Annex I Design Specification

Site information

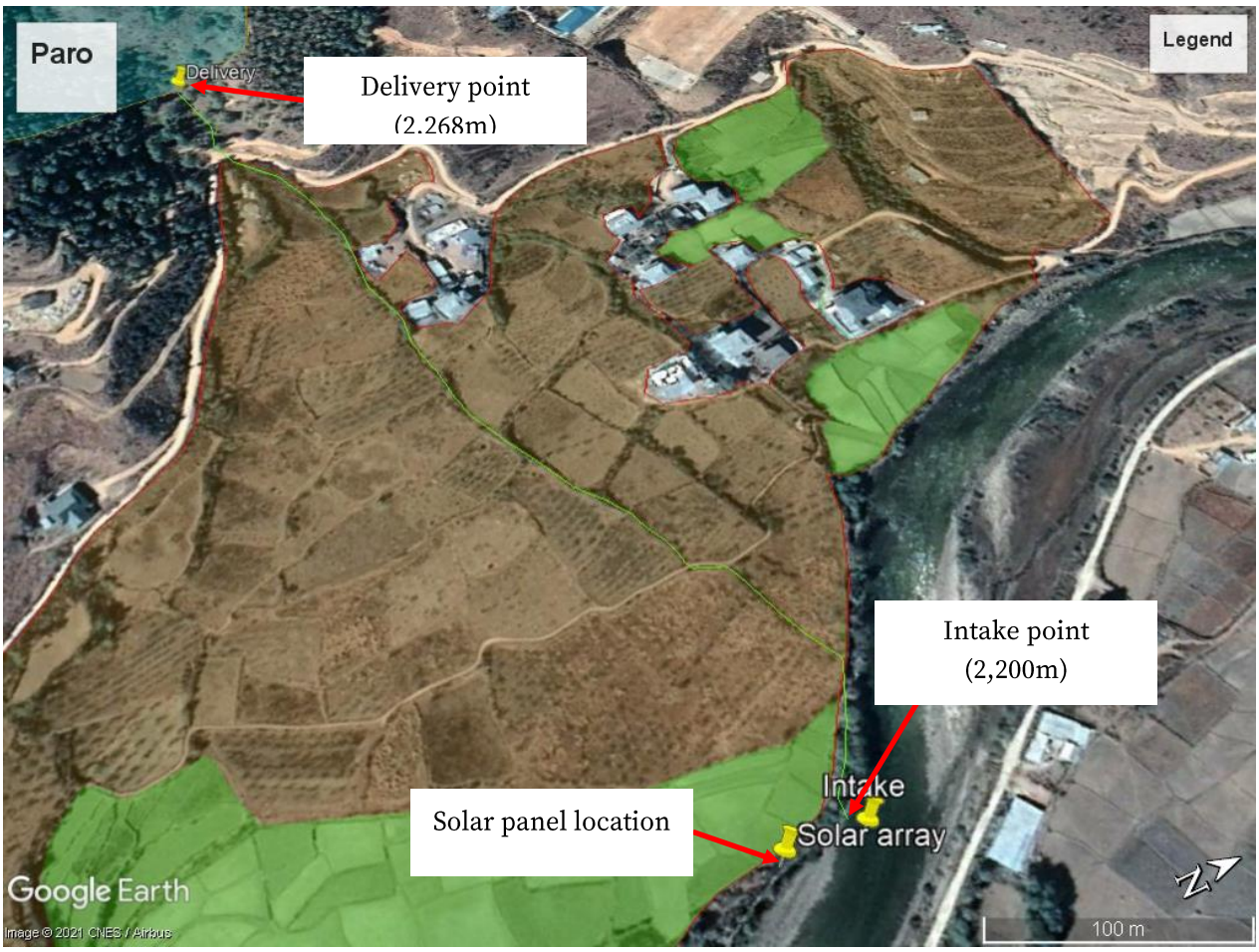
Site coordinates	27.367851°N, 89.456444° E
Location	Gangri Village, Shaba Gewog, Paro, Bhutan
Local contact	Thinley Gyamtsho, Specialist (Irrigation & Water Management), Agriculture Research & Development Centre, Department of Agriculture, Ministry of Agriculture & Forests Email: tgyamtsho@moaf.gov.bt

Background

The project aims to irrigate 35.5 acres of agriculture land in the following locations with a central solar irrigation system as presented in the table below. The solar pump will lift the water from the river to a reservoir tank and irrigate the fields through strategically located outlets along the conduit line.

SN	Village	NoHH	HH Gender		Landuse type (ac)			Population			Remark
			F	M	WL	DL	Both	M	F	Both	
1	Gangri	3	2	1	1.100	2.350	3.450	7	5	12	
2	Gobasa	6	5	1	6.950	7.080	14.030	20	14	34	
3	Jangtogompa	1	-	1	-	0.150	0.150	3	4	7	
4	Rivena	11	8	3	6.080	11.803	17.883	20	21	41	
	Total	**21**	**15**	**6**	**14.130**	**21.383**	**35.513**	**50**	**44**	**94**	

Note: NoHH = Number of Household, HH = Household head, M = Male, F = Female, WL = Wetland/Paddy field, DL = Dryland, OL = Orchard land



The coordinates of the key locations are given in the table below,

Intake	27.368660°N, 89.456756°E
Delivery	27.367569°N, 89.450745°E
Solar array installation	27.366944°N, 89.456977°E

- The pump is to be installed in a protected pond by the riverside (refer drawing in Annex I for reference).

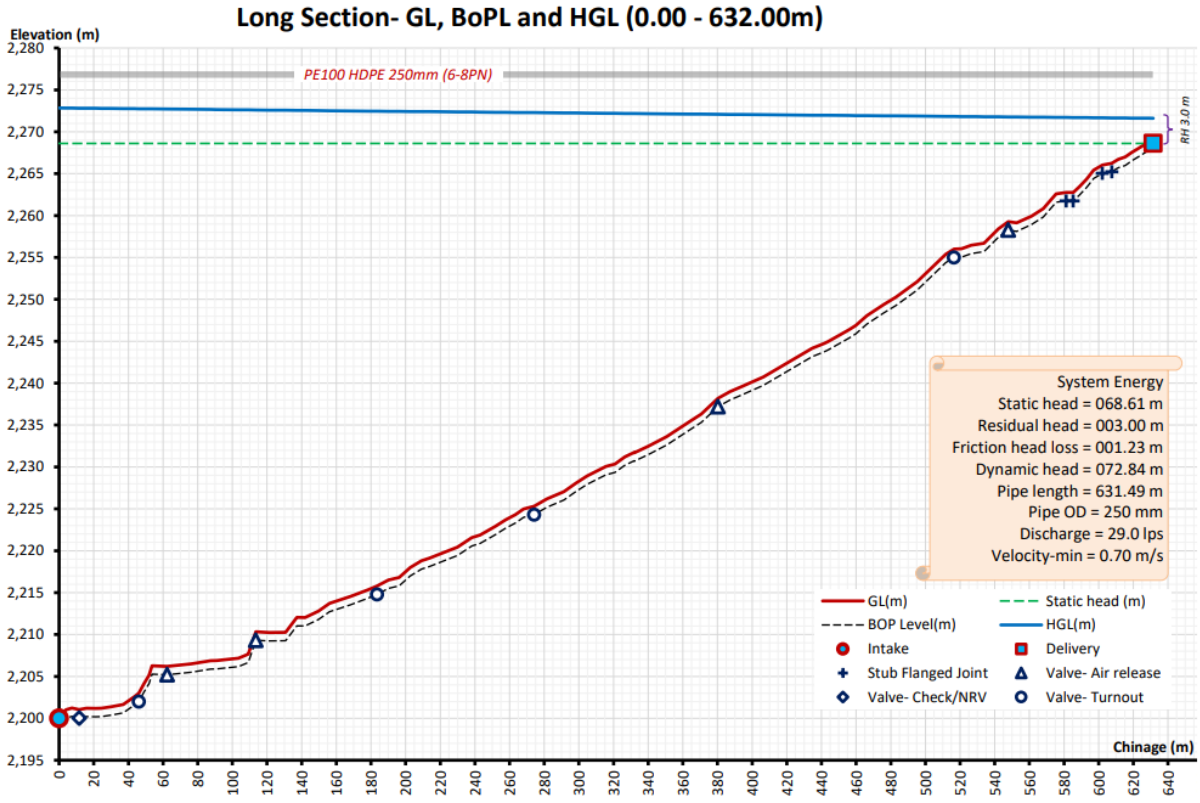
The desired water output of the solar water pumping system should be within the ranges respective to the vertical heads given in the table below.

Vertical head (m)	**Minimum water output (lpm)**	**Average daily discharge (m^3/ day)**
70	At least 600	155*

*4.4 peak sun hours

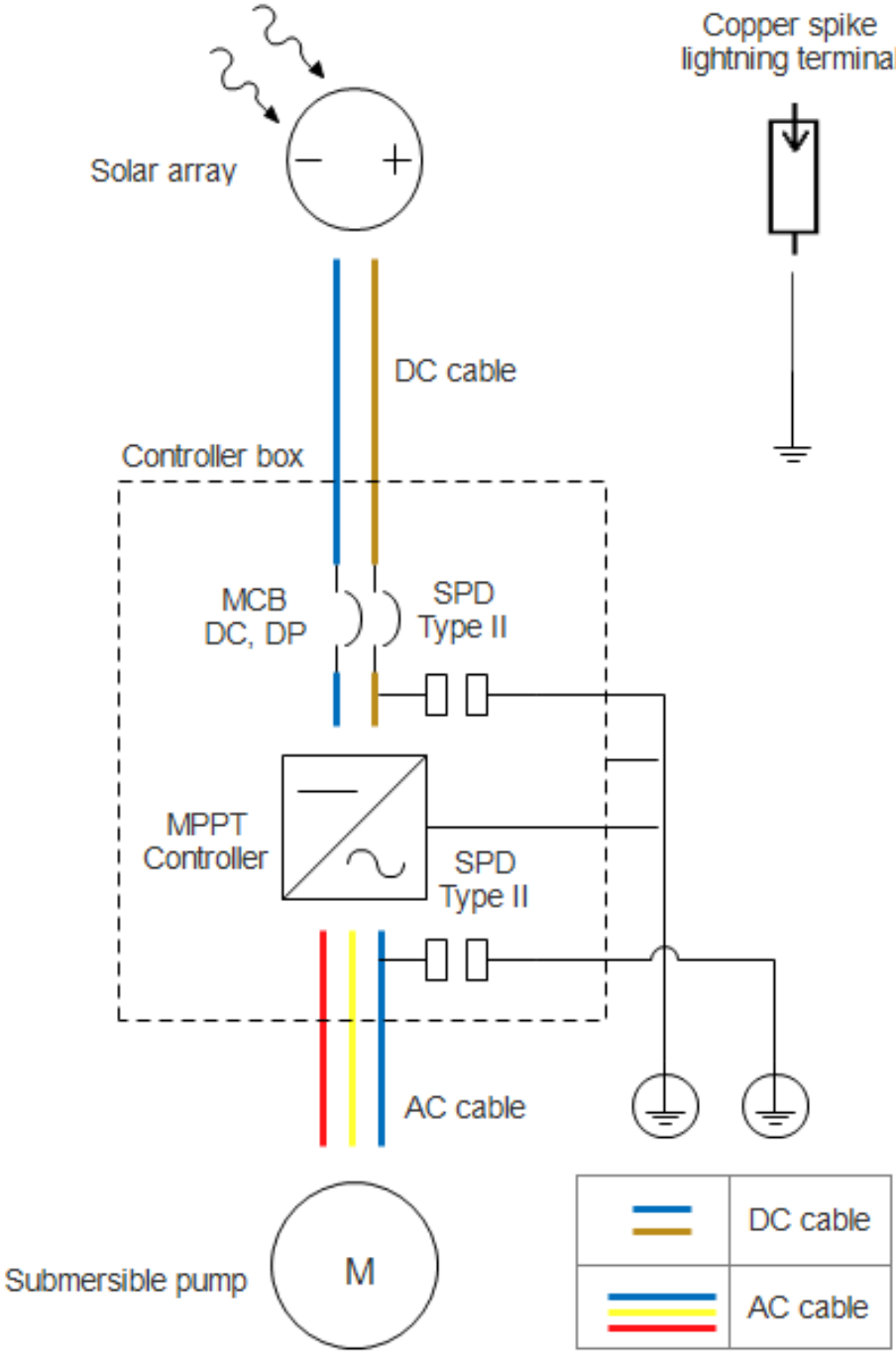
The bidders are allowed to size the system to meet the average daily requirement but this should not be less than the stated ratings in the technical spec sheet. The indicative elevation profile of the water transmission line is shown in the figure below. Bidders are encouraged to verify this in the field at their own cost. The valve turnout points in the figure are points where water delivery points will be placed (at

different heads). During pump operation, only one of the delivery points will be opened while the rest will be closed.



Single line diagram

The general single line diagram for the electromechanical components of the solar water pumping system is shown in the figure below.



Technical specifications

Solar panels

SN	Specifications required	Details with compliance (fill in the .....)	State whether a reference document has been provided (Yes/No)
1	Manufacturer	.....	
2	Model	.....	
3	Certifications: ISO9001 IEC 61215:2005 2nd Edition or IEC 61215-1:2016 and IEC 61215-2:2016 for Terrestrial photovoltaic (PV) modules - Design qualification and type approval – Part 1: Test requirements and Part 2: Test Procedures. IEC 61730 for PV module safety qualification The test certificates must be provided.	IEC certifications compliance? Yes/No:	
4	Peak power of individual module under STC ≥ 325Wp	Peak power of individual module: .....Wp	
5	Array capacity should be adequate to power the pump and delivery the desired water output in a clear day at least 15.6kWp	Total array capacity: .....kWp Vmp of the solar array: .....Vmp Imp of the solar array: .....Imp No. of panels in series x no. of panels in parallel:	NA

		.....series, ...parallel	
6	Product workmanship warranty: ≥10 years Performance Guarantee: 1st year: ≥ 97% of STC power 10 year: ≥ 90% of STC Power 25 years: ≥ 80% of STC Power Linear warranty ≤ 0.8% per year from year 2 and onwards	No. of years of product workmanship warranty: ..... years Performance Guarantee: 1st year: .....% of STC power 10 year: .....% of STC Power 25 years: .....% of STC Power Linear warranty .....% per year from year 2 and onwards	
7	All PV modules offered for the project must be of the same type, same model, same power rating and same manufacturer	Are all PV modules of the same type, model, rating and manufacturer? (Yes/No)	
8	The bidder must submit the technical datasheet of the individual solar module	Datasheet provided? (Yes/No)	
9	Warranty certificates		
10	Manufacturer authorization (see Part IV for the format)		

The support structure of PV modules

SN	Specifications required	Details with compliance (fill in the .....)	State whether reference document has been provided (Yes/No)
1	1. Fixed structure 2. Optimum tilt angle: 30deg	Confirm fixed structure (Yes/No): ..... Confirm optimum tilt angle of structure (Yes/No):	NA
2	**Please check Annex II for the layout of the solar array installation area for the dimensions of the available location.** The solar PV array structure must be made of MS hot-dip galvanized with suitable sections. The PV array must be designed with cross-section with a maximum of 2 numbers for vertical placement (portrait orientation of modules) and 4 numbers for horizontal placement (landscape orientation of modules). There must be a minimum of 25mm uniform spacing between the modules. The mounting structure and its accessories shall be able to resist at least 20 years of outdoor exposure without suffering damage or corrosion. Galvanized bolts, nuts, fasteners, washers, mounting clamps should be used for fixing structure and compatible with materials which it is being fixed. In the case of welding	Compliance with structure material and reliability: (Yes/No):	NA

	structures, galvanization should be done after the fabrication work.		
3	The foundation of the PV structure shall be minimum of 0.8 meter deep with 0.3(L) x 0.3(B) size with 0.3m thick stone soling with sand filling and 0.3(L) x 0.3(B) x 0.8(H) pillar in 1:2:4 PCC with 0.3m pillar above ground.	Compliance with foundation requirements: (Yes/No):	NA
4	The drawing of the solar PV array structure must be provided showing all dimensions	Drawing provided? (Yes/No):	

Pump

SN	Specifications required	Details with compliance (fill in the .....)	State whether reference document has been provided (Yes/No)
1	Manufacturer	.....	
2	Model	.....	
3	The pump must be a submersible pump at least 15HP /11Kw	Confirm submersible pump and rating (Yes/No):	
4	DC or AC pump, must be able to operate via solar or grid.	State whether DC or AC: ..... and confirm solar or grid operation.....	
5	The manufacturer pump curves verifying the water output at desired vertical heads (as given in the 'Site information' section) must be provided **Vertical head (m)** / **Minimum water output (lpm)** / **Average Daily water requirement (m3/day)**	Water output at 25m head: .....m^3/h with pump input power of .....kW Water output at 50m head: .....m^3/h with pump input power of .....kW	

	70 | At least 600 | 155* *4.4 peak sun hours	Water output at 70m head: ……m^3/h with pump input power of ……..kW	
6	The pump body and pump impellers must be made of stainless steel	Confirm stainless steel (Yes/No): ……..	
7	The dimensions of the pump must be given in the datasheet	Pump outlet size: ……..mm Pump body maximum diameter: ……..mm Pump length: ……..m	
8	At least 2-year warranty	Warranty years: ……..years	
9	Certifications: ISO9001	Compliance (Yes/No): ……..	
10	The bidder must submit the technical datasheet of the pump	Datasheet provided? (Yes/No) ……..	
11	Manufacturer authorization (see Part IV for the format)		

Controller

SN	Specifications required	Details with compliance (fill in the ……)	State whether reference document has been provided (Yes/No)
1	Manufacturer	……	
2	Model	……	

3	The kW rating of the controller must be compatible with the pump kW rating	Controller rating: .....kW	
4	The output voltage range and rated output current of the controller must be compatible with the pump operating voltage and current	Output voltage range: .....V to .....V Rated output current: .....A State whether DC or AC:	
5	The range of input DC voltage and current of the controller must accommodate the Vmp, Voc voltages and Imp current from the solar array	Lowest working voltage: .....V Maximum DC voltage: .....V Rated input current: .....A	
6	Must be MPPT controller	MPPT controller (Yes/No)	
7	At least 97% efficiency	Efficiency: .....%	
8	Must have optional grid input option for days when the pump doesn't run from solar	Confirm optional grid input (Yes/No):	
9	Protections: 1. PV and output side overvoltage protection 2. PV and output side Overcurrent protection 3. Dry run protection 4. Overload protection 5. Short circuit protection 6. Overheat protection	Confirm protection (Yes/No), 1. PV and output side overvoltage protection ..... 2. PV and output side Overcurrent protection ..... 3. Dry run protection ..... 4. Overload protection ..... 5. Short circuit protection ..... 6. Overheat protection	
10	IP65 for exposed installation	Protection level:	
11	At least 3-year warranty	Warranty years: .....years	

12	CE certification or equivalent	Compliance (Yes/No):	
13	The bidder must submit the technical datasheet of the controller	Datasheet provided? (Yes/No)	
14	The controller and pump must be from the same manufacturer	Compliance (Yes/No):	
15	Manufacturer authorization (see Part IV for the format)		

Remote monitoring system (RMS)

Note: The remote monitoring system from the same manufacturer as the controller and pump is preferred.

SN	**Specifications required**	**Details with compliance (fill in the .....)**	**State whether reference document has been provided (Yes/No)**
1	Manufacturer	.....	
2	Model	.....	
3	The RMS must be able to record the following parameters: 1. Water flow rate 2. Input power from PV array (can also record PV voltage and current)	Does the RMS record the following? (Yes/No) 1. Water flow rate: ..... 2. Input power from PV array (can also record PV voltage and current):	
4	Optional parameters of RMS (good to have): 1. Pump power (can also record pump voltage and current) 2. Fault information	Does the RMS record the following? (Yes/No) 1. Pump power (can also record pump voltage and current): ..... 2. Fault information:	

5	The **real-time data** from the RMS must be viewed via the following mediums: 1. Remote computer/mobile via online portal or mobile app (internet connection of RMS via GSM modem, CDMA, GPRS, 3G, 4G etc.) 2. Automatic store data into SD card when remote communication fails	Does the RMS provide real-time data via the following mediums? (Yes/No) 1. Remote computer/mobile via online portal or mobile app (internet connection of RMS via GSM modem, CDMA, GPRS, 3G, 4G etc.): …….. 2. Automatic store data into SD card when remote communication fails: ……..	
6	The RMS must be compatible with the controller provided	State compatibility with controller (Yes/No):……..	
7	The RMS can either be powered by the controller or powered externally. In either case, the powering unit for RMS must be provided	RMS power ensured? (Yes/No): ……..	
8	The bidder must submit the technical datasheet of the RMS	Datasheet provided? (Yes/No) ……..	

Cables and accessories

SN	**Specifications required**	**Details with compliance (fill in the ……)**	**State whether reference document has been provided (Yes/No)**
1	Panel inter-wiring cable: Minimum 4 or higher sq.mm copper within 3% voltage drop, unarmoured, PVC insulated, UV resistant	Cross-section of panel inter-wiring cable: ……..sq.mm Compliance with copper, unarmoured, PVC insulated, UV resistance: (Yes/No): ……..	

2	The allowable voltage drop from PV array to the controller is 3% and controller to pump is 1% Provide voltage drop calculation sheet	One-way length of cable from PV array to the controller: .....m, voltage drop: .....% One-way length of cable from controller to pump: .....m, voltage drop: .....%	
3	Cable from PV array to the controller: 1. Copper, unarmoured, PVC insulated 2. Underground cabling (0.3m depth) with adequate conduit 3. Any underground cable interconnections must be water-tight and corrosion resistant	From PV array to the controller: Cross-section of cable: .....sq.mm No. of cores: ..... Compliance with copper, unarmoured, PVC insulated: (Yes/No):	
4	Cable from the controller to pump: 1. Copper, , PVC insulated, UV resistant 2. Insulation voltage and ampacity of the cable must be higher than the rated voltage and current that the cable will be connected to 3. Underground cabling (0.3m depth) 4. There must not be any interconnection in the length of the cable run 5. The connection to the pump must be water-resistant using water-proof	From controller to the pump: Cross-section of cable: .....sq.mm No. of cores: ..... Compliance with copper, armoured, PVC insulated: (Yes/No):	
5	All cables must be properly terminated using cable lugs, pins etc. (no naked wire termination)	Compliance (Yes/No):	NA
6	A Float Switch must be provided to prevent the submersible pump from dry run	Compliance (Yes/No):	

7	Output DU/DT must be provided in the controller output to control the leakage current due to the long cable	Compliance (Yes/No):	
8	Adequate cable conduits must be provided for underground cables	Compliance (Yes/No):	
9	Boxes (such as controller box) shall be UV and weather resistant of IP65 protection level and manufacturer specified ventilation All cables inside the box must be connected properly and cable entering/outings into/from the box must be sealed properly (use of cable glands, cable shoes, cable ties etc.) so that dust, insects, mice cannot enter the box The PV isolator MCB, SPDs, RMU, filter and earthing bus bars should be installed inside the controller box along with the controller Boxes must have a locking provision to prevent unwanted access	Body material of controller box: ..... Protection level: ..... The locking mechanism of the controller box: ..... Compliance with sealing and neat cable routing: (Yes/No):	
10	Adequate stay wires/anchors must be provided for pump support	Compliance (Yes/No):	
11	All accessories to complete the installation and commissioning of solar water pumping system (tapes, screws, nuts, etc.)	Compliance (Yes/No):	NA

Earthing, lightning and protection systems

Provide manufacturer technical specifications of all the safety components listed below.

SN	Specifications required	Details with compliance (fill in the .....)	State whether reference document has been provided (Yes/No)
1	Type II surge protection devices (SPDs) must be installed in the DC and AC sides of the controller	DC side surge protection device included? (Yes/No): ..... AC side surge protection device included? (Yes/No):	
2	Double pole MCB must be provided as a PV disconnector. The rating of the MCB must be at least 1.56 times the Imp of the solar array	Rating of DP MCB: .....A	
3	Separate earthing should be given to, 1. Lightning air terminal 2. DC side (PV array, DC SPD, structure, controller) 3. Output side (pump) Rod earthing with copper rod size (for individual earthing): 1 no. of each minimum 2.5 meters length x 25mm diameter Down conductor size: Should be copper and larger than the thickest cable used in the system. Backfill compound: 2 nos. of each 25Kg	Compliance with separated earthings: (Yes/No): ..... Length of earthing rod: .....m Diameter of earthing rod: .....mm	
4	Separation between individual earth pits should be at least 10 meters	Compliance (Yes/No):	
5	The Lightning Protection System (LPS) must be able to minimize the damage to the surrounding environment	Length of air terminal: .....m Diameter of air terminal: .....mm	

	Copper air terminal at least 2m above the highest height of the solar panels after installation	Compliance with the height of the air terminal above the highest height of the solar panels after installation: (Yes/No):	
6	The maximum allowable earth resistance is 10 ohms	Compliance (Yes/No):	
7	The bidder must submit the technical datasheet of the SPDs and MCBs.	Datasheets provided? (Yes/No)	

Workmanship

SN	**Specifications required**	**Details with compliance (fill in the .....)**	**State whether reference document has been provided (Yes/No)**
1	5 years warranty on workmanship	Compliance (Yes/No): ..... Issue a letter	NA
2	The bidder shall ensure that all worksites shall be free of all manner of debris resulting from the construction activity	Compliance (Yes/No):	NA
3	All cables inside the controller must be properly labelled and the single line diagram of the solar water pumping system must be pasted inside the controller box	Compliance (Yes/No):	NA

We .....(company name) certify that we comply with the requested requirement , performance and workmanship.

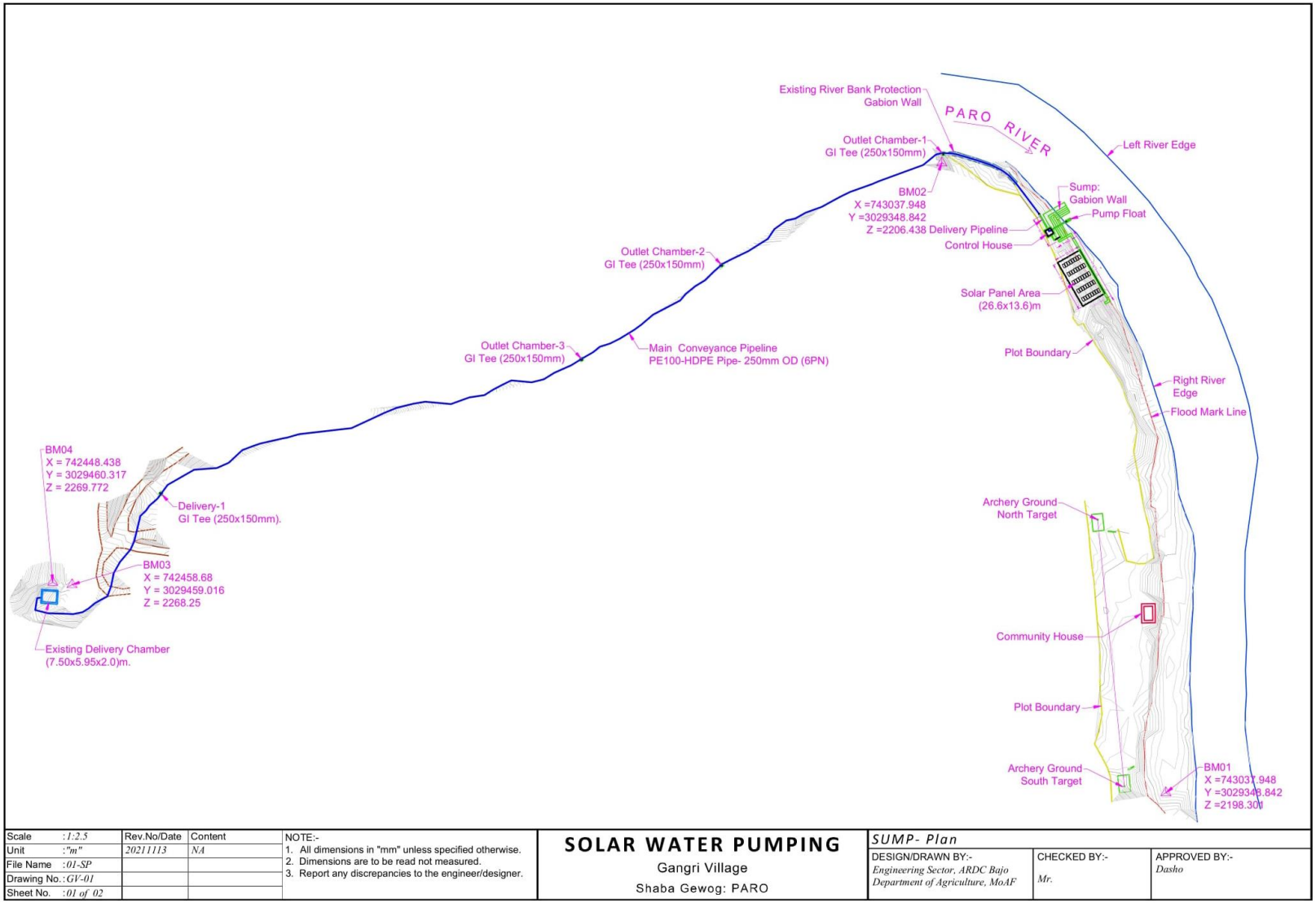
Signed & Stamped .....

Handover documents

The bidder shall handover a folder upon commissioning to the client that contains at least the following,

Component	Supporting documents
Solar panels	Technical datasheet
Controller	Technical data sheet and manufacturer operation and troubleshooting manual
Pump	Technical data sheet and manufacturer operation and troubleshooting manual
Water output	Monthly water output simulation graph
Overall solar water pumping system	Single Line Diagram
Component's warranty	Warranty letter from manufacturer
Workmanship warranty	Workmanship warranty letter

Part – I – Intake design



Scale :1:2.5	Rev.No/Date	Content	NOTE:-
Unit :"m"	20211113	NA	1. All dimensions in "mm" unless specified otherwise.
File Name :01-SP			2. Dimensions are to be read not measured.
Drawing No. :GV-01			3. Report any discrepancies to the engineer/designer.
Sheet No. :01 of 02			

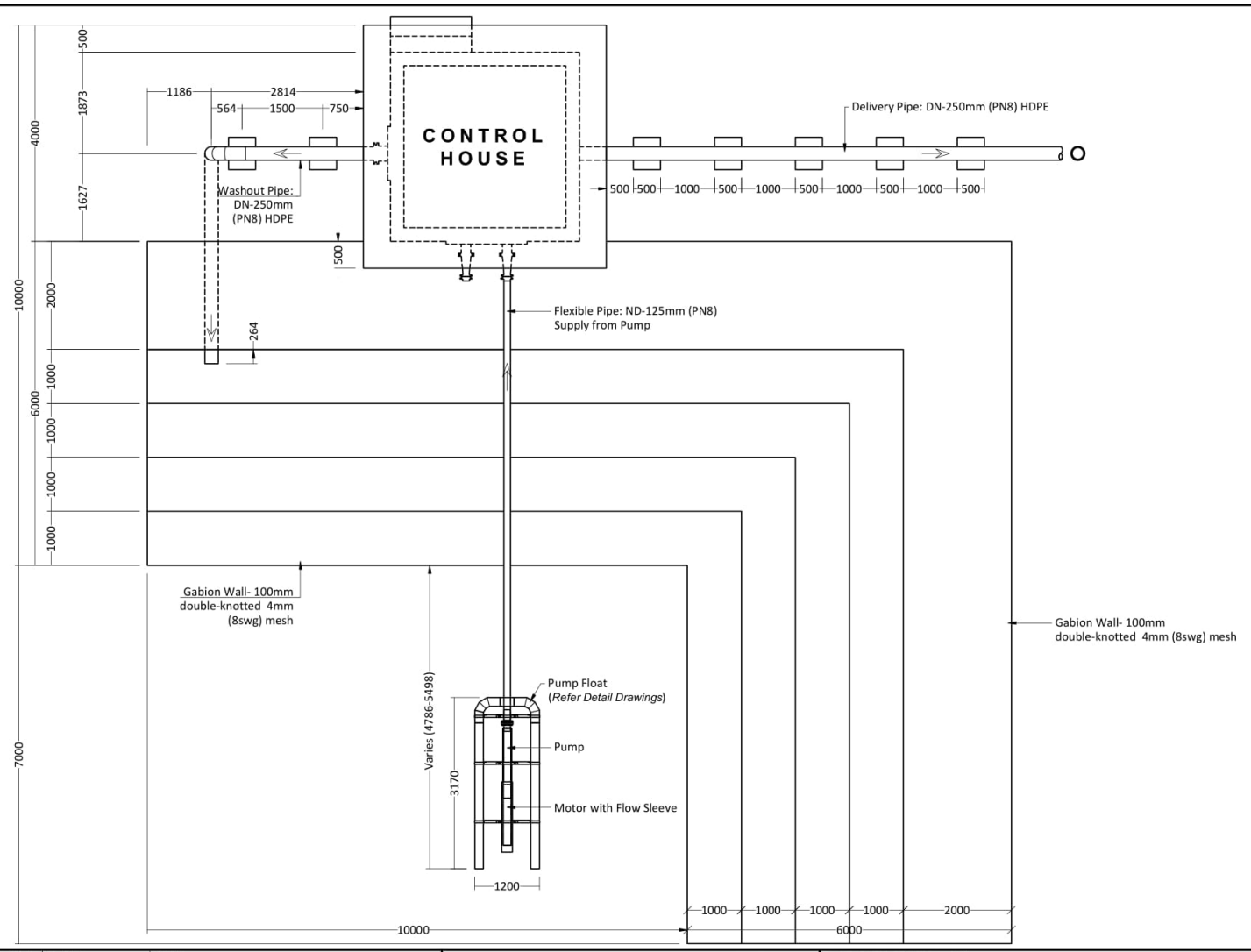
SOLAR WATER PUMPING

Gangri Village

Shaba Gewog: PARO

SUMP- Plan

DESIGN/DRAWN BY:-	CHECKED BY:-	APPROVED BY:-
Engineering Sector, ARDC Bajo Department of Agriculture, MoAF	*Mr.*	*Dasho*



Scale :1:100	Rev.No/Date	Content	NOTE:-
Unit :"mm"	20211107	NA	1. All dimensions in "mm" unless specified otherwise.
File Name :05-IS			2. Dimensions are to be read not measured.
Drawing No.:GV-01			3. Report any discrepancies to the engineer/designer.
Sheet No. :01 of 04			

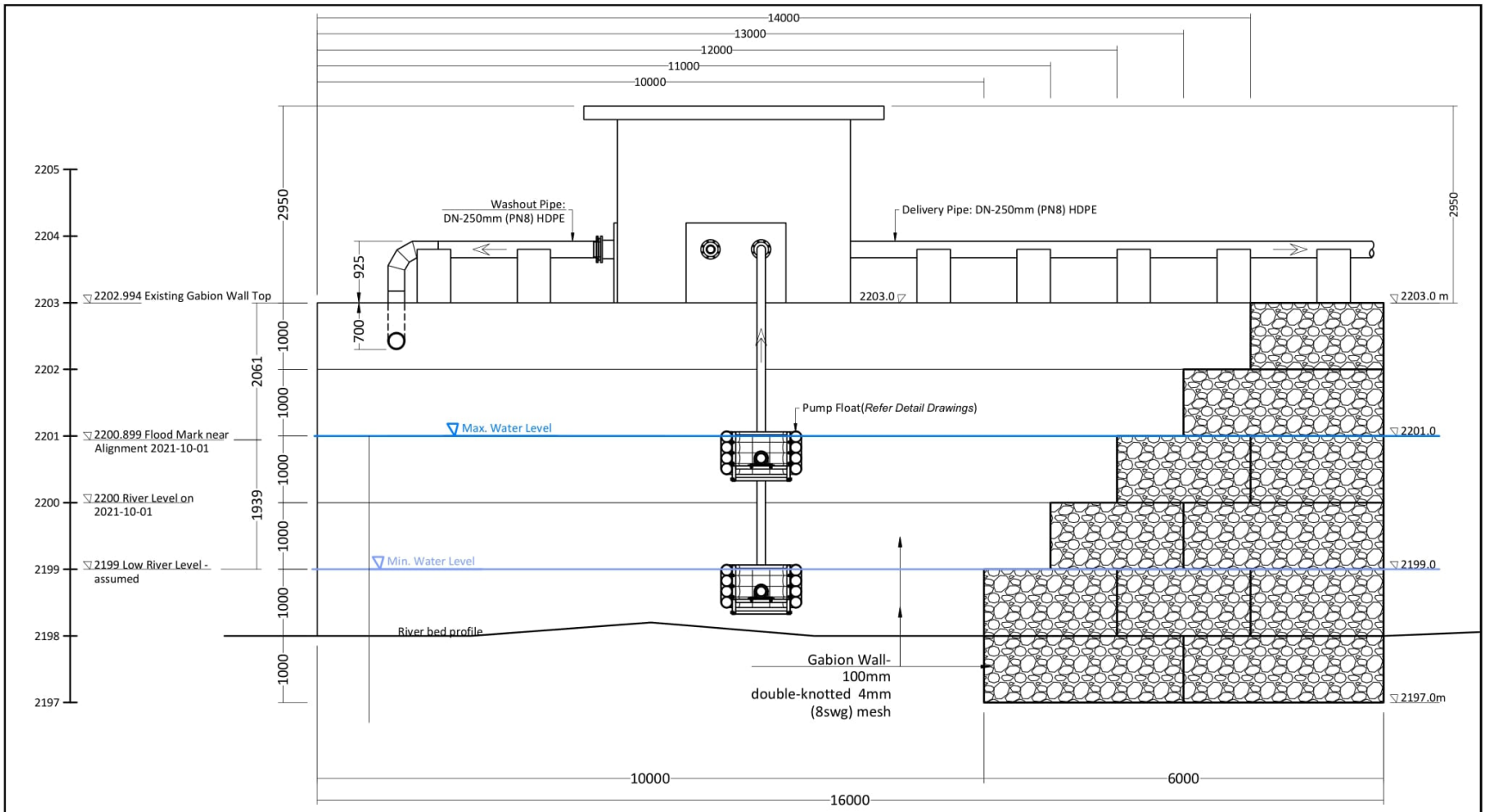
SOLAR WATER PUMPING

Gangri Village

Shaba Gewog: PARO

INTAKE SUMP- Plan

DESIGN/DRAWN BY:-	CHECKED BY:-	APPROVED BY:-
Engineering Sector, ARDC Bajo Department of Agriculture, MoAF	*Mr.*	*Dasho*



Scale	:1:80	Rev.No/Date	Content
Unit	:"mm"	20211107	NA
File Name	:05-IS		
Drawing No.	:GV-01		
Sheet No.	:02 of 04		

NOTE:-
1. All dimensions in "mm" unless specified otherwise.
2. Dimensions are to be read not measured.
3. Report any discrepancies to the engineer/designer.

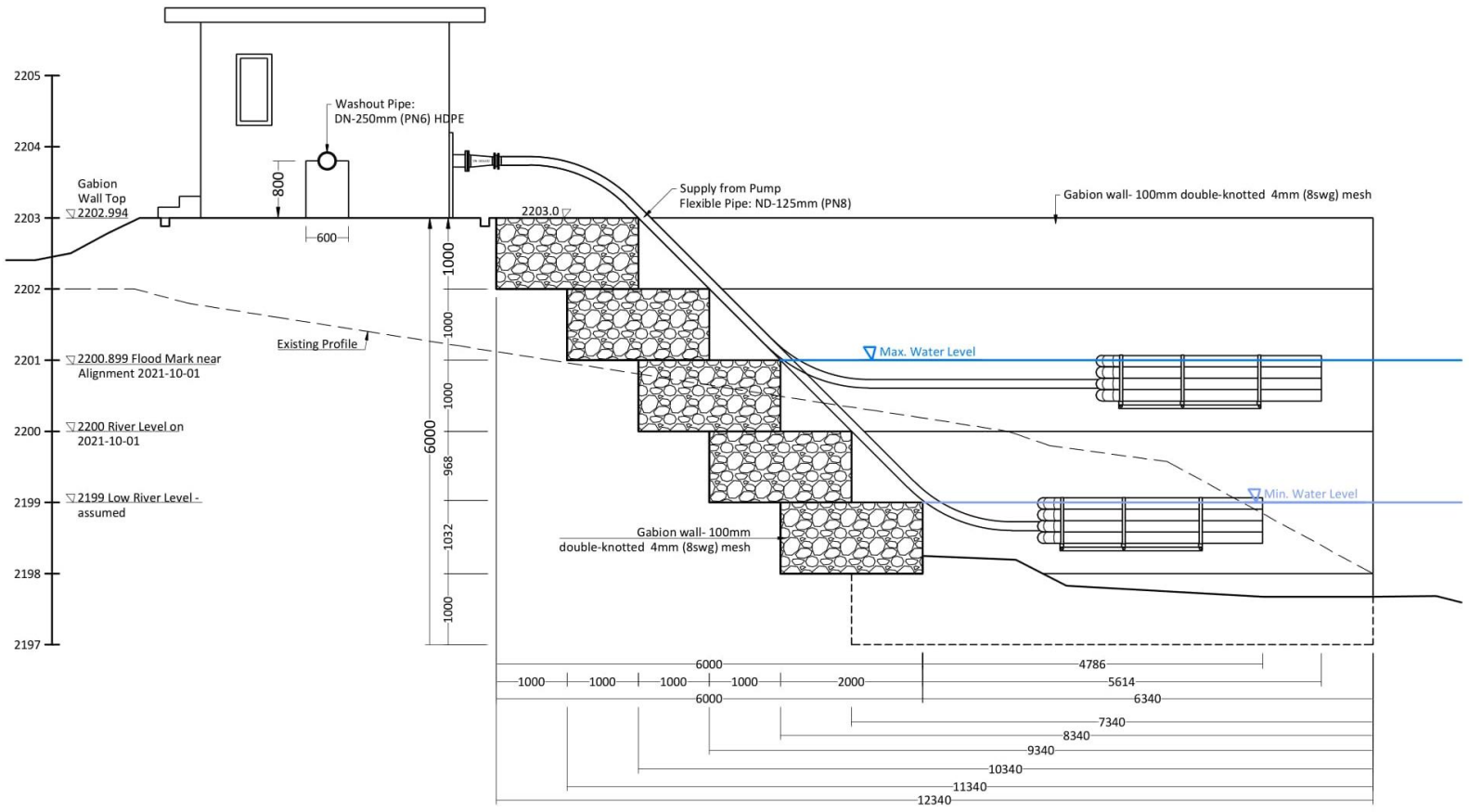
SOLAR WATER PUMPING

Gangri Village

Shaba Gewog: PARO

INTAKE SUMP- Elevation--River side

DESIGN/DRAWN BY:-	CHECKED BY:-	APPROVED BY:-
Engineering Sector, ARDC Bajo Department of Agriculture, MoAF	*Mr.*	*Dasho*



Scale	:1:80	Rev.No/Date	Content
Unit	:"mm"	20211107	NA
File Name	:05-IS		
Drawing No.	:GV-01		
Sheet No.	:03 of 04		

NOTE:-
1. All dimensions in "mm" unless specified otherwise.
2. Dimensions are to be read not measured.
3. Report any discrepancies to the engineer/designer.

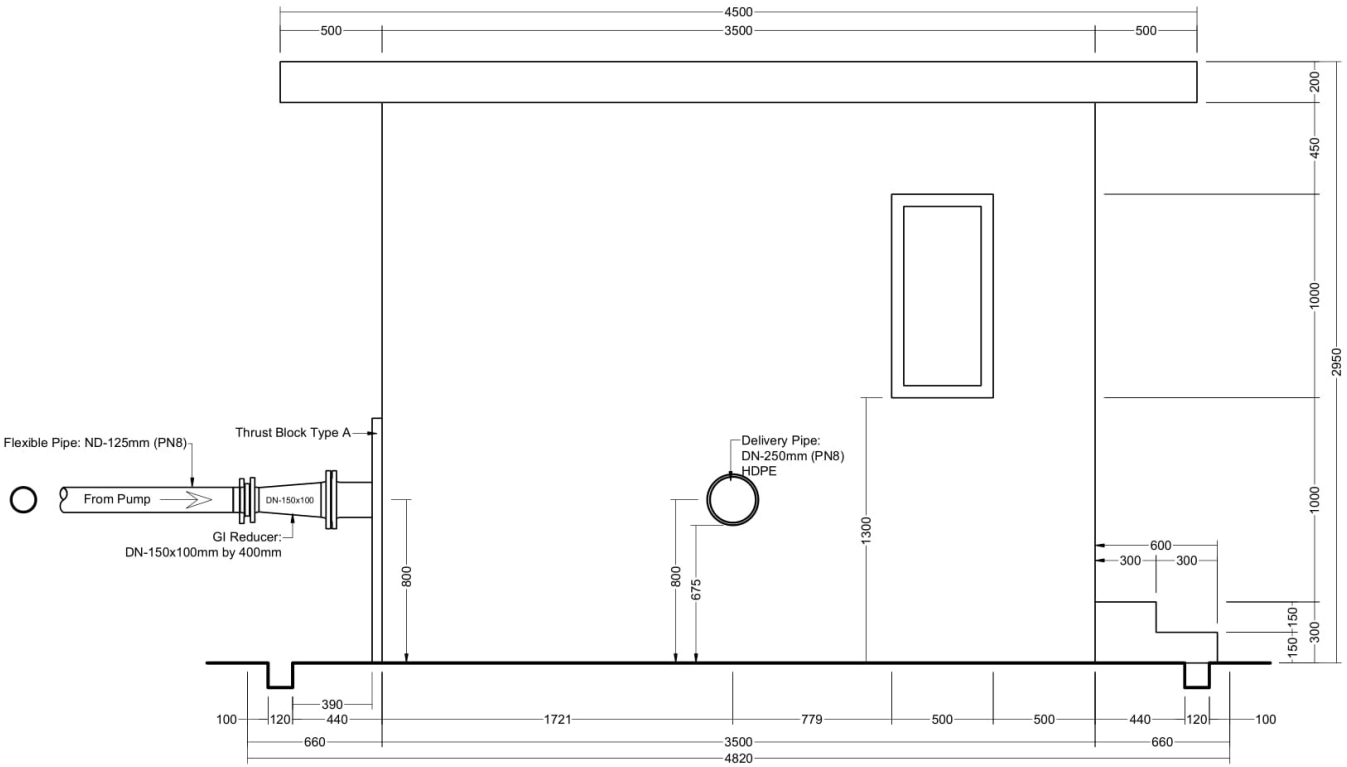
SOLAR WATER PUMPING

Gangri Village

Shaba Gewog: PARO

INTAKE SUMP- Elevation--River Upstream

DESIGN/DRAWN BY:-	CHECKED BY:-	APPROVED BY:-
Engineering Sector, ARDC Bajo *Department of Agriculture, MoAF*	*Mr.*	*Dasho*



Scale :1:30	Rev.No/Date	Content	NOTE:-
Unit :"mm"	20211019	NA	1. All dimensions in "mm" unless specified otherwise.
File Name :03-CH			2. Dimensions are to be read not measured.
Drawing No. :GV-01			3. Report any discrepancies to the engineer/designer.
Sheet No. :05 of 10			

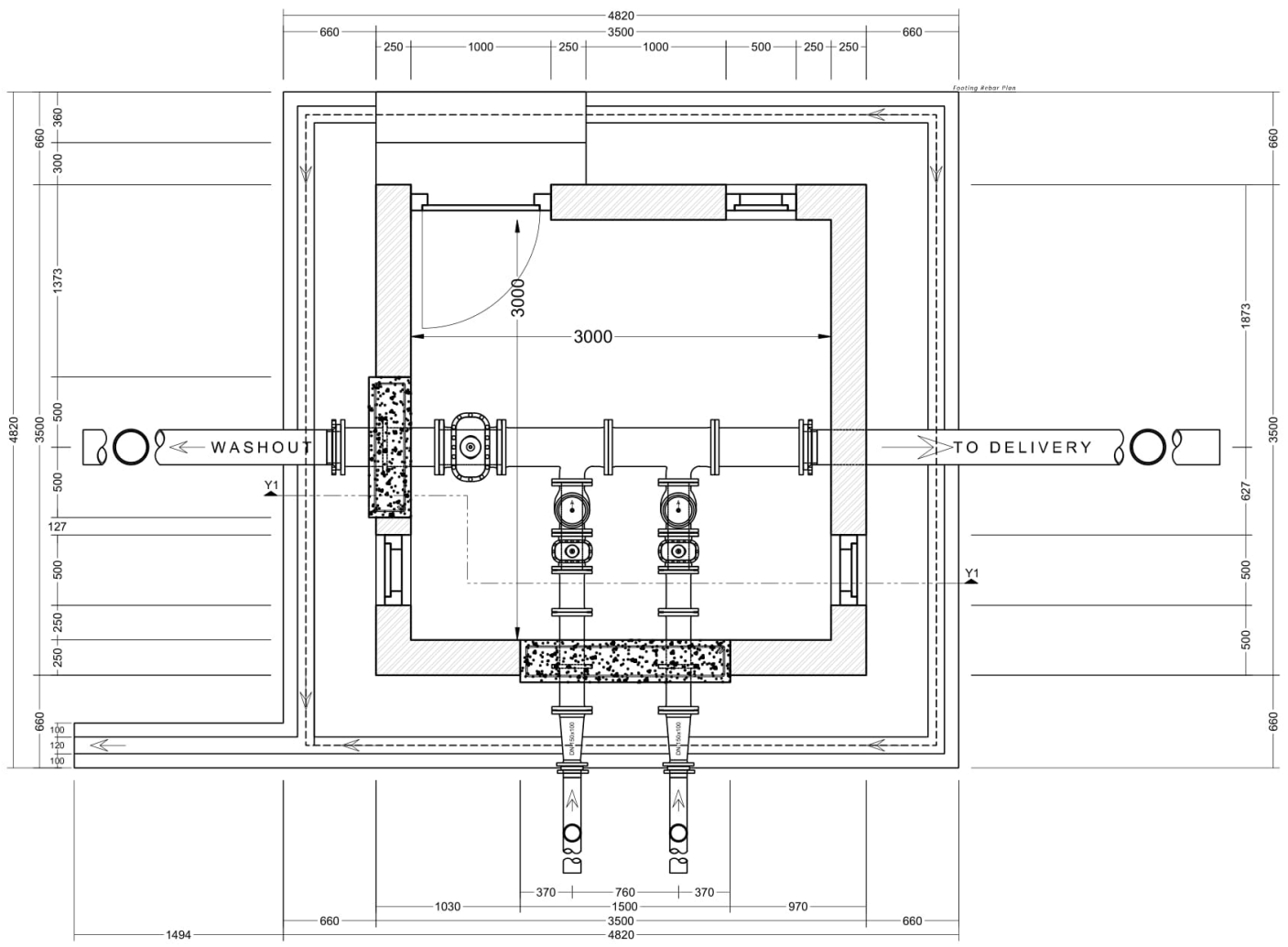
SOLAR WATER PUMPING

Gangri Village

Shaba Gewog: PARO

CONTROL HOUSE- Elevation--Right

DESIGN/DRAWN BY:-	CHECKED BY:-	APPROVED BY:-
Engineering Sector, ARDC Bajo Department of Agriculture, MoAF	*Mr.*	*Dasho*



Scale	:1:40	Rev.No/Date	Content
Unit	:"mm"	20211019	NA
File Name	:03-CH		
Drawing No.	:GV-01		
Sheet No.	:01 of 10		

NOTE:-
1. All dimensions in "mm" unless specified otherwise.
2. Dimensions are to be read not measured.
3. Report any discrepancies to the engineer/designer.

SOLAR WATER PUMPING

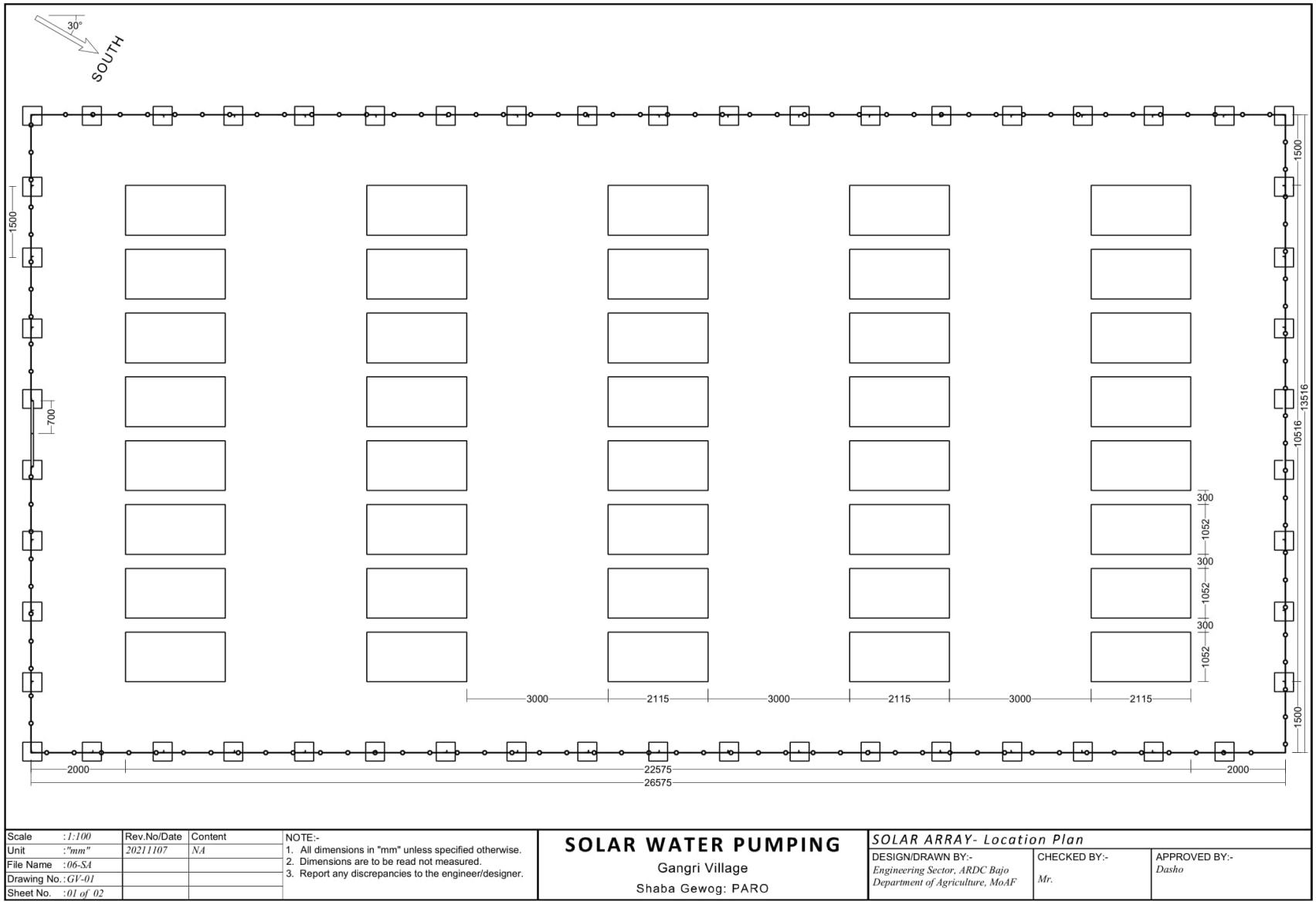
Gangri Village

Shaba Gewog: PARO

CONTROL HOUSE- Plan

DESIGN/DRAWN BY:-	CHECKED BY:-	APPROVED BY:-
Engineering Sector, ARDC Bajo Department of Agriculture, MoAF	*Mr.*	*Dasho*

Part – II – Panel area dimensions



Scale : *1:100*	Rev.No/Date	Content	NOTE:-
Unit : *"mm"*	*20211107*	*NA*	1. All dimensions in "mm" unless specified otherwise.
File Name : *06-SA*			2. Dimensions are to be read not measured.
Drawing No. : *GV-01*			3. Report any discrepancies to the engineer/designer.
Sheet No. : *01 of 02*			

SOLAR WATER PUMPING

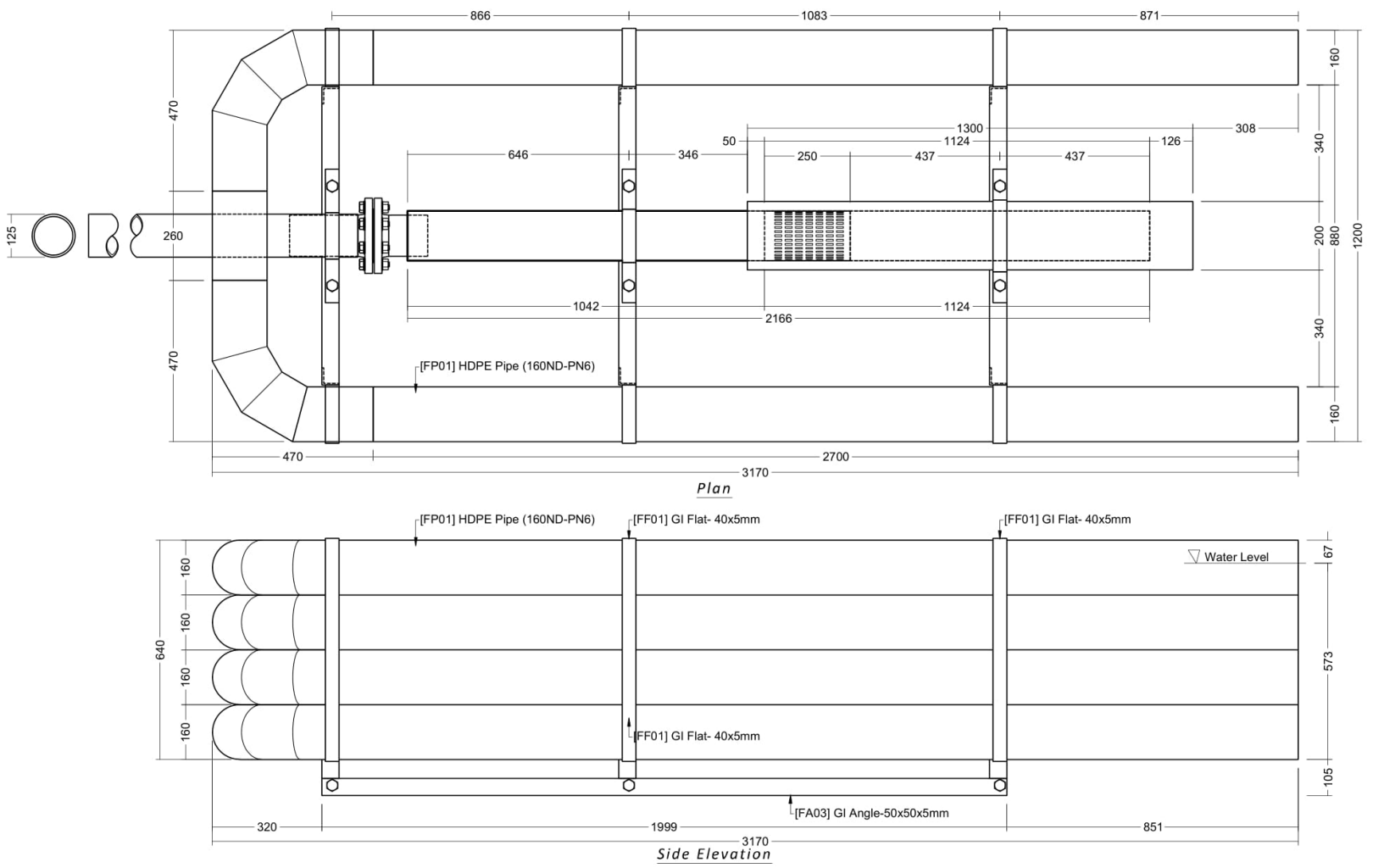
Gangri Village

Shaba Gewog: PARO

SOLAR ARRAY- Location Plan

DESIGN/DRAWN BY:-	CHECKED BY:-	APPROVED BY:-
Engineering Sector, ARDC Bajo Department of Agriculture, MoAF	*Mr.*	*Dasho*

Part – III – Pump float design



Scale :1:15	Rev.No/Date	Content	NOTE:-
Unit :"mm"	20211103	NA	1. All dimensions in "mm" unless specified otherwise.
File Name :04-FI			2. Dimensions are to be read not measured.
Drawing No. :GV-01			3. Report any discrepancies to the engineer/designer.
Sheet No. :01 of 20			

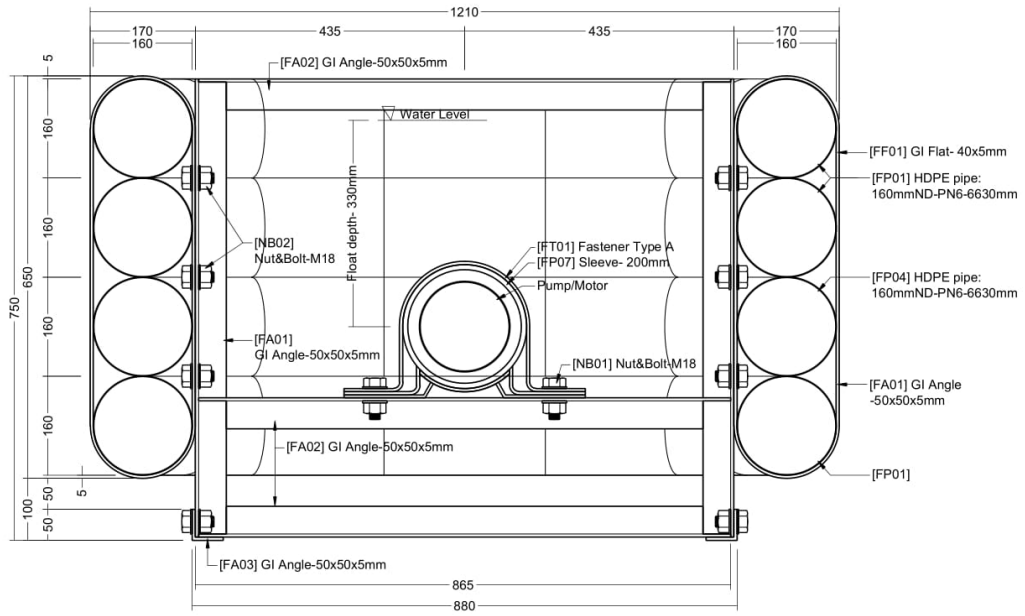
SOLAR WATER PUMPING

Gangri Village

Shaba Gewog: PARO

FLOAT INTAKE- Plan and Side Elevation

DESIGN/DRAWN BY:-	CHECKED BY:-	APPROVED BY:-
Engineering Sector, ARDC Bajo Department of Agriculture, MoAF	*Mr.*	*Dasho*



MATERIAL LIST							
Part#	Description	Quantity for		UW (kg/m)	Length (m)	Weight (kg)	Remark
		No	UL(m)				
FP01	HDPE Pipe (160ND-PN6)	6	2.700	3.070	16.200	49.734	Float pipe
FP02	HDPE Pipe (160ND-PN6)-90° bend	6	0.686	3.070	4.116	12.636	Float pipe
FP03	HDPE Pipe (160ND-PN6)	3	0.260	3.070	0.780	2.395	Float pipe
(A)	Total- HDPE Pipe- Float	-	7.0320	-	21.096	64.765	-
FP04	HDPE Pipe (160ND-PN6)	2	2.700	3.070	5.400	16.578	Non-float
FP05	HDPE Pipe (160ND-PN6)	2	0.686	3.070	1.372	4.212	Non-float
FP06	HDPE Pipe (160ND-PN6)	1	0.260	3.070	0.260	0.798	Non-float
(B)	Total- HDPE Pipe- None Float	-	-	-	7.032	21.588	-
FP07	HDPE Pipe (200ND-PN6)	1	1.300	4.740	1.300	6.162	Sleeve
FA01	GI Angle (50x50x5mm-3.8kg/m)	8	0.740	3.800	5.920	22.496	-
FA02	GI Angle (50x50x5mm-3.8kg/m)	9	0.840	3.800	7.560	28.728	-
FA03	GI Angle (50x50x5mm-3.8kg/m)	2	2.000	3.800	4.000	15.200	-
FF01	GI Flat (40x5mm-1.6kg/m)	8	1.4800	1.600	11.840	18.944	-
(C)	Total- Float Frame	-	-	-	-	91.530	-
FT01	Fastener Type-A	1	-	3.442	-	3.442	-
FT02	Fastener Type-B	1	-	2.322	-	2.322	-
FT03	Fastener Type-B	1	-	1.805	-	1.805	-
NB01	Bolt&Nuts (M18x50mm-0.23kg/set)	6	0.050	0.230	-	1.380	-
NB02	Bolt&Nuts (M18x35mm-0.21kg/set)	24	0.035	0.210	-	5.040	-
NB03	Bolt&Nuts (M16x90mm-0.27kg/set)	6	0.035	0.270	-	1.620	-
(D)	Total- Fasteners	-	-	-	-	15.609	-
PM01	Motor	1	-	70.000	-	70.000	-
PM02	Pump	1	-	27.400	-	27.400	-
PM02	Flange	2	-	5.000	-	10.000	-
(E)	Pump/Motor & Fittings	-	-	-	-	107.400	-
(F)	Total weight	-	-	-	-	300.892	-
(H)	Total weight	-	-	-	-	397.074	-

NOTE:-
1. All float pipes shall be jointed with butt fusion jointing machine.
2. All joints shall air tight and with stand pressure of 6kg/sq.cm or 60m of water head.
3. Pipe ends shall be closed with end caps with butt fusion joints.
4. All float frames shall GI.

Scale	:1:100	
Unit	:"mm"	
File Name	:04-FI	
Drawing No.	:GV-01	
Sheet No.	:03 of 20	

Rev.No/Date	Content
20211103	NA

NOTE:-
1. All dimensions in "mm" unless specified otherwise.
2. Dimensions are to be read not measured.
3. Report any discrepancies to the engineer/designer.

SOLAR WATER PUMPING

Gangri Village

Shaba Gewog: PARO

FLOAT INTAKE- End elevation

DESIGN/DRAWN BY:-	CHECKED BY:-	APPROVED BY:-
Engineering Sector, ARDC Bajo *Department of Agriculture, MoAF*	*Mr.*	*Dasho*

Part – IV – Manufacturer's authorization letter format

[This letter of authorization should be on the letterhead of the manufacturer and should be signed by the person with the proper authority to sign documents that are binding on the manufacturer]

Date: .....

To: .....

WHEREAS

We, *[insert complete name of Manufacturer]* who are official manufacturers of *[insert complete name of Manufacturer]* having factories at *[insert full address of Manufacturer's factories]* do hereby authorize *[insert complete name of Bidder]* exclusively to submit a bid in relation to the Request for Proposal indicated above, the purpose of which is exclusively to provide the following Goods, manufactured by us *[insert complete name of Bidder]* and to subsequently negotiate and sign the Contract.

We hereby extend our full guarantee and warranty in accordance with requirements described in the Technical Specifications, with respect to the Goods offered by the above firm.

Signed: *[insert complete name of Bidder]*

Name: *[insert complete name(s) of authorized representative(s) of the Manufacturer]*

Title: *[insert title]*

Duly authorized to sign the Authorization for and on behalf of: *[insert complete name(s) of authorized representative(s) of the Manufacturer]*

Date: *[insert date of signing]*