED ROD
GRADE 250, 2Ø12
75 X 75X 6mm THICK
STAINLESS STEEL
PLATE
400
CONCRETE BALLAST
BLOCK
400
200
200
Ø80 HDPE PIPE
2

PLAN
RCC BALLAST BLOCK

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0	09.12.'15	DETAILED DESIGN SUBMISSION	SR	MP	MA
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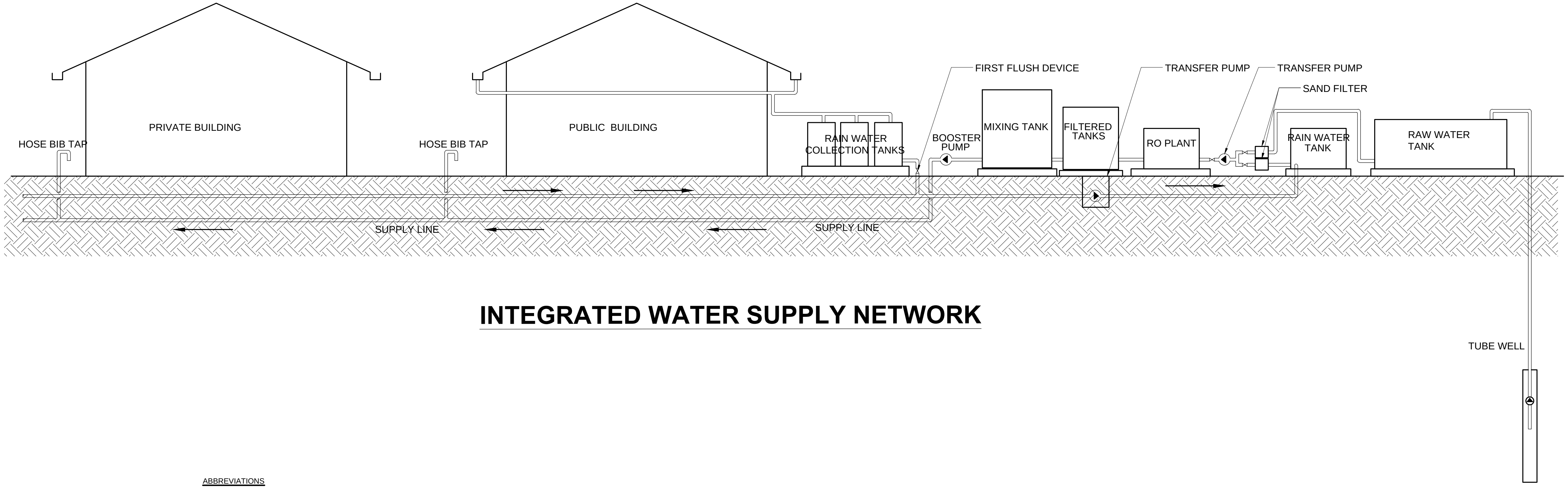
Water supply Facilities in Tha.Vilifushi, F.Nilandhoo,
B.Eydhafushi and Adh. Hanyaameedhoo, Maldives

DRAWING TITLE:
BRINE OUTFALL DETAILS
Tha. VILIFUSHI ISLAND

DESIGNED	DRAWN	CHECKED	APPROVED	SCALE	DATE
SK	SR	MP	MA	AS SHOWN	09.12.'15

PROJECT No.	SHEET No.	DRAWING No.
K-627	2 OF 2	TV-WS-103
REV. No.	0	


PRIVATE BUILDING
PUBLIC BUILDING
HOSE BIB TAP
HOSE BIB TAP
FIRST FLUSH DEVICE
TRANSFER PUMP
TRANSFER PUMP
SAND FILTER
RAIN WATER COLLECTION TANKS
BOOSTER PUMP
MIXING TANK
FILTERED TANKS
RO PLANT
RAIN WATER TANK
RAW WATER TANK
SUPPLY LINE
SUPPLY LINE
TUBE WELL

INTEGRATED WATER SUPPLY NETWORK

ABBREVIATIONS

SF	-SAND FILTER
RO	-REVERSE OSMOSIS TANK
HBT	-HOSE BIB TAP
RWS	-RAIN WATER SUPPLY
WS	-WATER SUPPLY
TP	-TRANSFER PUMP
RWCP	-RAINWATER COLLECTION PIPE
TP	-TRANSFER PUMP
BP	-BOOSTER PUMP

REFERENCE DRAWINGS

SL.No	DRAWING No.	DESCRIPTION

REV.	DATE	DESCRIPTION	DRAWN	CHKD.	APPRD.
..	..	..	..	..	..
..	..	..	.	..	..
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0	09.12.'15	DETAILED DESIGN SUBMISSION	SR	MP	MA
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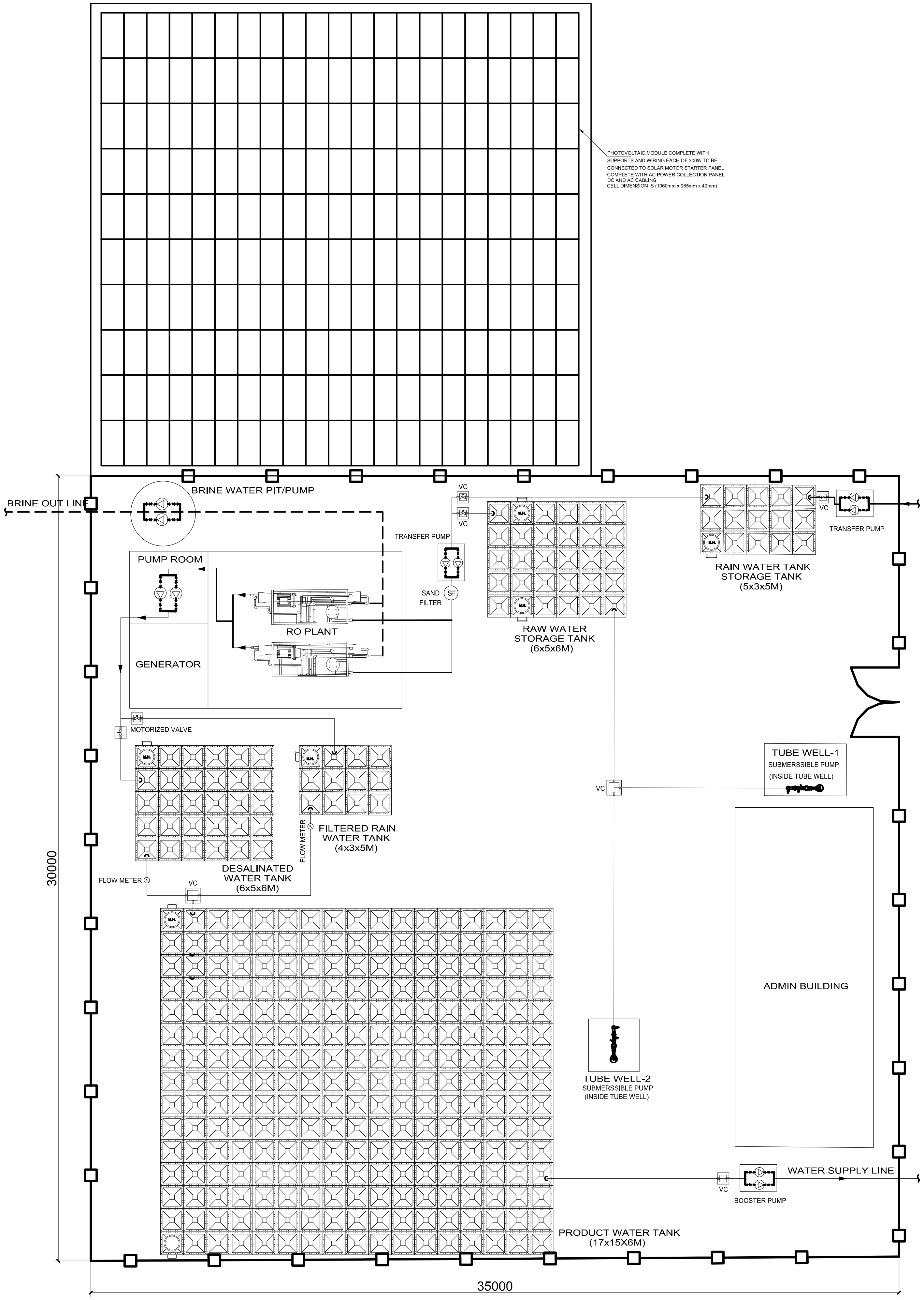
B.Eydhafushi and Adh. Hanyaameedhoo, Maldives

DRAWING TITLE:
INTEGRATED WATER SUPPLY NETWORK
SCHEMATIC-Tha.VILIFUSHI ISLAND

DESIGNED	DRAWN	CHECKED	APPROVED	SCALE	DATE
SK	SR	MP	MA	N.T.S	09.12.'15

PROJECT No.	SHEET No.	DRAWING No.
K-627	1 OF 1	TV-WS-104
REV. No.	0	


PHOTOVOLTAIC MODULE COMPLETE WITH
SUPPORTS AND WIRING EACH OF 300W TO BE
CONNECTED TO SOLAR MOTOR STARTER PANEL
COMPLETE WITH AC POWER COLLECTION PANEL
DC AND AC CABLING
CELL DIMENSION IS (1960mm x 985mm x 40mm)
BRINE WATER PIT/PUMP
BRINE OUT LINE
VC
VC
TRANSFER PUMP
PUMP ROOM
SAND FILTER
SF
RO PLANT
GENERATOR
RAW WATER STORAGE TANK (6x5x6M)
RAIN WATER TANK STORAGE TANK (5x3x5M)
VC
TRANSFER PUMP
MOTORIZED VALVE
TUBE WELL-1
SUBMERSSIBLE PUMP
(INSIDE TUBE WELL)
VC
DESALINATED WATER TANK (6x5x6M)
FILTERED RAIN WATER TANK (4x3x5M)
FLOW METER
FLOW METER
VC
30000
ADMIN BUILDING
TUBE WELL-2
SUBMERSSIBLE PUMP
(INSIDE TUBE WELL)
WATER SUPPLY LINE
VC
BOOSTER PUMP
PRODUCT WATER TANK (17x15X6M)
35000

NOTES:-

1. ALL DIMENSIONS SHOWN ARE IN MILLIMETERS (MM), UNLESS OTHERWISE SHOWN
2. ALL LEVELS SHOWN ARE IN METERS. ALL LEVELS SHOWN ARE FROM MEAN SEA LEVEL
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS,GENERAL NOTES AND SPECIFICATIONS.

REFERENCE DRAWINGS

SL.No.	DRAWING No.	DESCRIPTION

REV.	DATE	DESCRIPTION	DRAWN	CHKD.	APPRD.
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0	09.12.'15	DETAILED DESIGN SUBMISSION	SR	MP	MA
0	22.10.'15	CONCEPT DESIGN SUBMISSION	SR	MP	MA

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MINISTRY OF ENVIRONMENT & ENERGY
REPUBLIC OF MALDIVES

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admin@alhabshikw.com P.O. Box 27154, Safat 13132, Kuwait

PROJECT:

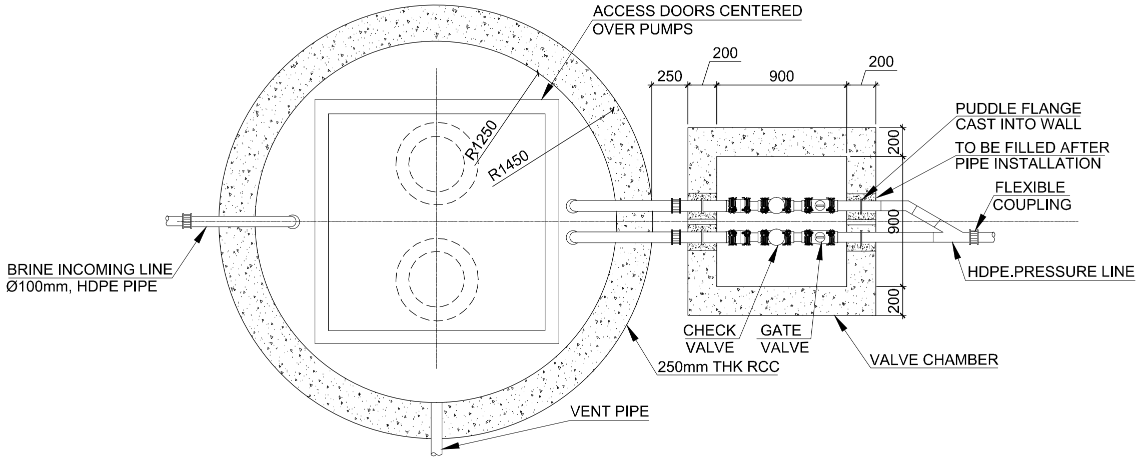
Consultancy Services for Survey, Design of
Water supply Facilities in Tha.Vilifushi, F.Nilandhoo,
B.Eydhafushi and Adh. Hanyaameedhoo, Maldives

DRAWING TITLE:

RO PLANT LAYOUT
Tha. VILIFUSHI ISLAND

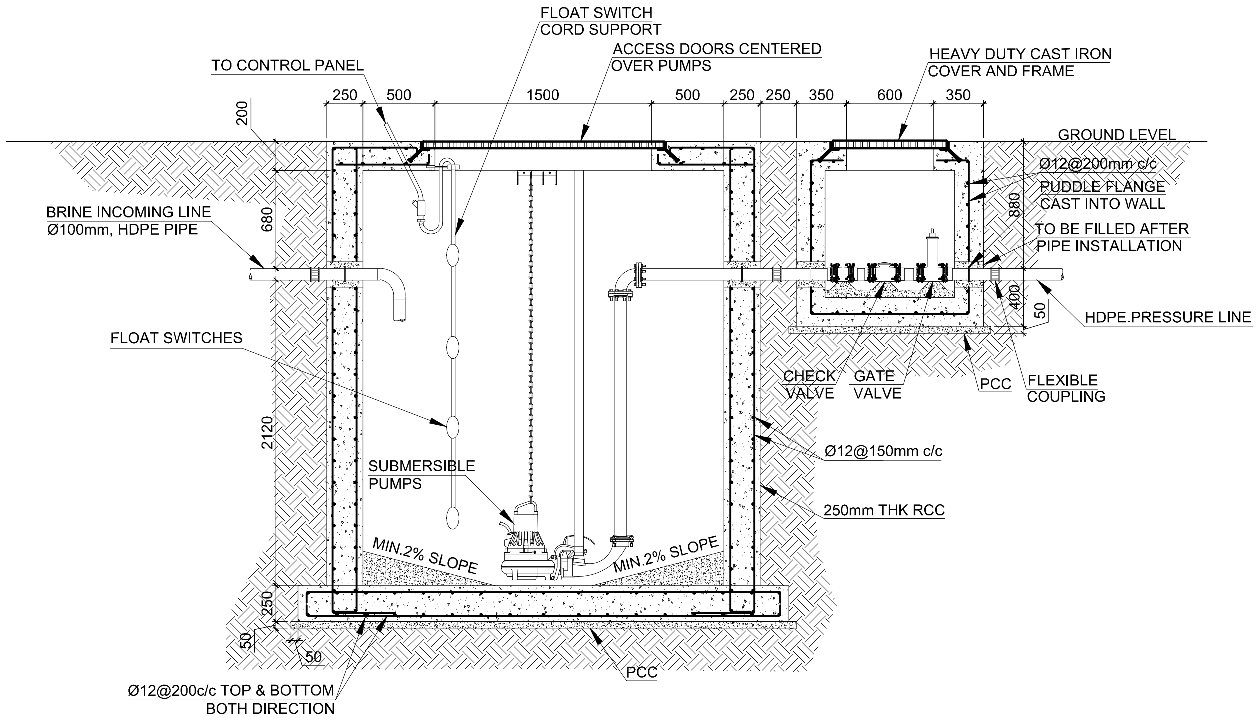
DESIGNED	DRAWN	CHECKED	APPROVED	SCALE	DATE
SK	SR	MP	MA	1 : 150	09.12.'15

PROJECT No.	SHEET No.	DRAWING No.
K-627	1 OF 1	TV-WS-105
REV. No.	0	


ACCESS DOORS CENTERED
OVER PUMPS
250
200
900
200
R1250
R1450
PUDDLE FLANGE
CAST INTO WALL
TO BE FILLED AFTER
PIPE INSTALLATION
200
FLEXIBLE
COUPLING
900
BRINE INCOMING LINE
Ø100mm, HDPE PIPE
HDPE.PRESSURE LINE
200
CHECK
VALVE
GATE
VALVE
250mm THK RCC
VALVE CHAMBER
VENT PIPE

BRINE PUMP DETAILS - PLAN

SCALE - 1 : 50


FLOAT SWITCH
CORD SUPPORT
ACCESS DOORS CENTERED
OVER PUMPS
TO CONTROL PANEL
HEAVY DUTY CAST IRON
COVER AND FRAME
250
500
1500
500
250
250
350
600
350
200
GROUND LEVEL
Ø12@200mm c/c
PUDDLE FLANGE
CAST INTO WALL
880
BRINE INCOMING LINE
Ø100mm, HDPE PIPE
680
TO BE FILLED AFTER
PIPE INSTALLATION
400
50
HDPE.PRESSURE LINE
FLOAT SWITCHES
CHECK
VALVE
GATE
VALVE
PCC
FLEXIBLE
COUPLING
2120
Ø12@150mm c/c
SUBMERSIBLE
PUMPS
250mm THK RCC
MIN.2% SLOPE
MIN.2% SLOPE
250
50
50
PCC
Ø12@200c/c TOP & BOTTOM
BOTH DIRECTION

BRINE PUMP DETAILS - SECTION

SCALE - 1 : 50

NOTES:-

1. ALL DIMENSIONS SHOWN ARE IN MILLIMETERS (MM), UNLESS OTHERWISE SHOWN
2. ALL LEVELS SHOWN ARE IN METERS.
   ALL LEVELS SHOWN ARE FROM MEAN SEA LEVEL
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS,GENERAL NOTES AND SPECIFICATIONS.

REFERENCE DRAWINGS

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REV.	DATE	DESCRIPTION	DRAWN	CHKD.	APPRD.
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0	09.12.'15	DETAILED DESIGN SUBMISSION	SR	MP	MA
0	22.10.'15	CONCEPT DESIGN SUBMISSION	SR	MP	MA

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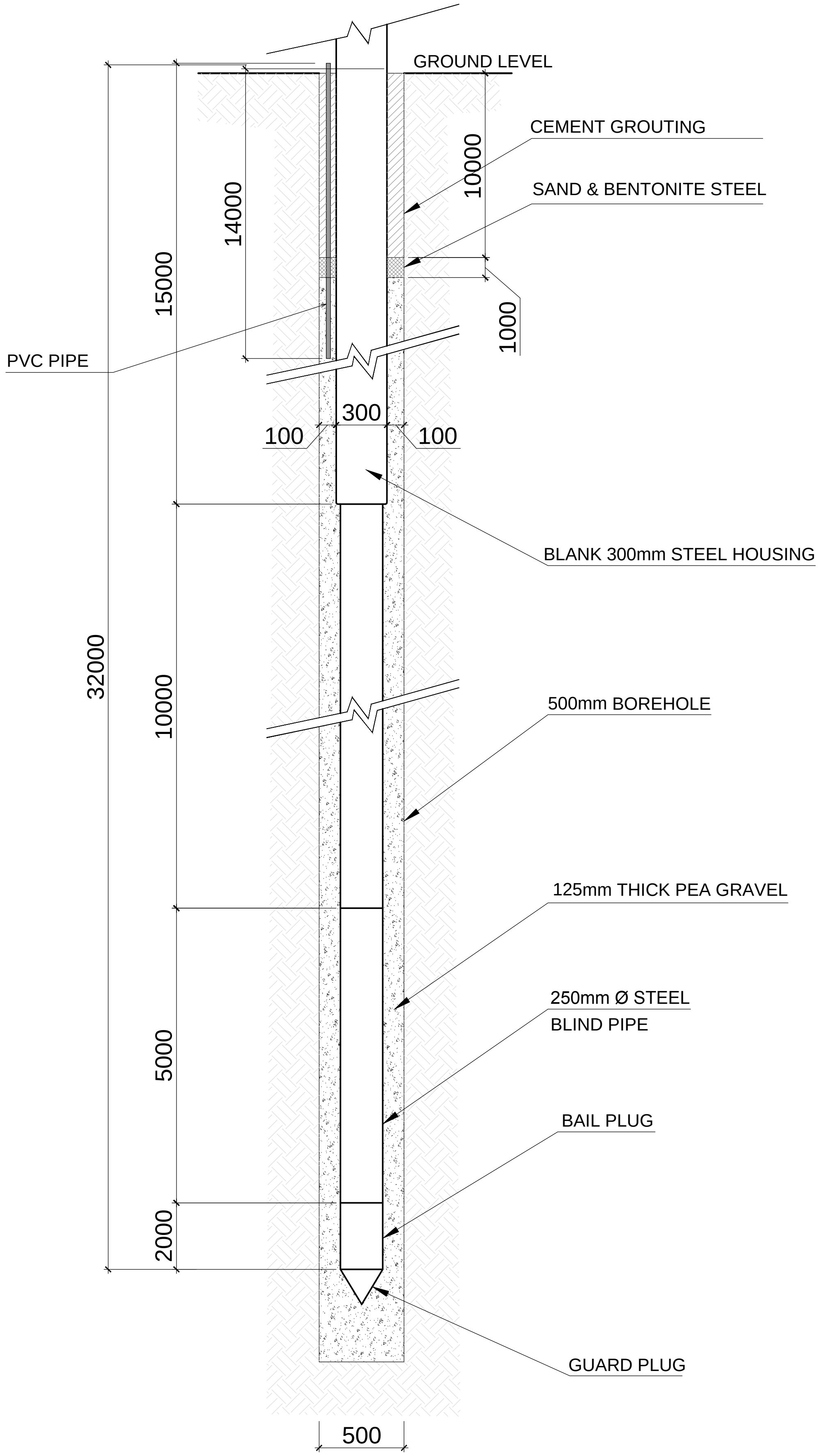
ISO 9001:2008

PROJECT:
Consultancy Services for Survey, Design of
Water supply Facilities in Tha.Vilifushi, F.Nilandhoo,
B.Eydhafushi and Adh. Hanyaameedhoo, Maldives

DRAWING TITLE:
BRINE PUMP DETAILS
Tha. VILIFUSHI ISLAND

DESIGNED	DRAWN	CHECKED	APPROVED	SCALE	DATE
SK	SR	MP	MA	1 : 50	09.12.'15

PROJECT No.	SHEET No.	DRAWING No.
K-627	1 OF 1	TV-WS-106
REV. No.	0	


GROUND LEVEL
CEMENT GROUTING
SAND & BENTONITE STEEL
PVC PIPE
BLANK 300mm STEEL HOUSING
500mm BOREHOLE
125mm THICK PEA GRAVEL
250mm Ø STEEL
BLIND PIPE
BAIL PLUG
GUARD PLUG
10000
14000
15000
1000
32000
300
100
100
10000
5000
2000
500

TUBE WELL DETAIL

NOTES:-

1. ALL DIMENSIONS SHOWN ARE IN MILLIMETERS (MM), UNLESS OTHERWISE SHOWN
2. ALL LEVELS SHOWN ARE IN METERS.
   ALL LEVELS SHOWN ARE FROM MEAN SEA LEVEL
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS,GENERAL NOTES AND SPECIFICATIONS.

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SL.No.	DRAWING No.	DESCRIPTION

REV.	DATE	DESCRIPTION	DRAWN	CHKD.	APPRD.
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0	09.12.'15	DETAILED DESIGN SUBMISSION	SR	MP	MA
0	22.10.'15	CONCEPT DESIGN SUBMISSION	SR	MP	MA

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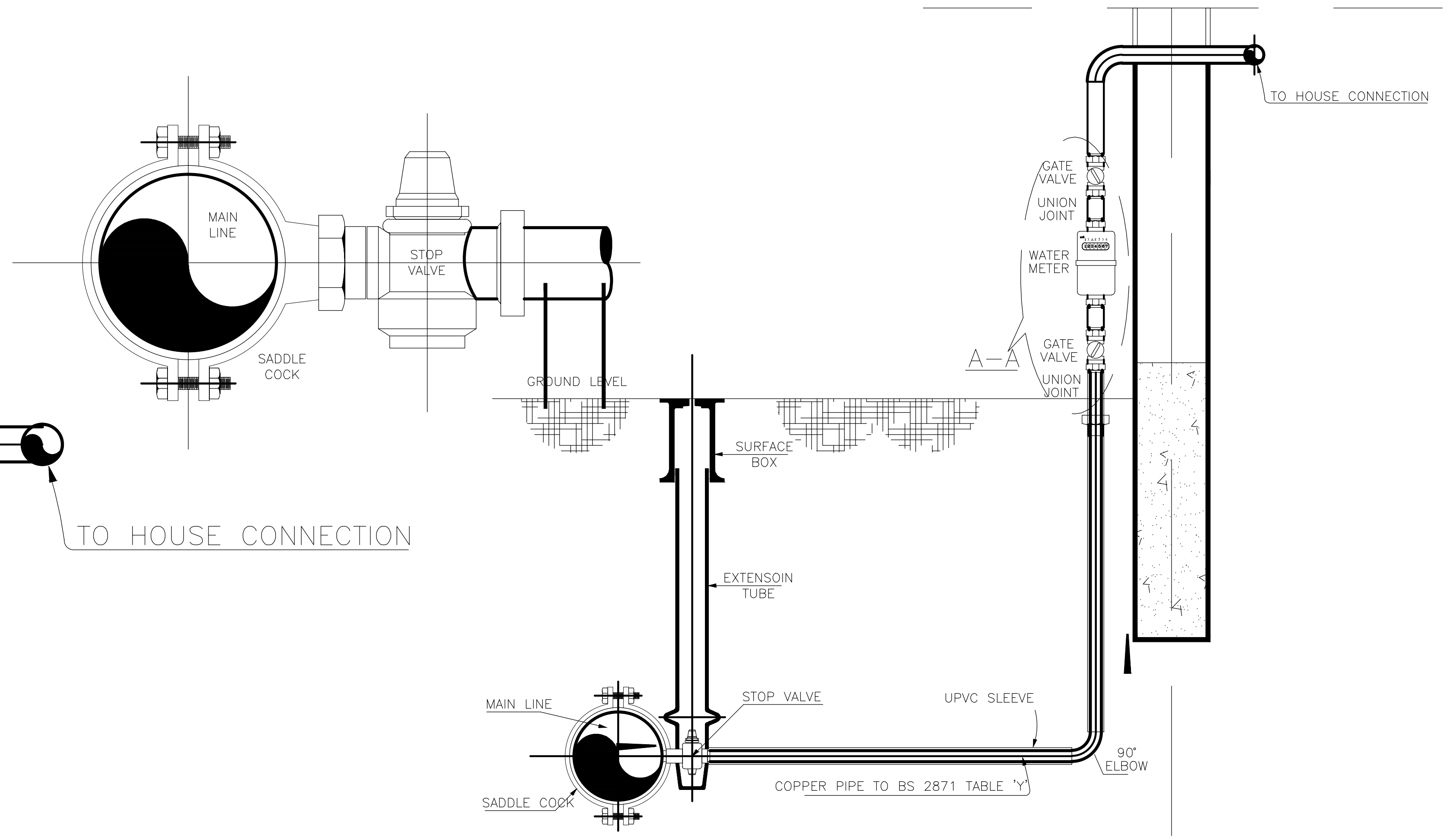
ISO 9001:2008

PROJECT:
Consultancy Services for Survey, Design of
Water supply Facilities in Tha.Vilifushi, F.Nilandhoo,
B.Eydhafushi and Adh. Hanyaameedhoo, Maldives

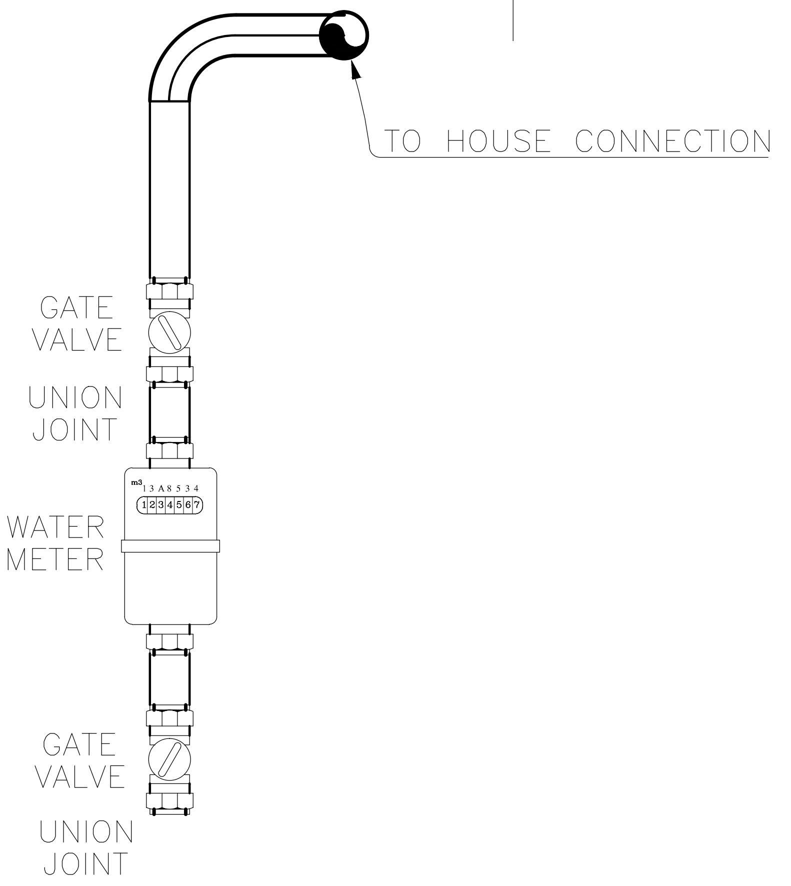
DRAWING TITLE:
TUBE WELL DETAIL
Tha. VILIFUSHI ISLAND

DESIGNED	DRAWN	CHECKED	APPROVED	SCALE	DATE
SK	SR	MP	MA	N.T.S	09.12.'15

PROJECT No.	SHEET No.	DRAWING No.
K-627	1 OF 1	TV-WS-107
REV. No.	0	


MAIN
LINE
STOP
VALVE
SADDLE
COCK
GROUND LEVEL
SURFACE
BOX
EXTENSOIN
TUBE
TO HOUSE CONNECTION
GATE
VALVE
UNION
JOINT
WATER
METER
GATE
VALVE
UNION
JOINT
A—A
MAIN LINE
SADDLE COCK
STOP VALVE
UPVC SLEEVE
90°
ELBOW
COPPER PIPE TO BS 2871 TABLE 'Y'

WATER METER DETAIL


TO HOUSE CONNECTION
GATE
VALVE
UNION
JOINT
WATER
METER
GATE
VALVE
UNION
JOINT

ENLARGED VIEW A-A

REFERENCE DRAWINGS

SL.No.	DRAWING No.	DESCRIPTION

REV.	DATE	DESCRIPTION	DRAWN	CHKD.	APPRD.
..	..	..	..	..	..
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0	09.12.'15	DETAILED DESIGN SUBMISSION	SR	MP	MA
0	22.10.'15	CONCEPT DESIGN SUBMISSION	SR	MP	MA

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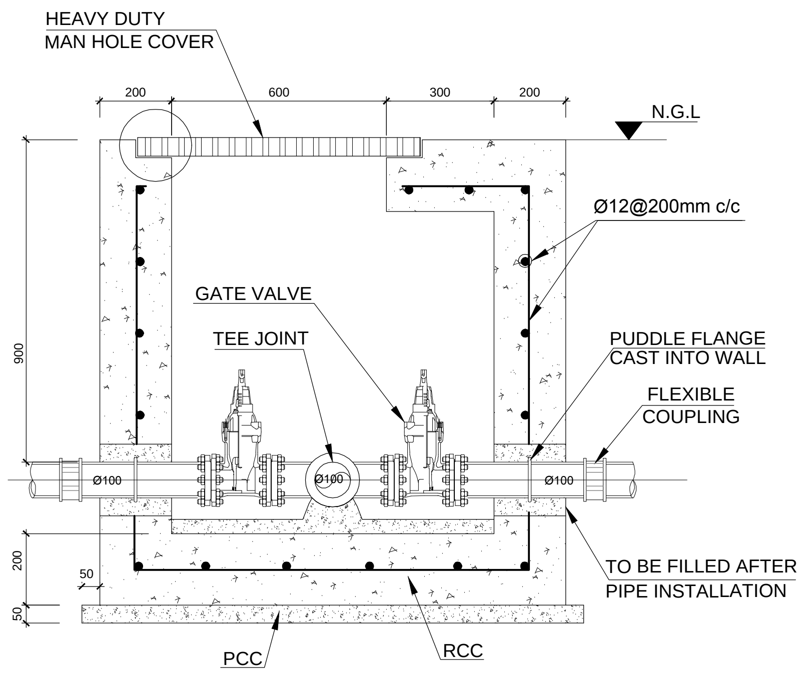
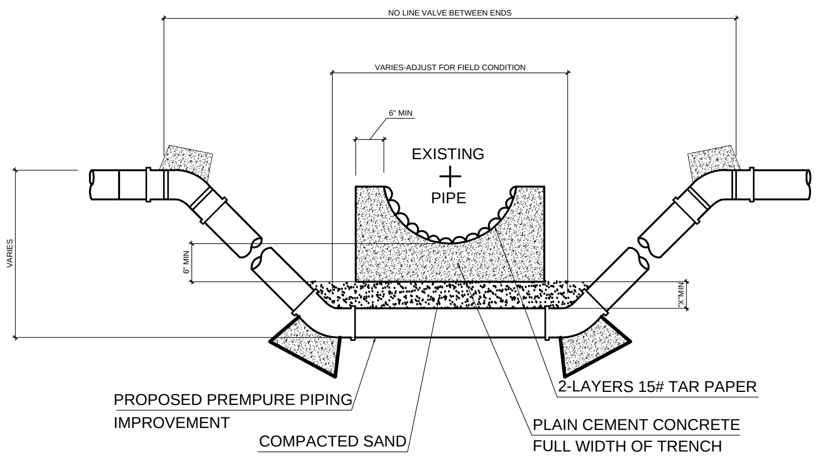
PROJECT:
Consultancy Services for Survey, Design of
Water supply Facilities in Tha.Vilifushi, F.Nilandhoo,
B.Eydhafushi and Adh. Hanyaameedhoo, Maldives

DRAWING TITLE:
TYPICAL DETAILS-WATER SUPPLY - (SHEET-01)
Tha.VILIFUSHI ISLAND

DESIGNED	DRAWN	CHECKED	APPROVED	SCALE	DATE
SK	SR	MP	MA	AS SHOWN	09-12-'15

PROJECT No.	SHEET No.	DRAWING No.
K-627	1 OF 4	TV-WS-109
REV. No.	0	


HEAVY DUTY
MAN HOLE COVER
200
600
300
200
N.G.L
Ø12@200mm c/c
GATE VALVE
TEE JOINT
PUDDLE FLANGE
CAST INTO WALL
FLEXIBLE
COUPLING
900
Ø100
Ø100
Ø100
200
50
50
TO BE FILLED AFTER
PIPE INSTALLATION
PCC
RCC


NO LINE VALVE BETWEEN ENDS
VARIES-ADJUST FOR FIELD CONDITION
6" MIN
EXISTING
PIPE
VARIES
6" MIN
"X"MIN
PROPOSED PREMPURE PIPING
IMPROVEMENT
COMPACTED SAND
2-LAYERS 15# TAR PAPER
PLAIN CEMENT CONCRETE
FULL WIDTH OF TRENCH

PIPE CROMPING DETAIL

NTS

"X" DIMENSION REQUIRMENTS

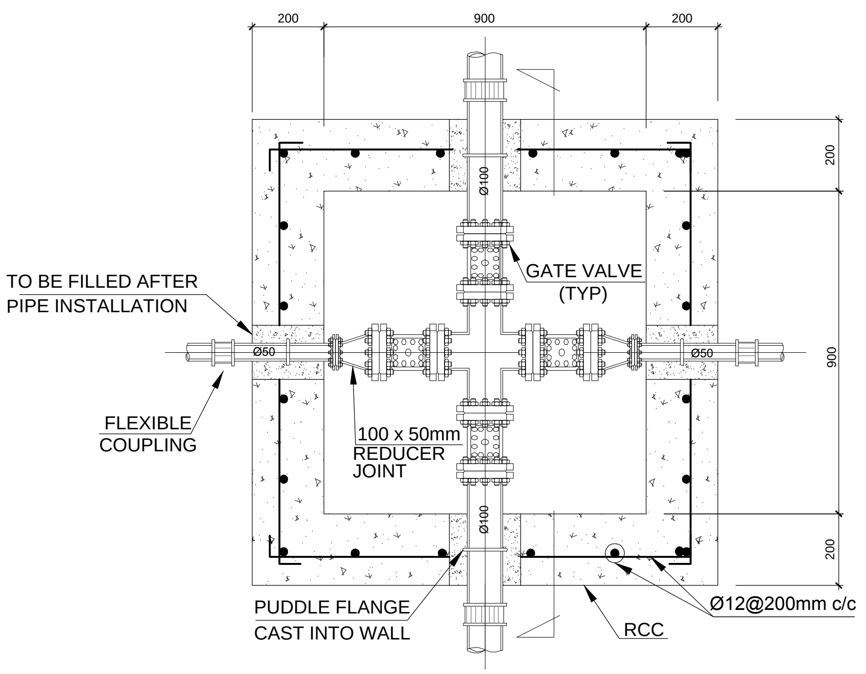
A - 6" FOR (GAS & OBT LINE CROMPING W/NO CRADLE NEEDED)
B - 18" FOR STORM SEWER PIPE
C - IF CROMPING SPACE IS MORE THAN MIN.SPACE OF CRADLE BELOE PIPE BOTTOM PLUS AFOREMENTIONED "X" DIMENSION THEN EXTEND "X" DIMENSION TO MAKE UP DIFFERENCE.

CONCRETE CRADLE CONDITIONS

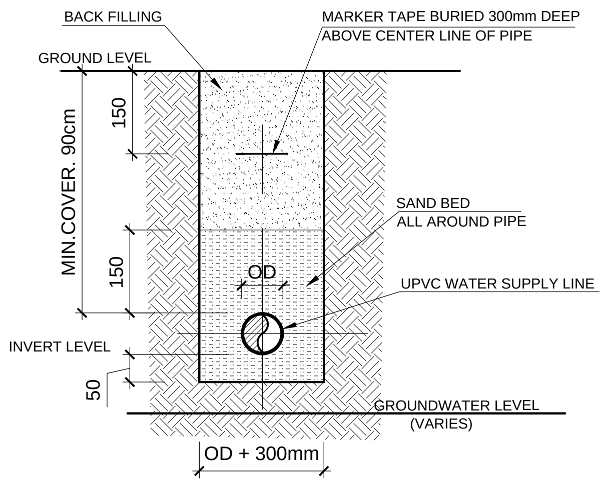
A - IF SANITORY OR SEWER PIPE JOINT IS WITHIN PROPOSED IMPROVEMENT TRENCH LIMIT
B - IF CROMPING SPACE IS LEMP THAN MIN.SPACE OF CRADLE BELOW PIPE BOTTOM PLUS "X" DIMENSION THEN OMIT SAND FILL AND USE CONCRETE

NOTE:-

USE OF BENDS & THRUST BLOCKS OR JOINT DEFLECTION TO BE DETERMINED IN FIELD FOR EACH CROMPING

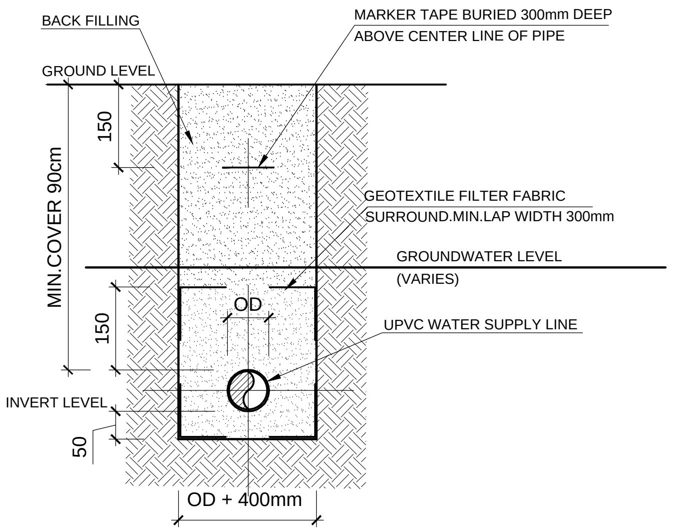

200
900
200
200
900
200
Ø100
Ø100
GATE VALVE
(TYP)
TO BE FILLED AFTER
PIPE INSTALLATION
Ø50
Ø50
FLEXIBLE
COUPLING
100 x 50mm
REDUCER
JOINT
PUDDLE FLANGE
CAST INTO WALL
RCC
Ø12@200mm c/c

VALVE CHAMBER


BACK FILLING
GROUND LEVEL
MARKER TAPE BURIED 300mm DEEP
ABOVE CENTER LINE OF PIPE
MIN.COVER. 90cm
150
150
SAND BED
ALL AROUND PIPE
OD
UPVC WATER SUPPLY LINE
INVERT LEVEL
50
GROUNDWATER LEVEL
(VARIES)
OD + 300mm

TYPICAL PIPE TRENCH DETAIL
(WATER TABLE BELOW TRENCH BASE)

N.T.S


BACK FILLING
GROUND LEVEL
MARKER TAPE BURIED 300mm DEEP
ABOVE CENTER LINE OF PIPE
MIN.COVER 90cm
150
150
GEOTEXTILE FILTER FABRIC
SURROUND.MIN.LAP WIDTH 300mm
GROUNDWATER LEVEL
(VARIES)
OD
UPVC WATER SUPPLY LINE
INVERT LEVEL
50
OD + 400mm

TYPICAL PIPE TRENCH DETAIL
(WATER TABLE ABOVE TRENCH BASE)

N.T.S

REFERENCE DRAWINGS

SL.No.	DRAWING No.	DESCRIPTION

REV.	DATE	DESCRIPTION	DRAWN	CHKD.	APPRD.
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0	09.12.'15	DETAILED DESIGN SUBMISSION	SR	MP	MA
0	22.10.'15	CONCEPT DESIGN SUBMISSION	SR	MP	MA

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MINISTRY OF ENVIRONMENT & ENERGY
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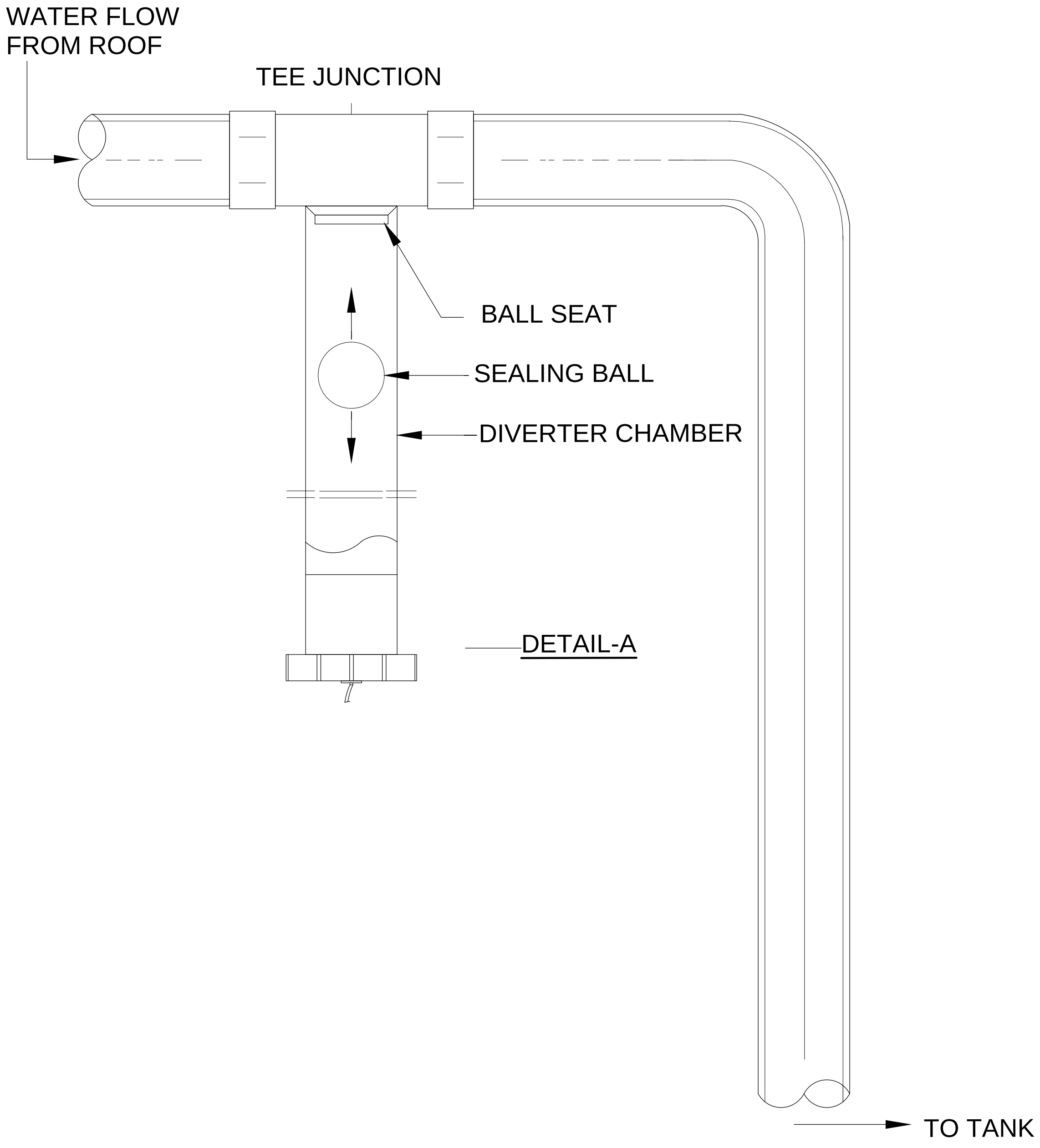
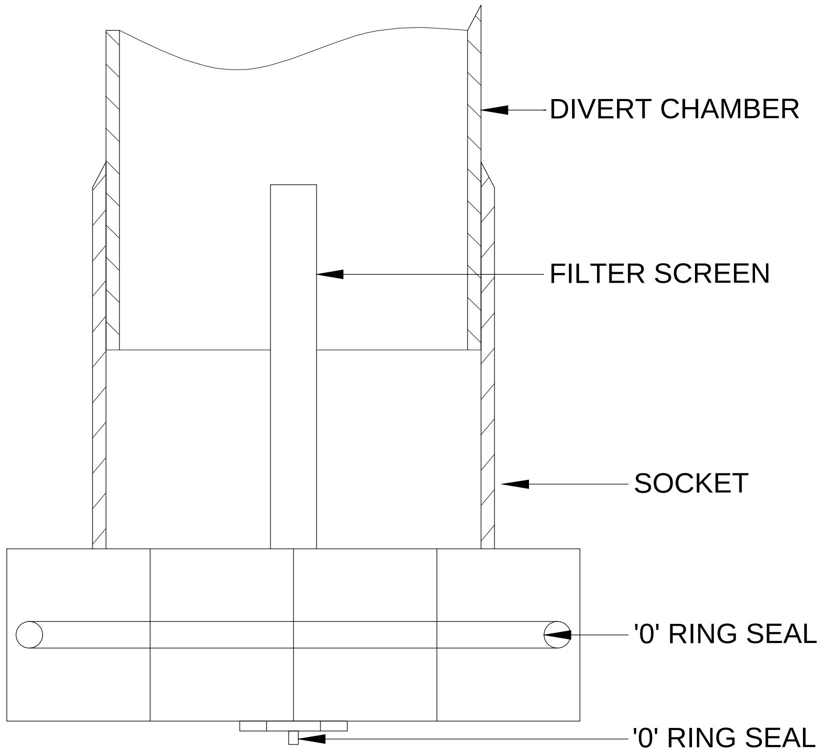
PROJECT:
Consultancy Services for Survey, Design of
Water supply Facilities in Tha.Vilifushi, F.Nilandhoo,
B.Eydhafushi and Adh. Hanyaameedhoo, Maldives

DRAWING TITLE:
TYPICAL DETAILS-WATER SUPPLY - (SHEET-02)
Tha.VILIFUSHI ISLAND

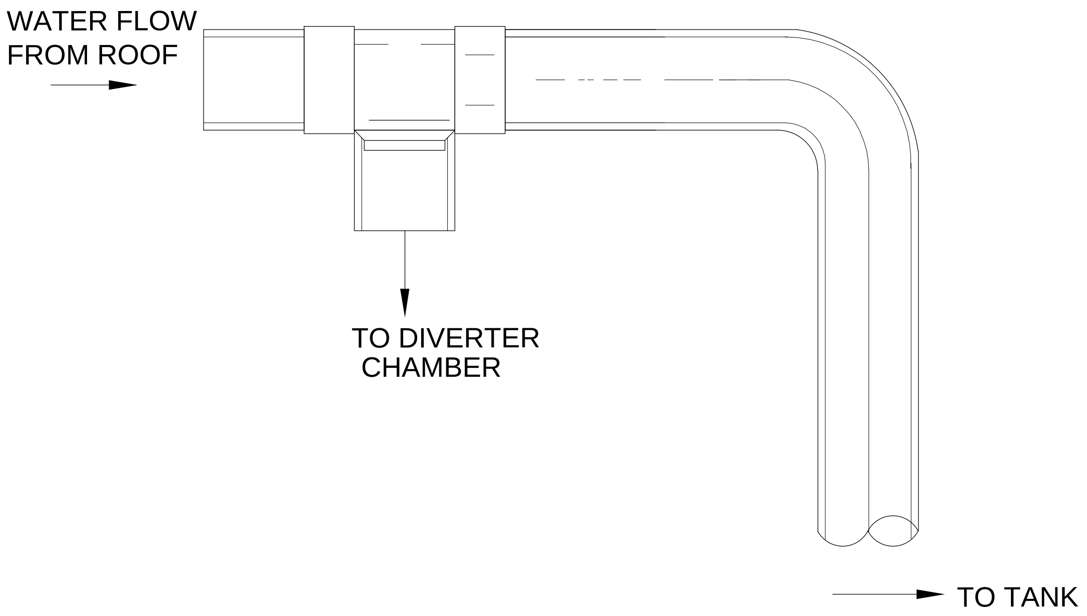
DESIGNED	DRAWN	CHECKED	APPROVED	SCALE	DATE
SK	SR	MP	MA	AS SHOWN	09-12-'15

PROJECT No.	SHEET No.	DRAWING No.
K-627	2 OF 4	TV-WS-109
REV. No.	0	


WATER FLOW
FROM ROOF
TEE JUNCTION
BALL SEAT
SEALING BALL
DIVERTER CHAMBER
DETAIL-A
TO TANK


DIVERT CHAMBER
FILTER SCREEN
SOCKET
'0' RING SEAL
'0' RING SEAL

DETAIL-A


WATER FLOW
FROM ROOF
TO DIVERTER
CHAMBER
TO TANK

TYPICAL FIRST FLUSH DIVERTER

REFERENCE DRAWINGS

SL.No.	DRAWING No.	DESCRIPTION

REV.	DATE	DESCRIPTION	DRAWN	CHKD.	APPRD.
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0	09.12.'15	DETAILED DESIGN SUBMISSION	SR	MP	MA
0	22.10.'15	CONCEPT DESIGN SUBMISSION	SR	MP	MA

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PROJECT:
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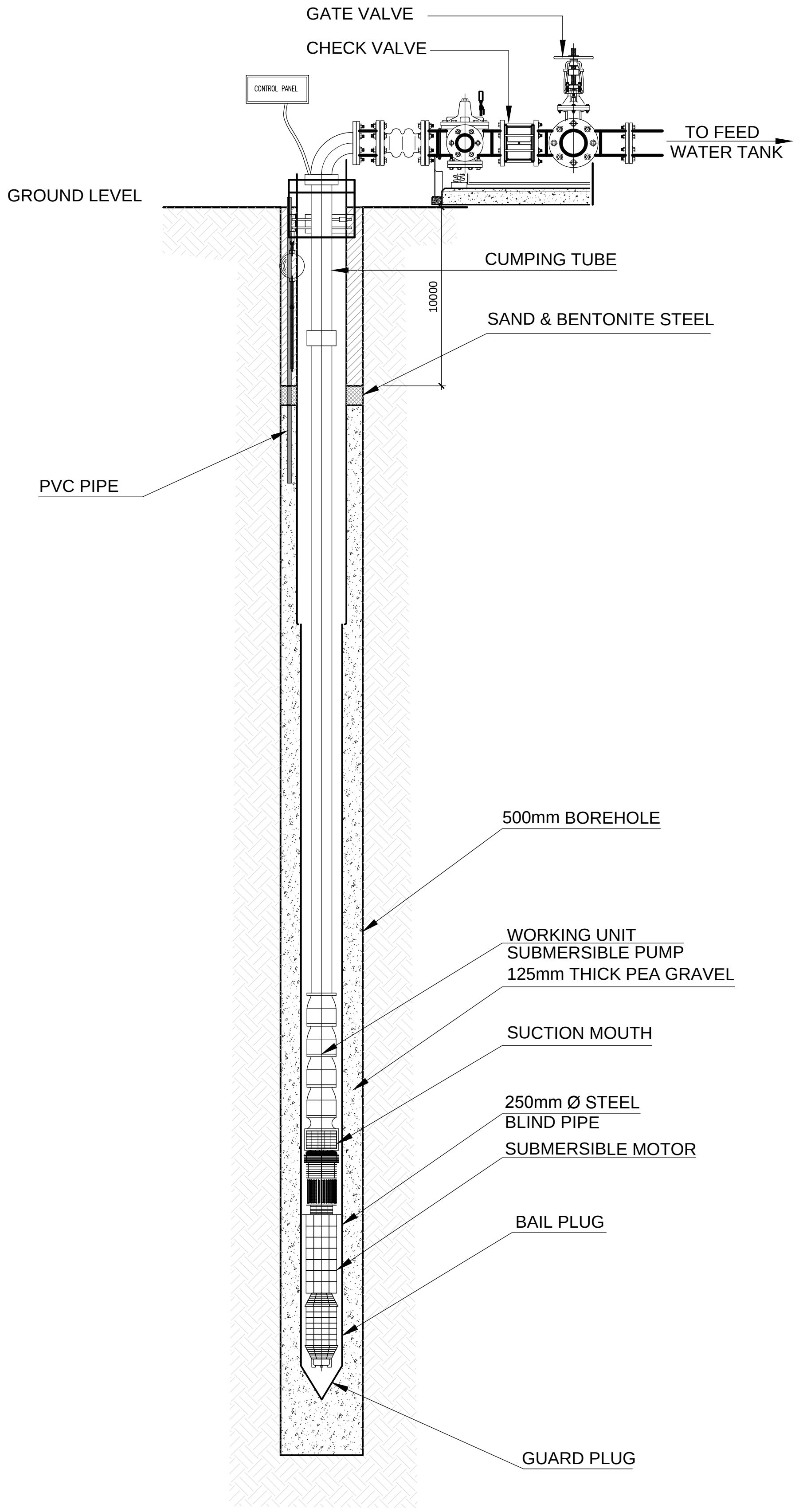
Water supply Facilities in Tha.Vilifushi, F.Nilandhoo,
B.Eydhafushi and Adh. Hanyaameedhoo, Maldives

DRAWING TITLE:
TYPICAL DETAILS-WATER SUPPLY - (SHEET-03)
Tha.VILIFUSHI ISLAND

DESIGNED	DRAWN	CHECKED	APPROVED	SCALE	DATE
SK	SR	MP	MA	AS SHOWN	09-12-'15

PROJECT No.	SHEET No.	DRAWING No.
K-627	3 OF 4	TV-WS-109
REV. No.	0	


GATE VALVE
CHECK VALVE
CONTROL PANEL
TO FEED
WATER TANK
GROUND LEVEL
CUMPING TUBE
10000
SAND & BENTONITE STEEL
PVC PIPE
500mm BOREHOLE
WORKING UNIT
SUBMERSIBLE PUMP
125mm THICK PEA GRAVEL
SUCTION MOUTH
250mm Ø STEEL
BLIND PIPE
SUBMERSIBLE MOTOR
BAIL PLUG
GUARD PLUG

SUBMERSIBLE BORE WELL PUMP

REFERENCE DRAWINGS

SL.No.	DRAWING No.	DESCRIPTION

REV.	DATE	DESCRIPTION	DRAWN	CHKD.	APPRD.
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0	09.12.'15	DETAILED DESIGN SUBMISSION	SR	MP	MA
0	22.10.'15	CONCEPT DESIGN SUBMISSION	SR	MP	MA

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ISO 9001:2008

PROJECT:

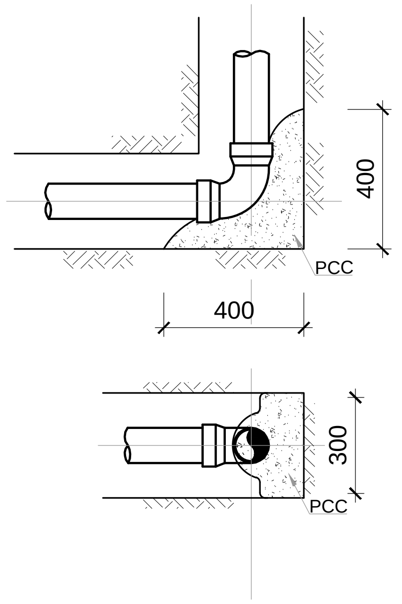
Consultancy Services for Survey, Design of
Water supply Facilities in Tha.Vilifushi, F.Nilandhoo,
B.Eydhafushi and Adh. Hanyaameedhoo, Maldives

DRAWING TITLE:

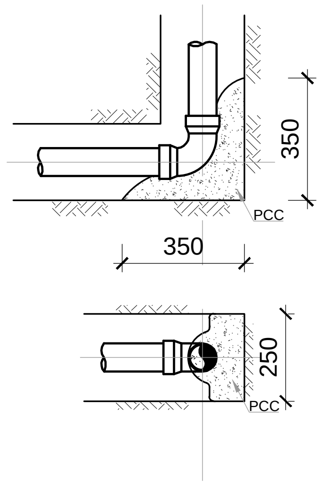
TYPICAL DETAILS-WATER SUPPLY - (SHEET-04)
Tha.VILIFUSHI ISLAND

DESIGNED	DRAWN	CHECKED	APPROVED	SCALE	DATE
SK	SR	MP	MA	AS SHOWN	09-12-'15

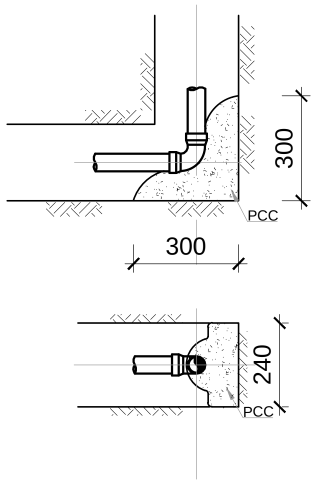
PROJECT No.	SHEET No.	DRAWING No.
K-627	4 OF 4	TV-WS-109
REV. No.	0	



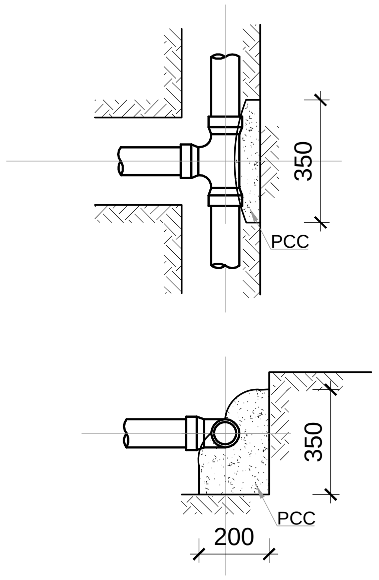
90° HORIZONTAL BEND (BTM)
FOR Ø100 WS PIPE



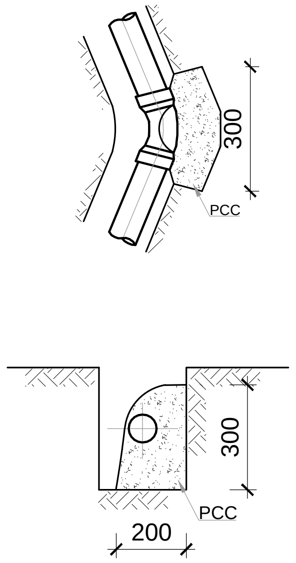
90° HORIZONTAL BEND (BTM)
FOR Ø80 WS PIPE



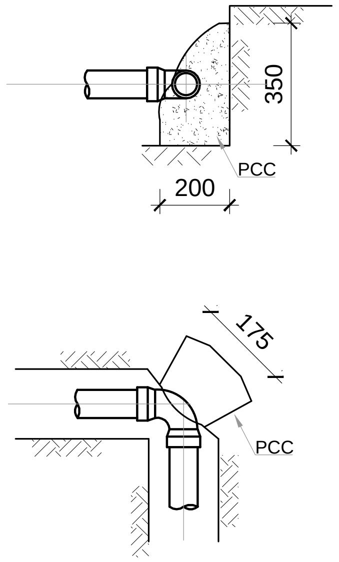
90° VERTICAL BEND (BTM)
FOR Ø50 WS PIPE



ANGLE BRANCH & TEE
FOR Ø80 WS PIPE



HORIZONTAL BEND
FOR Ø80 WS PIPE



90° VERTICAL BEND (BTM)
FOR Ø80 WS PIPE

REFERENCE DRAWINGS

SL.No.	DRAWING No.	DESCRIPTION

REV.	DATE	DESCRIPTION	DRAWN	CHKD.	APPRD.
..	..	..	..	..	..
..	..	..	.	..	..
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0	22.10.'15	CONCEPT DESIGN SUBMISSION	SR	MP	MA

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PROJECT:
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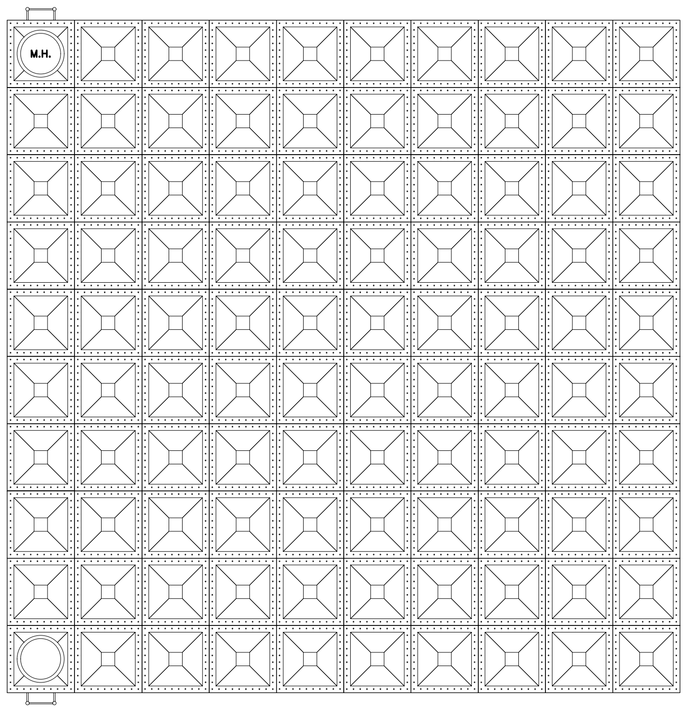
Water supply Facilities in Tha.Vilifushi, F.Nilandhoo,
B.Eydhafushi and Adh. Hanyaameedhoo, Maldives

DRAWING TITLE:
TYPICAL PIPE BENDING DETAILS
Tha.VILIFUSHI ISLAND

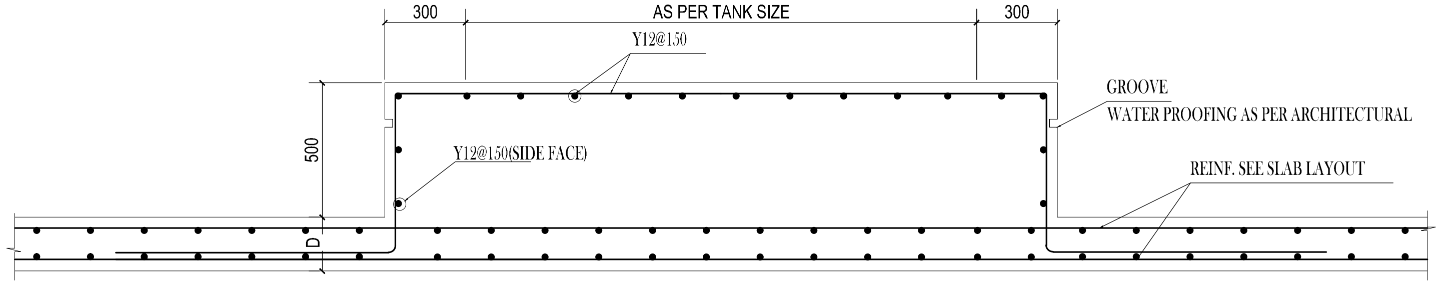
DESIGNED	DRAWN	CHECKED	APPROVED	SCALE	DATE
SK	SR	MP	MA	AS SHOWN	09-12-'15

PROJECT No.	SHEET No.	DRAWING No.
K-627	1 OF 1	TV-WS-110
REV. No.	0	



PLAN GRP WATER TANK

1) Size : 6000x5000x6000mm
2) Size : 3000x5000x5000mm
3) Size : 6000x5000x6000mm
4) Size : 4000x3000x5000mm
5) Size : 17000x15000x6000mm



TYP.R.C DETAIL FOR ABOVE GROUND GRP TANK

SCALE N.T.S

1. ALL DIMENSION ARE IN MILLIMETER,UNLESS OTHERWISE NOTED
2. ALL LEVELS SHOWN ARE IN METERS.
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS,GENERAL NOTES AND SPECIFICATIONS.
4. THE DESIGN IS INDICATIVE ONLY, THE CONTRACTOR TO DESIGN & BUILD THE TANK TOWER STRUCTURE.
5. WATER STOPS SHALL BE 210x9mm THICK MULTI-RIB TYPE WITH CANTER BULB FOR CONSTRUCTION,CONTROL AND EXPANSION JOINTS.

REFERENCE DRAWINGS

SL.No.	DRAWING No.	DESCRIPTION

REV.	DATE	DESCRIPTION	DRAWN	CHKD.	APPRD.
..	..	..	..	..	..
..	..	..	.	..	..
..	..	..	..	..	..
0	09.12.'15	DETAILED DESIGN SUBMISSION	SR	MP	MA
0	22.10.'15	CONCEPT DESIGN SUBMISSION	SR	MP	MA

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MINISTRY OF ENVIRONMENT & ENERGY
REPUBLIC OF MALDIVES

CONSULTANT:

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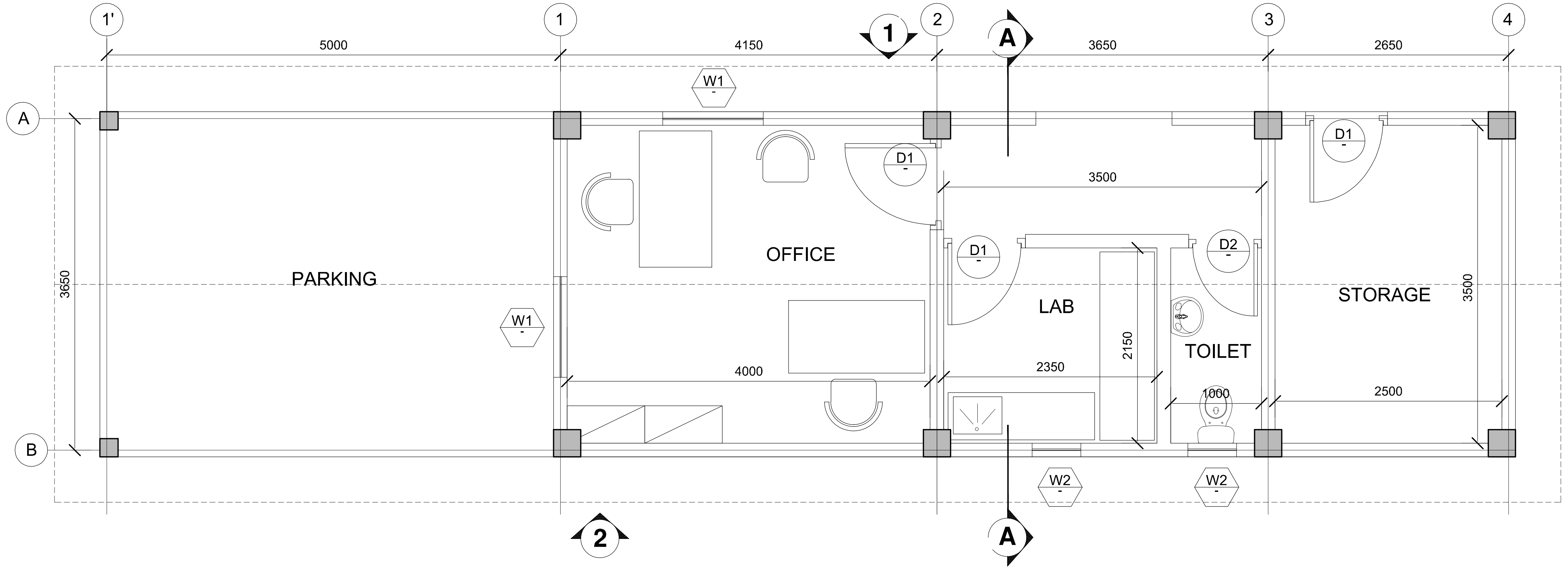
ISO 9001:2008

PROJECT:
Consultancy Services for Survey, Design of
Water supply Facilities in Tha.Vilifushi, F.Nilandhoo,
B.Eydhafushi and Adh. Hanyaameedhoo, Maldives

DRAWING TITLE:
GRP WATER TANK
Tha.VILIFUSHI ISLAND

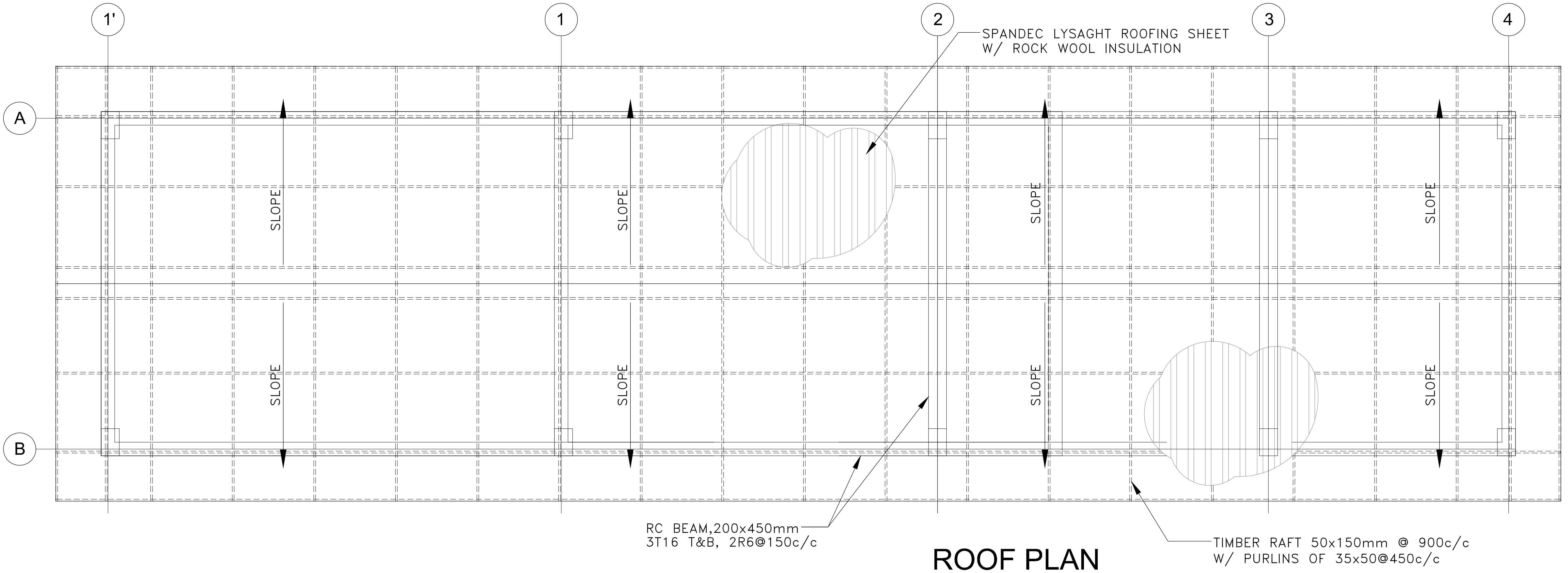
DESIGNED	DRAWN	CHECKED	APPROVED	SCALE	DATE
SK	SR	MP	MA	AS SHOWN	09-12-'15

PROJECT No.	SHEET No.	DRAWING No.
K-627	1 OF 1	TV-WS-111
REV. No.	0	


1'
1
2
3
4
5000
4150
3650
2650
A
B
W1
D1
3500
D1
D2
D1
OFFICE
PARKING
3650
LAB
STORAGE
3500
W1
2150
TOILET
4000
2350
1000
2500
W2
W2
1
2
A
A

FLOOR PLAN

SCALE 1:100


1'
1
2
3
4
A
B
SPANDEC LYSAGHT ROOFING SHEET
W/ ROCK WOOL INSULATION
SLOPE
SLOPE
SLOPE
SLOPE
SLOPE
SLOPE
SLOPE
SLOPE
RC BEAM,200x450mm
3T16 T&B, 2R6@150c/c
TIMBER RAFT 50x150mm @ 900c/c
W/ PURLINS OF 35x50@450c/c

ROOF PLAN

SCALE 1:100

NOTES:-

1. ALL DIMENSIONS SHOWN ARE IN MILLIMETERS (MM), UNLESS OTHERWISE SHOWN
2. ALL LEVELS SHOWN ARE IN METERS. ALL LEVELS SHOWN ARE FROM MEAN SEA LEVEL
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS,GENERAL NOTES AND SPECIFICATIONS.

REFERENCE DRAWINGS

SL.No.	DRAWING No.	DESCRIPTION

REV.	DATE	DESCRIPTION	DRAWN	CHKD.	APPRD.
..	..	..	..	..	..
..	..	..	.	..	..
..	..	..	..	..	..
0	09.12.'15	DETAILED DESIGN SUBMISSION	SR	MP	MA
0	22.10.'15	CONCEPT DESIGN SUBMISSION	SR	MP	MA

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PROJECT:

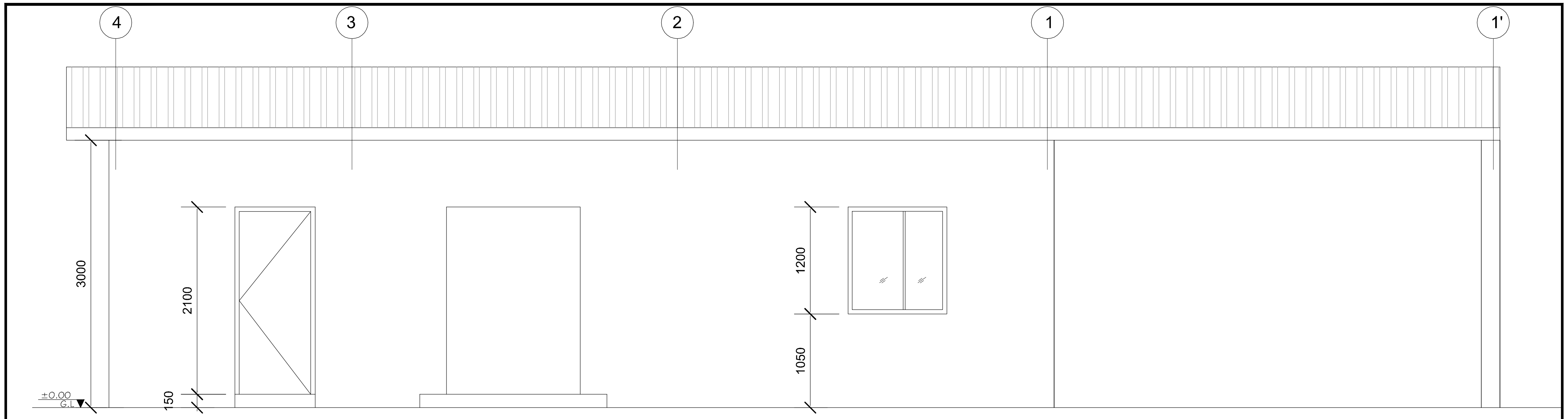
Consultancy Services for Survey, Design of
Water supply Facilities in Tha.Vilifushi, F.Nilandhoo,
B.Eydhafushi and Adh. Hanyaameedhoo, Maldives

DRAWING TITLE:

RO PLANT ADMIN BUILDING
FLOOR AND ROOF PLAN

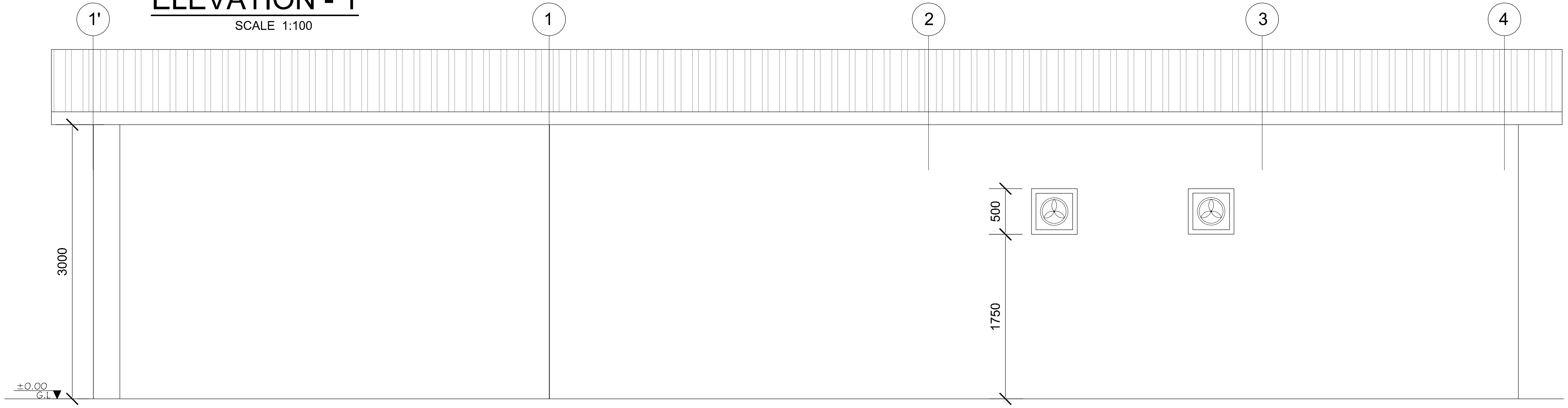
DESIGNED	DRAWN	CHECKED	APPROVED	SCALE	DATE
SK	SR	MP	MA	1 : 100	09.12.'15

PROJECT No.	SHEET No.	DRAWING No.
K-627	1 OF 1	TV-WS-113
REV. No.	0	


4
3
2
1
1'
3000
2100
150
1200
1050
±0.00
G.L

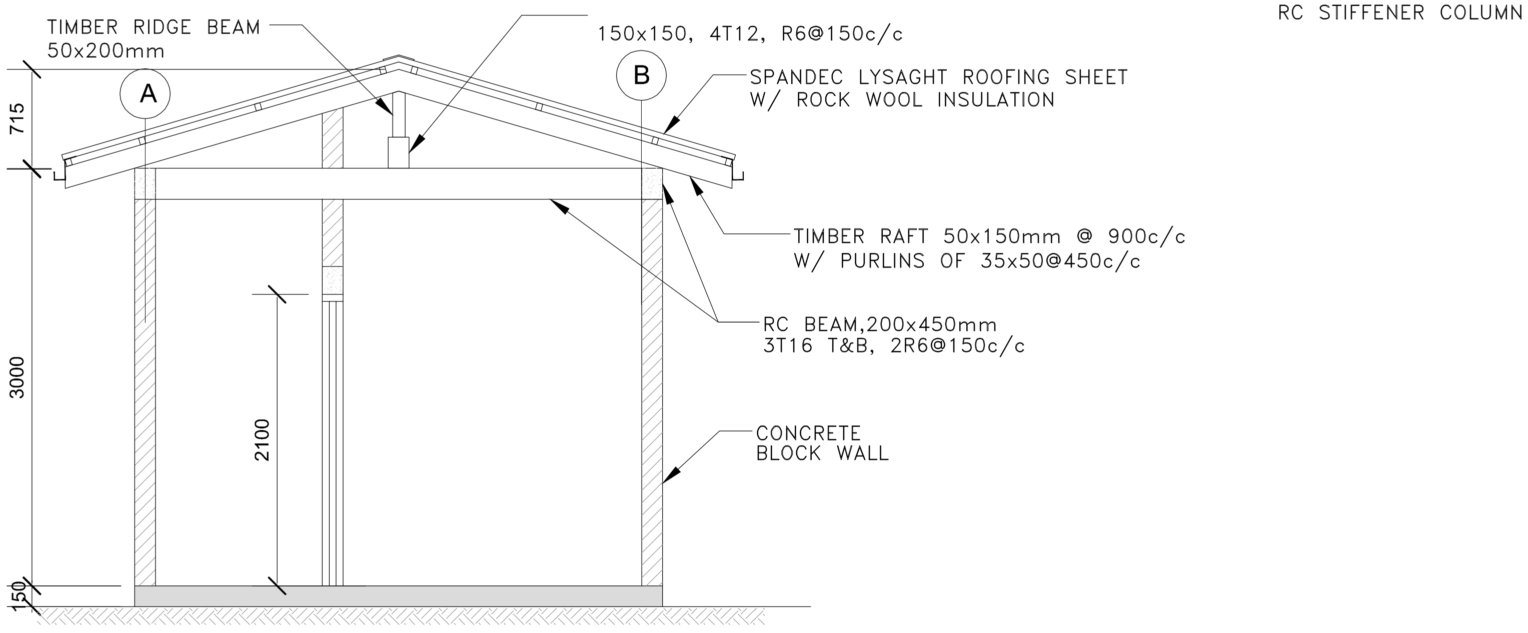
ELEVATION - 1

SCALE 1:100


1'
1
2
3
4
3000
500
1750
±0.00
G.L

ELEVATION - 2

SCALE 1:100


TIMBER RIDGE BEAM
50x200mm
150x150, 4T12, R6@150c/c
RC STIFFENER COLUMN
A
B
SPANDEC LYSAGHT ROOFING SHEET
W/ ROCK WOOL INSULATION
715
TIMBER RAFT 50x150mm @ 900c/c
W/ PURLINS OF 35x50@450c/c
RC BEAM,200x450mm
3T16 T&B, 2R6@150c/c
3000
2100
CONCRETE
BLOCK WALL
150

SECTION A-A

NOTES:-

1. ALL DIMENSIONS SHOWN ARE IN MILLIMETERS (MM), UNLESS OTHERWISE SHOWN
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3. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS,GENERAL NOTES AND SPECIFICATIONS.

REFERENCE DRAWINGS

SL.No.	DRAWING No.	DESCRIPTION

REV.	DATE	DESCRIPTION	DRAWN	CHKD.	APPRD.
..	..	..	..	..	..
..	..	..	.	..	..
..	..	..	..	..	..
0	09.12.'15	DETAILED DESIGN SUBMISSION	SR	MP	MA
0	22.10.'15	CONCEPT DESIGN SUBMISSION	SR	MP	MA

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PROJECT:

Consultancy Services for Survey, Design of
Water supply Facilities in Tha.Vilifushi, F.Nilandhoo,
B.Eydhafushi and Adh. Hanyaameedhoo, Maldives

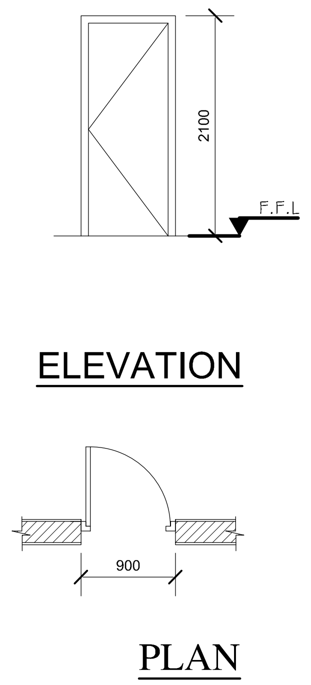
DRAWING TITLE:

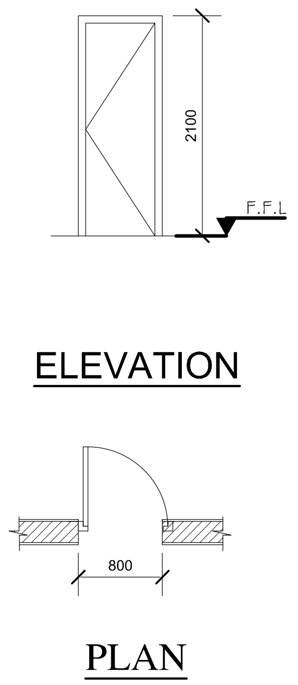
RO PLANT ADMIN BUILDING
ELEVATIONS AND SECTION

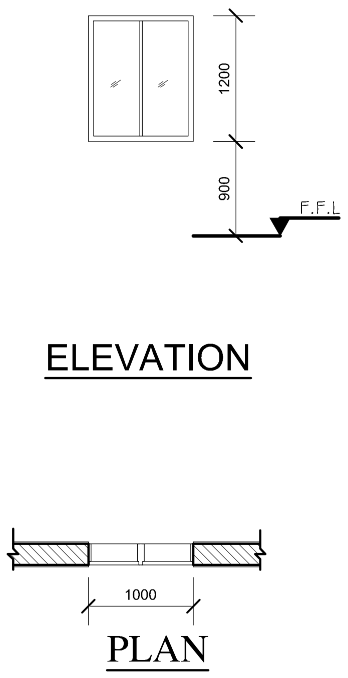
DESIGNED	DRAWN	CHECKED	APPROVED	SCALE	DATE
SK	SR	MP	MA	1 : 100	09.12.'15

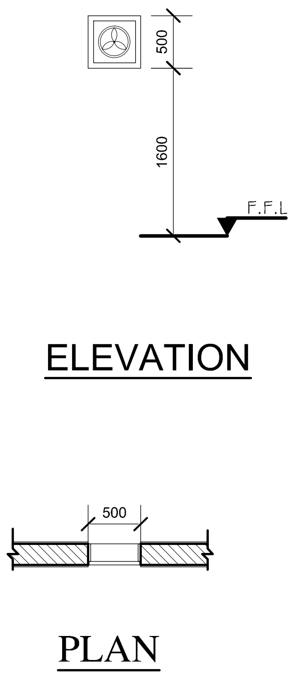
PROJECT No.	SHEET No.	DRAWING No.
K-627	1 OF 1	TV-WS-114
REV. No.	0	

DOOR & WINDOW SCHEDULE

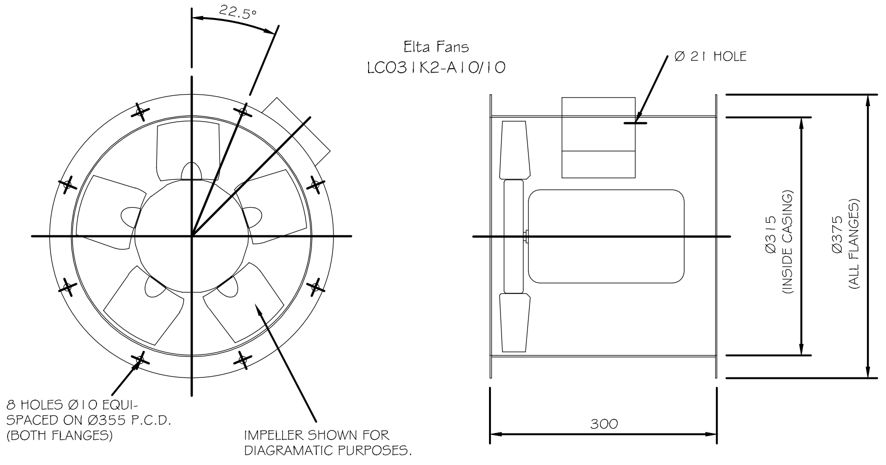

2100
F.F.L
ELEVATION
900
PLAN


2100
F.F.L
ELEVATION
800
PLAN


1200
900
F.F.L
ELEVATION
1000
PLAN


500
1600
F.F.L
ELEVATION
500
PLAN

	WIDTH	HEIGHT	SILL HEIGHT	DESCRIPTION
D1	900	2100		WOODEN FRAME & WOODEN PANEL
D2	800	2100		WOODEN FRAME & WOODEN PANEL
W1	1000	1200	900	ALUMINIUM FRAME WITH DOUBLE GLAZED
W2	500	500	1600	ALUMINIUM FRAME WITH GLASS & FAN


22.5°
Elta Fans
LC031K2-A10/10
Ø 21 HOLE
Ø315 (INSIDE CASING)
Ø375 (ALL FLANGES)
300
8 HOLES Ø10 EQUI-SPACED ON Ø355 P.C.D. (BOTH FLANGES)
IMPELLER SHOWN FOR DIAGRAMATIC PURPOSES.

TYP.EXHAUST FAN

FANS SCHEDULE

REFERENCE	LOCATION	SERVICE	FLOW RATE	SP	POWER				FAN SPEED	FAN	REMARKS
	AREA	AREA	CFM	IWG	KW	VOLTS	PH	HZ	RPM	FAN TYPE	
EXF-1	LABORATORY	LABORATORY	120	0.5	0.25	230	1	50	1450	AXIAL	
EXF-2	TOILET	TOILET	60	0.5	0.25	230	1	50	1450	AXIAL	

1. CONTRACTOR SHALL RECALCULATE ALL EXTERNAL STATIC PRESSURES AND PROVIDE THE ADEQUATE MOTOR .
2. Stop EF at night time

EXHAUST FAN SCHEDULE

NOTES:-

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REFERENCE DRAWINGS

SL.No.	DRAWING No.	DESCRIPTION

REV.	DATE	DESCRIPTION	DRAWN	CHKD.	APPRD.
..	..	..	..	..	..
..	..	..	.	..	..
..	..	..	..	..	..
0	09.12.'15	DETAILED DESIGN SUBMISSION	SR	MP	MA
0	22.10.'15	CONCEPT DESIGN SUBMISSION	SR	MP	MA

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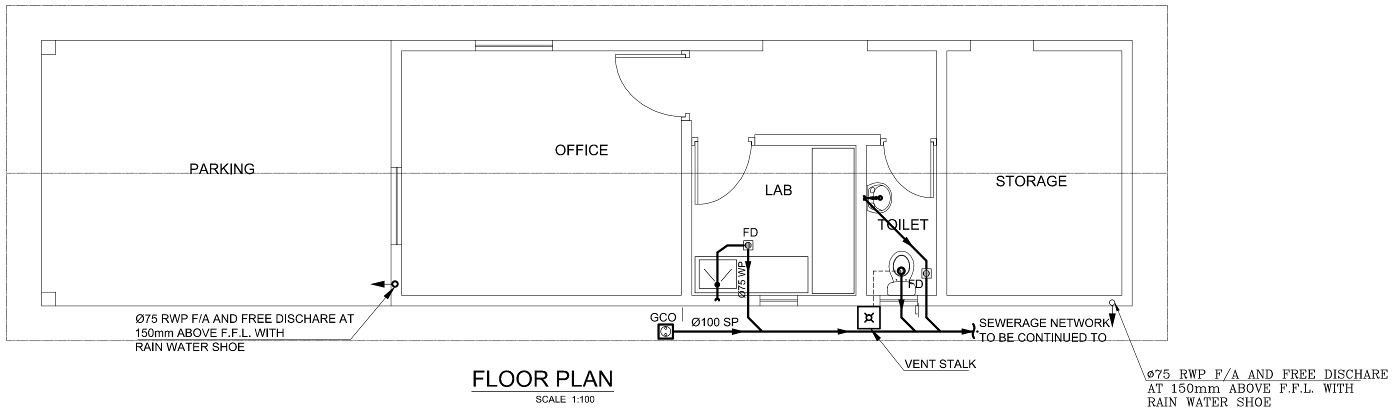
ISO 9001:2008

PROJECT:
Consultancy Services for Survey, Design of
Water supply Facilities in Tha.Vilifushi, F.Nilandhoo,
B.Eydhafushi and Adh. Hanyaameedhoo, Maldives

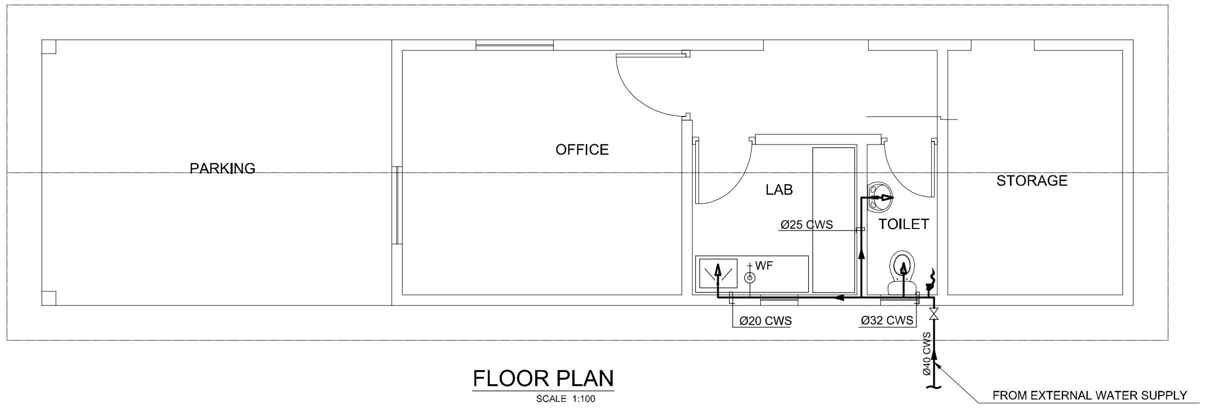
DRAWING TITLE:
RO PLANT ADMIN BUILDING
DOOR,WINDOW & EXHAUST FAN DETAILS

DESIGNED	DRAWN	CHECKED	APPROVED	SCALE	DATE
SK	SR	MP	MA	AS SHOWN	09.12.'15

PROJECT No.	SHEET No.	DRAWING No.
K-627	1 OF 1	TV-WS-115
REV. No.	0	


PARKING
OFFICE
LAB
TOILET
STORAGE
FD
Ø75 WP
FD
GCO
Ø100 SP
Ø75 RWP F/A AND FREE DISCHARE AT 150mm ABOVE F.F.L. WITH RAIN WATER SHOE
VENT STALK
SEWERAGE NETWORK TO BE CONTINUED TO
ø75 RWP F/A AND FREE DISCHARE AT 150mm ABOVE F.F.L. WITH RAIN WATER SHOE

FLOOR PLAN
SCALE 1:100


PARKING
OFFICE
LAB
TOILET
STORAGE
Ø25 CWS
WF
Ø20 CWS
Ø32 CWS
Ø40 CWS
FROM EXTERNAL WATER SUPPLY

FLOOR PLAN
SCALE 1:100

0 1 2 3 4 M

NOTES:-

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3. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS,GENERAL NOTES AND SPECIFICATIONS.

Legend :

— — — — —	DRAINAGE PIPE (BELOW GRADE)
————	DRAINAGE PIPE (ABOVE GRADE)
— - — — - —	RAIN WATER PIPE
- - - - - - -	VENTILATION PIPE
▤ FD	FLOOR DRAIN
⊡ GCO	GROUND CLEAN OUT
→ ►	DIRECTION OF FLOW
CWS	COLD WATER SUPPLY
GV	GATE VALVE
	WATER CLOSET
	WASH BASIN
	KITCHEN SINK

Abbreviations :

WP	WASTE PIPE
VP	VENT PIPE
RWP	RAIN WATER PIPE
L/L	LOW LEVEL
H/L	HIGH LEVEL
F/A	FROM ABOVE
F/B	FROM BELOW
T/A	TO ABOVE
T/B	TO BELOW
B/G	BELOW GRADE
B/S	BELOW SLAB

REFERENCE DRAWINGS

SL.No.	DRAWING No.	DESCRIPTION

REV.	DATE	DESCRIPTION	DRAWN	CHKD.	APPRD.
..	..	..	..	..	..
..	..	..	.	..	..
..	..	..	..	..	..
0	09.12.'15	DETAILED DESIGN SUBMISSION	SR	MP	MA
0	22.10.'15	CONCEPT DESIGN SUBMISSION	SR	MP	MA

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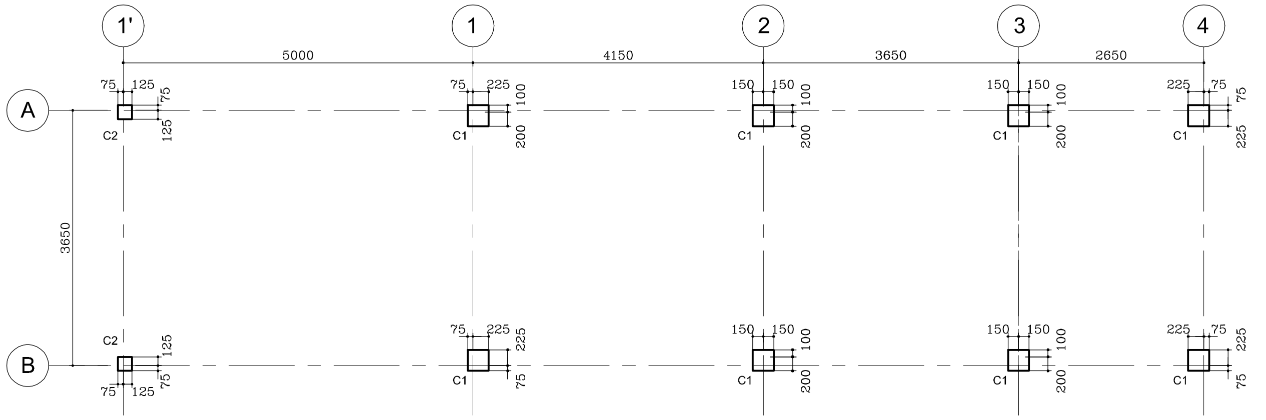
PROJECT:
Consultancy Services for Survey, Design of
Water supply Facilities in Tha.Vilifushi, F.Nilandhoo,
B.Eydhafushi and Adh. Hanyaameedhoo, Maldives

DRAWING TITLE:
RO PLANT ADMIN BUILDING
SEWERAGE AND WATER SUPPLY LAYOUT

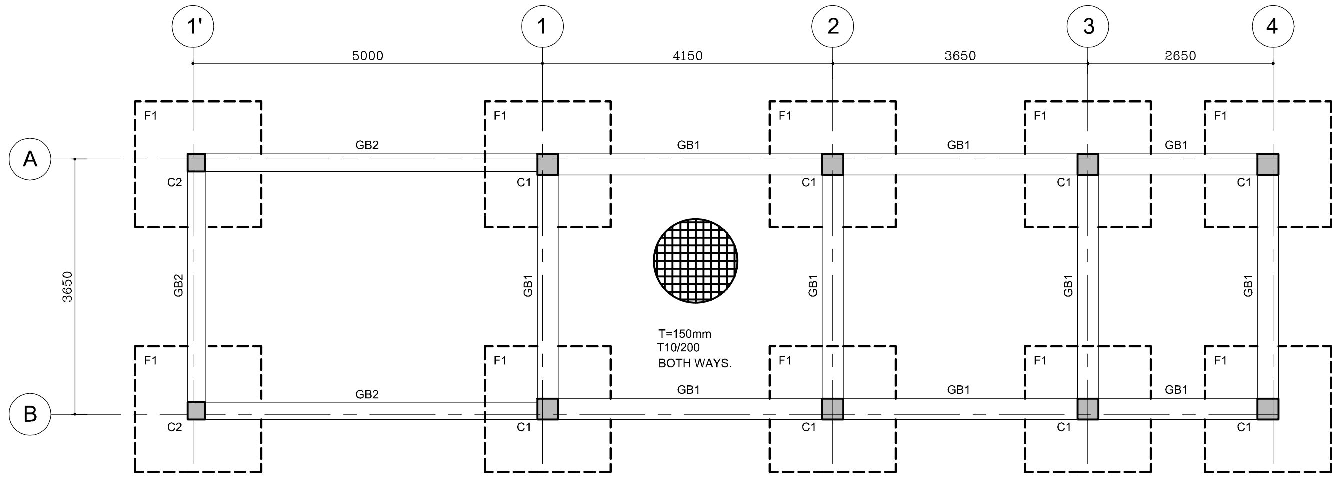
DESIGNED	DRAWN	CHECKED	APPROVED	SCALE	DATE
SK	SR	MP	MA	1 : 100	09.12.'15

PROJECT No.	SHEET No.	DRAWING No.
K-627	1 OF 1	TV-WS-116
REV. No.	0	


1'
1
2
3
4
5000
4150
3650
2650
A
B
3650
C1
C2
75
125
150
225
100
200

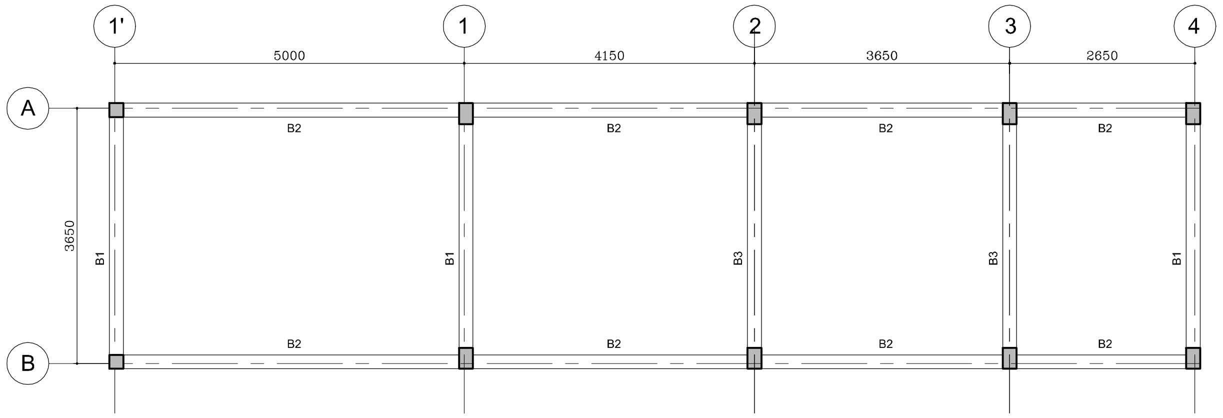
COLUMN & AXIS LAYOUT

SCALE 1 :100


1'
1
2
3
4
5000
4150
3650
2650
A
B
3650
F1
GB1
GB2
C1
C2
T=150mm
T10/200
BOTH WAYS.

FOOTING & GRADE BEAM LAYOUT

SCALE 1 : 100


1'
1
2
3
4
5000
4150
3650
2650
A
B
3650
B1
B2
B3

ROOF BEAM LAYOUT

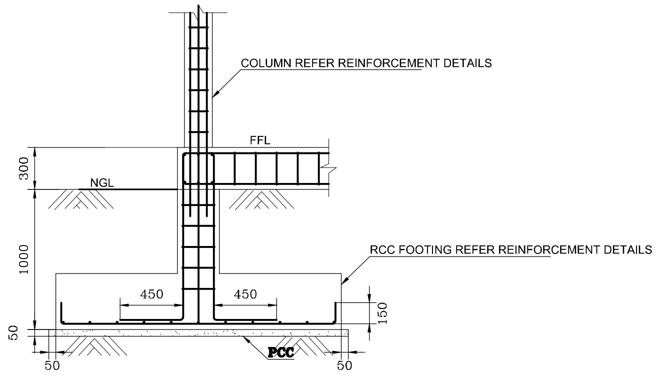
SCALE 1 : 100

COLUMNS REINFORCEMENT DETAILS							
TYPE	FOUND			GROUND FLOOR			STIRRUPS
	SIZE		REINT.	SIZE		REINT.	
C1	300	300	12T16	200	300	10T16	T8/125 c/c
C2	250	250	8T16	200	200	4T16	T8/125 c/c

FOOTING REINFORCEMENT DETAILS						
MARK	DIMENSION			REINFORCEMENT	BOXED	REMARKS
	L	W	H			
F1	1800	1800	400	T12@100 c/c B/W, T&B		

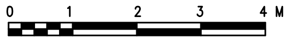
GRADE BEAM REINFORCEMENT DETAILS							
MARK	SIZE		BOTTOM BARS	TOP BARS	STIRRUPS	SIDE BARS	REMARKS
	b	h					
GB1	300	300	4T16	3T16	T6/125 c/c		
GB2	250	300	4T16	3T16	T6/125 c/c		

BEAM REINFORCEMENT DETAILS							
MARK	SIZE		BOTTOM BARS	TOP BARS	STIRRUPS	SIDE BARS	REMARKS
	b	h					
B1	200	500	5T16	3T16	T6/125 c/c		
B2	200	500	4T16	3T16	T6/125 c/c		
B3	200	500	5T16	3T16	T6/100 c/c		


COLUMN REFER REINFORCEMENT DETAILS
FFL
NGL
300
1000
450
450
150
50
50
50
RCC FOOTING REFER REINFORCEMENT DETAILS
PCC

FOOTING DETAIL

SCALE 1 : 25



NOTES:-

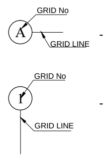
1. ALL DIMENSIONS SHOWN ARE IN MILLIMETERS (MM), UNLESS OTHERWISE SHOWN
2. ALL LEVELS SHOWN ARE IN METERS. ALL LEVELS SHOWN ARE FROM MEAN SEA LEVEL
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS,GENERAL NOTES AND SPECIFICATIONS.
3. CONTRACTOR SHALL CONDUCT INDEPENDENT GEOTECHNICAL INVESTIGATION TO CONFORM THE BEARING CAPACITY OF SOIL 150 KN / M^2
4. THE CONCRETE COVER TO ALL REINFORCEMENT SHALL BE AS FOLLOW :-

   COLUMN / BEAM = 40 mm
   SLAB = 30 mm
   FOUNDATION = 50 mm
5. WATER CEMENT RATIO SHALL BE 0.50
6. FOR ALL GENERAL NOTES REFER BY DWG UT-GN-01
7. GRADE OF CONCRETE IS M30 AND GRADE OF STEEL IS Fy 460

LEGEND:-

1. NGL	-	NATURAL GROUND LEVEL
2. FFL	-	FINISHED FLOOR LEVEL
3. PCC	-	PLAIN CEMENT CONCRETE

ABBREVIATIONS:-


GRID No
A
GRID LINE
GRID No
1'
GRID LINE

- GRID MARK (HORIZONTAL)

- GRID MARK (VERTICAL)

REFERENCE DRAWINGS		
SL.No.	DRAWING No.	DESCRIPTION

REV.	DATE	DESCRIPTION	DRAWN	CHKD.	APPRD.
..	..	..	..	..	..
..	..	..	.	..	..
..	..	..	..	..	..
0	09.12.'15	DETAILED DESIGN SUBMISSION	SR	MP	MA
0	22.10.'15	CONCEPT DESIGN SUBMISSION	SR	MP	MA

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REPUBLIC OF MALDIVES

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PROJECT:

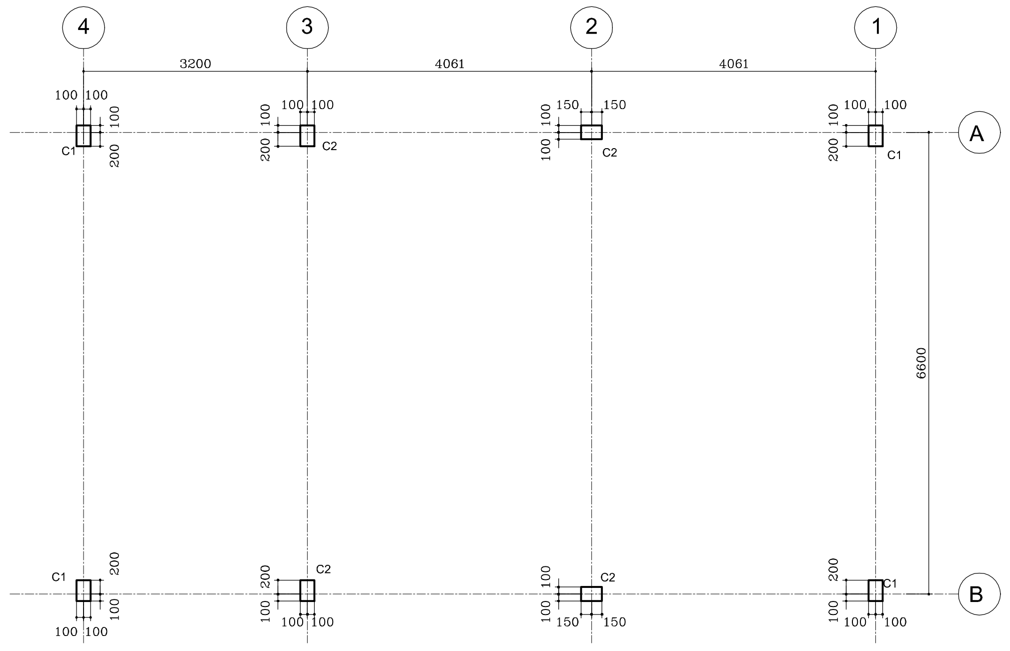
Consultancy Services for Survey, Design of
Water supply Facilities in Tha.Vilifushi, F.Nilandhoo,
B.Eydhafushi and Adh. Hanyaameedhoo, Maldives

DRAWING TITLE:

RO PLANT ADMIN BUILDING
STRUCTURAL DRAWINGS

DESIGNED	DRAWN	CHECKED	APPROVED	SCALE	DATE
SK	SR	MP	MA	1 : 100	09.12.'15

PROJECT No.	SHEET No.	DRAWING No.
K-627	1 OF 1	TV-WS-117
REV. No.	0	



COLUMN & AXIS LAYOUT

SCALE 1 : 100

COLUMNS REINFORCEMENT DETAILS							
TYPE	FOUND			GROUND FLOOR			STIRRUPS
	SIZE		REINT.	SIZE		REINT.	
C1	200	300	6Y16	200	200	4Y16	Y8/200
C2	200	300	8Y16	200	300	8Y16	Y8/200

FOOTING REINFORCEMENT DETAILS							
MARK	DIMENSION			REINFORCEMENT		BOXED	REMARKS
	L	W	H	WIDTH	LENGTH		
F1	1800	1800	300	5Y16/m	5Y16/m		
F2	2500	2500	400	8Y16/m	8Y16/m		

GRADE BEAM REINFORCEMENT DETAILS							
MARK	SIZE		BOTTOM BARS	TOP BARS	STIRRUPS	SIDE BARS	REMARKS
	b	h					
GB1	300	300	3Y16	3Y16	Y8/200		

BEAM REINFORCEMENT DETAILS							
MARK	SIZE		BOTTOM BARS	TOP BARS	STIRRUPS	SIDE BARS	REMARKS
	b	h					
B1	200	500	3Y16 + 2Y16	2Y16	Y8/150		
B2	200	400	3Y16	3Y16	Y8/150		
B3	200	400	5Y16	3Y16	Y8/150		

SLABS REINFORCEMENT DETAILS				
MARK	THICK	REINFORCEMENT		REMARKS
		WIDTH	LENGTH	
S1	150	Y10/150	Y10/150	

1. ALL DIMENSIONS ARE IN MILLIMETERS (MM).
2. ALL LEVELS SHOWN ARE IN METERS.
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS,GENERAL NOTES AND SPECIFICATIONS.
4. CONTRACTOR SHALL CONDUCT INDEPENDENT GEOTECHNICAL INVESTIGATION TO CONFORM THE BEARING CAPACITY OF SOIL 65 KN / M^2 AT 1M DEPTH AS DESIGNED IS APPROPRIATE SHOULD THERE BE A VARIANCE CONTRACTOR SHALL REVISE THE DESIGN TO CONSTRUCT THE WORK
5. THE CONCRETE COVER TO ALL REINFORCEMENT SHALL BE AS FOLLOW :-
   - COLUMN / BEAM = 40 mm
   - SLAB = 30 mm
   - FOUNDATION = 50 mm
6. WATER CEMENT RATIO SHALL BE 0.50
7. FOR ALL GENERAL NOTES REFER BY DWG UT-GN-01

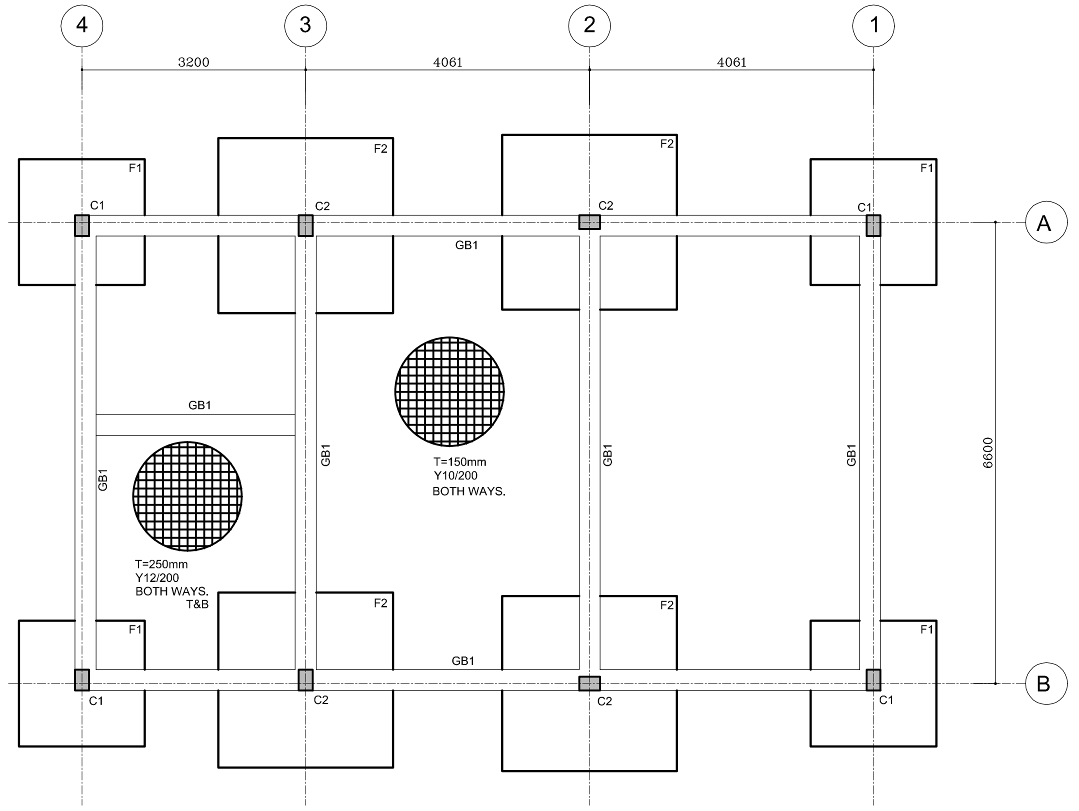
LEGEND:-

1. NGL - NATURAL GROUND LEVEL
2. FFL - FINISHED FLOOR LEVEL
3. PCC - PLAIN CEMENT CONCRETE

ABBREVIATIONS:-

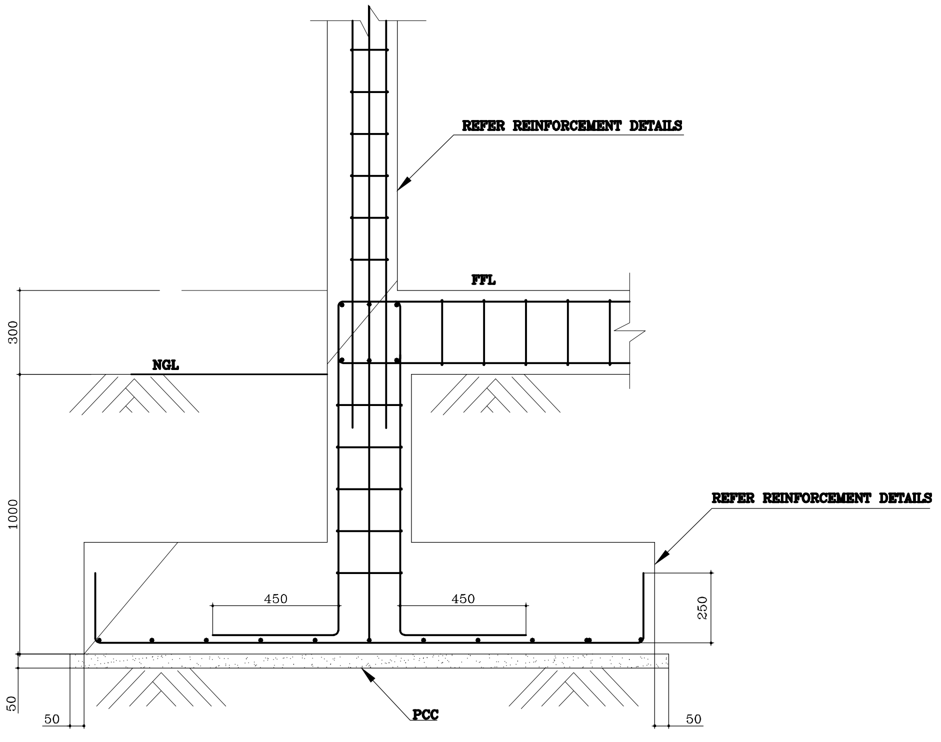
GRID No
A
GRID LINE
- GRID MARK (HORIZONTAL)

GRID No
1
GRID LINE
- GRID MARK (VERTICAL)



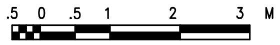
FOOTING & GRADE BEAM LAYOUT

SCALE 1 : 100



FOOTING DETAIL

SCALE 1 : 25



REFERENCE DRAWINGS

SL.No	DRAWING No.	DESCRIPTION

REV.	DATE	DESCRIPTION	DRAWN	CHKD.	APPRD.
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..	..	..	..	..	..
0	09.12.'15	DETAILED DESIGN SUBMISSION	SR	MP	MA
0	22.10.'15	CONCEPT DESIGN SUBMISSION	SR	MP	MA

REVISION

CLIENT

MINISTRY OF ENVIRONMENT & ENERGY
REPUBLIC OF MALDIVES

CONSULTANT:

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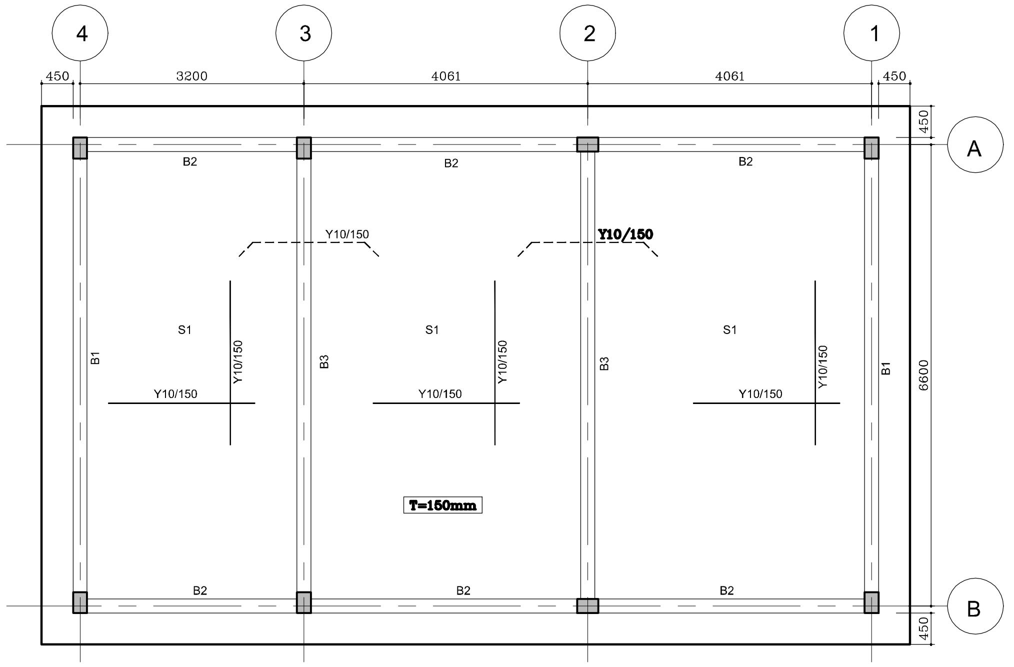
admin@alhabshikw.com P.O. Box 27154, Safat 13132, Kuwait

PROJECT:
Consultancy Services for Survey, Design of
Water supply Facilities in Tha.Vilifushi, F.Nilandhoo,
B.Eydhafushi and Adh. Hanyaameedhoo, Maldives

DRAWING TITLE:
REVERSE OSMOSIS UNIT STRUCTURAL PLANS
Tha.VILIFUSHI ISLAND

DESIGNED	DRAWN	CHECKED	APPROVED	SCALE	DATE
SK	SR	MP	MA	1 : 100	09.12.'15

PROJECT No.	SHEET No.	DRAWING No.
K-627	1 OF 1	TV-WS-119
REV. No.	0	



ROOF SLAB LAYOUT

SCALE 1 : 100

COLUMNS REINFORCEMENT DETAILS							
TYPE	FOUND			GROUND FLOOR			STIRRUPS
	SIZE		REINT.	SIZE		REINT.	
C1	200	300	6Y16	200	200	4Y16	Y8/200
C2	200	300	8Y16	200	300	8Y16	Y8/200

FOOTING REINFORCEMENT DETAILS							
MARK	DIMENSION			REINFORCEMENT		BOXED	REMARKS
	L	W	H	WIDTH	LENGTH		
F1	1800	1800	300	5Y16/m	5Y16/m		
F2	2500	2500	400	8Y16/m	8Y16/m		

GRADE BEAM REINFORCEMENT DETAILS							
MARK	SIZE		BOTTOM BARS	TOP BARS	STIRRUPS	SIDE BARS	REMARKS
	b	h					
GB1	300	300	3Y16	3Y16	Y8/200		

BEAM REINFORCEMENT DETAILS							
MARK	SIZE		BOTTOM BARS	TOP BARS	STIRRUPS	SIDE BARS	REMARKS
	b	h					
B1	200	500	3Y16 + 2Y16	2Y16	Y8/150		
B2	200	400	3Y16	3Y16	Y8/150		
B3	200	400	5Y16	3Y16	Y8/150		

SLABS REINFORCEMENT DETAILS				
MARK	THICK	REINFORCEMENT		REMARKS
		WIDTH	LENGTH	
S1	150	Y10/150	Y10/150	

1. ALL DIMENSIONS ARE IN MILLIMETERS (MM).
2. ALL LEVELS SHOWN ARE IN METERS.
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS,GENERAL NOTES AND SPECIFICATIONS.
4. CONTRACTOR SHALL CONDUCT INDEPENDENT GEOTECHNICAL INVESTIGATION TO CONFORM THE BEARING CAPACITY OF SOIL 65 KN / M^2 AT 1M DEPTH AS DESIGNED IS APPROPRIATE SHOULD THERE BE A VARIANCE CONTRACTOR SHALL REVISE THE DESIGN TO CONSTRUCT THE WORK
5. THE CONCRETE COVER TO ALL REINFORCEMENT SHALL BE AS FOLLOW :-

   COLUMN / BEAM = 40 mm
   SLAB = 30 mm
   FOUNDATION = 50 mm
6. WATER CEMENT RATIO SHALL BE 0.50
7. FOR ALL GENERAL NOTES REFER BY DWG UT-GN-01

LEGEND:-

1. NGL - NATURAL GROUND LEVEL
2. FFL - FINISHED FLOOR LEVEL
3. PCC - PLAIN CEMENT CONCRETE

ABBREVIATIONS:-

GRID No
A GRID LINE - GRID MARK (HORIZONTAL)

GRID No
1 GRID LINE - GRID MARK (VERTICAL)

REFERENCE DRAWINGS

SL.No.	DRAWING No.	DESCRIPTION

REV.	DATE	DESCRIPTION	DRAWN	CHKD.	APPRD.
..	..	..	..	..	..
..	..	..	.	..	..
..	..	..	..	..	..
0	09.12.'15	DETAILED DESIGN SUBMISSION	SR	MP	MA
0	22.10.'15	CONCEPT DESIGN SUBMISSION	SR	MP	MA

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REPUBLIC OF MALDIVES

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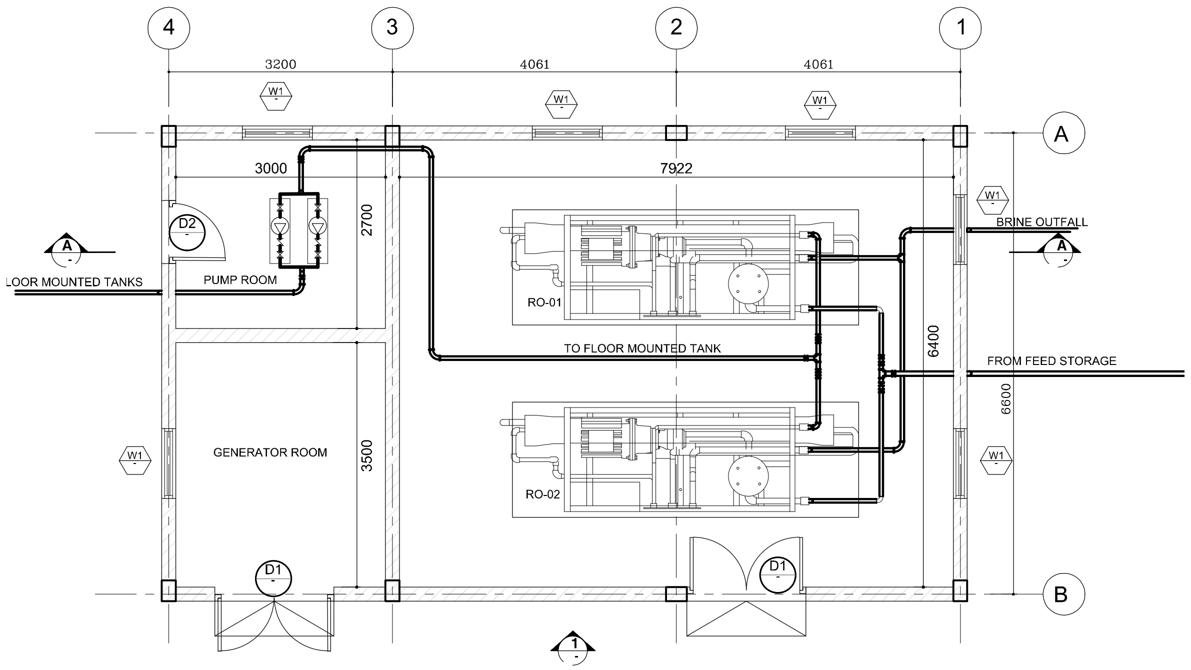
admin@alhabshikw.com P.O. Box 27154, Safat 13132, Kuwait

PROJECT:
Consultancy Services for Survey, Design of
Water supply Facilities in Tha.Vilifushi, F.Nilandhoo,
B.Eydhafushi and Adh. Hanyaameedhoo, Maldives

DRAWING TITLE:
REVERSE OSMOSIS UNIT STRUCTURAL
DETAIL & SCHEDULES

DESIGNED	DRAWN	CHECKED	APPROVED	SCALE	DATE
SK	SR	MP	MA	AS SHOWN	09.12.'15

PROJECT No.	SHEET No.	DRAWING No.
K-627	1 OF 1	TV-WS-120
REV. No.	0	

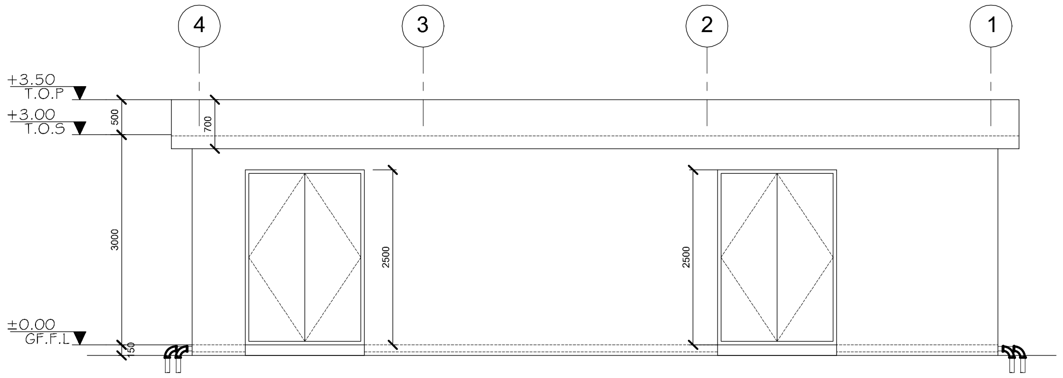

4
3
2
1
3200
4061
4061
W1
W1
W1
A
B
3000
7922
2700
3500
6400
6600
D2
D1
D1
W1
W1
W1
A
A
1
FLOOR MOUNTED TANKS
PUMP ROOM
GENERATOR ROOM
RO-01
RO-02
TO FLOOR MOUNTED TANK
BRINE OUTFALL
FROM FEED STORAGE

RO PLANT BUILDING

SCALE 1:100

RO PLANT SCHEDULE FOR xxxxxxx ISLAND

NO.	PUMP CAPACITY	MOTOR	POWER SUPPLY	REMARKS
01	25.0M^3/HRS	35 KW(46.90 BHP)	400-415/3/50	TWO NOS OF RO PLANT WORKING ACCORDING TO FLOAT SENSOR


4
3
2
1
+3.50
T.O.P
+3.00
T.O.S
±0.00
GF.F.L
500
700
3000
2500
2500
150

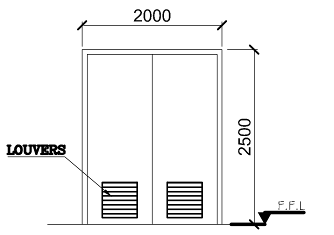
VIEW-1

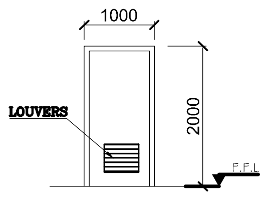
SCALE 1:100

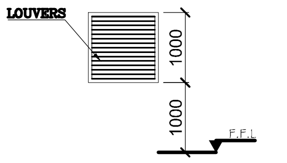
NOTES:-

1. ALL DIMENSION ARE IN MILLIMETER (MM),UNLESS OTHERWISE NOTED
2. ALL LEVELS SHOWN ARE IN METERS.
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS,GENERAL NOTES AND SPECIFICATIONS.

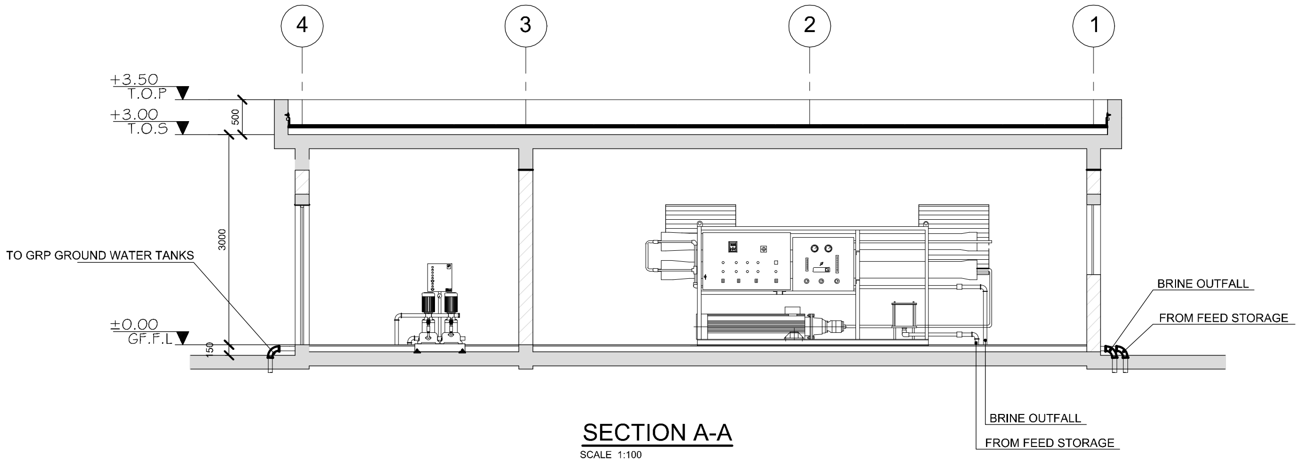
DOOR & LOUVER SCHEDULE


2000
2500
LOUVERS
F.F.L


1000
2000
LOUVERS
F.F.L

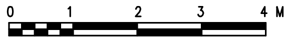

LOUVERS
1000
1000
F.F.L

	WIDTH	HEIGHT	DESCRIPTION
D1	2000	2500	STEEL DOOR WITH LOUVERS
D2	1000	2000	STEEL DOOR WITH LOUVERS
W1	1000	1000	STEEL FRAME WITH LOUVERS


4
3
2
1
+3.50
T.O.P
+3.00
T.O.S
±0.00
GF.F.L
500
3000
150
TO GRP GROUND WATER TANKS
BRINE OUTFALL
FROM FEED STORAGE
BRINE OUTFALL
FROM FEED STORAGE

SECTION A-A

SCALE 1:100



REFERENCE DRAWINGS

SL.No.	DRAWING No.	DESCRIPTION

REV.	DATE	DESCRIPTION	DRAWN	CHKD.	APPRD.
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..	..	..	..	..	..
0	09.12.'15	DETAILED DESIGN SUBMISSION	SR	MP	MA
0	22.10.'15	CONCEPT DESIGN SUBMISSION	SR	MP	MA

REVISION

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REPUBLIC OF MALDIVES

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admin@alhabshikw.com P.O. Box 27154, Safat 13132, Kuwait
ISO 9001:2008

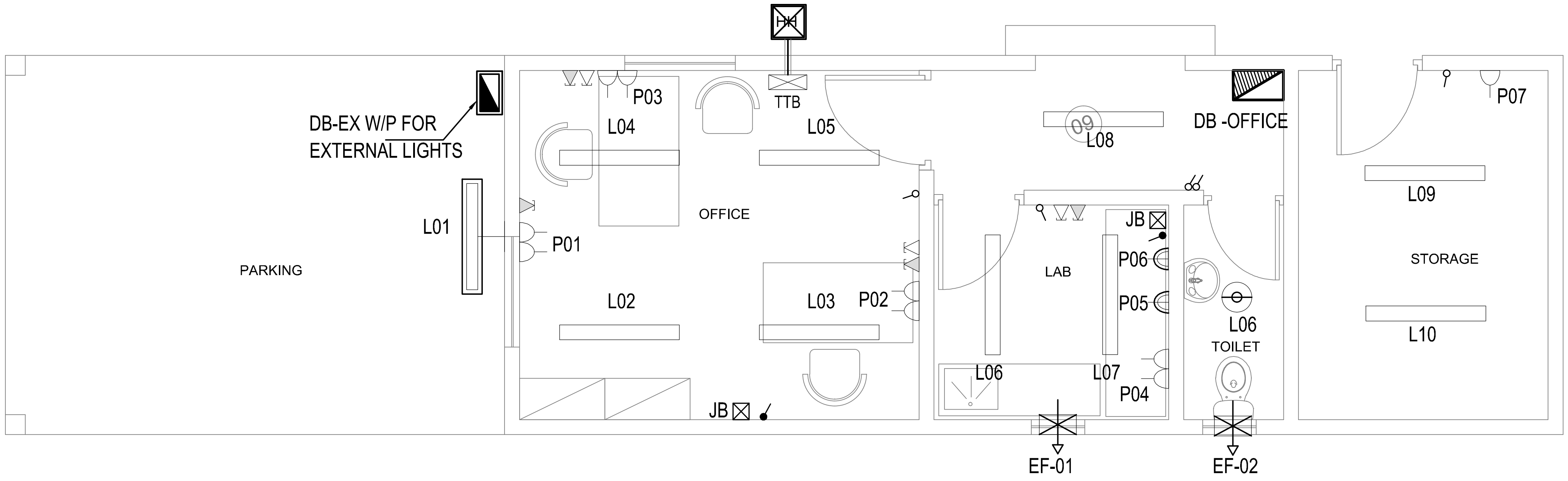
PROJECT:
Consultancy Services for Survey, Design of Water supply Facilities in Tha.Vilifushi, F.Nilandhoo, B.Eydhafushi and Adh. Hanyaameedhoo, Maldives

DRAWING TITLE:
REVERSE OSMOSIS UNIT DETAILS
Tha.VILIFUSHI ISLAND

DESIGNED	DRAWN	CHECKED	APPROVED	SCALE	DATE
SK	SR	MP	MA	1 : 100	09.12.'15

PROJECT No.	SHEET No.	DRAWING No.
K-627	1 OF 1	TV-WS-121
REV. No.	0	

ELECTRICAL DRAWINGS



NOTES:-

1. ALL DIMENSIONS ARE IN mm EXCEPT AND OTHERWISE SPECIFIED.
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS AND SPECIFICATIONS.
3. ALL ABOVE GROUND CONDUIT SHALL BE RIGID HOT DIP GALVANIZED EXCEPT AS NOTED.
4. ALL NEMA 3R GASKETED S.S ENCLOSURES TO HAVE LOCKABLE HANDLE AND 3 POINT LATCHING.

LEGENDS

TYPE	SYMBOL	DESCRIPTION
B	▭	1 x 40W SURFACE MOUNTED FLUORESCENT LIGHT FITING
C	▭	1 x 40W WALL MOUNTED FLUORESCENT LIGHT FITING-WEATHERPROOF
E	⊖	1x60W SURFACE MOUNTED FLUORESCENT DOWN LIGHT - WEATHERPROOF
	△	5A SWITCHED SOCKET OUTLET (1000W)
	◓	5A SWITCHED SOCKET OUTLET AT HIGHT LEVEL-WEATHER PROOF (1000W)
	△△	13A TWIN SWITCHED SOCKET OUTLET
	⊠	JUNCTION BOX
	●	20A DP SWITCH
	⊠	EXHAUST FAN (80W)
	TTB ⊠	TELEPHONE TERMINAL BOX
	▲	SINGLE OUTLET FOR DATA
	△	SINGLE OUTLET FOR VOICE
	⊠	0.6x0.6x0.6m HAND HOLE

REFERENCE DRAWINGS

SL.No	DRAWING No.	DESCRIPTION

..	..	..	..	..	..
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..	..	..	..	..	..
..	..	..	..	..	..
0	28-12-'15	DETAILED DESIGN SUBMISSION	BA	RDS	MA
REV.	DATE	DESCRIPTION	DRAWN	CHKD.	APPRD.

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MINISTRY OF ENVIRONMENT & ENERGY
REPUBLIC OF MALDIVES

CONSULTANT:

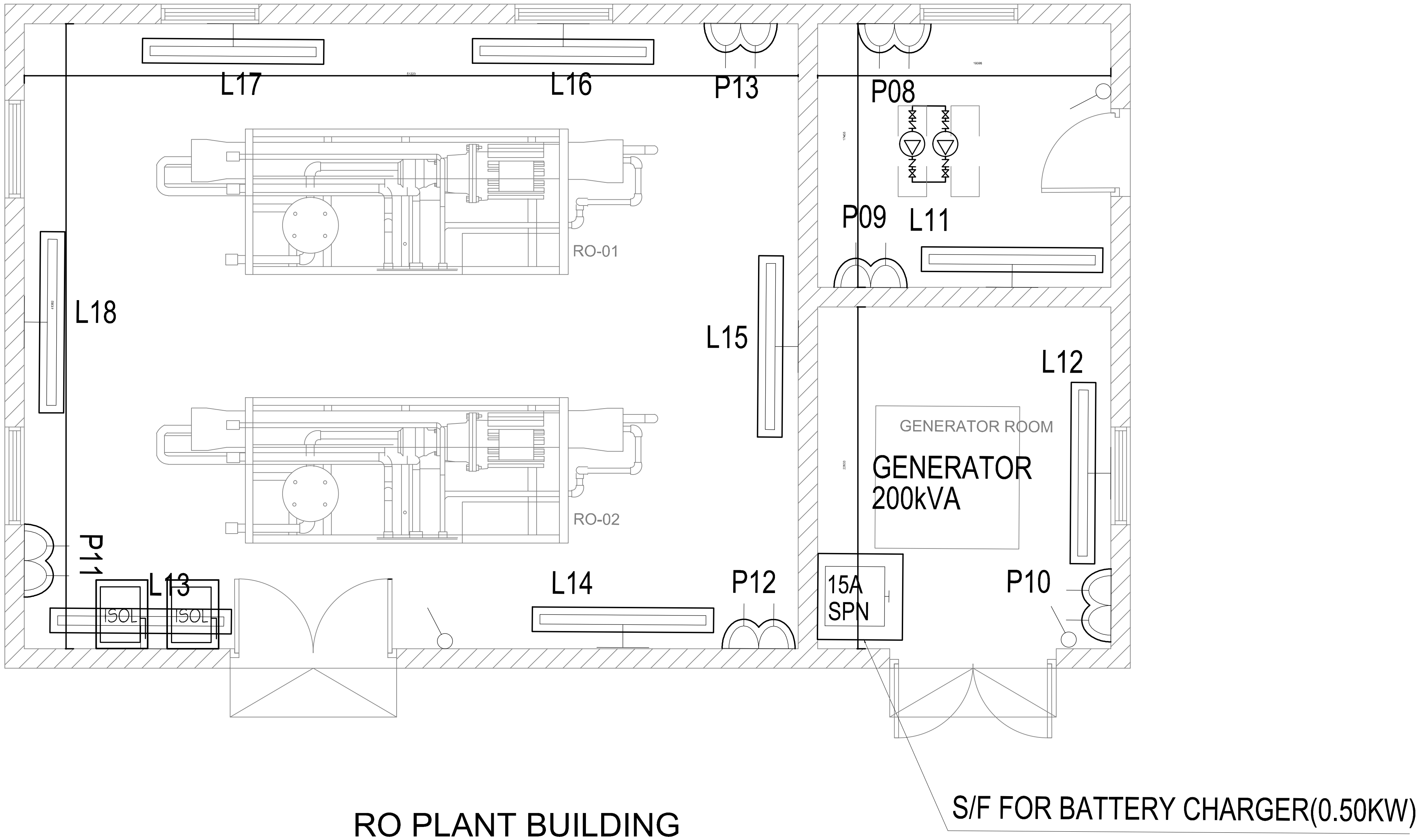
ACO
دار الحبشي للاستشارات الهندسية
Al Habshi Consultants Office

PROJECT:
Consultancy Services for Survey, Design of
Water supply Facilities in Tha.Vilifushi, F.Nilandhoo,
B.Eydhafushi and Adh. Hanyaameedhoo, Maldives

DRAWING TITLE:
T.VILUFUSHI ISLAND
RO PLANT ADMIN BUILDING
ELECTRICAL LAYOUT

DESIGNED	DRAWN	CHECKED	APPROVED	SCALE	DATE
RDS	BA	RDS	MA	1 : 50	28-12-'15

PROJECT No.	SHEET No.	DRAWING No.
K-627	1 OF 1	TV-EL-100
REV. No.	0	


L17
L16
P13
P08
RO-01
P09
L11
L18
L15
L12
GENERATOR ROOM
GENERATOR
200kVA
RO-02
P11
L13
ISOL
ISOL
L14
P12
15A
SPN
P10
S/F FOR BATTERY CHARGER(0.50KW)

RO PLANT BUILDING

SCALE 1:100

NOTES

1. ALL DIMENSIONS ARE IN mm EXCEPT AND OTHERWISE SPECIFIED.
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS AND SPECIFICATIONS.
3. ALL ABOVE GROUND CONDUIT SHALL BE RIGID HOT DIP GALVANIZED EXCEPT AS NOTED.
4. ALL NEMA 3R GASKETED S.S ENCLOSURES TO HAVE LOCKABLE HANDLE AND 3 POINT LATCHING.

LEGENDS

TYPE	SYMBOL	DESCRIPTION
C	▭	1 x 40W WALL MOUNTED FLUORESCENT
	15A SPN	SWITCH FUSE - WEATHERPROOF
	ISOL	ISOLATOR FOR TUBE WELL PUMP ON / OFF
		13A TWIN SWITCHED SOCKET OUTLET - WEATHERPROOF

REFERENCE DRAWINGS

SL.No	DRAWING No.	DESCRIPTION

REV.	DATE	DESCRIPTION	DRAWN	CHKD.	APPRD.
..	..	..	..	..	..
..	..	..	.	..	..
..	..	..	..	..	..
..	..	..	..	..	..
0	28-12-'15	DETAILED DESIGN SUBMISSION	BA	RDS	MA

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MINISTRY OF ENVIRONMENT & ENERGY
REPUBLIC OF MALDIVES

CONSULTANT:

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Al Habshi Consultants Office

PROJECT:

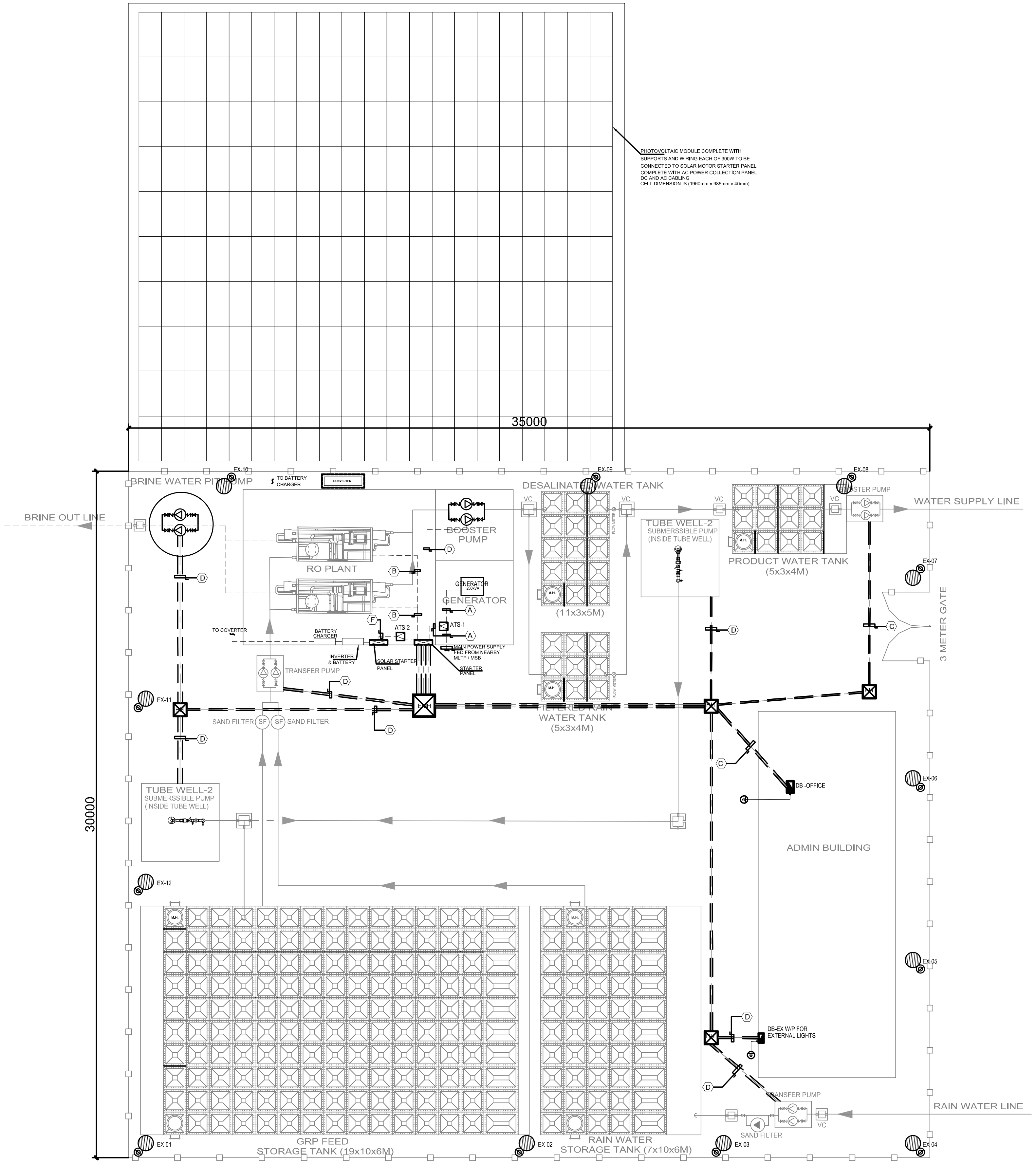
Consultancy Services for Survey, Design of Water supply Facilities in Tha.Vilifushi, F.Nilandhoo, B.Eydhafushi and Adh. Hanyaameedhoo, Maldives

DRAWING TITLE:

RO PLANT BUILDING ELECTRICAL LAYOUT
T.VILUFUSHI ISLAND

DESIGNED	DRAWN	CHECKED	APPROVED	SCALE	DATE
RDS	BA	RDS	MA	1 : 100	28-12-'15

PROJECT No.	SHEET No.	DRAWING No.
K-627	1 OF 1	TV-EL-101
REV. No.	0	


PHOTOVOLTAIC MODULE COMPLETE WITH SUPPORTS AND WIRING EACH OF 300W TO BE CONNECTED TO SOLAR MOTOR STARTER PANEL COMPLETE WITH AC POWER COLLECTION PANEL DC AND AC CABLING CELL DIMENSION IS (1960mm x 985mm x 40mm)
35000
30000
BRINE WATER PIT PUMP
EX-10
TO BATTERY CHARGER
CONVERTER
BRINE OUT LINE
RO PLANT
BOOSTER PUMP
GENERATOR 200kVA
GENERATOR
TO COVERTER
BATTERY CHARGER
INVERTER & BATTERY
SOLAR STARTER PANEL
ATS-2
ATS-1
MAIN POWER SUPPLY FED FROM NEARBY MLTP / MSB
STARTER PANEL
TRANSFER PUMP
SAND FILTER
SF
SF
SAND FILTER
EX-11
EX-12
TUBE WELL-2
SUBMERSSIBLE PUMP
(INSIDE TUBE WELL)
A
B
C
D
F
EMH
HH
DESALINATED WATER TANK
(11x3x5M)
EX-09
VC
FLOW METER
M.H.
FILTERED RAIN WATER TANK
(5x3x4M)
TUBE WELL-2
SUBMERSSIBLE PUMP
(INSIDE TUBE WELL)
PRODUCT WATER TANK
(5x3x4M)
EX-08
BOOSTER PUMP
WATER SUPPLY LINE
EX-07
3 METER GATE
DB -OFFICE
ADMIN BUILDING
EX-06
EX-05
DB-EX W/P FOR EXTERNAL LIGHTS
TRANSFER PUMP
SAND FILTER
RAIN WATER LINE
EX-01
GRP FEED STORAGE TANK (19x10x6M)
EX-02
RAIN WATER STORAGE TANK (7x10x6M)
EX-03
EX-04

LEGENDS:-

①	TUBE WELL WITH SUBMERSIBLE PUMP $9m^3$/hour AT 62m HEAD
②	ADMIN.OFFICE INCLUDING ALL ELECTRO- MECHANICAL FACILITIES
③	GRP FEED STORAGE TANK
④	RO UNITS
⑤	GENERATOR ROOM
⑥	FLOOR MOUNTED GRP STORAGE TANK
⑦	TRANSFER PUMP (2 Sets.) $6m^3$/hour AT 20m HEAD
⑧	OVERHEAD GRP TANK
⑨	BRINE STORAGE WITH 2 Nos. PUMP $7.9m^3$/hour, BOTH WORKING

CABLE LEGEND:-

Ⓐ	2x4c 150mmSQ cu/XLPE/SWA/PVC ON CABLE TRAY
Ⓑ	(4x35.0+1x16.0)mmSQ cu./PVC IN 50mmØ PVC DUCT
Ⓒ	(4x16.0+1x6.0) cu./ PVC IN 50mmØ PVC DUCT
Ⓓ	(4x10.0+1x6.0)mmSQ cu./PVC IN PVC DUCT
Ⓔ	(4x6.0+1x4.0)mmSQ cu./PVC IN PVC CONDUIT
Ⓕ	4c 120mmSQ cu/XLPE/SWA/PVC ON CABLE TRAY

TYPE	SYMBOL	DESCRIPTION
G	●	W/P 70W HP SODIUM VAPOUR LAMP POST MOUNTED (6mts HT.)
	◢	DISTRIBUTION BOARD
	◣	DISTRIBUTION BOARD/WEATHER PROOF
	⊠	STARTER PANEL
	⊠ EMH	1.0x1.0x1.0m MANHOLE
	⊠ HH	0.6x0.6x0.6m HANDHOLE

REFERENCE DRAWINGS

SL.No	DRAWING No.	DESCRIPTION

REV.	DATE	DESCRIPTION	DRAWN	CHKD.	APPRD.
..	..	..	..	..	..
..	..	..	.	..	..
..	..	..	..	..	..
..	..	..	..	..	..
0	28-12-'15	DETAILED DESIGN SUBMISSION	BA	RDS	MA

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MINISTRY OF ENVIRONMENT & ENERGY
REPUBLIC OF MALDIVES

CONSULTANT:

ACO
دار الحبشي للاستشارات الهندسية
Al Habshi Consultants Office

PROJECT:

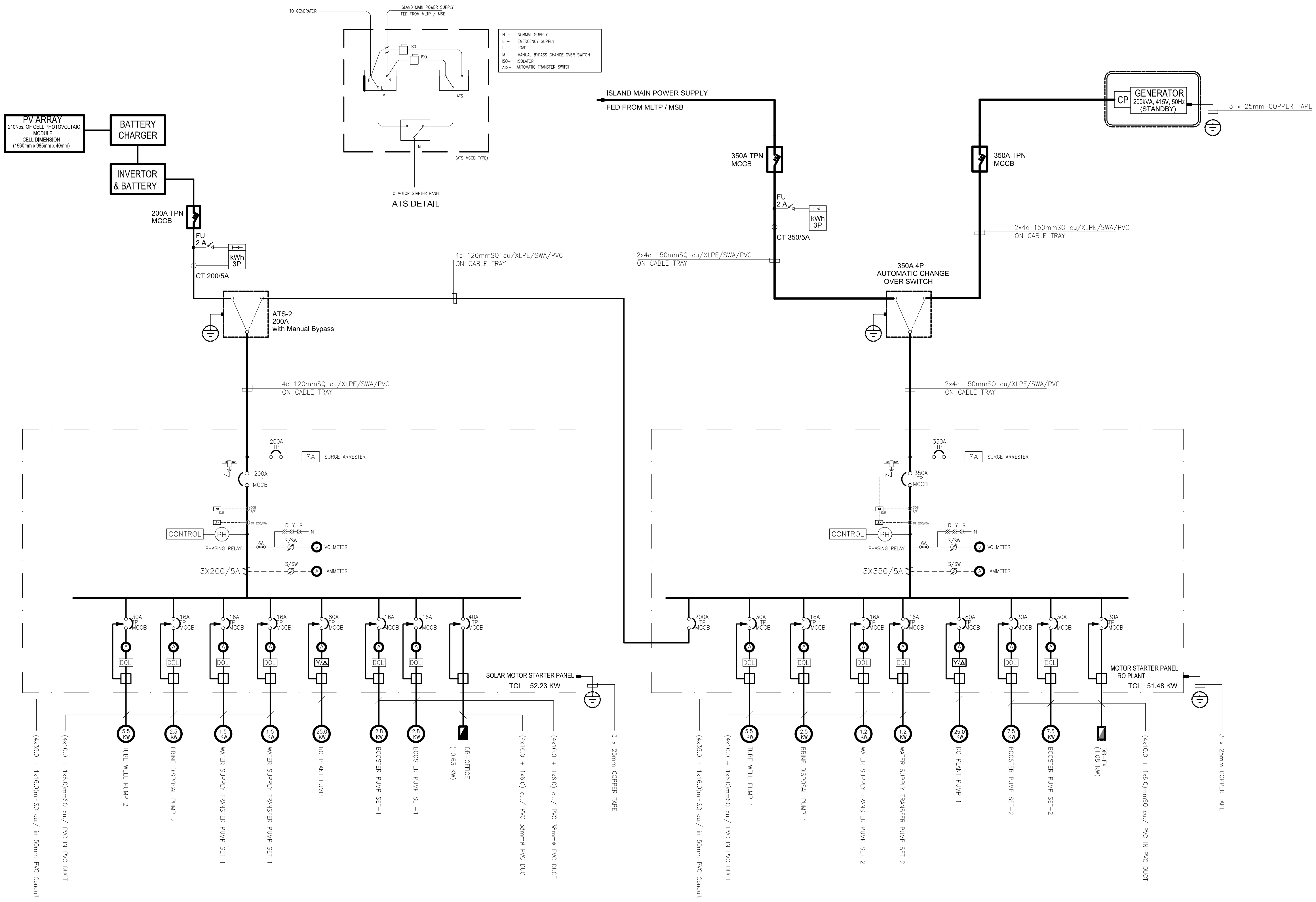
Consultancy Services for Survey, Design of Water supply Facilities in Tha.Vilifushi, F.Nilandhoo, B.Eydhafushi and Adh. Hanyaameedhoo, Maldives

DRAWING TITLE:

RO PLANT ELECTRICAL LAYOUT
T.VILUFUSHI ISLAND

DESIGNED	DRAWN	CHECKED	APPROVED	SCALE	DATE
RDS	BA	RDS	MA	1 : 100	28-12-'15

PROJECT No.	SHEET No.	DRAWING No.
K-627	1 OF 1	TV-EL-102
REV. No.	0	


TO GENERATOR
ISLAND MAIN POWER SUPPLY
FED FROM MLTP / MSB
ISO.
ISO.
E
N
L
M
ATS
M
(ATS MCCB TYPE)
N - NORMAL SUPPLY
E - EMERGENCY SUPPLY
L - LOAD
M - MANUAL BYPASS CHANGE OVER SWITCH
ISO- ISOLATOR
ATS- AUTOMATIC TRANSFER SWITCH
TO MOTOR STARTER PANEL
ATS DETAIL
PV ARRAY
210Nos. OF CELL PHOTOVOLTAIC MODULE
CELL DIMENSION
(1960mm x 985mm x 40mm)
BATTERY CHARGER
INVERTOR & BATTERY
200A TPN MCCB
FU 2 A
kWh 3P
CT 200/5A
ATS-2
200A
with Manual Bypass
4c 120mmSQ cu/XLPE/SWA/PVC
ON CABLE TRAY
ISLAND MAIN POWER SUPPLY
FED FROM MLTP / MSB
350A TPN MCCB
FU 2 A
kWh 3P
CT 350/5A
2x4c 150mmSQ cu/XLPE/SWA/PVC
ON CABLE TRAY
GENERATOR
CP
200kVA, 415V, 50Hz
(STANDBY)
3 x 25mm COPPER TAPE
350A TPN MCCB
350A 4P
AUTOMATIC CHANGE OVER SWITCH
4c 120mmSQ cu/XLPE/SWA/PVC
ON CABLE TRAY
2x4c 150mmSQ cu/XLPE/SWA/PVC
ON CABLE TRAY
200A TP
SA
SURGE ARRESTER
C1 C2
200A TP MCCB
ELR
COB T/F
CT 200/5A
CONTROL
PH
PHASING RELAY
R Y B
N
6A
S/SW
VOLMETER
3X200/5A
S/SW
AMMETER
350A TP
SA
SURGE ARRESTER
350A TP MCCB
CT 200/5A
CONTROL
PH
PHASING RELAY
R Y B
N
6A
S/SW
VOLMETER
3X350/5A
S/SW
AMMETER
30A TP MCCB
16A TP MCCB
16A TP MCCB
16A TP MCCB
80A TP MCCB
16A MCCB
16A MCCB
40A TP MCCB
DOL
Y/Δ
SOLAR MOTOR STARTER PANEL
TCL 52.23 KW
5.5 KW
2.5 KW
1.5 KW
1.5 KW
25.0 KW
2.8 KW
2.8 KW
(4x35.0 + 1x16.0)mmSQ cu./ in 50mm PVC Conduit
(4x10.0 + 1x6.0)mmSQ cu./ PVC IN PVC DUCT
TUBE WELL PUMP 2
BRINE DISPOSAL PUMP 2
WATER SUPPLY TRANSFER PUMP SET 1
WATER SUPPLY TRANSFER PUMP SET 1
RO PLANT PUMP
BOOSTER PUMP SET-1
BOOSTER PUMP SET-1
DB-OFFICE
(10.63 KW)
(4x16.0 + 1x6.0) cu./ PVC 38mmø PVC DUCT
(4x10.0 + 1x6.0) cu./ PVC 38mmø PVC DUCT
3 x 25mm COPPER TAPE
200A TP MCCB
30A TP MCCB
16A TP MCCB
16A TP MCCB
16A TP MCCB
80A TP MCCB
30A TP MCCB
30A TP MCCB
30A TP MCCB
MOTOR STARTER PANEL
RO PLANT
TCL 51.48 KW
5.5 KW
2.5 KW
1.2 KW
1.2 KW
25.0 KW
7.5 KW
7.5 KW
(4x35.0 + 1x16.0)mmSQ cu./ in 50mm PVC Conduit
(4x10.0 + 1x6.0)mmSQ cu./ PVC IN PVC DUCT
TUBE WELL PUMP 1
BRINE DISPOSAL PUMP 1
WATER SUPPLY TRANSFER PUMP SET 2
WATER SUPPLY TRANSFER PUMP SET 2
RO PLANT PUMP 1
BOOSTER PUMP SET-2
BOOSTER PUMP SET-2
DB-EX
(1.08 KW)
(4x10.0 + 1x6.0)mmSQ cu./ PVC IN PVC DUCT
3 x 25mm COPPER TAPE

ELECTRICAL SINGLE LINE DIAGRAM
T.VILUFUSHI ISLAND

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS EXCEPT AND OTHERWISE SPECIFIED.
2. CABLE LEGEND AS SHOWN AS DRAWING
3. ALL S/F,ELECTRICAL PANELS AND GENERATOR SHALL BE PROVIDED WITH EARTHING SYSTEM
4. ALL ELECTRICAL INSTALLATIONS FOR OUTDOOR USE, SHALL BE PROTECTED FROM RAIN AND DUST
5. ALL PUMPS SHOULD BE PROVIDED WITH OWN CONTROL PANEL WITH NECESSARY PROTECTION.
6. ALL EXPOSED INSTALLATION SHOULD BE IN G.I CONDUIT OR SHADED CABLE TRAYS.
7. ALL ABOVE GROUND CONDUIT SHALL BE RIGID HOT DIP GALVANIZED EXCEPT AS NOTED.
8. ALL NEMA 3R GASKETED S.S ENCLOSURES TO HAVE LOCKABLE HANDLE AND 3 POINT LATCHING.
9. CONTRACTOR IS RESPONSIBLE TO GET THE FINAL APPROVAL FOR THE ALL THE DETAILS REGARDING SOLAR SYSTEM FROM THE CONSULTANT ENGINEER BEFORE IMPLIMENTING ON THE SITE.

LEGEND	DESCRIPTION
MCCB	MOULDED CASE CIRCUIT BREAKER
MCB	MINIATURE CIRCUIT BREAKER
ELR	EARTH LEAKAGE RELAY
ELCB	EARTH LEAKAGE CIRCUIT BREAKER
A	AMMETER
V	VOLTMETER
PF	POWER FACTOR METER
⦶	SELECTOR SWITCH
⊗	PHASE INDICATOR
⊡	MCB LOCKABLE ISOLATOR
DOL	DIRECT ON-LINE STARTER
SA	SURGE ARRESTOR
CP	CONTROL PANEL
◪	DISTRIBUTION BOARD
◪	DISTRIBUTION BOARD W/P
⋈	STARTER PANEL WEATHERPROOF
⊜	EARTH PIT
⌐	EARTH LEAKAGE RELAY

REFERENCE DRAWINGS

SL.No	DRAWING No.	DESCRIPTION

REV.	DATE	DESCRIPTION	DRAWN	CHKD.	APPRD.
..	..	..	..	..	..
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0	28-12-15	DETAILED DESIGN SUBMISSION	BA	RDS	MA

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MINISTRY OF ENVIRONMENT & ENERGY
REPUBLIC OF MALDIVES

CONSULTANT:

ACO
دار الحبشي للاستشارات الهندسية
Al Habshi Consultants Office

PROJECT:
Consultancy Services for Survey, Design of Water supply Facilities in Tha.Vilifushi, F.Nilandhoo, B.Eydhafushi and Adh. Hanyaameedhoo, Maldives

DRAWING TITLE:
SCHEMATIC DIAGRAM FOR RO PLANT UNIT
T.VILUFUSHI ISLAND

DESIGNED	DRAWN	CHECKED	APPROVED	SCALE	DATE
RDS	BA	RDS	MA	1 : 50	28-12-15

PROJECT No.	SHEET No.	DRAWING No.
K-627	1 OF 1	TV-EL-103
REV. No.	0	

DB-OFFICE

LOCATION: **ADMIN BUILDING**

MCB 10 WAYS TPN 3 Nos. 63A HRC FUSES + ISOLATOR 100A TPN

LIGHT SECTION C.O.E.L.C.B. 40A, 300mA 4 POLE

CR No	Phase	W.SIZE sq.mm	RATES AMP	LOCATION	TYPE OF LIGHT/POWER	NO. OF POINTS	CONTROLLED BY	R	Y	B
1	R	2.5	10	OFFICE BLDG.	LIGHT L02-L05	4(1x50)	SWITCH	**200**		
	Y	2.5	10	LAB	LIGHT L6-L7	2(1x50)+1(1X80)	SWITCH		**180**	
	B	2.5	10	TOILET/CORRIDOR	LIGHT L06,-L08	1(1x70)+1(1x50)+1 (1X80)	SWITCH			**200**
2	R	2.5	10	STORAGE	LIGHT L09-L10	2(1x50)	SWITCH	**100**		
	Y	2.5	10	OFFICE-CAR PARK	LIGHT L01	1(1x50)	SWITCH		**50**	
	B	-	10		SPARE					
3	R	2.5	15	RO PLANT BLDG.	LIGHT L13-L18	6(1x50)	SWITCH	**300**		
	Y	2.5	10		SPARE					
	B	-	10	RO PLANT BLDG.	LIGHT L11-L12	2(1x50)	SWITCH			**100**
POWER SECTION C.O.E.L.C.B 63A 30mA 4 POLE										
4	R	4.0	15	OFFICE	P01-P03	3(1x200)	SWITCHED	**600**		
	Y	4.0	15	OFFICE-LAB	P05	1(1x1000)	SWITCHED		**1000**	
	B	4.0	15	OFFICE-LAB	P06	1(1x1000)	SWITCHED			**1000**
5	R	4.0	15		SPARE					
	Y	4.0	15	OFFICE LAB	P04	1(1x200)	SWITCHED		**200**	
	B	4.0	15	OFFICE-STORAGE	P07	1(1x1000)	SWITCHED			**1000**
6	R	4.0	15		SPARE					
	Y	6.0	15		SPARE					
	B	6.0	15		SPARE					
7	R	6.0	20	OFFICE BLDG.	SU-01	1(1x2000)	JB+DP SWITCH	**2000**		
	Y	6.0	20	OFFICE BLDG.	SU-02	1(1x2000)	JB+DP SWITCH		**2000**	
	B	4.0	15		SPARE					
8	R	-	10		SPARE					
	Y	4.0	10	RO PLANT BLDG.	P11-P13	3(1x200)			**600**	
	B	4.0	10	RO PLANT BLDG.	P08-P09	3(1x200)				**600**
9	R	4.0	10		SPARE					
	Y	4.0	10		SPARE				-	
	B	4.0	10	RO PLANT-GENERATOR ROOM	BATTERY CHARGER	1(1x500)	15A SPN S/F			**500**
10	R	4.0	10		SPARE			-		
	Y	4.0	10		SPARE				-	
	B	4.0	10		SPARE					-
					TOTAL CONN. LOAD	**10.630 K.W.**		**3200**	**4030**	**3400**

DB-EX

2 WAYS TPN 40A, TP, ISOLATOR

C.O.E.L.C.B. 40A, 300mA 4 POLE

CR No	Phase	W.SIZE sq.mm	MCB WITH	LOCATION	DESCRIPTION	NO. OF POINTS	CONTROLLED BY	R	Y	B
1	R	6.0	15A SP	EXTERNAL LIGHTS	EX1-EX4	4(1x90)	Controlled by 20A2P contactor, Photocell and H-O-A selector	**360**		
	Y	6.0	15A SP	EXTERNAL LIGHTS	EX5-EX8	4(1x90)			**360**	
	B	-	15A SP	EXTERNAL LIGHTS	EX9-EX12	4(1x90)				**360**
2	R	-	15A SP		SPARE					
	Y	-	15A SP		SPARE					
	B	-	15A SP		SPARE					
					TOTAL CONN. LOAD	**01.080 K.W.**		**360**	**360**	**360**

REFERENCE DRAWINGS

SL.No.	DRAWING No.	DESCRIPTION

REV.	DATE	DESCRIPTION	DRAWN	CHKD.	APPRD.
..	..	..	..	..	..
..	..	..	.	..	..
..	..	..	..	..	..
..	..	..	..	..	..
0	28-12-'15	DETAILED DESIGN SUBMISSION	BA	RDS	MA

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REPUBLIC OF MALDIVES

CONSULTANT:

ACO
دار الحبشي للاستشارات الهندسية
Al Habshi Consultants Office

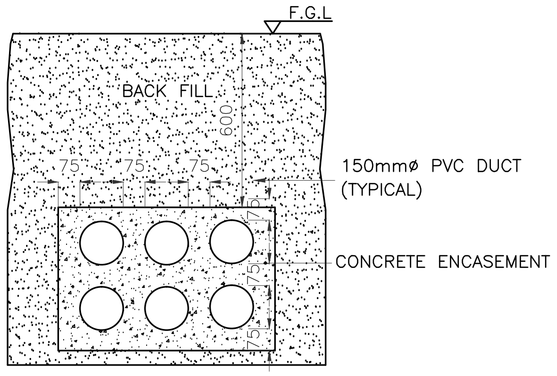
PROJECT:
Consultancy Services for Survey, Design of
Water supply Facilities in Tha.Vilifushi, F.Nilandhoo,
B.Eydhafushi and Adh. Hanyaameedhoo, Maldives

DRAWING TITLE:

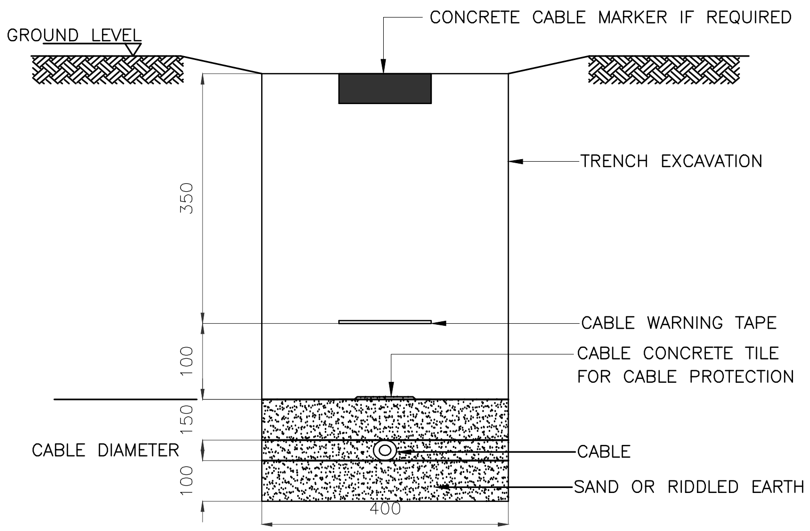
ELECTRICAL DB SCHEDULE

DESIGNED	DRAWN	CHECKED	APPROVED	SCALE	DATE
RDS	BA	RDS	MA	1 : 50	28-12-'15

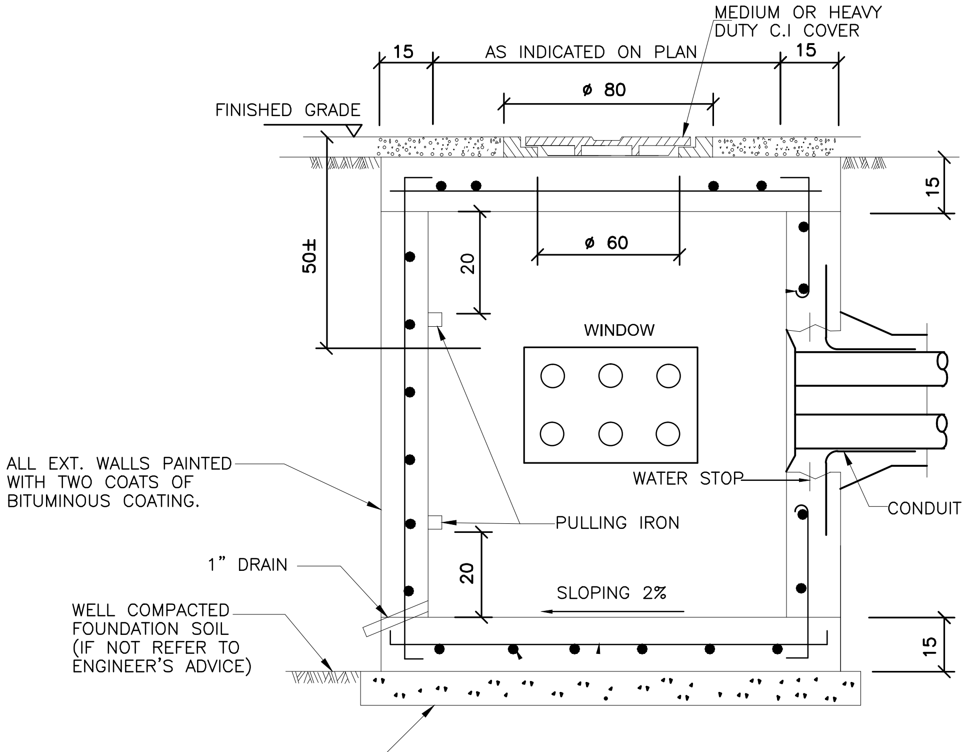
PROJECT No.	SHEET No.	DRAWING No.
K-627	1 OF 1	TV-EL-104
REV. No.	0	


F.G.L
BACK FILL
600
75
75
75
150mmø PVC DUCT
(TYPICAL)
75
75
75
CONCRETE ENCASEMENT

1 - DUCT BANK DETAIL

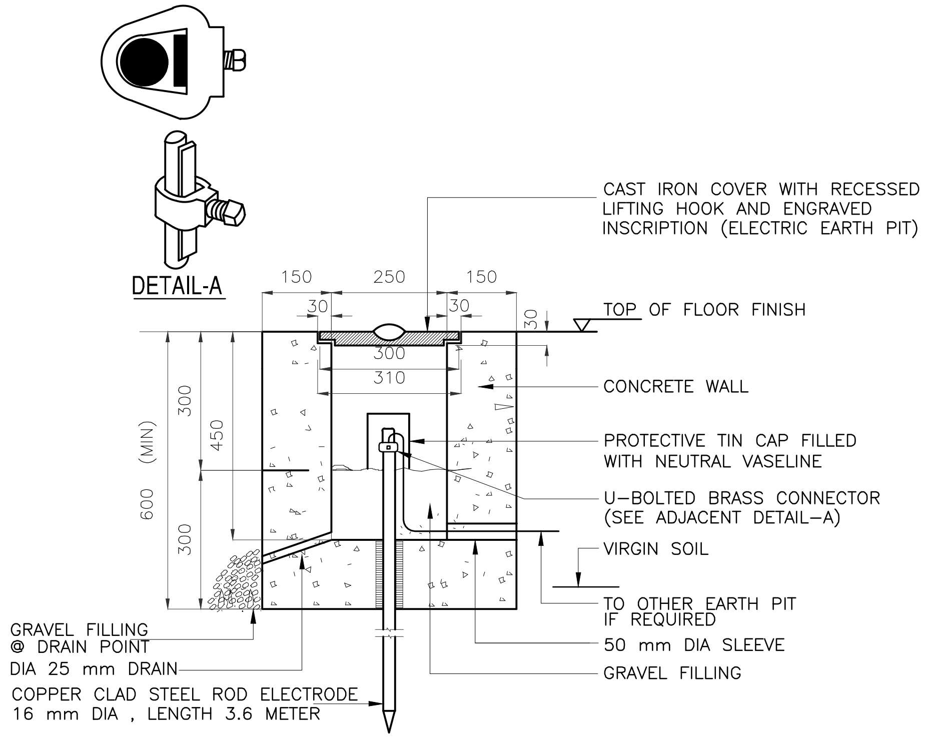

CONCRETE CABLE MARKER IF REQUIRED
GROUND LEVEL
TRENCH EXCAVATION
350
CABLE WARNING TAPE
100
CABLE CONCRETE TILE
FOR CABLE PROTECTION
150
CABLE DIAMETER
CABLE
100
SAND OR RIDDLED EARTH
400

2 - DIRECT BURIED CABLES


MEDIUM OR HEAVY
DUTY C.I COVER
15
AS INDICATED ON PLAN
15
ø 80
FINISHED GRADE
15
50±
20
ø 60
WINDOW
WATER STOP
CONDUIT
ALL EXT. WALLS PAINTED
WITH TWO COATS OF
BITUMINOUS COATING.
PULLING IRON
1" DRAIN
20
SLOPING 2%
WELL COMPACTED
FOUNDATION SOIL
(IF NOT REFER TO
ENGINEER'S ADVICE)
15
5cm LEAN CONCRETE

NOTES: CONCRETE SHALL BE CLASS 'A' WINDOW SIZE SHALL BE SUITABLE FOR CORRESPONDING DUCT. PULLING IRONS SHALL BE PROVIDED OPPOSITE CENTER OF EACH ENTERING DUCT RUN.

3 - MANHOLE DETAIL


DETAIL-A
CAST IRON COVER WITH RECESSED
LIFTING HOOK AND ENGRAVED
INSCRIPTION (ELECTRIC EARTH PIT)
150
250
150
30
30
30
TOP OF FLOOR FINISH
300
310
CONCRETE WALL
300
450
600 (MIN)
300
PROTECTIVE TIN CAP FILLED
WITH NEUTRAL VASELINE
U–BOLTED BRASS CONNECTOR
(SEE ADJACENT DETAIL–A)
VIRGIN SOIL
TO OTHER EARTH PIT
IF REQUIRED
50 mm DIA SLEEVE
GRAVEL FILLING
GRAVEL FILLING
@ DRAIN POINT
DIA 25 mm DRAIN
COPPER CLAD STEEL ROD ELECTRODE
16 mm DIA , LENGTH 3.6 METER

4 - EARTH PIT CONSTRUCTION (OUTDOOR)

REFERENCE DRAWINGS

SL.No	DRAWING No.	DESCRIPTION

REV.	DATE	DESCRIPTION	DRAWN	CHKD.	APPRD.
..	..	..	..	..	..
..	..	..	.	..	..
..	..	..	..	..	..
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0	28-12-'15	DETAILED DESIGN SUBMISSION	BA	RDS	MA

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Consultancy Services for Survey, Design of
Water supply Facilities in Tha.Vilifushi, F.Nilandhoo,
B.Eydhafushi and Adh. Hanyaameedhoo, Maldives

DRAWING TITLE:
ELECTRICAL TYPICAL DETAILS
T.VILUFUSHI ISLAND

DESIGNED	DRAWN	CHECKED	APPROVED	SCALE	DATE
RDS	BA	RDS	MA	1 : 50	28-12-'15

PROJECT No.	SHEET No.	DRAWING No.
K-627	1 OF 1	TV-EL-105
REV. No.	0	