Construction of Solar Powered Borehole with steel OHT carrying 10 cubic meter PVC tank at Government Secondary School, Shibing, Takum LGA, Taraba State

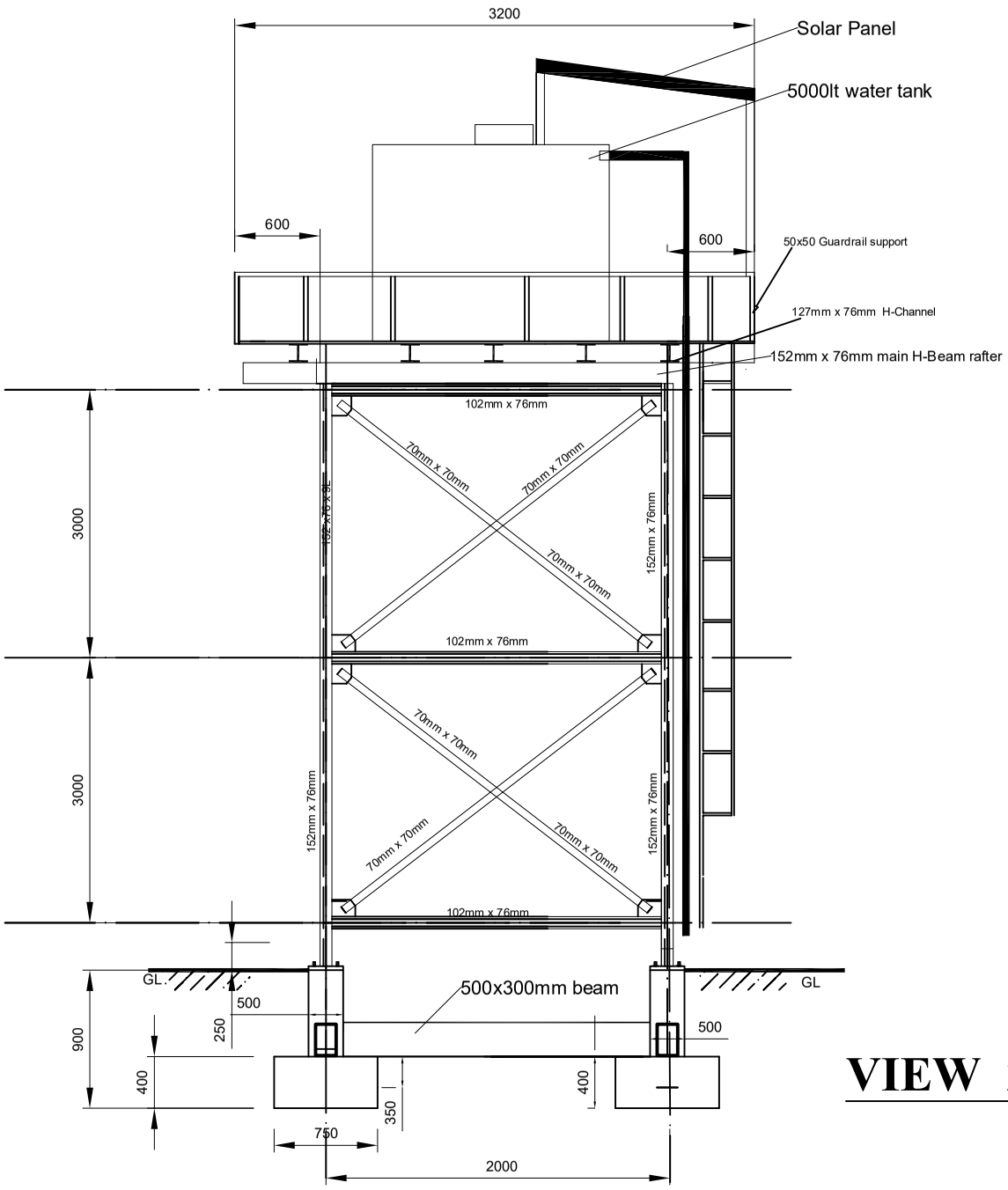
S/N	DESCRIPTION OF ITEM	UNIT	QTY	RATE	
1	**PRELIMINARIES AND DRILLING**				
1.1	Mobilization and demobilization of of equipment and personnel to site	Ls	1		
1.2	Carry out Geo Physical survey with report submission	Ls	10		
1.3	Drilling of 162.5mm dia open hole through basement / Sedimentary formation, to accommodate 125mm dia permanent casing, including all drilling fluids and lubricants.	M	170		
	Total for Preliminaries and Drilling				
2	**INSTALLATION AND WELL DEVELOPMENT**				
2.1	Supply and installation 125mm dia pressure UPVC casing (10 bars MUTUNCHI brand)	No	51		
2.2	Supply and installation of factory slotted 125mm Pvc screen	No	6		
2.3	Supply and place filter pack (graded gravel) in borehole anulus around the screen and casing	Ls	1		
2.4	Flushing and development of borehole by airlifting,jetting, and pumping to attain optimum yield and clean water for minimum of 3 hours and in the presence of SCI WASH person	Ls	1		
2.5	Supply and place cement grout in borehole anulus around the casing and construction of concrete slab around the well cap(minimum of 6m depth required)	M	1		
2.6	Conduct borehole pump test to ascertain the yied(8 hours minimum recommended time in the presence of SCI Engineer)	Ls	1		
2.7	Well disinfection using cholrine as disinfectant	Ls	1		
2.8	Conduct detail physical, bacteriological and chemical analysis of borehole's fresh water sample(with Hard copy submitted see attached parameters)	No	1		
2.9	Submit Well completion report with well logging(Lithology). 4 hard copies submitted	Ls	1		
2.91	Construct and install tight fitted steel well cover with suitable fittings	No	1		
	Total for Installation and Well development				
3	**OVERHEAD TANK**				
3.1	Supply and install water storage tank of $10m^3$ (5,000 liters pvc tank each) capacity including accessories	No	2		
	Total for Overhead Tank				
4	**TOWER**				
4.1	Casting of 900mm x 900mm x 1500mm RC plinth using RC (Mix 1:2:4) including reinforcements threaded with nuts and washers to take bolts.	No	6		
4.2	Supply and installation of 10mm thick steel base plate 300mm x 300mm with hole to receive vertical pillars.	No	6		
4.3	Supply and installation of 152mm x 76mm x 9m High H-beam(vertical pillar) 5mm thickness mild steel welded to 30cm x 30cm x 20mm base plate with hole to collect bolts.	length	6		
4.4	Supply and installation 152mm x 76mm x 5m H-beam (horizontal main top rafter), mild steel to sit on item 4.3 above	length	6		
4.5	Supply and installation of 102mm x 76mm x 1.5m H-beam (horizontal support), mild steel to brass/ hold item 4.3 above	length	10		
4.6	Supply and installation of 127mm x 76mm x 6m H beam (Top rafter),mild steel to support 3mm thick plate sheet	length	8		
4.7	Supply and installation of 5mm thick 70mm x 70mm angle Iron for Cross internal support to vertical beams	length	60		
4.8	Supply and installation of 3mm thick plate grating sheets (with opening to drain any waste water) (4.8m x 4.85m) cover to catwalk area welded to top rafter to receive overhead tank.	sheets	6		

4.9	Supply and installation of 5mm thick 50mm angle iron Handrail to catwalk area.	length	20		
4.10	Supply and installation of 7 meters ladder 3mm thick 50mm angle iron with thread at 600mm intervals covered with circular steel back rest protection	M	13		
4.11	Supply and application Anti rust red oxide coating to completed water tower.	No	1		
4.12	Supply and application of Oil paint coating to completed water tower.	No	1		
	Total for Metallic Stanchion				
5	**PUMP INSTALLATIONS**				
5.1	Supply and installation of Grundfos SQFlex pump specifications with dry running ptotection (**pump capacity of 1.5KW**) is to be agreed with SCI Engineer based on pumping test data.	No	1		
5.2	Supply and installation of Grundfos CU 200 control box complete including cables, connections and accessories to pump and to float switch . (capable of using both generator and solar power) With weather protection cover	No	1		
5.3	Supply and installation of float switch to water tank with cables and connections	No	1		
5.4	Supply and Installation 1 1/4" UPVC riser mains from the pump to the well head(Tiger make)	length	16		
5.5	Construction of 5" flange to well head reduced to take 2" UPVC pipe connection to the Supply Mains including fittings and accesories for connection.	No	1		
5.6	Construction of welhead protection from theft with RC cover	No	1		
	Total for pump Installations				
6	**SOLAR POWER AND VISIBILITY**				
6.1	Supply and installation of solar panels watts to be determined by pump rating including connections and cables to control unit (To be determined with SCI Engineer (**Approx 300watts each totalling 1.8KW)**	panels	6		
6.2	Supply and Install SCI visibility as recommended by SCI Engineer	LS	1		
6.3	Supply and installation of Metal frame as indicated in the drawings properly welded and braced to hold solar panels from Strong winds and storms .	No	1		
	Total for Solar power and Visibility				
7	**PIPE CONNECTIONS AND RETICULATIONS**				
7.1	Supply and installation of 2 UPVC mains from well head to pump (Tiger brand including and non return valve and other accessories. 1 Pieces should have minimum of 3m each)	No	57		
7.2	Supply and Installation of 2" UPVC mains from well head flange to Overhead tank including non-return Valve and other accessories	No	6		
7.3	Supply and installation of 2" and reduce to 1.5" UPVC mains from overhead tank to distribution taps with 1500m reticulation.	Pcs	500		
7.4	Construct a 5mx5mx1m tap stand and install 5 heavy duty pressure release 3/4" taps on concrete platform in a space provided in the community including soak pit; location	No	2		
7.5	Procure and Install chain link coated 6m by 6m perimenter fence with gate which is 3m perimeter high on galvanized steel post (painted) set in 150mm deep concrete including pedestrain gate(1m wide) around the tower stand the area to be cover with coarse aggregates between 3/4" to 1" sizes	No	1		
	Total for Pipe Connections and Reticulations				

	SUMMARY	
1	**Total for Preliminaries and Drilling**	
2	**Total for Installation and Well development**	
3	**Total for Overhead Tank**	
4	**Total for Metallic Stanchion**	
5	**Total for pump Installations**	
6	**Total for Solar power and Visibility**	
7	**Total for Pipe Connections and Reticulations**	

GRAND TOTAL				

Approvals	
Aniekan Akiki; WASH Coordinator	Tewolde Birhanu; WASH Manager



VIEW 2

GENERAL NOTE

1. All dimensions are in millimeters (mm). Contact SCI engineer should there be a need for further clarity.

2.. Concrete mix ratio: 1:2:4

3. Gravel: 20mm

4. Sand: Sharp river sand

5. Cement: Ordinary Portland

6. Foundation rebars: 12mm main reinforcement rods

7. Stirrup: 10mm

8. Vertical stanchion H-Channel: 152mm x 76mm

9. Horizontal H-beam support:102mm 76mm

10. Main H-beam rafter sitting on Vertical stanchion: 152mm x 76mm

11. Top H-channel holding base gratin sheet carrying tanks

12. Plate grating sheet: 3mm thick

Designed & Approved by	SCI WASH TEAM

Firm Name & Address

Save the Children Federation

Project Name & Address

10 000lt Borehole Construction

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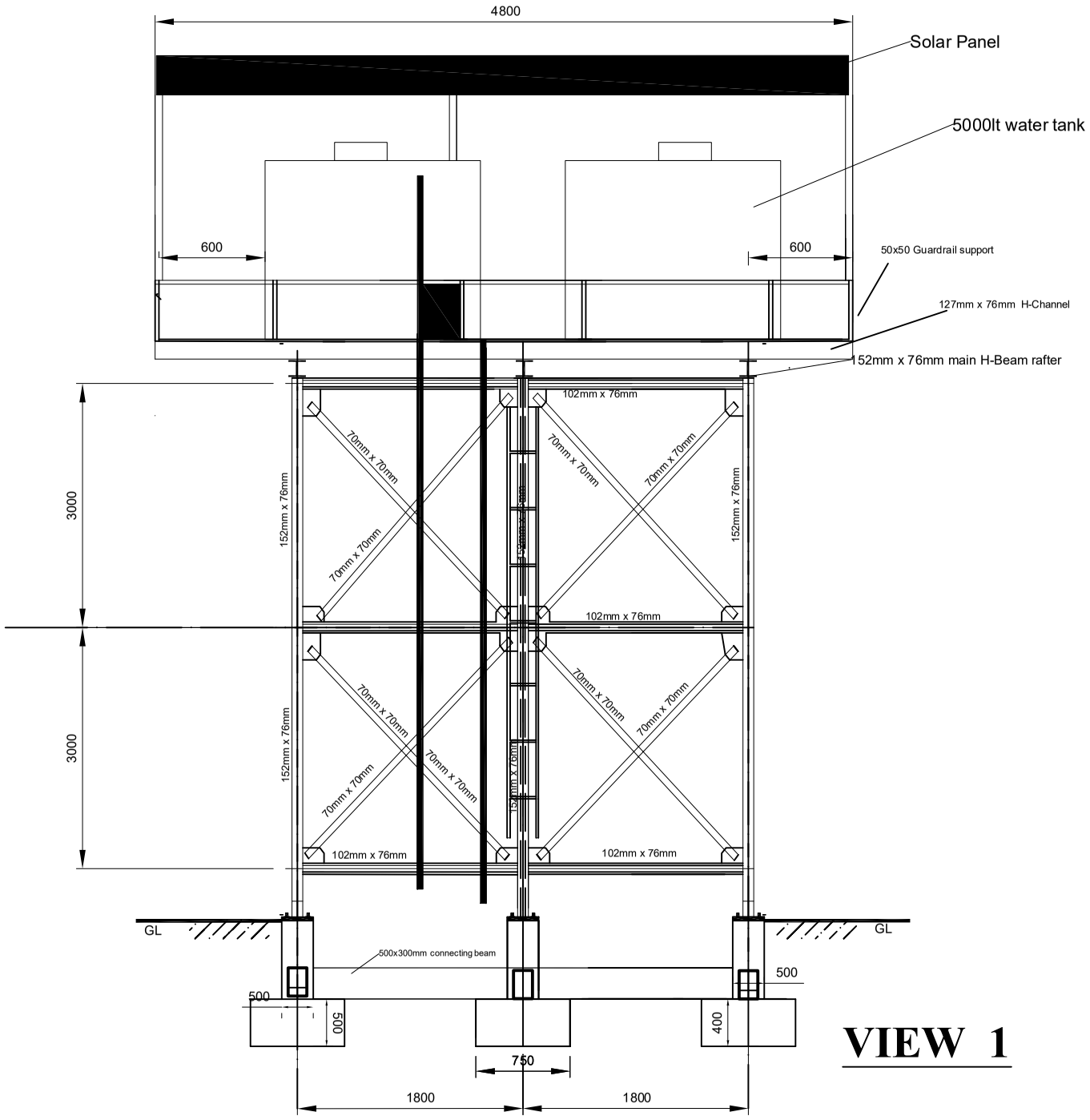

VIEW 1

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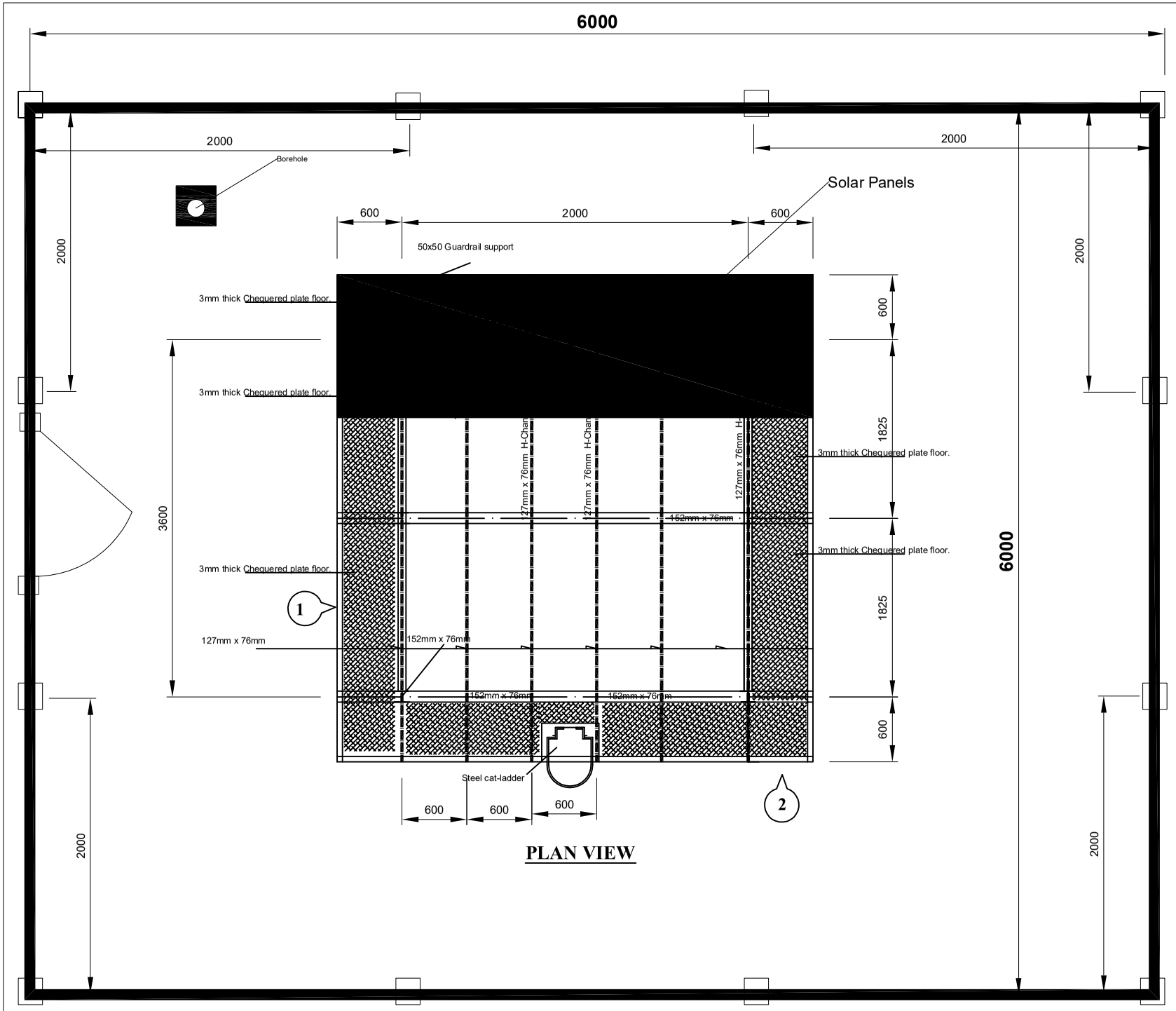

PLAN VIEW

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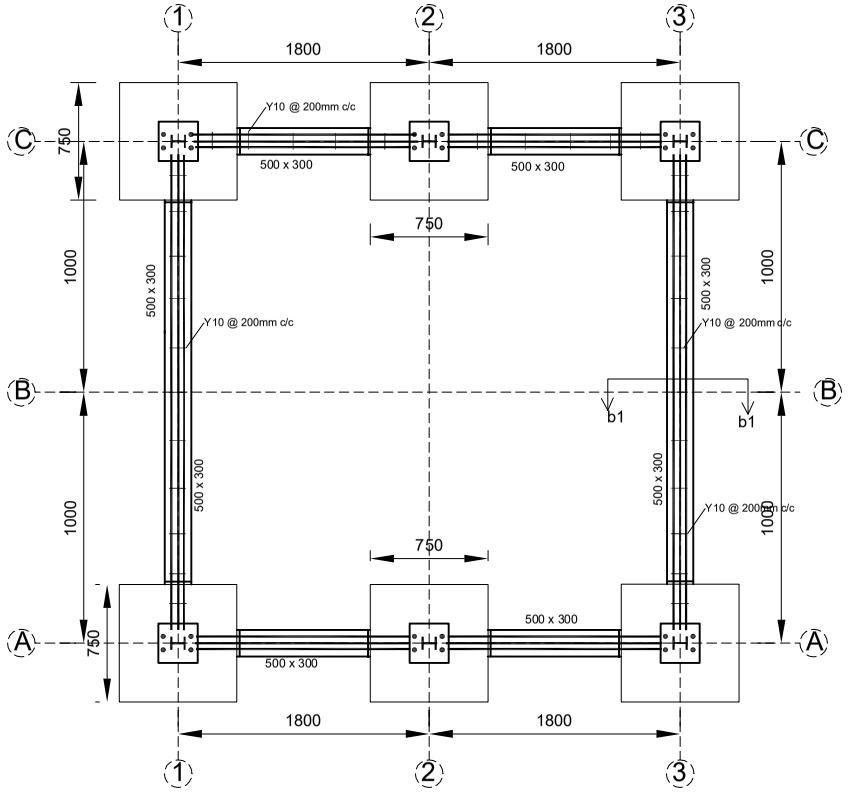
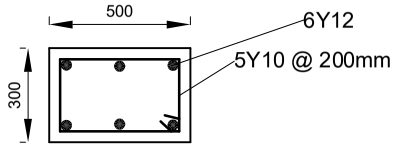
Foundation Details





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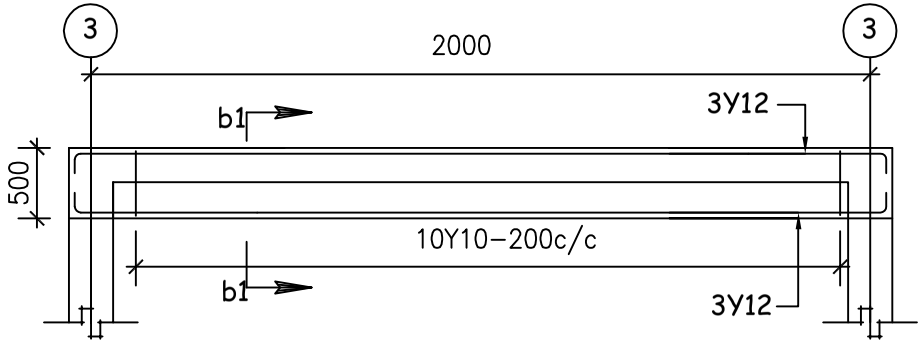

BEAM A–A

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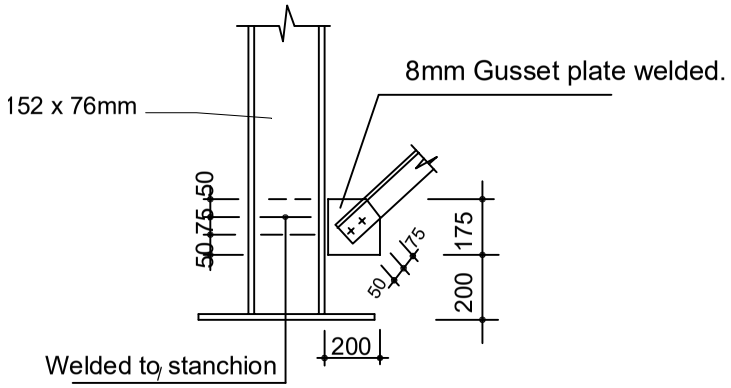
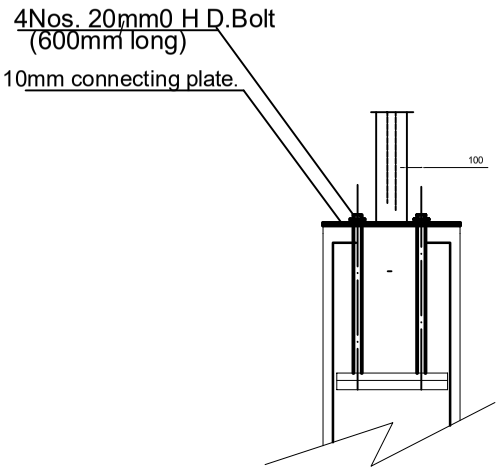
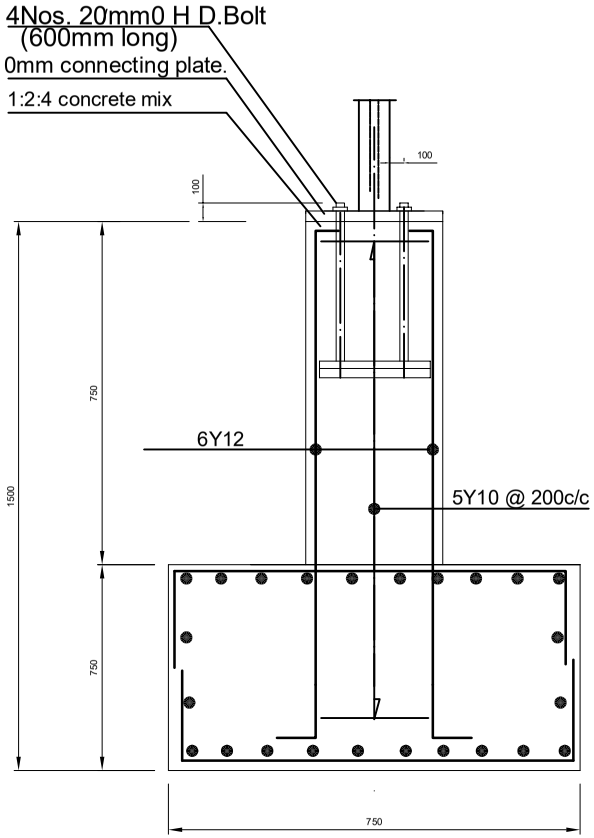
STANCHION CONNECTION DETAIL
(TYPICAL)





DETAIL A



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