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ट्रम्बे,
मुंबई-४०० ०८५,
TROMBAY,
MUMBAI-400 085.

GOVERNMENT OF INDIA
भाभा परमाणु अनुसंधान केन्द्र
BHABHA ATOMIC RESEARCH CENTRE

Chemical Engineering Group
Desalination & Membrane Technology Division

Ref: BARC/ChEG/DMTD/SAT/F&R- /2021

29th October 2021

Due Date: 26/11/2021
Time: 16:00 hrs

To,

Sub: Invitation to submit your quotation

On behalf of the President of India, **Head, Desalination and Membrane Technology Division, Chemical Engineering Group (ChEG)**, Bhabha Atomic Research Centre invites quotation in sealed envelope for the work given below as per the technical specifications enclosed in Annexure-1.

S. No.	Description of Job	Completion Period
1	Fabrication, pre-despatch inspection, supply, installation and commissioning of 2 units of 2 m ³ /hr RO based Salinity & Nitrate Removal Plant, in 2 villages in Chitradurga District, Karnataka, for deployment & on-field validation of BARC's RO technology, while providing safe drinking water to local villagers	6 months from the date of issue of work order

The terms and conditions are given below:

1. Qualifying Criteria for Bidders:

- 1.1. The bidder should be a BARC licensee on Membrane based Water purification technology with past experience of fabrication, installation and operation of community-scale water treatment plant.
2. The quotation envelope shall be superscripted with **Name of the Job**: "2 m³/hr RO based water treatment Plant, and the **Tender Enquiry Ref. No.** mentioned above along with **Due Date of the tender**.

3. **Printed Letter Head:** Quotation should be printed on the letter head; computer generated or scanned quotation are not valid.
4. **Validity of the Offer:** Validity of the offer shall be **90 days** from date of opening of quotation.
5. **Offer of Firm:** Offer of those bidders, who do not submit their quotation as per the details given in the technical specification, and incomplete quotations in any respect shall not be considered.
6. **GST/PAN Number:** Quotation must contain the GST and PAN number of the firm.
7. **Guarantee/Warrantee:** Bidder shall have to give guarantee/warrantee of the quality and workmanship of work done for the period of 12 months from the date of commissioning of the plant.
8. If any of the employee, consultant or partner of the bidder's company is an Ex-BARC employee, the same must be stated in the quotation clearly.
9. The complete quotation shall reach the following address on or before **26/11/2021**, by **only Indian Postal Service**.

**Head, Desalination and Membrane Technology Division,
Bhabha Atomic Research Centre
Trombay, Mumbai - 400 085
Attention: S A Tiwari (SO/F), DMTD
Tel: 25594706**

10. BARC reserves the right to accept any quotation or reject any or all quotations without assigning any reason.
11. The department reserves right to extend the date of opening the quotations.
12. **Criteria for Evaluation of Tender:** Work order will be awarded to technically suitable lowest bidder.
13. **Free Issue Material:** No free issue material is involved in this job
14. **Inspection Clause:** The work will be subjected to inspection by our engineers during fabrication at vendor's work place before final acceptance for supply. After installation & commissioning of the unit, Demonstration run of the plant with mentioned performance parameters is to be shown as indicated in technical specification document.

15. Transportation, Unloading, Erection and Commissioning

The RO water treatment plant duly inspected and cleared by departmental representative is to be supplied and installed in Chikkaullarthi village, in Doddauarthi gram Panchayat, & Bosedevarahatti village, in Nayakanahatti Town Panchayat, Chitradurga District, Karnataka in

safe condition, followed by commissioning. Packing, forwarding & unloading is part of the contract.

16. **Place of Delivery:** Safe transportation and unloading of material are included in the scope of work. Place of delivery for 1 unit is in Chikkaullarathi village, in Doddauillarathi gram Panchayat, & 1 unit in Bosedevarahatti village, in Nayakanahatti Town Panchayat, Chitradurga District, Karnataka
17. **Safety Rule:** The contractor shall follow all the safety procedures as per the normal industrial practice during the execution of the job at site. Any mishap occurring during the work due to unsafe workmanship shall be the contractor's liability.
18. **Job Completion period (Delivery Schedule):** The Plant duly inspected and tested is to be supplied installed & commissioned within 6 months from the date of work order.
19. The execution of the work is to be carried out up to the satisfaction of Departmental Engineers (BARC).
20. **Payment Terms:** Accounts Division, BARC, Mumbai-400085 shall make full and final payment only after submission of the satisfactory work completion certificate & site clearance certificate issued by competent authority of BARC, bill, advanced stamped receipt, delivery challan and guarantee certificate. No advance is admissible.
21. **GST Invoice:** GST shall be paid only in case of registered supplier clearly indicating their GSTIN on the invoice. Invoice raised by registered supplier of taxable goods/services should specifically indicate, along with other details
 - a. GSTIN
 - b. PAN
 - c. Location of supply
 - d. Tax component to be separately indicated in the invoice
 - e. An undertaking shall be submitted by the registered supplier that the GST has been promptly deposited with the authorities (as per the format given in Annexure 2).
22. **Income Tax Recovery Clause:** Income tax @ 2 % & GST TDS @ 2% will be deducted from the bill.
23. **Penalty:** Any delay, which is attributable to the contractor, is liable for penalty @ 0.5% per week (max. 10 %) and shall be imposed on contractor.
24. The contractor should ensure that the scrap generated at the work place during the course of the work execution should be carried safely to a designated place as instructed by Departmental EIC

in consultation with Gram Panchayat and the Plant site should be cleaned during handing over run.

25. Housekeeping at the work place during the course of the work is the sole responsibility of the contractor.

26. **Mode of payment:** Payment will be released through ECS, the party has to fill the ECS/RTG form and submit with the delivery challan and Bill/Tax Invoice.

27. **Confidential Clauses:**

i. Confidentiality: No party shall disclose any information to any third party concerning matters under this contract generally, In particular, any information identified as “Proprietary” in nature by the disclosing party shall be kept strictly confidential by the receiving party shall not be disclosed to any third party without the prior written consent of the original disclosing party. This clause shall apply to the sub-contractors, consultants, advisors, or the employees engaged by a party with equal force.

ii. “Restricted information” categories under Section 18 of the Atomic Energy Act, 1962 and “Official secrets” under section 5 of the of the Official Secret Act, 1923: Any contravention of the above mentioned provisions by any contractor, sub- contractor, consultant, advisor or the employee of a contractor will invite Penal consequences under the aforesaid legislation.

iii. Prohibition against use of BARC’s name without permission for any publicity purpose: The contractor or sub-contractor, consultant, advisor or the employees engaged by the contractor shall not use BARC’s name for any publicity purpose through any media like press, TV or internet, without the prior written approval of BARC.

28. **Security Rules:**

a) Police verification certificates are required for supervisors and labourers deployed at the site.

b) Security rules and transport rules at BARC, Trombay premises shall be strictly followed.

c) Labourers below 18 years of age shall be not allowed to work at site.

29. **Bid Security Declaration:** Bid Security Declaration on bidders letter head is to be submitted along with the bid. Tenders not accompanied with Bid Security Declaration are liable for rejection. If the bidder withdraws or modify their bid during the period of validity, the bidder will be suspended from bidding in any BARC NIT, for a period of 1 year from the date of with-drawl / modification.

Thanking you,

Yours faithfully,



S A Tiwari
SO/F, DMTD

Technical Specification for 2 Units of 2000 LPH (2 m³/hr) capacity RO based water Treatment Plant, for Chitradurga District, Karnataka.

1. Scope of Work

Setting up of a community scale, 2 units of 2000 liters per hour (LPH) RO based water treatment plant, consisting of Multi Media Filter, (MMF)/ PSF-ACF, Micron cartridge filter (MCF), High pressure pump, Reverse Osmosis membrane element module (BWRO–BARC), Chemical dosing units complete, in 2 villages namely Chikkaullarthi village, in Doddauarthi gram Panchayat, & Bosedevarahatti village, in Nayakanahatti Town Panchayat, Chitradurga District, Karnataka, for deployment & on-field validation of BARC's RO technology, while providing safe drinking water to local villagers.

The work includes fabrication of the RO plant with supply of items, pre-despatch inspection, installation, testing, commissioning and handing over of the RO plant at site. Civil base platform /foundation and shelter house, as per annexed drawings, to position the plant equipment and machineries are also part of the scope of work. Commissioning consumables are included. Plant O&M beyond one week of handing over is excluded, however, one-year warranty with four sets of micron cartridge elements for each CFs and chemicals (antiscalant & pH adjustment –10 kgs each) are part of the scope.

2. Location

Site: Chikkaullarthi village, in Doddauarthi gram Panchayat, & Bosedevarahatti village, in Nayakanahatti Town Panchayat, Chitradurga District, Karnataka, .

3. Feed water Characteristics (Bore Well Water)

Sr. No.	Parameters	Value
1	Appearance	Colourless
2	pH	8.2
3	TDS (ppm)	1250
4	Nitrate (ppm)	180
5	Fluoride (ppm)	1.8

4. Treatment process

The feed water will be provided from the sourced bore-well near the plant and will be stored in the raw water storage tank. The feed pump will deliver the feed water at a pressure of 2.5 kg/cm² to the Multi Media Filter/ PSF+ACF, then through Micron cartridge filter for removal of particulate solids and any colour/odour from the raw feed water as a part of pre-treatment of feed water. Chemical conditioning of water will be done by dosing of anti-scalant chemical before the micron filter. The treated water will then be pumped through a high pressure pump to RO module where Reverse Osmosis membrane element from BARC licensees will be used to desalinate the feed water and provide product as well as reject water. The product water will be taken for further post treatment for pH adjustment, duly blended with treated water for desired

final product TDS. The product water will be stored in Product water tank (interim storage) from where it will be pumped to Overhead Storage Tank. The Reject water which is high in salinity content and not potable will be diverted for non-potable use, also through activated alumina chamber and activated carbon block, to the soak pit.

Item wise specifications for one unit of RO desalination plant are mentioned under the scope of supply table.

5. Guaranteed Product Water Quality & Quantity:

Output Water Quality: IS 10500: 2012

Salinity (TDS): Less than 500 ppm

Nitrate: Less than 40 ppm

Product water Output: 2000 litres per hour

6. Scope of Supply for 1 unit.

SI No	DESCRIPTION	QTY
6.1	RAW WATER STORAGE TANK (with side mounted acrylic level gauge indicator & isolation valves- 2 nos. and bottom drain valve-1) MOC: HDPE Capacity: 5000 Liters Tank bottom valve – 1-inch size, with required fittings. Note: Taking pipeline tapping arrangement from Bore-well source with valve provisions are within the scope of contract. Max. pipe length of 20 m is to be considered.	1 No.
6.2	RAW WATERPUMP-SET (coupled with motor)	1 No
	Capacity : 4000 LPH Head : 25 m WC Wetted part MOC : SS 304 Suction : Flooded and Positive Make : Grundfos / Kirloskar/CRI	
6.3	MULTI MEDIA FILTER (MMF) , alternatively PSF+ACF	1No
	M.O.C : FRP (150 psi rating) Media : Pebbles +Sand + activated carbon Flow : 4000 LPH Operating Pressure : 2.5 kg /cm ²	
6.4	PREFILTER- A (CF)	1 Set
	Type: Micron Cartridge Filter Housing MOC: PP Cartridge Type: PP wound Degree of Filtration:10 micron Pressure of Operation:2.5 kg /cm ²	
6.5	PREFILTER- B (CF)	1Set

	Type: Micron Cartridge Filter Housing MOC: PP Cartridge Type: PP Wound Degree of Filtration: 5 micron Pressure of Operation: 2.5 kg/cm ²	
6.6	R.O HIGH PRESSURE PUMP-SET (coupled with motor, 3phase)	1No.
	Type : Multi-Stage centrifugal pump Capacity : 4000 LPH Head : 150 meter WC MOC of wetted parts : SS316 Make : Grundfos	
6.7	R.O SPIRAL MEMBRANE ELEMENT (BARC) & RO STRUCTURAL SKID	
	Type : 4" dia x 40" long spiral wound Make : BARC Technology License	8 nos.
	Membrane Configuration : 4 No's x 2 – Element; Accordingly, there will be 2 nos of 4-element RO Pressure Vessel. RO system recovery: 50- 60 %	
	RO skid (MOC: SS304, Frame to be made using section 50 x 50 x 1 mm sq. pipe) to hold RO pressure vessels loaded with membranes, HP pump and other components.	1 no
6.8	RO PRESSURE VESSEL (4 –element pressure vessel)	2 nos
	Type : FRP Rating : 300 PSI Make : Codeline	
6.9	Flow Meter type: Rotameter for Feed Water & Permeate Make: Flowpoint / UKL/ Eqvt MOC: PP /Acrylic	2 nos.
6.10	PRESSURE GAUGE(S) : each pump discharge, Filter inlet & outlet, Feed Pressure, Concentrate Pressure etc as per P&I D. Make : Wika (Glycerin Filled for High Pressure, range 0-25 kg/cm ² , Qty – 2 nos), Low pressure gauges range 0-5 kg/cm ² MOC: SS316	10 nos.
6.11	LEVEL SWITCHES Location: Raw Water & Product Water Storage Tank LL & HL both, at Two tanks Make: Pune Techtrol/ Eqvt.	2 Nos
6.12	PRESSURE SWITCHES : Low Pressure switch in HP pump suction & High pressure switch in HP pump discharge Make Type : Baumer/Wika/Danfoss/ Eqvt : Electrical operated/solenoid	2 nos.
6.13	TDS/conductivity meter for feed & Product water	2 nos.

6.14	PRETREATMENT SKID Skid frame of SS 304, to hold all the Equipment, pumps along with piping and instruments	1No
6.15	INTER-CONNECTING PIPINGS High Pressure pipes : 1 inch size, SS304, Sch 40 Low pressure pipes : 1 inch size, UPVC/CPVC, Heavy duty Pipe Fittings & Flanges, Nuts, bolts, washer, gasket – 1 lot complete as required for high pressure and low pressure lines. Provision for sampling points with valves – 3 places (Raw feed, Treated water-RO feed and RO Product) Piping: Every pump should have recirculation/ by-pass line to the respective feed tank, with valve arrangements.	1 Lot
6.16	Valve: Ball Valve, UPVC Valves Throttling valve for RO reject- 1-inch size, SS304	1 Lot
6.17	ANTISCALANT DOSING PUMP-SET with agitator & side mounted level gauge Type : Diaphragm, Motor Driven Flow : 0-10 LPH Pressure : 5 kg/cm ² Tank MOC : FRP Tank Capacity : 100 litres Suction Strainer and Delivery with Injection & NRV, Delivery hose	1No.
6.18	POST pH DOSING PUMP-SET with agitator & side mounted level gauge Type : Diaphragm, Motor Driven Flow : 0-10 LPH Pressure : 5 kg/cm ² Tank MOC : FRP Tank Capacity : 100 litres Suction with Strainer and Delivery with Injection & NRV Delivery hose.	1No.
6.19	PRODUCT WATER STORAGE TANK with cover & 1-inch ball drain valve (SS fittings). MOC: SS304; Capacity: 2000 Liters, thickness: 1 mm Dispensation arrangement of RO permeate from Product water tank	1 No
6.20	RO CIP SYSTEM Tank MOC: HDPE Capacity: 200 litres CIP-MICRON FILTER Type: PP Wound Cartridge Micron Filter: 5 Micron Housing: PP Housing CIP PUMP-SET: 1 no (2000 LPH, 30m WC, MOC: SS304)	1Set

6.23	PRODUCT TRANSFER PUMP-SET (coupled with motor) Capacity :2000LPH Head:20 m WC Wetted part MOC: SS 304 Suction: Flooded and Positive Make: Grundfos/Kirloskar/CRI	1No
6.24	REJECT WATER STORAGE TANK (with side mounted acrylic level gauge & isolation valves- 2 nos and bottom drain valve) MOC: HDPE Capacity:1000 Liters Tank bottom valve – 1 inch size, with required fittings.	1 No
6.25	ELECTRICAL PANLE FOR RO PLANT with interlocks, alarm/annunciation. Panel indicator, LP/HP indicator, Pump ON-OFF- TRIP Rotary ON-OFF Switch, MCBs, Contactors, emergency shutdown option, Overload Relays and Inter connecting wires, protections and safety provisions, incomer main switch etc. Interlocks of tank levels with pump, PS interlocks etc.	1 Set.
6.26	Civil base platform/ foundation: As per Architectural drawing attached The Plant base (typical) SIZE 8 mts X 6 mts is to be raised 1.5-2 ft above the surrounding level with required ground clearing/improvement, PCC (4-5 inch thick, 1:2:4) followed by RCC floor of required loading suiting to plant equipment weights. All around periphery brick wall boundary of 6ft high (2'-6" in Rough cast plaster & 3'-6" in plain surface for slogan and drawing) above the base platform is to be provided with MS duly painted plant entry gate (7ft x 5ft, in two door forms) and steps/ramp to the plant base platform. Both sides of the boundary walls are to be painted suitably with water related slogans, design/art work/ plant title tag and BARC logo, MS access gate-1 no. on boundary wall and Steps/ramp to the plant footings are to be provided. Raised Base foundations/pedestals for Raw water feed tank and Reject tank.	Job
6.27	Plant Shelter house: As per Architectural drawing attached. The plant should be housed inside a Shelter Room as required having necessary lighting facility (4 nos. of tub lights, 4 LED bulbs on four sides of shelter house + 2 LED bulbs on entry gate, 2 plug points), 1 no of ceiling fan, 2 nos. of windows with exhaust fan & bird cover, ventilation area with entry door of appropriate size and net flooring with water proofing admixture. Roof of the structure should be of GI corrugated sheet having a Pyramid structure roof, with a transparent polycarbonate sheet on northern side of the pyramid Painting of walls should be with acrylic smooth exterior paint of	Job

	<p>required shade of approved brand Asian paints, Nerolac with two or more coats applied over and including base coat waterproofing of cement paint applied complete. Wall painting with plastic emulsion paint (two or more coats) of required colour of approved brand Asian paint, Nerolac to give an even shade.</p> <p>The shelter room should have BARC logo and various water slogans written on it as per BARC requirements. The external walls of building should be having with artistic drawings to increase the aesthetic of the building. Total are work surface area 2 sq. mt. for Shelter room (inside wall) & 5 Sq. mt on outside wall. Water slogans will be provided at the time of site execution, prior to plant inauguration.</p>	
6.28	Tap Bank: A Tap bank (5 ft x 4 ft) with tiling is to be provided outside the shelter room with proper drain line. Manual dispensing of product water from product storage tank through taps (4 nos) with SS -304 grade (railway type).	1 No
6.29	Reject Treatment and Soak pit Reject vessel of suitable dimension with media of activated alumina and carbon block to be constructed as Soak pit.	1 lot
6.30	Operator Desk (T-9 wooden/steel table with 1 side three drawers, 1 office chair + 2 plastic chairs).	1 lot

7. Reference Drawings

Title : GA Layout of RO water treatment plant

Drawing No. : DMTD/SAT/RO-CK/01

Title: P & I Diagram of RO plant

Drawing No. : DMTD/SAT/RO-CK/02

Title: Architectural drawings (4 Nos.).

Drawings annexed are for tender purpose, prepared with a view to give an idea of extent of work in contractor's scope. Detailed fabrication drawing shall be made after placement of work order.

8. Power Supply

During erection & commissioning at site, power supply from local electricity board will be provided at one point upto Energy meter. Distribution Junction box & Switch board with MCBs are to be included within the scope work. Electrical cabling, electrical connection up to individual motor/s, Panels, panel indicators and instruments will be in contractor's scope.

9. Feed Water Supply

Feed water to water treatment plant will be sourced form a borewell near the plant (bore well system is not in the scope of contractor). However, piping@ max 20 meters, 40 NB/50 NB

UPVC/CPVC from the borewell pump to feed tank, provision of valves and associated pipe supports/ burial, as required, are in contractor's scope.

10. **Reject Management**

Reject vessel of suitable dimension with media of activated alumina and carbon block to be constructed as Soak pit for the reject water. Discharge piping beyond soak pit is excluded.

11. **Inspection & Testing**

All works covered & systems specified in this document shall be subjected to quality surveillance by BARC as per the latest version of relevant IS code. Inspection and tests shall be carried out as per following.

A. Factory Acceptance Tests (Integrated Skid)

Pumps

Review of Material test certificate for major parts & Performance tests certificate.

Tanks

- 1) Dimensional check-up and nozzle orientation
- 2) Water fill test.

Pipes/pipe segments & fittings

1. Review of Material test certificate for pipes & fittings
2. Hydro test for pipes & fittings shall be carried out in assembled condition of the integrated plant.

Instruments

1. Review of Material test certificate & Calibration test certificate.
2. Review of Guarantee/ warranty certificate.

B. Site Acceptance Tests

1. Installation should follow standard safe engineering & Industrial practices.
2. Performance demonstration of plant (leak tight system, Water quality in purified drinking water, functional test for all instruments & system performance) for a cumulative operation of 24 hours.

12. **Documents**

Maintenance and operation manual for bought out items are to be submitted along with the supply.

14. **Packing**

The Equipment are to be drained completely after satisfactory pre dispatch inspection performance test and all openings should be properly closed or sealed before dispatch to site.

15. **Domain of the System**

Starting point	(i) Pipe connection from borewell pumps discharge (Borewell pump out of scope) max 20 mtrs. (ii) Power Supply to the control panel
Termination point	(i) Piping from product transfer pump to Overhead product water tank max 10 mtrs. (ii) Piping from Reject water soak pit

	(iii) Termination of various drains & chemical cleaning water from the plant to nearest main drain line/ pit (max 10 mtrs).
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16. **Guarantee Period**

The individual equipment/sub-system and the whole system should be guaranteed by the contractor for trouble-free & satisfactory operation for a minimum period 12 months from the date of handing over of the plant. Any cause of non-performance of any equipment/sub-system/system during the guarantee period should be identified and rectified including free replacement of parts, if any; by the vendor to the satisfaction of the BARC and in case of unreasonable delay (more than 15 days), delay period will be added to the remaining period of the guarantee.

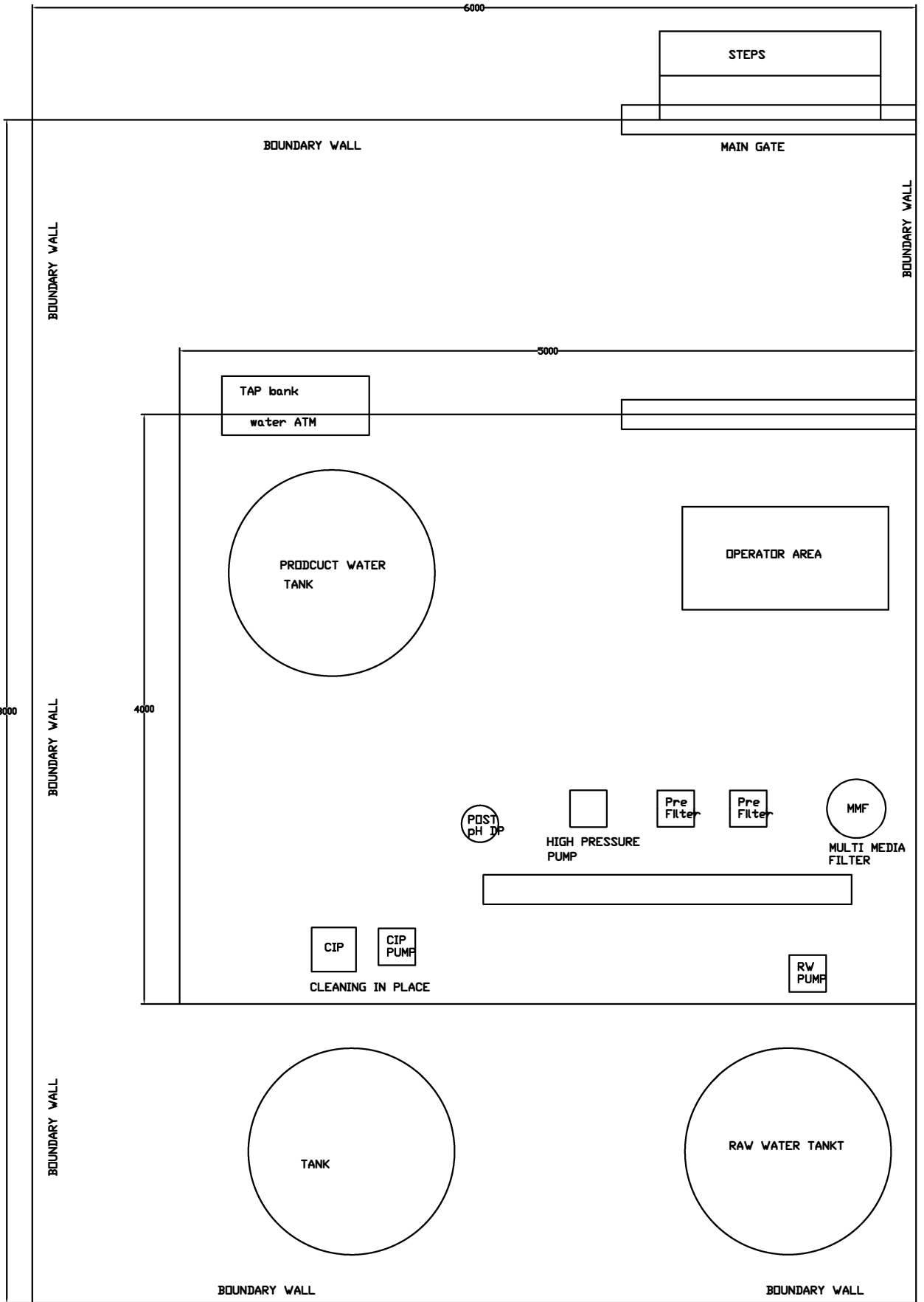
17. **Desired Completion Period**

Six months from the date of work order.

18. **Notes**

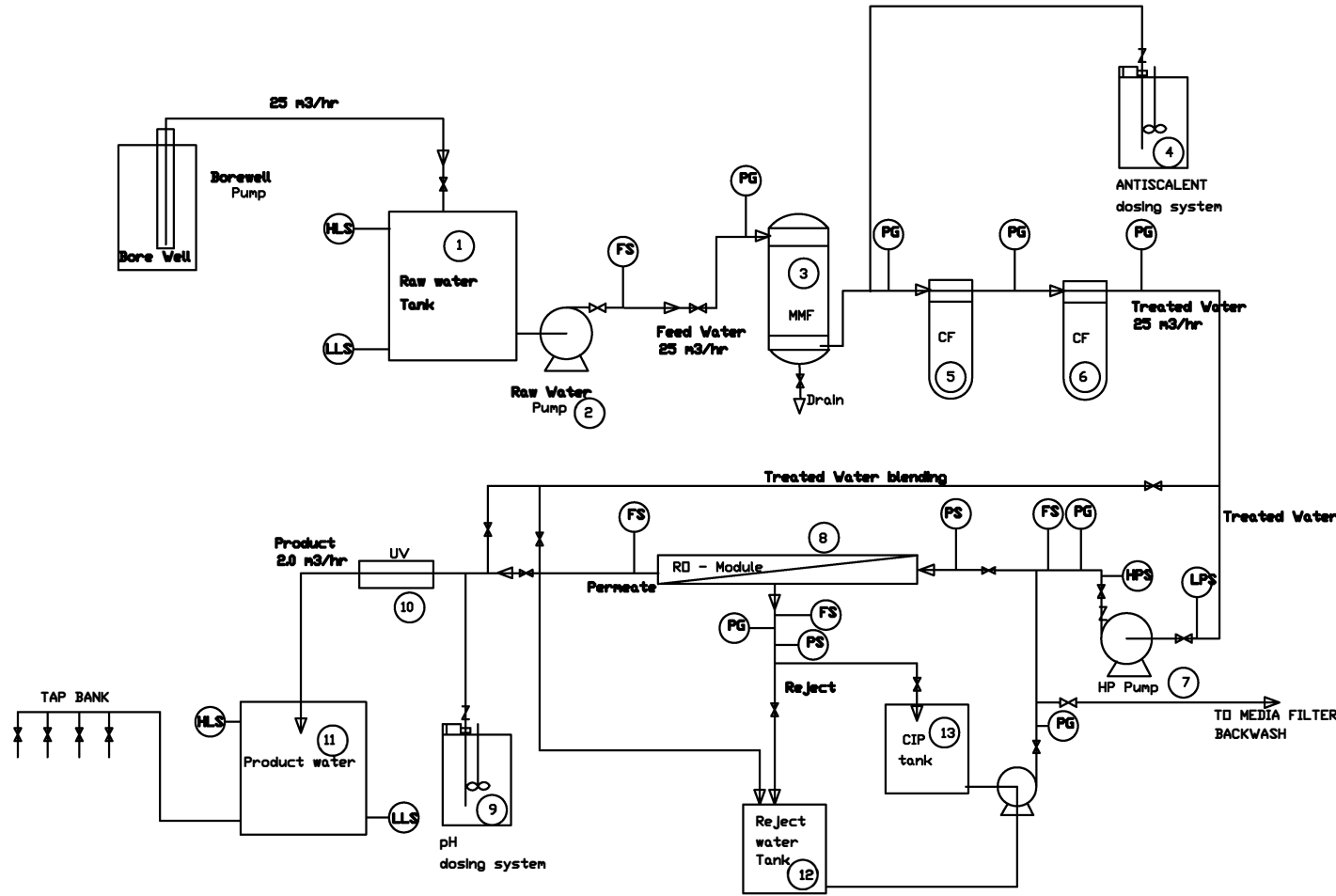
- a) All requirements inclusive of manpower with respect to unloading of equipment/materials/ Unit, erection and installation at site will be arranged by the contractor.
- b) Commissioning of the plant is the sole responsibility of the contractor.
- c) Electrical connection of the electrical panel from the electrical source provided at site is the responsibility of the contractor.
- d) Any cost regarding boarding, lodging & movement/transport of contractor personnel's during installation and commissioning phase at project site are to be borne by the contractor.
- e) 1st lot of consumable chemicals – 10 kgs each and micron cartridge elements – 4 sets for each CFs are to be provided along with the supply and included in the contract.
- f) Miscellaneous site expenses including Plant Title plate, art work Logos of BARC & contractor, Bhoomi puja, plant inauguration, etc are to be included.

(S A Tiwari)



TITLE: GA LAYOUT OF RO WATER
 TREATMENT PLANT
 DRG NO. DMTD/SAT/RO- CK/01

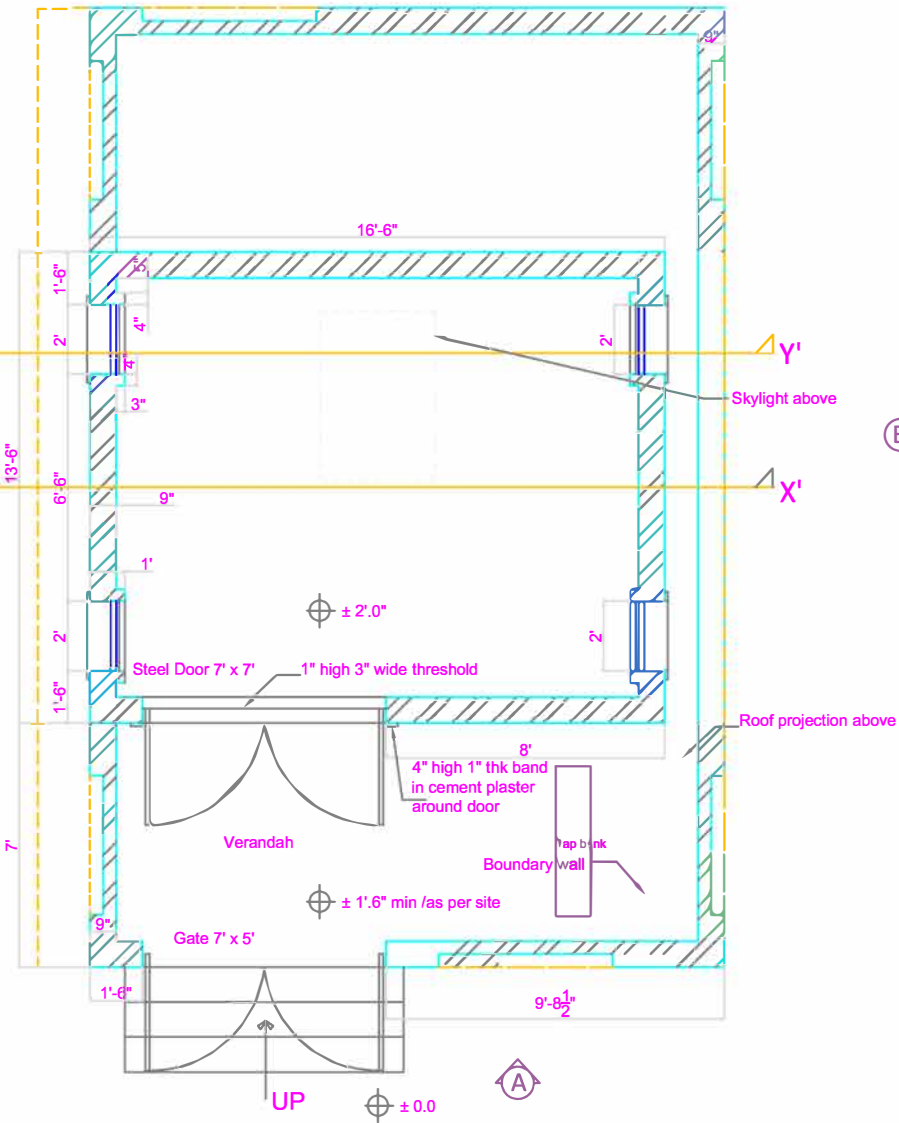
Eqpt no.	Description	Capacity/ Size
1	Raw water tank	2 cum,
2	Raw water pump	4 m ³ /hr @ 2.5 Kg/cm ²
3	Multi Media Filter	Pebbles, Sand, Carbon
4	Antiscalent dosing unit	0-10 lph 100 L Tank
5	Prefilter A	PP Cart DOF10 Micron
6	Pre Filter B	PP Cart DOF5 Micron
7	High Pressure Pump	4 m ³ /hr @ 15 kg/cm ²
8	RO Membrane Skid	SS Sq pipe Sch 40
9	Post pH Dosing	0-10 lph 100 L Tank
10	UV Unit	1 no.
11	Product water Tank	2 cu. m.
12	Reject Water Tank	1000 Lts
13	CIP	200 L Tank



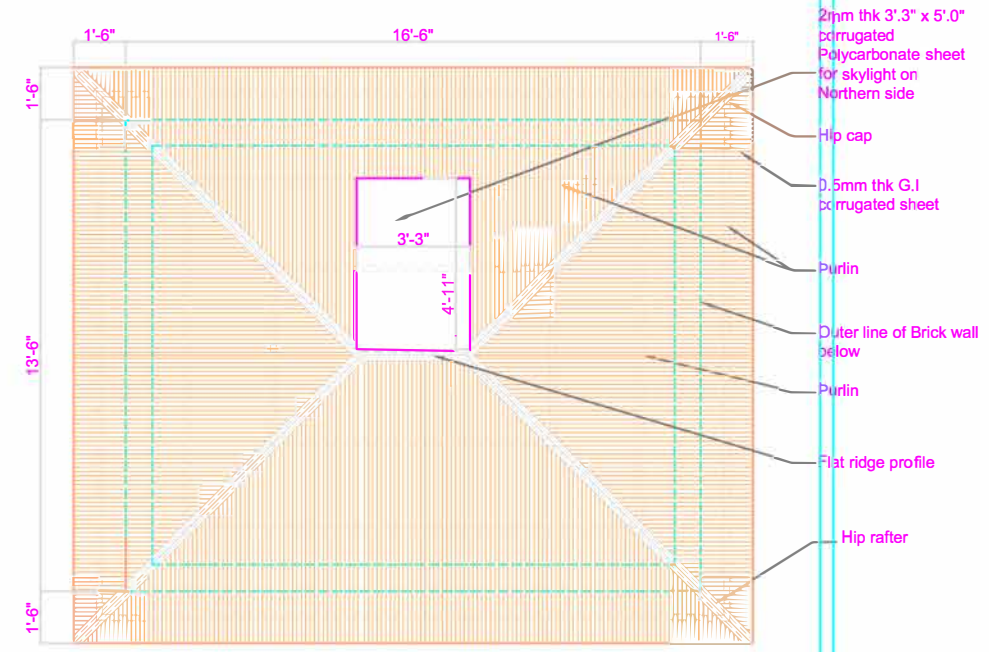
Legend	Description
PG	Pressure Gauge
LPS	Low pressure Switch
HPS	High Pressure Switch

Legend	Description
PS	Pressure Sensor
FS	Flow Sensor
LS	Level Switch

GOVT. OF INDIA
DEPT. OF ATOMIC ENERGY
BHABHA ATOMIC RESEARCH CENTRE
DESIGNATION DIVISION
Title: P&I Diagram of RO Plant
DRG.NO:DMTD/S&T/RO-CK/02



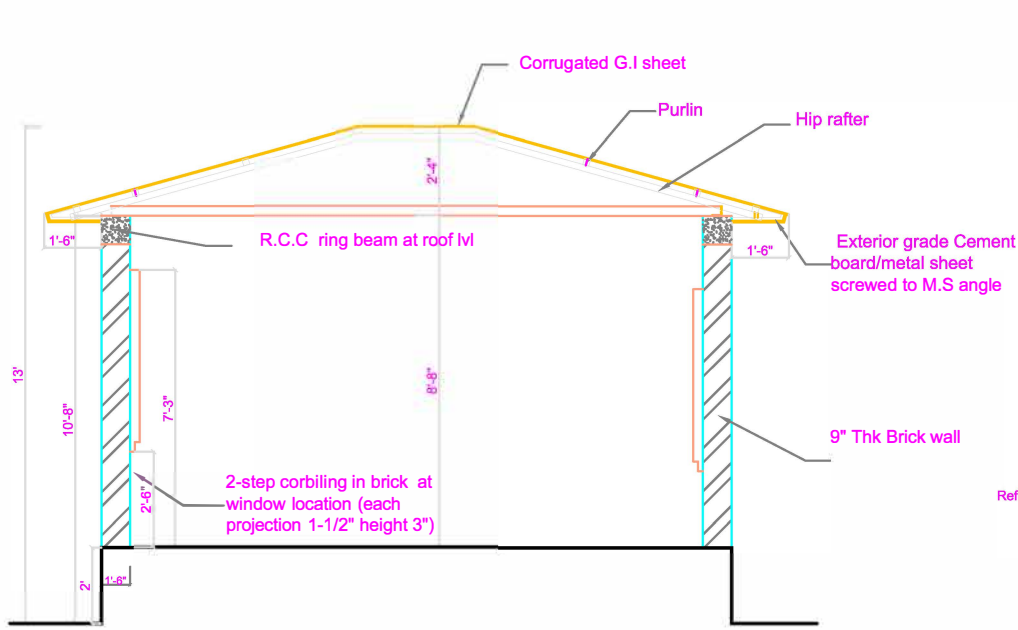
Ground Floor Plan



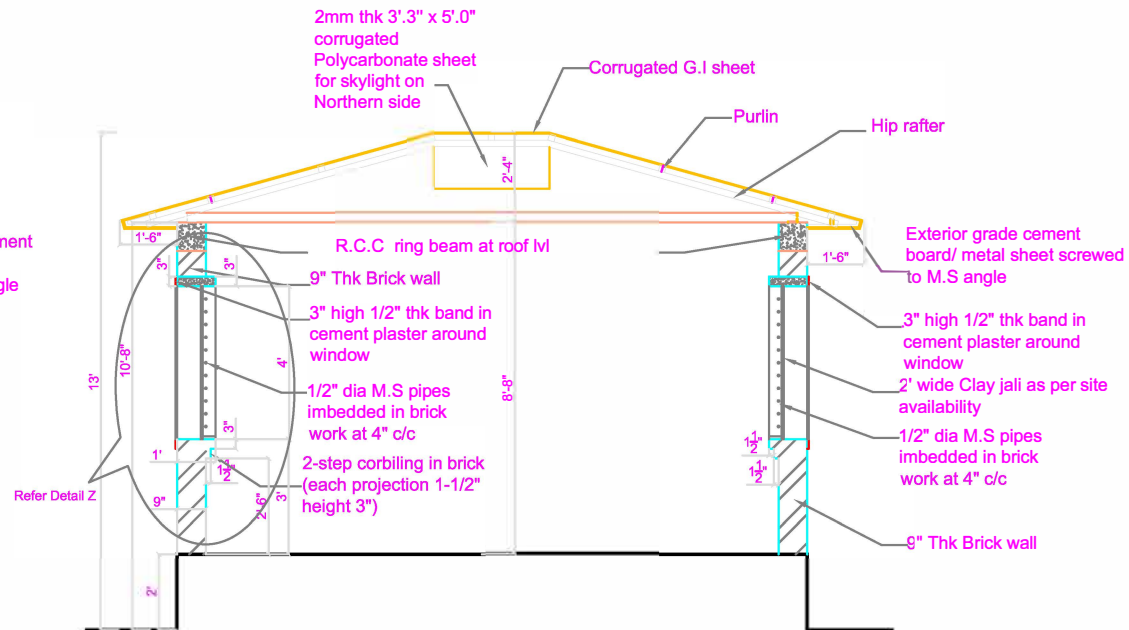
Terrace Floor Plan

Option - 1 for skylight

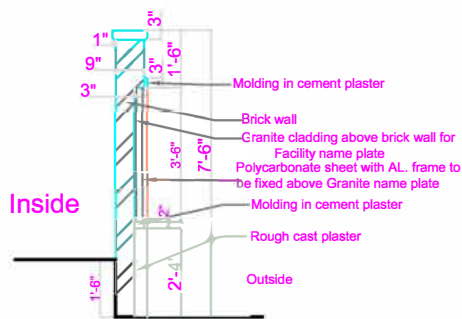
SR NO.	DATE	DESCRIPTION	SIGN
Vivek Bhardwaj DRAWN BY		BHABHA ATOMIC RESEARCH CENTRE ENGINEERING SERVICES GROUP	AR
Vivek Bhardwaj ARCHITECT		PROJECT: Prototype structure for RO water treatment plant	
		SCALE: N.T.S.	TITLE: Floor Plans
		DATE OF APPROVAL: 23/03/2021	
T.E. Ghosh CHIEF ARCHITECT		ORG. NO: A&SED/AR/ /O /CD/A3-001/R-1	SHEET: 1 of 4



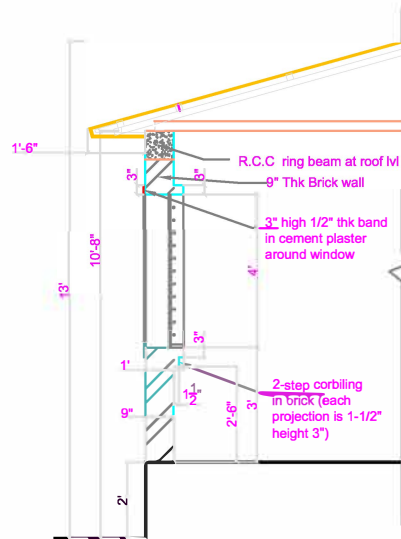
Section XX'



Section YY'

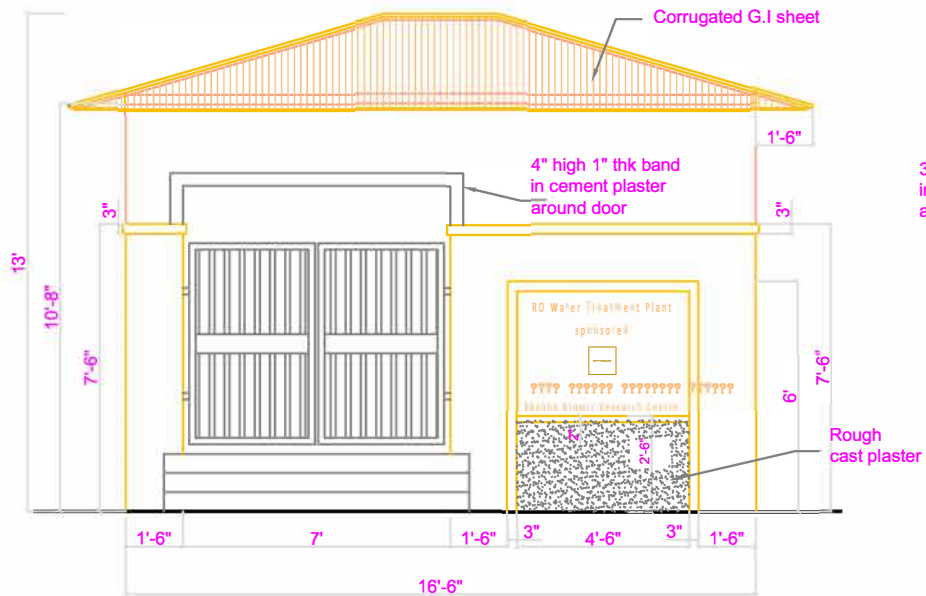


Typical section through compound wall

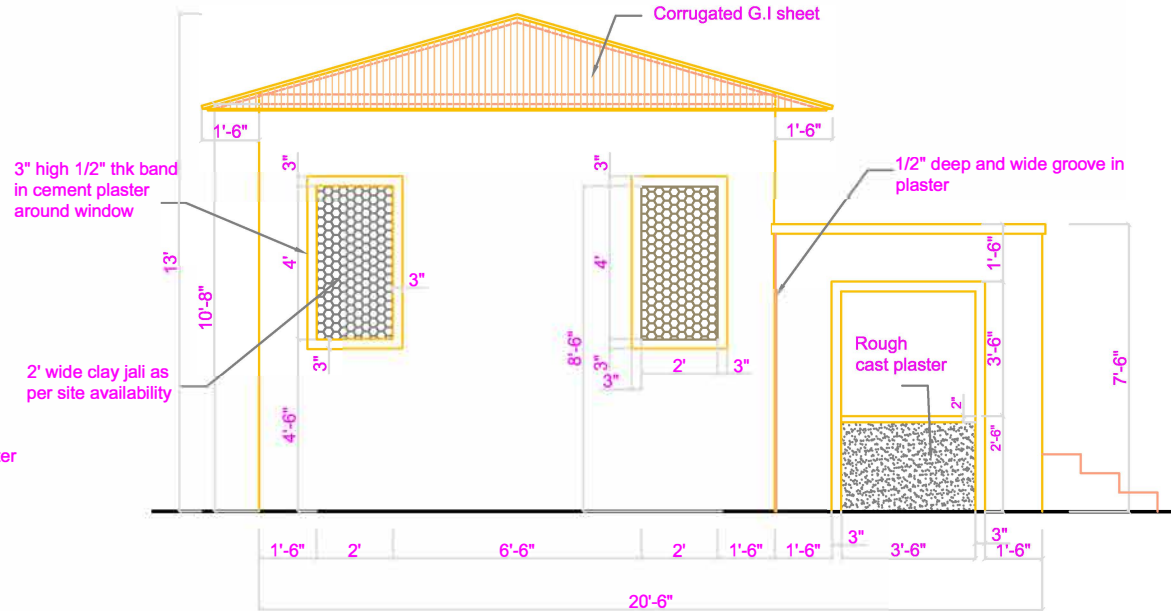


Detail Z

SR. NO.	DATE	DESCRIPTION	SIGN.
Vivek Bhardwaj DEALT BY		BHABHA ATOMIC RESEARCH CENTRE ENGINEERING SERVICES GROUP	AR
Vivek Bhardwaj ARCHITECT		PROJECT Prototype structure for RO WTP	TITLE Section and Detail
T.K Ghosh CHIEF ARCHITECT	23/02/2021	SCALE N.T.S.	DATE OF APPROVAL
DRG. No.	A&SED/AR/ /0 /CD/A3-001/R-1	SHEET	4 OF 4

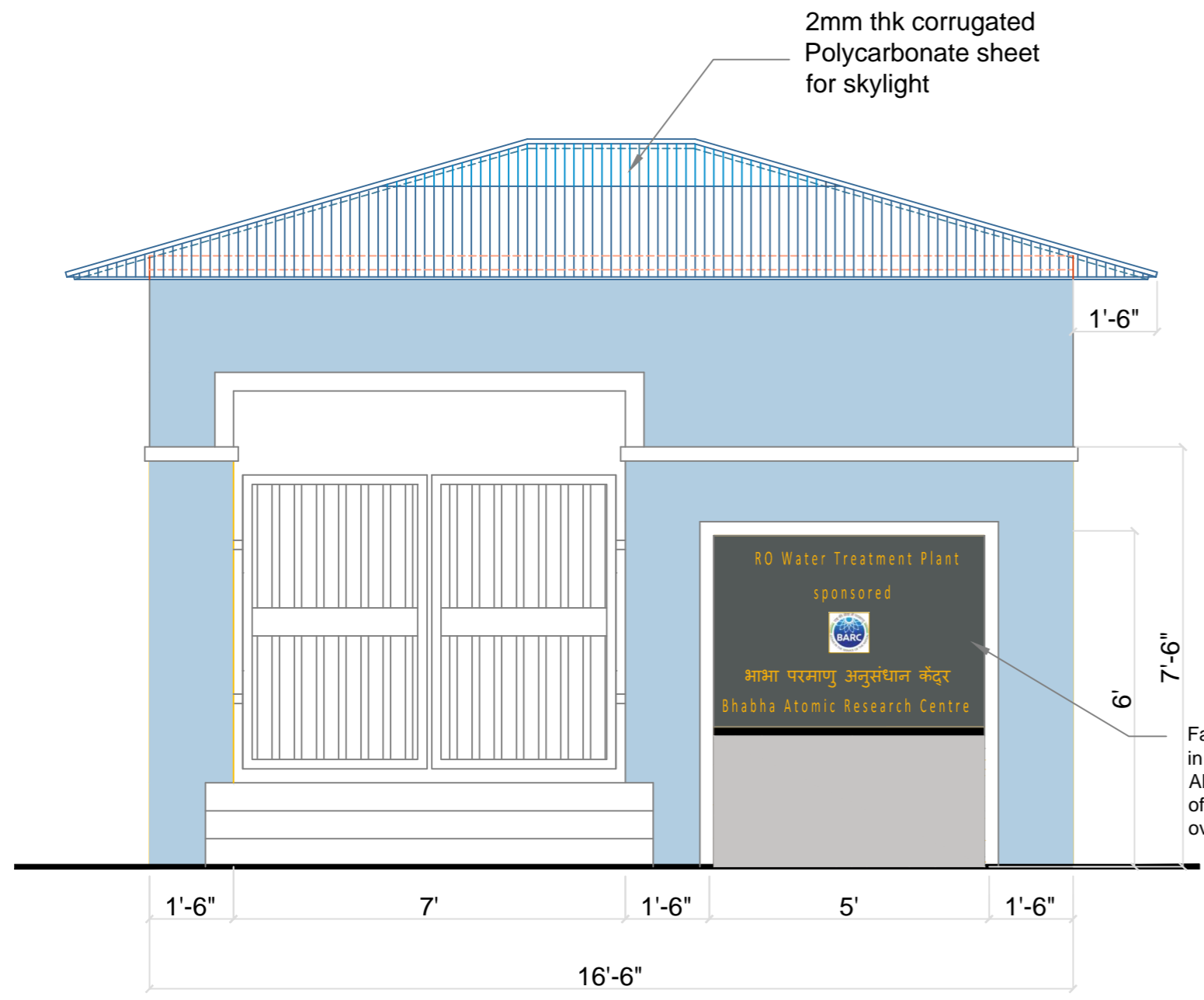


Front Elevation-A

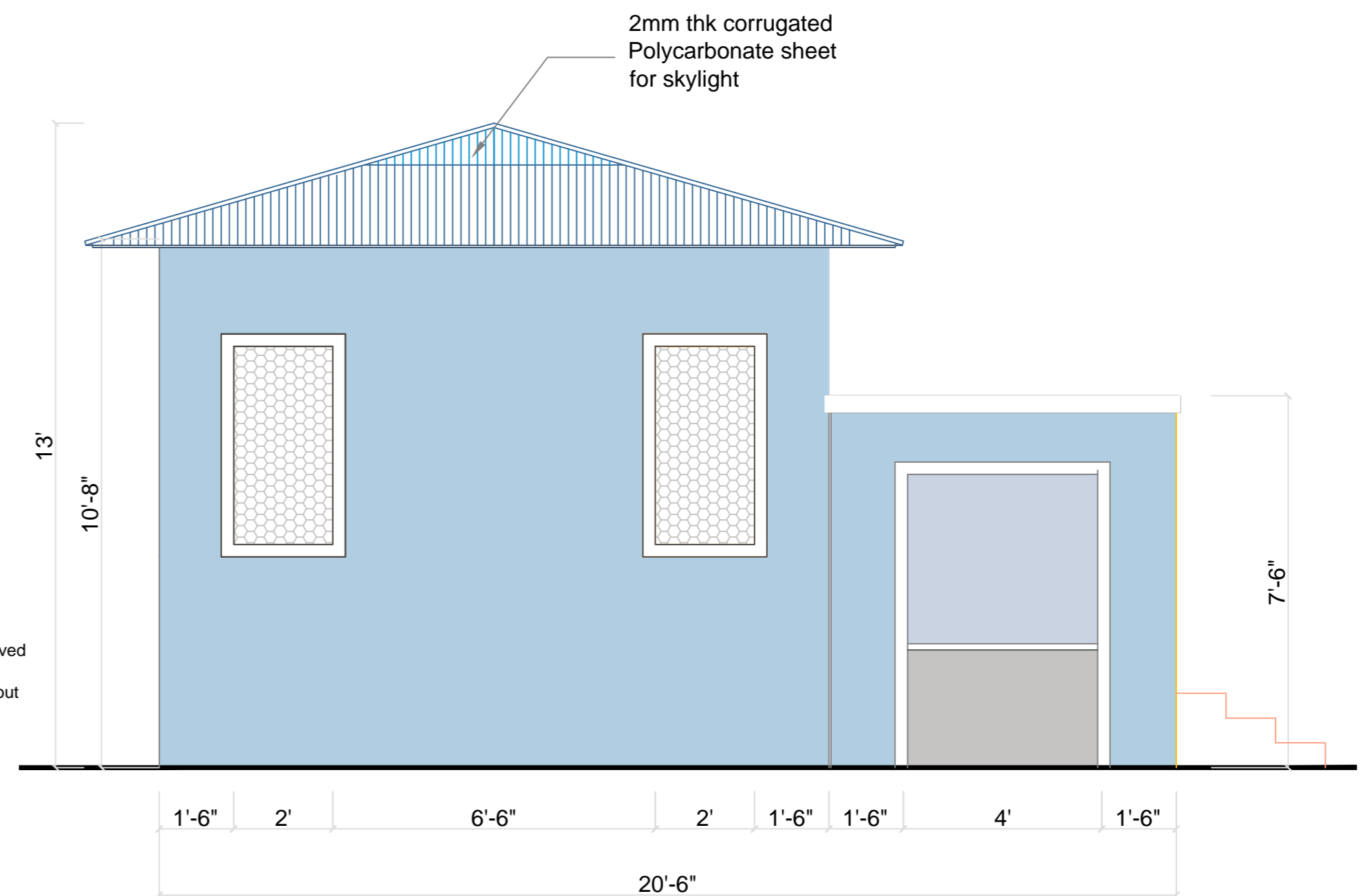


Side Elevation-B

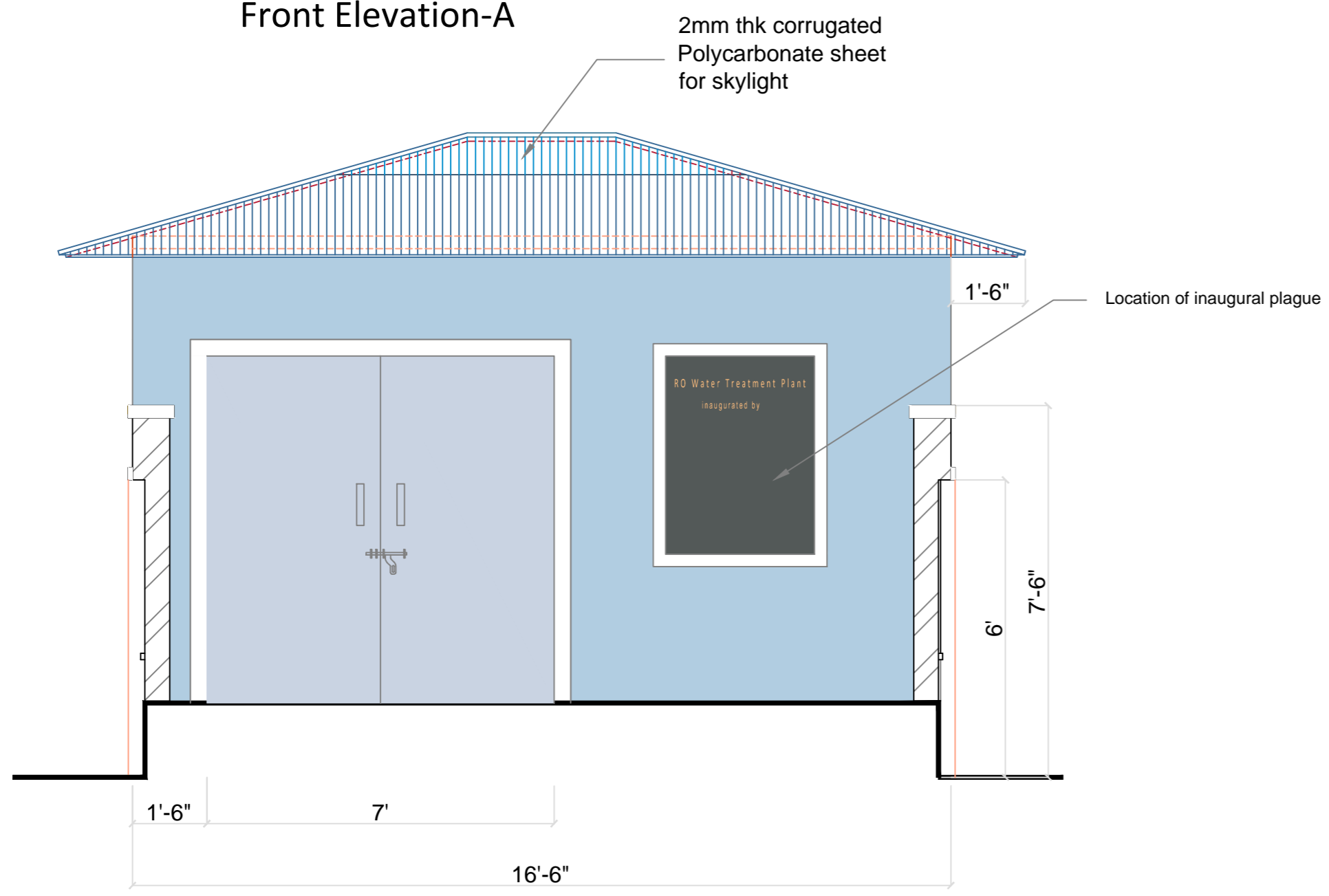
SR. NO.	DATE	DESCRIPTION	SIGN.
Vivek Bhardwaj DEALT BY		BHABHA ATOMIC RESEARCH CENTRE ENGINEERING SERVICES GROUP	AR
Vivek Bhardwaj ARCHITECT		PROJECT Prototype structure for RO WTP	TITLE Elevation
T.K Ghosh CHIEF ARCHITECT	23/02/2021	SCALE N.T.S.	DRG. No. A&SED/AR/ /0 /CD/A3-001/R-1
			SHEET 2 OF 4



Front Elevation-A



Side Elevation-B



Elevation-A (from front Verandah)

Facility name, BARC may be engraved in Stone
 Alternate -2 : letters can be made out of wrought iron and screwed at site over textured paint

Note:

Alternate -1: Facility name, BARC name and logo may be engraved in Stone
 Alternate -2 : letters can be made out of wrought iron and screwed at site over textured paint. BARC Logo may be made of S.S

SR.NO.	DATE	DESCRIPTION	SIGN.
		BHABHA ATOMIC RESEARCH CENTRE ENGINEERING SERVICES GROUP	AR
Vivek Bhardwaj DEALT BY		PROJECT Prototype structure for RO water treatment plant	
Vivek Bhardwaj ARCHITECT		SCALE N.T.S.	TITLE :- Elevation with colour scheme
T.K Ghosh CHIEF ARCHITECT		DATE OF APPROVAL 23/02/2021	
		DRG. No. A&SED/AR/ /0 /CD/A3-001/R-1	SHEET 3 OF 4

Form of Bid-Security Declaration

Date: (insert date (as day, month and year)
Bid No. : (ADB/ITB/.....)

To :

I/We understand this Bid Security Declaration is in lieu of Bid Security (Earnest Money Deposit) and I/We accept that if the bids are withdrawn or modified during the period of the validity, I/We will be suspended for the time specified in the NIT.

Signature :

Name: (insert complete name of person signing the Bid Security Declaration)

Dated on _____ day of _____, _____ (insert date of signing)

Seal