



**TENDER DOCUMENT FOR
WASTEWATER TREATMENT PLANT
AT BCGVL, GUINDY
DOCUMENT No. NPI / 110729 / WTP / TD / 08**

REVISION NO. 05

AUGUST 2013

**PROJECT:
REVIVAL OF BCG VACCINES FACILITY
AT
GUINDY, CHENNAI
(PROJECT No. 110729)**




Project:		TENDER DOCUMENT FOR WASTEWATER TREATMENT PLANT AT BCGVL, GUINDY	Revision: 05
Project No.:	110729	DOCUMENT NO. NPI/110729/WTP/TD/08	Date: 26.08.2013

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CHAPTER 1.1
GENERAL INFORMATION

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1.1 GENERAL INFORMATION

CLIENT & PROJECT LOCATION	" BCG Vaccine Laboratory, Guindy, Chennai-600032, TamilNadu, Ph: 044-22500476"
PROJECT MANAGEMENT CONSULTANT	HLL Lifecare Limited C/o HLL Biotech Limited, TICEL Biopark Campus (Module no. 013- 015), CSIR Road, Taramani, Chennai- 600 113 Contact No: 044 22544949/74/70, Fax – 044 22540101
PROJECT TITLE	Revival of BCG Vaccine Laboratory
CONSULTANT	NNE Pharmaplan India Limited Bangalore Office: # 12, Achiah Shetty Layout R.M.V. Extension Sadashivanagar Bangalore – 560080 Tel.: 080 – 23614415 Email: email.bglr@pharmaplan.co.in
CLIMATE	Maximum Temperature: 39.4°C Minimum Temperature: 18.3°C
ACCESS TO SITE	By Road. Nearest Railway Station is Chennai Nearest airport is Chennai

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CHAPTER 2.1
TENDER ENQUIRY DOCUMENT


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SECTION I

Notice Inviting Tender (NIT)

**HLL LIFECARE LIMITED INVITES TENDERS
FOR
SUPPLY & INSTALLATION OF WASTEWATER TREATMENT PLANT PERTAINING
TO THE REVIVAL PROJECT OF BCG VACCINE MANUFACTURING FACILITY AT BCGVL
GUINDY UNDER TWO BID SYSTEM**

Tenders are invited from vendors for supply and installation of following equipment:

Schedule No	ITEM (PACKAGE)	QTY	EMD (Rs)
I	15KLD ETP AND 10 KLD STP , as specified in the technical specification & bill of quantity in this tender.	As per Bill of Quantity described in chapter 2.6	Rs 1,20,000/- (Rupees One lakh twenty thousand Only)


Note:


The list may vary (increase / decrease) during order finalisation.

Details regarding important dates are as follows:

SI No.	Description	Schedule
i.	Pre Bid Meeting Date & Time	23 rd September 2013 at 11.00 Hrs
ii.	Pre Bid Meeting Venue	HLL Lifecare Limited, C/o HLL Biotech Limited, Tichel Biopark Campus (Module no. 015), CSIR Road, Taramani, Chennai- 600 113
iii.	Closing date & time for receipt of Tender	9 th October 2013, 15:00 Hrs
iv.	Time and date of opening of Technical Bids	9 th October, 2013, 16:00 Hrs
v.	Venue of Opening of Techno Commercial Tender	HLL Lifecare Limited, C/o HLL Biotech Limited, Tichel Biopark Campus (Module no. 015), CSIR Road, Taramani, Chennai- 600 113

Interested parties may visit www.lifecarehll.com / www.mohfw.nic.in & <http://eprocure.gov.in/cppp> to download the Tender. Subsequent amendments/ addendum if any will be published in these websites, The parties are advised to visit the website regularly for updates. Tenders in sealed envelopes super scribing "Tender for Supply & Installation of Wastewater treatment plant for BCG Vaccine Facility" may be submitted to the address mentioned in Serial no. v of the table above.

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DECLARATION


This Tender document has been prepared keeping in view the frozen process, GMP requirements and project parameters. The Tender is being issued for inviting quotes and selecting the vendor / contractor for the job.

Prospective vendors / contactors are suggested to go through the contents in detail and are requested to come out with their queries / suggested rectifications and / or modifications if any. Such changes / suggestions would be considered if found acceptable according to cGMP and project requirements already frozen. Chosen vendors / contractors would be brought at par – TECHNICALLY, before invitation by the client for commercial bid opening.

This tender shall be the basis and guideline for the scope of job. It may not necessarily be complete in design and details for the execution. All the design and drawings prepared by the selected vendors shall need to be submitted to employer and consultant for the final approval before execution.


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INSTRUCTIONS TO BIDDERS

1. The successful bidder will have to enter into a written Contract / Agreement with the Employer, the terms and conditions of which are enclosed herewith.
2. Bidder must fill in all blank spaces in the Bill of Quantities of the tender for which quantities have been indicated in near, legible and correct entries, both in figures as well as in words. Alterations, erasures and indistinct figures should be avoided. Failure to quote against all the items could render the tender liable to rejection.
3. The tender should be signed in long hand, dated and witnessed at all places provided therein. Also all pages, drawings, corrections/alterations should be initialed / stamped.
4. Bidder must be careful to deliver a bonafide tender. Any tender which proposes any alterations to any of the conditions laid down, which proposes any other conditions or any description, whatsoever is liable to be rejected.
5. Intimation of tenders' quotation by a telegram/fax will not be considered.
6. Tenders must be accompanied by a certified true copy of the Power of Attorney in favour of the signatory to the tender which inter-alia should empower him/her to bind the firm to Arbitration Clause given in the Articles of Agreement and Contract conditions.
7. In case a blank tender is being submitted, it should be marked prominently '**BLANK**' on the envelope and signed by the authorized person.
8. In view of postal and other delays, the tenders should be posted sufficiently in advance of the last date fixed for receipt of tenders or be sent by a special messenger. Tender received late shall be liable for rejection.
9. **It must be clearly understood that the contract is an Item wise contract.**
10. The prices shall be quoted for all items and shall be firm. The amount shall include all plant, layout, materials, all temporary works, supervision, taxes, duties, levies, insurance, transportation and every incidental and contingent cost and charges whatsoever required to complete the item of work in all respects conforming to related specifications, drawings etc.


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11. Prices shall be written in ink and shall be entered both in figures and words. In case of discrepancy the figure quoted in words shall be taken as accurate. In case of any discrepancy in the unit and amount, the unit rate shall be taken as accurate.
12. Prices quoted by the bidder shall be firm and valid even if the contract is split in two or more parts among different bidders.
13. The bidder shall be deemed to have been allowed in his rates and prices for the provision, maintenance and final removal of all temporary works of whatsoever nature. No specific item of any or particular temporary shed/work will be measured and paid for separately.
14. The bidder shall include the proposed quality assurance program containing overall quality management and procedural requirements to be adhered to during the execution of the contract to maintain effective quality assurance system as outlined by the recognized codes for various works in their offer, along with quality assurance manual, officials responsible for the same and their organizational approach for quality control.
15. This tender is comprised of two bids system and vender should submit Technical (along with EMD and Integrity Pact) and Financial Bids in two separate Envelopes enclosed in a common envelope.
16. Bidder should furnish the following details along with their offer : -
 - Quality Assurance plan
 - Bar chart / Project schedule

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SECTION - II



GENERAL INSTRUCTIONS TO TENDERERS (GIT) CONTENTS


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5	Eligible Tenderers	
6	Eligible Goods and Services	
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9	Amendments to Tender Enquiry Documents	
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C	PREPARATION OF TENDERS	
11	Documents Comprising the Tender	
12	Tender Currency	
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A. PREAMBLE

1. Definitions and Abbreviations:



1.1 The following definitions and abbreviations, which have been used in these documents shall have the meanings as indicated below:


1.2. Definitions:

- (i) "Purchaser" means the organization and / or its representatives (consultants) purchasing goods and services as incorporated in the Tender Enquiry document.
- (ii) "Tender" means Bids / Quotation / Tender received from a Firm / Tenderer / Bidder.
- (iii) "Tenderer" means Bidder/ the Individual or Firm submitting Bids / Quotation / Tender
- (iii) "Supplier" means the individual or the firm supplying the goods and services as incorporated in the contract.
- (iv) "Goods" means the articles, material, commodities, livestock, furniture, fixtures, raw material, spares, instruments, machinery, equipment, medical equipment, industrial plant etc. which the supplier is required to supply to the purchaser under the contract.
- (v) "Services" means services allied and incidental to the supply of goods, such as transportation, installation, commissioning, provision of technical assistance, training, after sales service, maintenance service and other such obligations of the supplier covered under the contract.
- (vi) "Earnest Money Deposit" (EMD) means Bid Security/ monetary or financial guarantee to be furnished by a tenderer along with its tender.
- (vii) "Contract" means the written agreement entered into between the purchaser and/or consignee and the supplier, together with all the documents mentioned therein and including all attachments, annexure etc. therein.
- (viii) "Performance Security" means monetary or financial guarantee to be furnished by the successful tenderer for due performance of the contract placed on it. Performance Security is also known as Security Deposit.
- (ix) "Consignee" means the organization/person to whom the goods are required to be delivered as specified in the Contract. If the goods are required to be delivered to a person as an interim consignee for the purpose of despatch to another person as provided in the Contract then that "another" person is the consignee, also known as ultimate consignee.
- (x) "Specification" means the document/standard that prescribes the requirement with which goods or service has to conform.
- (xi) "Inspection" means activities such as measuring, examining, testing, gauging one or more characteristics of the product or service and comparing the same with the specified requirement to determine conformity.
- (xii) "Day" means calendar day.

1.3 Abbreviations:

- (i) "TE Document" means Tender Enquiry Document
- (ii) "NIT" means Notice Inviting Tenders.
- (iii) "GIT" means General Instructions to Tenderers
- (iv) "SIT" means Special Instructions to Tenderers
- (v) "GCC" means General Conditions of Contract
- (vi) "SCC" means Special Conditions of Contract

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- (vii) "DGS&D" means Directorate General of Supplies and Disposals
- (viii) "NSIC" means National Small Industries Corporation
- (ix) "PSU" means Public Sector Undertaking
- (x) "CPSU" means Central Public Sector Undertaking
- (xi) "LSI" means Large Scale Industry
- (xii) "SSI" means Small Scale Industry
- (xiii) "LC" means Letter of Credit
- (xiv) "DP" means Delivery Period
- (xv) "BG" means Bank Guarantee
- (xvi) "ED" means Excise Duty
- (xvii) "CD" means Custom Duty
- (xviii) "VAT" means Value Added Tax
- (xix) "CENVAT" means Central Value Added Tax
- (xx) "CST" means Central Sales Tax
- (xxi) "RR" means Railway Receipt
- (xxii) "MOH&FW" means Ministry of Health & Family Welfare, Government of India.
- (xxiii) "CMC" means Comprehensive maintenance Contract (labour, spare, breakdown maintenance and preventive maintenance)
- (xxiv) "RT" means Re-Tender.


2. Introduction

- 2.1 The Purchaser has issued these TE documents for purchase of goods and related services as mentioned in subsequent paragraphs which also indicates, *interalia*, the required delivery schedule, terms and place of delivery.
- 2.2 This section (Section II - "General Instruction To Tenderers") provides the relevant information as well as instructions to assist the prospective tenderers in preparation and submission of tenders. It also includes the mode and procedure to be adopted by the purchaser for receipt and opening as well as scrutiny and evaluation of tenders and subsequent placement of contract.
- 2.3 The tenderers shall also read the Special Instructions to Tenderers (SIT) related to this purchase, as contained in Section III of these documents and follow the same accordingly. Whenever there is a conflict between the GIT and the SIT, the provisions contained in the SIT shall prevail over those in the GIT.
- 2.4 Before formulating the tender and submitting the same to the purchaser, the tenderer should read and examine all the terms, conditions, instructions, checklist etc. contained in the TE documents. Failure to provide and/or comply with the required information, instructions etc. incorporated in these TE documents may result in rejection of its tender.

3. Availability of Funds

- 3.1 Deleted.

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4. Language of Tender

- 4.1 The tender submitted by the tenderer and all subsequent correspondence and documents relating to the tender exchanged between the tenderer and the purchaser, shall be written in the English language, unless otherwise specified in the Tender Enquiry. However, the language of any printed literature furnished by the tenderer in connection with its tender may be written in any other language provided the same is accompanied by an English translation and, for purposes of interpretation of the tender, the English translation shall prevail.
- 4.2 The tender submitted by the tenderer and all subsequent correspondence and documents relating to the tender exchanged between the tenderer and the purchaser, may also be written in the Hindi language, provided that the same are accompanied by English translation, in which case, for purpose of interpretation of the tender etc, the English translations shall prevail.

5. Eligible Tenderers

- 5.1 This invitation for tenders is open to all suppliers who fulfil the eligibility criteria specified against clause 17 of GIT Sec. II in this document.

6. Eligible Goods and Services

- 6.1 All goods and related services to be supplied under the contract shall have their origin in India or any other country with which India has not banned trade relations. The term "origin" used in this clause means the place where the goods are mined, grown, produced, or manufactured or from where the related services are arranged and supplied.

7. Tendering Expense



- 7.1 The tenderer shall bear all costs and expenditure incurred and/or to be incurred by it in connection with its tender including preparation, mailing and submission of its tender and for subsequent processing the same. The purchaser will, in no case be responsible or liable for any such cost, expenditure etc regardless of the conduct or outcome of the tendering process.


B. TENDER ENQUIRY DOCUMENTS

8. Content of Tender Enquiry Documents

- 8.1 In addition to Section I – "Notice inviting Tender" (NIT), the TE documents include:

- Section II – General Instructions to Tenderers (GIT)
- Section III – Special Instructions to Tenderers (SIT)
- Section IV – General Conditions of Contract (GCC)
- Section V – Special Conditions of Contract (SCC)
- Section VI – List of Requirements
- Section VII – Technical Specifications
- Section VIII – Quality Control Requirements
- Section IX – Qualification Criteria
- Section X – Tender Form
- Section XI – Price Schedules

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- Section XII – Questionnaire
- Section XIII – Bank Guarantee Form for EMD
- Section XIV – Manufacturer's Authorisation Form
- Section XV – Bank Guarantee Form for Performance Security/CMC Security
- Section XVI – Contract Forms A & B
- Section XVII – Proforma of Consignee Receipt Certificate
- Section XVIII – Proforma of Final Acceptance Certificate by the consignee / purchaser
- Section XIX – Check List for the Tenderers
- Section XX – Consignee List
- Section XXI – Integrity Pact

8.2 The relevant details of the required goods and services, the terms, conditions and procedure for tendering, tender evaluation, placement of contract, the applicable contract terms and, also, the standard formats to be used for this purpose are incorporated in the above-mentioned documents. The interested tenderers are expected to examine all such details etc to proceed further.

9. Amendments to TE documents

- 9.1 At any time prior to the deadline for submission of tenders, the purchaser may, for any reason deemed fit by it, modify the TE documents by issuing suitable amendment(s) to it.
- 9.2 Such an amendment will be notified in the website of www.lifecarehll.com. Interested parties are advised to regularly visit the website for further updates.
- 9.3 In order to provide reasonable time to the prospective tenderers to take necessary action in preparing their tenders as per the amendment, the purchaser may, at its discretion extend the deadline for the submission of tenders and other allied time frames, which are linked with that deadline.

10. Clarification of TE documents

- 10.1 A tenderer requiring any clarification or elucidation on any issue of the TE documents may communicate the same to the Vice President (Projects), HLL Lifecare Limited at eas@lifecarehll.com.



C. PREPARATION OF TENDERS


11. Documents Comprising the Tender

- 11.1 The **Two Bid System**, i.e. "Technical Bid" and "Price Bid" prepared by the tenderer shall comprise the following:

A) Technical Bid (Unpriced Bid)

- i) Earnest money furnished in accordance with GIT clause 19.1 alternatively, documentary evidence as per GIT clause 19.2 for claiming exemption from payment of earnest money.
- ii) Tender Form as per Section X (Unpriced).

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- iii) Documentary evidence, as necessary in terms of clauses 5 and 17 establishing that the tenderer is eligible to submit the tender and, also, qualified to perform the contract if its tender is accepted.
- iv) Tenderer/Agent who quotes for goods manufactured by other manufacturer shall furnish Manufacturer's Authorisation Form.
- v) Power of attorney in favour of the signatory of the tender document.
- vi) Documents and relevant details to establish in accordance with GIT clause 18 that the goods and the allied services to be supplied by the tenderer conform to the requirement of the TE documents.
- vii) Performance Statement as per section IX along with relevant copies of orders and end users' satisfaction/ performance/ completion certificate.
- viii) Price Schedule(s) as per Section XI, please quote as per format given in BOQ.
- ix) Deleted
- x) Checklist as per Section XX.

B) Price Bid:

The information given in clause no. 11.1 A) ii) & viii) above should be reproduced with the prices indicated.

N.B.

1. All pages of the Tender should be page numbered and indexed.
 2. It is the responsibility of tenderer to go through the TE document to ensure furnishing all required documents in addition to above, if any.
- 11.2 The authorized signatory of the tenderer must sign the tender duly stamped at appropriate places and initial all the remaining pages of the tender.
- 11.3 A tender, which does not fulfil any of the above requirements and/or gives evasive information/reply against any such requirement, shall be liable to be ignored and rejected.
- 11.4 Tender sent by fax/telex/cable/electronically shall be ignored.


12. Tender Currency

- 12.1 The tenderer supplying indigenous goods or already imported goods shall quote only in Indian Rupees.
- 12.2 Deleted
- 12.3 Deleted

13 Tender Prices

- 13.1 Vendor to quote as per format in the BOQ.
- Goods and services proposes to supply against the requirement. All the columns shown in the price schedule should be filled up as required. If any column does not apply to a tenderer, same should be clarified as "NA" by the tenderer.

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13.2 The price of the schedule complete in all respect will be evaluated and the L1 party will be identified schedule wise.

13.3 Deleted

13.4 While filling up the columns of the BOQ, the following aspects should be noted for compliance:

13.4.1 For domestic goods or goods of foreign origin located within India, the prices in the BOQ for the items should include the following:

- a) the price of the goods, quoted ex-factory/ ex-showroom/ ex-warehouse/ off-the-shelf, as applicable, including all taxes and duties like sales tax, CST VAT, CENVAT, Custom Duty, Excise Duty etc. already paid or payable on the components and raw material used in the manufacture or assembly of the goods quoted ex-factory etc. or on the previously imported goods of foreign origin quoted ex-showroom etc;
- b) any sales or other taxes and any duties including excise duty, which will be payable on the goods in India if the contract is awarded;
- c) charges towards Packing & Forwarding, Inland Transportation, Insurance (local transportation and storage) would be borne by the Supplier from ware house to the consignee site for a period including 3 months beyond date of delivery, Loading/Unloading and other local costs incidental to delivery of the goods to their final destination as specified in the List of Requirements and BOQ;
- d) The price of Incidental Services, as mentioned in List of Requirements and BOQ
- e) The prices of Turnkey (if any), as mentioned in List of Requirements, Technical Specification and BOQ; and
- f) The price of annual CMC, as mentioned in List of Requirements, Technical Specification and BOQ.

13.4.2

a) Deleted;

b) Deleted

c) Deleted



d) Deleted


e) Deleted

f) Deleted

g) Deleted

h) Deleted.

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13.5

13.5.1 Deleted

13.5.2

a) Deleted

b) Deleted

c) Deleted

13.5.3 Deleted

13.5.4 Deleted

13.5.5 Deleted

13.6 Deleted

13.7 For insurance of goods to be supplied, relevant instructions as provided under GCC Clause 11 shall be followed.

13.8 Deleted.

13.9 The need for indication of all such price components by the tenderers, as required in this clause (viz., GIT clause 13) is for the purpose of comparison of the tenders by the purchaser and will no way restrict the purchaser's right to award the contract on the selected tenderer on any of the terms offered.

14. Deleted

15 Firm Price

15.1 Unless otherwise specified in the SIT, prices quoted by the tenderer shall remain firm and fixed during the currency of the contract and not subject to variation on any account.

15.2 Deleted

16. Alternative Tenders


16.1 Alternative Tenders are not permitted.

16.2 -Deleted-

17 Documents Establishing Tenderer's Eligibility and Qualifications

17.1 Pursuant to GIT clause 11, the tenderer shall furnish, as part of its tender, relevant details and documents establishing its eligibility to quote and its qualifications to perform the contract if its tender is accepted.

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17.2 The documentary evidence needed to establish the tenderer's qualifications shall fulfil the following requirements:

- a) in case the tenderer offers to supply goods, which are manufactured by some other firm, the tenderer has been duly authorised by the goods manufacturer to quote for and supply the goods to the purchaser. The tenderer shall submit the manufacturer's authorization letter to this effect as per the standard form provided under Section XIV in this document.
- b) the tenderer has the required financial, technical and production capability necessary to perform the contract and, further, it meets the qualification criteria incorporated in the Section IX in these documents.
- c) Deleted.
- d) Deleted.

18. Documents establishing Good's Conformity to TE document.

18.1 The tendered shall provide in its tender the required as well as the relevant documents like technical data, literature, drawings etc. to establish that the goods and services offered in the tender fully conform to the goods and services specified by the purchaser in the TE documents. For this purpose the tendered shall also provide a **clause-by-clause commentary on the technical specifications and other technical details incorporated by the purchaser in the TE documents to establish technical responsiveness of the goods and services offered in its tender.**

18.2 In case there is any variation and/or deviation between the goods & services prescribed by the purchaser and that offered by the tendered, the tendered shall list out the same in a chart form without ambiguity and provide the same along with its tender.

18.3 If a tenderer furnishes wrong and/or misleading data, statement(s) etc. about technical acceptability of the goods and services offered by it, its tender will be liable to be ignored and rejected in addition to other remedies available to the purchaser in this regard.


19. Earnest Money Deposit (EMD)

19.1 Pursuant to GIT clauses 8.1 and 11.1 the tenderer shall furnish along with its tender, earnest money for amount as shown under chapter 2.9 schedule of Fiscal aspects). The earnest money is required to protect the purchaser against the risk of the tenderer's unwarranted conduct as amplified under sub-clause 19.7 below.

19.2 The tenderers who are currently registered and, also, will continue to remain registered during the tender validity period with National Small Industries Corporation, New Delhi for the specific goods as per tender enquiry specification shall be eligible for exemption from EMD. Vague stipulations in the Registration Certificate such as "to customers' specification" etc. will not be acceptable for exemption from furnishing of earnest money. In case the tenderer falls in these categories, it should furnish copy of its valid registration details (with NSIC). The EMD should be furnished in the name of **"HLL Lifecare Limited, payable at Chennai"**.

19.3 The earnest money shall be denominated in Indian Rupees as per GIT clause 12.1. The earnest money shall be furnished in one of the following forms:

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i) Account Payee Demand Draft

OR

ii) Bank Guarantee

19.4 The demand draft shall be drawn on any commercial bank in India, in favour of the "HLL Lifecare Limited" payable at Chennai. In case of bank guarantee, the same is to be provided from any scheduled commercial bank in India as per the format specified under Section XIII of this Tender Document.

19.5 The earnest money shall be valid for a period of forty-five (45) days beyond the validity period of the tender. As validity period of Tender as per Clause 20 of GIT is 120 days, the EMD shall be valid for 165 days from Technical Bid opening date.

19.6 Unsuccessful tenderers' earnest money will be returned to them without any interest, after expiry of the tender validity period, but not later than thirty days after conclusion of the resultant contract. Successful tenderer's earnest money will be returned without any interest, after receipt of performance security from that tenderer.

19.7 Earnest Money is required to protect the purchaser against the risk of the Tenderer's conduct, which would warrant the forfeiture of the EMD. Earnest money of a tenderer will be forfeited, if the tenderer withdraws or amends its tender or impairs or derogates from the tender in any respect within the period of validity of its tender or if it comes to notice that the information/documents furnished in its tender is incorrect, false, misleading or forged without prejudice to other rights of the purchaser. The successful tenderer's earnest money will be forfeited without prejudice to other rights of Purchaser if it fails to furnish the required performance security within the specified period.

19.8 Deleted

20. Tender Validity

20.1 If not mentioned otherwise in the SIT, the tenders shall remain valid for acceptance for a period of 120 days (One Hundred And Twenty Days) from the date of tender opening prescribed in the TE document. Any tender valid for a shorter period shall be treated as unresponsive and rejected.


20.2 In exceptional cases, the tenderers may be requested by the purchaser to extend the validity of their tenders up to a specified period. Such request(s) and responses thereto shall be conveyed by surface mail or by fax/ telex/cable followed by surface mail. The tenderers, who agree to extend the tender validity, are to extend the same without any change or modification of their original tender and they are also to extend the validity period of the EMD accordingly. A tenderer, however, may not agree to extend its tender validity without forfeiting its EMD.


20.3 In case the day up to which the tenders are to remain valid falls on/ subsequently declared a holiday or closed day for the purchaser, the tender validity shall automatically be extended up to the next working day.

21. Signing and Sealing of Tender

21.1 The tenderers shall submit their tenders as per the instructions contained in GIT Clause 11.

21.2 -Deleted-

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- 21.3 The tender shall either be typed or written in indelible ink and the same shall be signed by the tenderer or by a person(s) who has been duly authorized to bind the tenderer to the contract. The letter of authorization shall be by a written power of attorney, which shall also be furnished along with the tender.
- 21.4 The tender shall be duly signed at the appropriate places as indicated in the TE documents and all other pages of the tender including printed literature, if any shall be initialled by the same person(s) signing the tender. The tender shall not contain any erasure or overwriting, except as necessary to correct any error made by the tenderer and, if there is any such correction; the same shall be initialled by the person(s) signing the tender.
- 21.5 The tenderer should seal the tender and write the address of the purchaser and the tender reference number on the envelope. The sentence "NOT TO BE OPENED" before _____ (The tenderer is to put the date & time of tender opening) are to be written on these envelopes. The inner envelopes are then to be put in a bigger outer envelope, which will also be duly sealed, marked etc. as above. If the outer envelope is not sealed and marked properly as above, the purchaser will not assume any responsibility for its misplacement, premature opening, late opening etc.
- 21.6 TE document seeks quotation following **two Tender System**, in two parts. First part will be known as '**Technical Bid**', and the second part '**Price Bid**' as specified in clause 11 of GIT. Tenderer shall seal '**Technical Bid**' and '**Price Bid**' separately and covers will be suitably super scribed. Both these sealed covers shall be put in a bigger cover and sealed and procedure prescribed in Paras 21.1, 21.3, 21.4 and 21.5 followed.

D. SUBMISSION OF TENDERS

22. Submission of Tenders

- 22.1 Unless otherwise specified, the tenders are to be submitted to


The Vice President (Projects), HLL Lifecare Limited,
C/o- HLL Biotech Limited,
TICEL Biopark Campus (Module no.013 – 015)
CSIR Road, Taramani, Chennai- 600 113
Contact No: 044 22544949.

- 22.2 The tenderers must ensure that they submit their tenders not later than the closing time and date specified for submission of tenders. It is the responsibility of the tenderer to ensure that their Tenders whether sent by post or by courier or by person, by the specified clearing date and time. In the event of the specified date for submission of tender falls on / is subsequently declared a holiday or closed day for the purchaser, the tenders will be received up to the appointed time on the next working day.

23. Late Tender

- 23.1 A tender, which is received after the specified date and time for receipt of tenders will be treated as "late" tender and will be ignored and not considered.

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24. Alteration and Withdrawal of Tender

- 24.1 The tenderer, after submitting its tender, is permitted to alter / modify its tender so long as such alterations / modifications are received duly signed, sealed and marked like the original tender, within the deadline for submission of tenders. Alterations / modifications to tenders received after the prescribed deadline will not be considered.
- 24.2 No tender should be withdrawn after the deadline for submission of tender and before expiry of the tender validity period. If a tenderer withdraws the tender during this period, it will result in forfeiture of the earnest money furnished by the tenderer in its tender.

E. TENDER OPENING

25. Opening of Tenders

- 25.1 The purchaser will open the tenders at the specified date and time and at the specified place as indicated in the NIT.

In case the specified date of tender opening falls on / is subsequently declared a holiday or closed day for the purchaser, the tenders will be opened at the appointed time and place on the next working day.

- 25.2 Authorized representatives of the tenderers, who have submitted tenders on time may attend the tender opening provided they bring with them letters of authority from the corresponding tenderers.

The tender opening official(s) will prepare a list of the representatives attending the tender opening. The list will contain the representatives' names & signatures and corresponding tenderers' names and addresses.


- 25.3 Two - Tender system as mentioned in para 21.6 above will be as follows. The **Technical Bid** are to be opened in the first instance, at the prescribed time and date as indicated in NIT. These Tenders shall be scrutinized and evaluated by the competent committee/ authority with reference to parameters prescribed in the TE document. During the Technical Bid opening, the tender opening official(s) will read the salient features of the tenders like brief description of the goods offered, delivery period, Earnest Money Deposit and any other special features of the tenders, as deemed fit by the tender opening official(s). Thereafter, in the second stage, the **Price Bid** of only the Technically qualified offers (**as decided in the first stage**) shall be opened for further scrutiny and evaluation on a date notified after the evaluation of the Technical Bid. The prices, special discount if any of the goods offered etc., as deemed fit by tender opening official(s) will be read out.

F. SCRUTINY AND EVALUATION OF TENDERS

26. Basic Principle

- 26.1 Tenders will be evaluated on the basis of the terms & conditions already incorporated in the TE document, based on which tenders have been received and the terms, conditions etc. mentioned by the tenderers in their tenders. No new condition will be brought in while scrutinizing and evaluating the tenders.

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27. Preliminary Scrutiny of Tenders

- 27.1 The Purchaser will examine the Tenders to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed stamped and whether the Tenders are generally in order.
- 27.2 Prior to the detailed evaluation of Price Bid, pursuant to GIT Clause 34, the Purchaser will determine the substantial responsiveness of each Tender to the TE Document. For purposes of these clauses, a substantially responsive Tender is one, which conforms to all the terms and conditions of the TE Documents without material deviations. Deviations from, or objections or reservations to critical provisions such as those concerning Performance Security (GCC Clause 5), Warranty (GCC Clause 15), EMD (GIT Clause 19), Taxes & Duties (GCC Clause 20), Force Majeure (GCC Clause 26) and Applicable law (GCC Clause 31) will be deemed to be a material deviation. The Purchaser's determination of a Tender's responsiveness is to be based on the contents of the tender itself without recourse to extrinsic evidence.
- 27.3 If a Tender is not substantially responsive (Non-Responsive), it will be rejected by the Purchaser and cannot subsequently be made responsive by the Tenderer by correction of the nonconformity.
- 27.4 The tenders will be scrutinized to determine whether they are complete and meet the essential and important requirements, conditions etc. as prescribed in the TE document. The tenders, which do not meet the basic requirements, are liable to be treated as non – responsive and will be summarily ignored. A non-responsive tender is one which deviates technically or commercially from any specific provision in the tender enquiry.
- 27.5 The following are some of the important aspects, for which a tender shall be declared **non – responsive** and will be summarily ignored;
- (i) Tender form as per Section X (signed and stamped) not enclosed
 - (ii) Tender is unsigned.
 - (iii) Tender validity is shorter than the required period.
 - (iv) Required EMD (Amount, validity etc.) / exemption documents have not been provided.
 - (v) Tenderer has quoted for goods manufactured by other manufacturer(s) without the required Manufacturer's Authorisation Form as per Section XIV.
 - (vi) Tenderer has not agreed to give the required performance security.
 - (vii) Goods offered are not meeting the tender enquiry specification.
 - (viii) Tenderer has not agreed to other essential condition(s) specially incorporated in the tender enquiry like terms of payment, liquidated damages clause, warranty clause, dispute resolution mechanism applicable law.
 - (ix) Poor/ unsatisfactory past performance.
 - (x) Tenderers who stand deregistered/banned/blacklisted by any Govt. Authorities.
 - (xi) Tenderer is not eligible as per GIT Clauses 5.1 & 17.1.
 - (xii) Tenderer has not quoted for the entire quantity as specified in the List of Requirements in the quoted schedule.

28. Minor Infirmary /Irregularity/Non-Conformity

- 28.1 If during the preliminary examination, the purchaser find any minor informality and/or irregularity and/or non-conformity in a tender, the purchaser may waive the same provided it does not constitute any material deviation and financial impact and, also, does not prejudice or affect the

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ranking order of the tenderers. Wherever necessary, the purchaser will convey its observation on such 'minor' issues to the tenderer, asking the tenderer to respond by a specified date. If the tenderer does not reply by the specified date or gives evasive reply without clarifying the point at issue in clear terms, that tender will be liable to be ignored.

29 Discrepancies in Prices

- 29.1 If, in the price structure quoted by a tenderer, there is discrepancy between the unit price and the total price (which is obtained by multiplying the unit price by the quantity), the unit price shall prevail and the total price corrected accordingly, unless the purchaser feels that the tenderer has made a mistake in placing the decimal point in the unit price, in which case the total price as quoted shall prevail over the unit price and the unit price corrected accordingly.
- 29.2 If there is an error in a total price, which has been worked out through addition and/or subtraction of subtotals, the subtotals shall prevail and the total corrected; and
- 29.3 If there is a discrepancy between the amount expressed in words and figures, the amount in words shall prevail, subject to sub clause 29.1 and 29.2 above.
- 29.4 If, as per the judgement of the purchaser, there is any such arithmetical discrepancy in a tender, the same will be suitably conveyed to the tenderer by registered / speed post/ e-mail. If the tenderer does not agree to the observation of the purchaser, the tender is liable to be ignored.

30. Discrepancy between original and copies of Tender

- 30.1 In case any discrepancy is observed between the text etc. of the original copy and that in the other copies of the same tender set, the text etc. of the original copy shall prevail. Here also, the purchaser will convey its observation suitably to the tenderer by register / speed post / e-mail, if the tenderer does not accept the purchaser's observation, that tender will be liable to be ignored.

31. Qualification Criteria

- 31.1 Tenders of the tenderers, who do not meet the required Qualification Criteria prescribed in Section IX, will be treated as non - responsive and will not be considered further.

32. Deleted


- 32.1 Deleted


33. Schedule/ Package -wise Evaluation

- 33.1 In case the List of Requirements contains more than one schedule/ Package, the responsive tenders will be evaluated and compared separately for each schedule. The tender for a schedule/ package will not be considered if the complete requirements prescribed in that schedule/ package are not included in the tender.

34. Comparison of Tenders

- 34.1 Unless mentioned otherwise in Section – III – Special Instructions to Tenderers and Section – VI – List of Requirements, the comparison of the responsive tenders shall be carried out on BOQ prices which will be inclusive of all applicable duties and taxes.

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35. Additional Factors and Parameters for Evaluation and Ranking of Responsive Tenders

35.1 Deleted

35.2 The purchaser's evaluation of tender will also take into account the additional factors, if any, incorporated in SIT in the manner and to the extent indicated therein.

35.3 The Purchaser reserves the right to give the price preference to small-scale sectors etc. and purchase preference to central public sector undertakings as per the instruction in vogue while evaluating, comparing and ranking the responsive tenders.

36. Tenderer's capability to perform the contract

36.1 The purchaser, through the above process of tender scrutiny and tender evaluation will determine to its satisfaction whether the tenderer, whose tender has been determined as the lowest evaluated responsive tender is eligible, qualified and capable in all respects to perform the contract satisfactorily. If, there is more than one schedule/ package in the List of Requirements, then, such determination will be made separately for each schedule/ package.

36.2 The above-mentioned determination will, interalia, take into account the tenderer's financial, technical and production capabilities for satisfying all the requirements of the purchaser as incorporated in the TE document. Such determination will be based upon scrutiny and examination of all relevant data and details submitted by the tenderer in its tender as well as such other allied information as deemed appropriate by the purchaser.

37. Contacting the Purchaser

37.1 From the time of submission of tender to the time of awarding the contract, if a tenderer needs to contact the purchaser for any reason relating to this tender enquiry and / or its tender, it should do so only in writing.

37.2 In case a tenderer attempts to influence the purchaser in the purchaser's decision on scrutiny, comparison & evaluation of tenders and awarding the contract, the tender of the tenderer shall be liable for rejection in addition to appropriate administrative actions being taken against that tenderer, as deemed fit by the purchaser.

G. AWARD OF CONTRACT


38. Purchaser's Right to accept any tender and to reject any or all tenders

38.1 The purchaser reserves the right to accept in part or in full any tender or reject any or more tender(s) without assigning any reason or to cancel the tendering process and reject all tenders at any time prior to award of contract, without incurring any liability, whatsoever to the affected tenderer or tenderers.

39. Award Criteria

39.1 Subject to GIT clause 38 above, the contract will be awarded to the lowest evaluated responsive tenderer decided by the purchaser in terms of GIT Clause 36.

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40. Variation of Quantities at the Time of Award/ Currency of Contract

- 40.1 At the time of awarding the contract, the purchaser reserves the right to increase or decrease by up to twenty five (25) per cent, the quantity of goods and services mentioned in the schedule (s) in the "List of Requirements" (rounded of to next whole number) without any change in the unit price and other terms & conditions quoted by the tenderer.
- 40.2 If the quantity has not been increased at the time of the awarding the contract, the purchaser reserves the right to increase by up to twenty five (25) per cent, the quantity of goods and services mentioned in the contract (rounded of to next whole number) without any change in the unit price and other terms & conditions mentioned in the contract, during the currency of the contract after one year from the Date of Notification of Award.

41. Notification of Award

- 41.1 Before expiry of the tender validity period, the purchaser will notify the successful tenderer(s) in writing, by registered / speed post/ courier or by fax/ telex/cable (to be confirmed by registered / speed post/courier) that its tender for goods & services, which have been selected by the purchaser, has been accepted, also briefly indicating therein the essential details like description, specification and quantity of the goods & services and corresponding prices accepted. The successful tenderer must furnish to the purchaser the required performance security within ten days from the date of dispatch of this notification, failing which the EMD will forfeited and the award will be cancelled. Relevant details about the performance security have been provided under GCC Clause 5 under Section IV.
- 41.2 The Notification of Award shall constitute the conclusion of the Contract.

42. Issue of Contract

- 42.1 Promptly after notification of award, the Purchaser/Consignee will mail the contract form duly completed and signed, in duplicate, to the successful tenderer by registered / speed post/courier.
- 42.2 Within twenty one days from the date of the contract, the successful tenderer shall return the original copy of the contract, duly signed and dated, to the Purchaser/Consignee by registered / speed post/courier.
- 42.3 The Purchaser/Consignee reserves the right to issue the Notification of Award consignee wise.


43. Non-receipt of Performance Security and Contract by the Purchaser/Consignee

- 43.1 Failure of the successful tenderer in providing performance security and / or returning contract copy duly signed in terms of GIT clauses 41 and 42 above shall make the tenderer liable for forfeiture of its EMD and, also, for further actions by the Purchaser/Consignee against it as per the clause 24 of GCC – Termination of default.

44. Return of E M D

- 44.1 The earnest money of the successful tenderer and the unsuccessful tenderers will be returned to them without any interest, whatsoever, in terms of GIT Clause 19.6.

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45. Publication of Tender Result

45.1 Deleted.

46. Corrupt or Fraudulent Practices

46.1 It is required by all concerned namely the Consignee/Tenderers/Suppliers etc to observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, the Purchaser: -

- (a) defines, for the purposes of this provision, the terms set forth below as follows:
- (i) "corrupt practice" means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution; and
 - (ii) "fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Purchaser, and includes collusive practice among Tenderers (prior to or after Tender submission) designed to establish Tender prices at artificial non-competitive levels and to deprive the Purchaser of the benefits of free and open competition;
- (b) will reject a proposal for award if it determines that the Tenderer recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question;
- (c) Will declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded a contract by the purchaser if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing the contract.


47. Integrity Pact (IP)

The Integrity Pact (IP) will be one of the conditions in this tender enquiry. It will be considered to be a material deviation resulting into ignoring and rejecting the tender if the tenderers do not agree to accept it. The detailed terms of the IP are given below:

The Public Authority commits that:

- No official will demand or accept any illicit gratification to give any of the parties an advantage at any stage of the project.
- all necessary and appropriate technical, legal and administrative information related to the contract will be made public
- none of the officials will make available confidential information to a bidder/contractor to give unfair advantage in the contract
- declaration by all concerned officials any conflict of interest and disclosure of own and family assets
- officials will report to appropriate government authority about any breach/attempt to breach a commitment.

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The Bidder commits that:

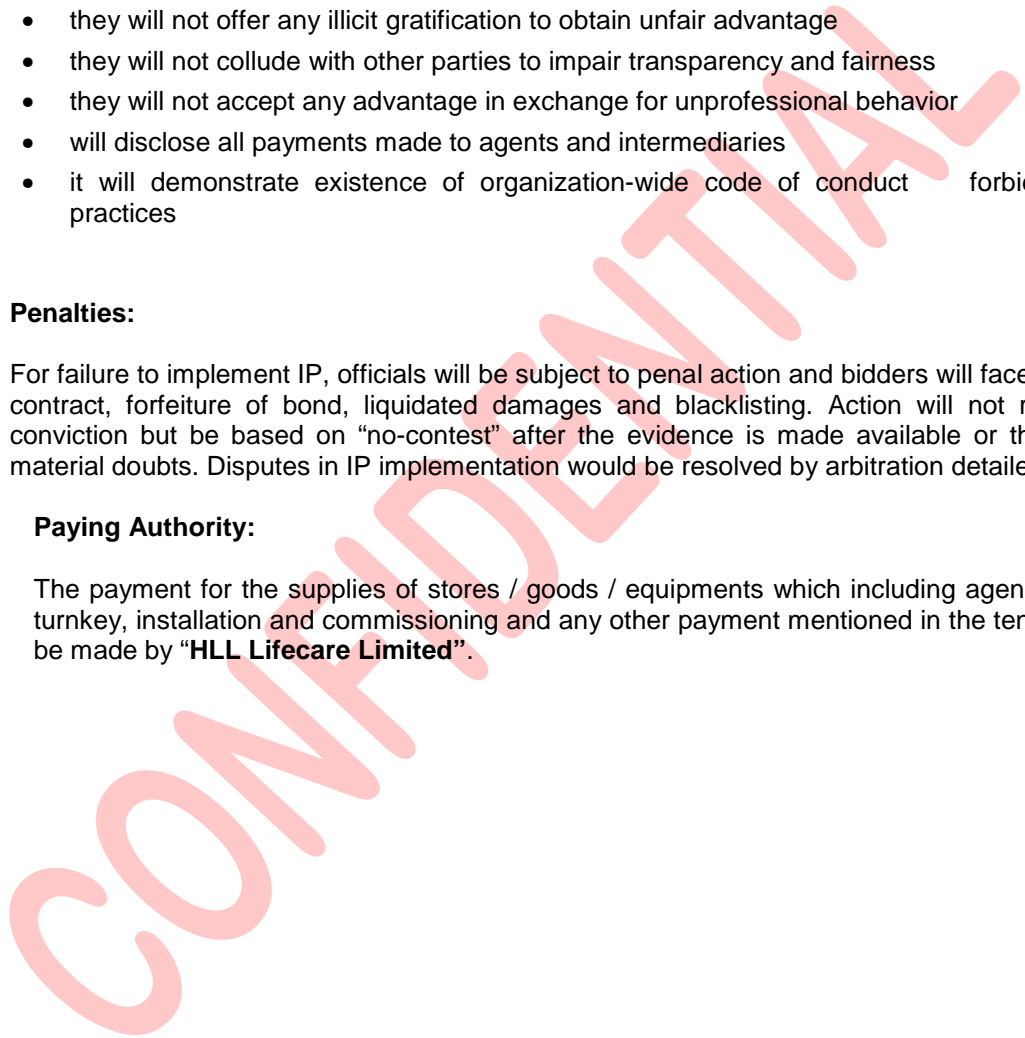
- they will not offer any illicit gratification to obtain unfair advantage
- they will not collude with other parties to impair transparency and fairness
- they will not accept any advantage in exchange for unprofessional behavior
- will disclose all payments made to agents and intermediaries
- it will demonstrate existence of organization-wide code of conduct forbidding unethical practices

Penalties:


For failure to implement IP, officials will be subject to penal action and bidders will face cancellation of contract, forfeiture of bond, liquidated damages and blacklisting. Action will not require criminal conviction but be based on “no-contest” after the evidence is made available or there can be no material doubts. Disputes in IP implementation would be resolved by arbitration detailed in IP.


48. Paying Authority:

- 48.1 The payment for the supplies of stores / goods / equipments which including agency commission, turnkey, installation and commissioning and any other payment mentioned in the tender enquiry will be made by “**HLL Lifecare Limited**”.



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SECTION - III


SPECIAL INSTRUCTIONS TO TENDERERS (SIT)

SI. No.	GIT Clause No.	Topic	SIT Provision
A	1 to 7	Preamble	No Change
B	8 to 10	TE documents	No Change
C	11 to 21	Preparation of Tenders	No Change
D	22 to 24	Submission of Tenders	No Change
E	25	Tender Opening	No Change
F	26 to 37	Scrutiny and Evaluation of Tenders	No Change
G	38 to 45	Award of Contract	No Change

In case of any conflict between the provision in the GIT and that in the SIT, the provision contained in the SIT shall prevail.

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SECTION - IV

GENERAL CONDITIONS OF CONTRACT (GCC) TABLE OF CLAUSES

SI No.	Topic
1	Application
2	Use of contract documents and information
3	Patent Rights
4	Deleted
5	Performance Security
6	Technical Specifications and Standards
7	Packing and Marking
8	Inspection, Testing and Quality Control
9	Terms of Delivery
10	Transportation of Goods
11	Insurance
12	Spare parts
13	Incidental services
14	Distribution of Dispatch Documents for Clearance/Receipt of Goods
15	Warranty
16	Assignment
17	Sub Contracts
18	Modification of contract
19	Prices
20	Taxes and Duties
21	Terms and mode of Payment
22	Delay in the supplier's performance
23	Liquidated Damages
24	Termination for default
25	Termination for insolvency
26	Force Majeure
27	Termination for convenience
28	Governing language
29	Notices
30	Resolution of disputes
31	Applicable Law
32	General/Miscellaneous Clauses

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SECTION - IV

GENERAL CONDITIONS OF CONTRACT (GCC)

1. Application

- 1.1 The General Conditions of Contract incorporated in this section shall be applicable for this purchase to the extent the same are not superseded by the Special Conditions of Contract prescribed under Section V, List of requirements under Section VI and Technical Specification under Section VII of this document.

2. Use of contract documents and information



- 2.1 The supplier shall not, without the purchaser's prior written consent, disclose the contract or any provision thereof including any specification, drawing, sample or any information furnished by or on behalf of the purchaser in connection therewith, to any person other than the person(s) employed by the supplier in the performance of the contract emanating from this TE document. Further, any such disclosure to any such employed person shall be made in confidence and only so far as necessary for the purposes of such performance for this contract.
- 2.2 Further, the supplier shall not, without the purchaser's prior written consent, make use of any document or information mentioned in GCC sub-clause 2.1 above except for the sole purpose of performing this contract.
- 2.3 Except the contract issued to the supplier, each and every other document mentioned in GCC sub-clause 2.1 above shall remain the property of the purchaser and, if advised by the purchaser, all copies of all such documents shall be returned to the purchaser on completion of the supplier's performance and obligations under this contract.


3. Patent Rights

- 3.1 The supplier shall, at all times, indemnify and keep indemnified the purchaser, free of cost, against all claims which may arise in respect of goods & services to be provided by the supplier under the contract for infringement of any intellectual property rights or any other right protected by patent, registration of designs or trademarks. In the event of any such claim in respect of alleged breach of patent, registered designs, trade marks etc. being made against the purchaser, the purchaser shall notify the supplier of the same and the supplier shall, at his own expenses take care of the same for settlement without any liability to the purchaser.

4. Deleted

- 4.1 Deleted.
- 4.2 Deleted
- 4.3 Deleted

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5. Performance Security

- 5.1 Within – 10 (ten) days from date of the issue of notification of award by the Purchaser/Consignee, the supplier, shall furnish performance security to the Purchaser/Consignee for an amount equal to ten percent (10%) of the total value of the contract, valid up to sixty (60) days after the date of completion of all contractual obligations by the supplier, including the warranty obligations, initially valid for a period of minimum 30 months from the date of Notification of Award.
- 5.2 The Performance security shall be denominated in Indian Rupees as detailed below:
- a) It shall be in the form of Bank Guarantee issued by a Scheduled Commercial Bank in India, in the prescribed form as provided in section XV of this document in favour of the Purchaser. The validity of the Bank Guarantee will be for a period up to sixty (60) days beyond Warranty Period.
- 5.3 In the event of any failure /default of the supplier with or with out any quantifiable loss to the government including furnishing of consignee wise Bank Guarantee for CMC security as per Proforma in Section XV, the amount of the performance security is liable to be forfeited. The Administration Department may do the needful to cover any failure/default of the supplier with or without any quantifiable loss to the Government.
- 5.4 In the event of any amendment issued to the contract, the supplier shall, within twenty-one (21) days of issue of the amendment, furnish the corresponding amendment to the Performance Security (as necessary), rendering the same valid in all respects in terms of the contract, as amended.
- 5.5 The supplier shall enter into Annual Comprehensive Maintenance Contract as per the 'Contract Form – B' in Section XVI with respective consignees, 3 (three) months prior to the completion of Warranty Period. The CMC will commence from the date of expiry of the Warranty Period. However consignees reserves the right to enter into CMC with contractor.
- 5.6 Subject to GCC sub – clause 5.3 above, the Purchaser/Consignee will release the Performance Security without any interest to the supplier on completion of the supplier's all contractual obligations including the warranty obligations & after receipt of Consignee wise bank guarantee for CMC security in favour of the consignee as per the format in Section XV.


6. Technical Specifications and Standards

- 6.1 The Goods & Services to be provided by the supplier under this contract shall conform to the technical specifications and quality control parameters mentioned in 'Technical Specification'; 'Quality Control Requirements' under Sections VII and VIII of this document and SPECIFICATION enclosed as annexure to this document.

7. Packing and Marking

- 7.1 The packing for the goods to be provided by the supplier should be strong and durable enough to withstand, without limitation, the entire journey during transit including transshipment (if any), rough handling, open storage etc. without any damage, deterioration etc. As and if necessary, the size, weights and volumes of the packing cases shall also take into consideration, the remoteness of the final destination of the goods and availability or otherwise of transport and handling facilities at all points during transit up to final destination as per the contract.

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7.2 The quality of packing, the manner of marking within & outside the packages and provision of accompanying documentation shall strictly comply with the requirements as provided in Technical Specifications and Quality Control Requirements under Sections VII and VIII and in SCC under Section V. In case the packing requirements are amended due to issue of any amendment to the contract, the same shall also be taken care of by the supplier accordingly.

7.3 Packing instructions:

Unless otherwise mentioned in the Technical Specification and Quality Control Requirements under Sections VII and VIII and in SCC under Section V, the supplier shall make separate packages for each consignee (in case there is more than one consignee mentioned in the contract) and mark each package on three sides with the following with indelible paint of proper quality:

- a. contract number and date
- b. brief description of goods including quantity
- c. packing list reference number
- d. consignee's name and full address and
- e. supplier's name and address

8. Inspection, Testing and Quality Control


8.1 The purchaser and/or its nominated representative(s) will, without any extra cost to the purchaser, inspect and/or test (FAT) the ordered goods and the related services to confirm their conformity to the contract specifications and other quality control details incorporated in the contract. The purchaser shall inform the supplier in advance, in writing, the purchaser's programme for such inspection (FAT) and, also the identity of the officials to be deputed for this purpose. The cost towards the transportation, boarding & lodging will be borne by the purchaser and/or its nominated representative(s).

8.2 The Technical Specification and Quality Control Requirements incorporated in the contract / SPECIFICATION shall specify what inspections and tests are to be carried out and, also, where and how they are to be conducted. If such inspections and tests are conducted in the premises of the supplier or its subcontractor(s), all reasonable facilities and assistance, including access to relevant drawings, design details and production data, shall be furnished by the supplier to the purchaser's inspector at no charge to the purchaser.

8.3 If during such inspections (FAT) and tests the contracted goods fail to conform to the required specifications and standards, the purchaser's inspector may reject them and the supplier shall either replace the rejected goods or make all alterations necessary to meet the specifications and standards, as required, free of cost to the purchaser and resubmit the same to the purchaser's inspector for conducting the inspections and tests again.

8.4 In case the contract stipulates pre-despatch inspection of the ordered goods at supplier's premises, the supplier shall put up the goods for such inspection to the purchaser's inspector well ahead of the contractual delivery period, so that the purchaser's inspector is able to complete the inspection within the contractual delivery period.

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8.5 If the supplier tenders the goods to the purchaser's inspector for inspection at the last moment without providing reasonable time to the inspector for completing the inspection within the contractual delivery period, the inspector may carry out the inspection and complete the formality beyond the contractual delivery period at the risk and expense of the supplier. The fact that the goods have been inspected after the contractual delivery period will not have the effect of keeping the contract alive and this will be without any prejudice to the legal rights and remedies available to the purchaser under the terms & conditions of the contract.

8.6 The purchaser's/consignee's contractual right to inspect, test and, if necessary, reject the goods after the goods' arrival at the final destination shall have no bearing of the fact that the goods have previously been inspected and cleared by purchaser's inspector during pre-despatch inspection mentioned above.

8.7 Goods accepted by the purchaser/consignee and/or its inspector at initial inspection and in final inspection in terms of the contract shall in no way dilute purchaser's/consignee's right to reject the same later, if found deficient in terms of the warranty clause of the contract, as incorporated under GCC Clause 15.

8.8 Deleted.

9. Terms of Delivery

9.1 Goods shall be delivered by the supplier in accordance with the terms of delivery specified in **the Schedule of Fiscal Aspects.**

10. Transportation of Goods

10.1 Deleted

10.2 Transportation of domestic goods including goods already imported by the supplier to be done by the supplier himself and the goods to be delivered at the site of the consignee at his own risk and cost.


11. Insurance:

11.1 Unless otherwise instructed in the SCC, the supplier shall make arrangements for insuring the goods against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery in the following manner:

i) In case of supply of domestic goods on consignee site basis, the supplier shall be responsible till the entire stores contracted for arrival in good condition at destination. The transit risk in this respect shall be covered by the Supplier by getting the stores duly insured. The insurance cover shall be obtained by the Supplier and should be valid till the completion of installation and commissioning of the goods .

ii) Deleted

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12. Spare Parts

12.1 If specified in the List of Requirements and in the resultant contract, the supplier shall supply/provide any or all of the following materials, information etc. pertaining to spare parts manufactured and/or supplied by the supplier:

- a) The spare parts as selected by the Purchaser/Consignee to be purchased from the supplier, subject to the condition that such purchase of the spare parts shall not relieve the supplier of any contractual obligation including warranty obligations; and
- b) In case the production of the spare parts is discontinued:
 - i) Sufficient advance notice to the Purchaser/Consignee before such discontinuation to provide adequate time to the purchaser to purchase the required spare parts etc., and
 - ii) Immediately following such discontinuation, providing the Purchaser/Consignee, free of cost, the designs, drawings, layouts and specifications of the spare parts, as and if requested by the Purchaser / Consignee.

12.2 Supplier shall carry sufficient inventories to assure ex-stock supply of consumable spares for the goods so that the same are supplied to the Purchaser/Consignee promptly on receipt of order from the Purchaser/Consignee.

13. Incidental Services

13.1 Subject to the stipulation, if any, in the SCC (Section – V), List of Requirements (Section – VI) and the Technical Specification (Section – VII), the supplier shall be required to perform the following services.

- i) Installation & commissioning, Supervision and Demonstration of the goods
- ii) Providing required jigs and tools for assembly, minor civil works required for the completion of the installation.
- iii) Training of Consignee's Staff, operators etc.for operating and maintaining the goods
- iv) Supplying required number of operation & maintenance manual for the goods

14. Distribution of Dispatch Documents for Clearance/Receipt of Goods

The supplier shall send all the relevant despatch documents well in time to the Purchaser/Consignee to enable the Purchaser/Consignee clear or receive (as the case may be) the goods in terms of the contract.


Unless otherwise specified in the SCC, the usual documents involved and the drill to be followed in general for this purpose are as follows.

- A) For Domestic Goods, including goods already imported by the supplier under its own arrangement

Within 24 hours of despatch, the supplier shall notify the purchaser, consignee, and others concerned if mentioned in the contract, the complete details of despatch and also supply the following documents to them by registered post / speed post (or as instructed in the contract):

- (i) Four copies of supplier's invoice showing contract number, goods description, quantity, unit price and total amount;

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- (ii) Three copies of packing list identifying contents of each package;
- (iii) Inspection certificate issued by the nominated Inspection agency, if any.
- (iv) Certificate of origin;
- (v) Insurance Certificate as per GCC Clause 11.
- (vi) Manufacturers/Supplier's warranty certificate & In-house inspection certificate and OEM certificate

15. Warranty

- 15.1 The supplier warrants comprehensively that the goods supplied under the contract is new, unused and incorporate all recent improvements in design and materials unless prescribed otherwise by the purchaser in the contract. The supplier further warrants that the goods supplied under the contract shall have no defect arising from design, materials (*except when the design adopted and / or the material used are as per the Purchaser's/Consignee's specifications*) or workmanship or from any act or omission of the supplier, that may develop under normal use of the supplied goods under the conditions prevailing in India.
- 15.2 This warranty shall remain valid for 1 (one) years after the goods or any portion thereof as the case may be, have been delivered to the final destination and installed and commissioned at the final destination and accepted by the Purchaser/Consignee in terms of the contract, unless specified otherwise in the SCC.
- a. No conditional warranty like mishandling, manufacturing defects etc. will be acceptable.
 - b. Warranty as well as Comprehensive Maintenance contract will be inclusive of all accessories and Turnkey work and it will also cover all wearable & non wearable components.
 - c. Replacement and repair will be under taken for the defective goods.
 - d. Proper marking has to be made for all spares for identification like printing of installation and repair dates.
- 15.3 In case of any claim arising out of this warranty, the Purchaser/Consignee shall promptly notify the same in writing to the supplier. The period of the warranty will be as per G.C.C clause number 15.2 above irrespective of any other period mentioned elsewhere in the bidding documents.
- 15.4 Upon receipt of such notice, the supplier shall, within 24 hours on a 24(hrs) X 7 (days) X 365 (days) basis respond to take action and to repair or replace the defective goods or parts thereof, free of cost, at the ultimate destination within 48 hours. The supplier shall take over the replaced parts/goods after providing their replacements and no claim, whatsoever shall lie on the purchaser for such replaced parts/goods thereafter. The penalty clause for non rectification will be applicable as per tender conditions.
- 15.5 In the event of any rectification of a defect or replacement of any defective goods during the warranty period, the warranty for the rectified/replaced goods shall be extended to a further period of **twelve months (12) months** from the date such rectified / replaced goods starts functioning to the satisfaction of the purchaser.
- 15.6 If the supplier, having been notified, fails to respond to take action to repair or replace the defect(s) within 24 hours on a 24(hrs) X 7 (days) X 365 (days) basis, the purchaser may proceed to take such remedial action(s) as deemed fit by the purchaser, at the risk and expense of the supplier and

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without prejudice to other contractual rights and remedies, which the purchaser may have against the supplier.

- 15.7 During Warranty period, the supplier is required to visit consignee's site at least once in 3 months commencing from the date of the installation for preventive maintenance of the goods.
- 15.8 The Purchaser/Consignee reserve the rights to enter into Annual Comprehensive Maintenance Contract between Consignee and the Supplier for the period as mentioned in Section VII, Technical Specifications after the completion of warranty period.
- 15.9 The supplier and the CMC provider shall ensure continued supply of the spare parts for the machines and equipment supplied by them to the purchaser for 10 years from the date of installation and handing over.
- 15.10 The Supplier and the CMC Provider shall always accord most favoured client status to the Purchaser vis-à-vis its other Clients/Purchasers of its equipment/machines/goods etc. and shall always give the most competitive price for its machines/equipment supplied to the Purchaser/Consignee.

16. Assignment


- 16.1 The Supplier shall not assign, either in whole or in part, its contractual duties, responsibilities and obligations to perform the contract, except with the Purchaser's prior written permission.


17. Sub Contracts

- 17.1 The Supplier shall notify the Purchaser in writing of all sub contracts awarded under the contract if not already specified in its tender. Such notification, in its original tender or later, shall not relieve the Supplier from any of its liability or obligation under the terms and conditions of the contract.
- 17.2 Sub contract shall be only for bought out items and sub-assemblies.
- 17.3 Deleted

18. Modification of Contract

- 18.1 If necessary, the purchaser may, by a written order given to the supplier at any time during the currency of the contract, amend the contract by making alterations and modifications within the general scope of contract in any one or more of the following:
- Specifications, drawings, designs etc. where goods to be supplied under the contract are to be specially manufactured for the purchaser,
 - Mode of packing,
 - Incidental services to be provided by the supplier
 - Mode of despatch,
 - Place of delivery, and

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f) Any other area(s) of the contract, as felt necessary by the purchaser depending on the merits of the case.

18.2 In the event of any such modification/alteration causing increase or decrease in the cost of goods and services to be supplied and provided, or in the time required by the supplier to perform any obligation under the contract, an equitable adjustment shall be made in the contract price and/or contract delivery schedule, as the case may be, and the contract amended accordingly. If the supplier doesn't agree to the adjustment made by the Purchaser/Consignee, the supplier shall convey its views to the Purchaser/Consignee within twenty-one days from the date of the supplier's receipt of the Purchaser's/Consignee's amendment / modification of the contract.

19. Prices

19.1 Prices to be charged by the supplier for supply, installation, commissioning and Testing of goods and provision of services in terms of the contract shall not vary from the corresponding prices quoted by the supplier in its tender.

20. Taxes and Duties

20.1 Supplier shall be entirely responsible for all taxes, duties, fees, levies etc. incurred until delivery of the contracted goods to the purchaser.

20.2 Further instruction, if any, shall be as provided in the SCC.

20.3 No exemption certificate will be provided by the consignees for custom duty, central Excise duty etc.

20.4 No form 'D' to be issued for concessional CST as the same is no longer applicable.

20.5 The entry tax, if applicable, the exemption certificate will be issued.

21. Terms and Mode of Payment

21.1 Payment Terms


Payment shall be made subject to recoveries, if any, by way of liquidated damages or any other charges as per terms & conditions of contract in the following manner.


A) Payment for Domestic Goods Or Foreign Origin Located Within India.

Payment shall be made in Indian Rupees as specified in the contract in the following manner:

a) Advance

An advance of **20%** of the contract value shall be released against Bank guarantee for 110% of the advance amount and on submission of 10 % of the contract value as Security Deposit/ Performance Security in the form of Bank Guarantee from any scheduled commercial bank.

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b) On delivery:

30 % of the contract price shall be paid on receipt of goods in good condition and upon the submission of the following documents:

- (i) Four copies of supplier's invoice showing contract number, goods description, quantity, unit price and total amount;
- (ii) Consignee Receipt Certificate as per Section XVII in original issued by the authorized representative of the consignee;
- (iii) Two copies of packing list identifying contents of each package;
- (iv) Inspection certificate issued by the nominated Inspection agency, if any.
- (v) Insurance Certificate as per GCC Clause 11
- (vi) Certificate of origin.

c) On installation:

30 % of the contract price shall be paid on installation of materials upon submission of installation report certified by HLL/NPI site incharge.

d) On Commissioning :

10 % payment would be made upon successful commissioning upon submission of commissioning report by HLL/NPI site incharge.

- e) Balance 10 % payment will be made upon successful validation, submission of all documents and on receipt of 'Final Acceptance Certificate' as per Section XVIII of goods to be issued by the consignee / purchaser subject to recoveries, if any, either on account of non-rectification of defects/deficiencies not attended by the Supplier or otherwise.

B) Deleted

C) Deleted

D) Payment for Annual Comprehensive Maintenance Contract Charges:


The consignee will enter into CMC with the supplier at the rates as stipulated in the contract. The payment of CMC will be made on quaterly basis after satisfactory completion of said period, duly certified by the consignee.


21.2 The supplier shall not claim any interest on payments under the contract.

21.3 Where there is a statutory requirement for tax deduction at source, such deduction towards income tax and other tax as applicable will be made from the bills payable to the Supplier at rates as notified from time to time.

21.4 Deleted

21.5 The payment shall be made in the Indian currency authorised in the contract.

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- 21.6 The supplier shall send its claim for payment in writing, when contractually due, along with relevant documents etc., duly signed with date, to the purchaser.
- 21.7 While claiming payment, the supplier has also to certify in the bill that the payment being claimed is strictly in terms of the contract and all the obligations on the part of the supplier for claiming that payment has been fulfilled as required under the contract.
- 21.8 Deleted
- 21.9 In case where the supplier is not in a position to submit its bill for the balance payment for want of receipted copies of Inspection Note from the consignee and the consignee has not complained about the non-receipt, shortage, or defects in the supplies made, balance amount will be paid by the paying authority without consignee's receipt certificate after three months from the date of the preceding part payment for the goods in question, subject to the following conditions:
- The supplier will make good any defect or deficiency that the consignee (s) may report within six months from the date of despatch of goods.
 - Delay in supplies, if any, has been regularized.
 - The contract price where it is subject to variation has been finalized.
 - The supplier furnishes the following undertakings:

"I/We, _____ certify that I/We have not received back the Inspection Note duly received by the consignee or any communication from the purchaser or the consignee about non-receipt, shortage or defects in the goods supplied. I/We _____ agree to make good any defect or deficiency that the consignee may report within three months from the date of receipt of this balance payment.

22. Delay in the supplier's performance

- 22.1 The supplier shall deliver the goods and perform the services under the contract within the time schedule specified by the Purchaser/Consignee in the List of Requirements and as incorporated in the contract.
- 22.2 Subject to the provision under GCC clause 26, any unexcused delay by the supplier in maintaining its contractual obligations towards delivery of goods and performance of services shall render the supplier liable to any or all of the following sanctions:
- Imposition of liquidated damages,
 - Forfeiture of its performance security and
 - Termination of the contract for default.
- 22.3 If at any time during the period of the contract, the supplier encounters conditions hindering timely delivery of the goods and performance of services, the supplier shall promptly inform the Purchaser/Consignee in writing about the same and its likely duration and make a request to the Purchaser/Consignee for extension of the delivery schedule accordingly. On receiving the supplier's communication, the Purchaser/Consignee shall examine the situation as soon as possible and, at its discretion, may agree to extend the delivery schedule, with or without liquidated damages for completion of supplier's contractual obligations by issuing an amendment to the contract.

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22.4 When the period of delivery is extended due to unexcused delay by the supplier, the amendment letter extending the delivery period shall, inter alia contain the following conditions:

- (a) The Purchaser/Consignee shall recover from the supplier, under the provisions of the clause 23 of the General Conditions of Contract, liquidated damages on the goods and services, which the Supplier has failed to deliver within the delivery period stipulated in the contract.
- (b) That no increase in price on account of any ground, whatsoever, including any stipulation in the contract for increase in price on any other ground and, also including statutory increase in or fresh imposition of customs duty, excise duty, sales tax/ VAT, Service Tax and Works Contract Tax or on account of any other tax or duty which may be levied in respect of the goods and services specified in the contract, which takes place after the date of delivery stipulated in the contract shall be admissible on such of the said goods and services as are delivered and performed after the date of the delivery stipulated in the contract.
- (c) But nevertheless, the Purchaser/Consignee shall be entitled to the benefit of any decrease in price on account of reduction in or remission of customs duty, excise duty, sales tax/ VAT, Service Tax and Works Contract Tax or any other duty or tax or levy or on account of any other grounds, which takes place after the expiry of the date of delivery stipulated in the contract.

22.5 The supplier shall not dispatch the goods after expiry of the delivery period. The supplier is required to apply to the Purchaser/Consignee for extension of delivery period and obtain the same before despatch. In case the supplier dispatches the goods without obtaining an extension, it would be doing so at its own risk and no claim for payment for such supply and / or any other expense related to such supply shall lie against the purchaser.

23. Liquidated damages


23.1 Subject to GCC clause 26, if the supplier fails to deliver any or all of the goods or fails to perform the services within the time frame(s) incorporated in the contract, the Purchaser/Consignee shall, without prejudice to other rights and remedies available to the Purchaser/Consignee under the contract, deduct from the contract price, as liquidated damages, a sum equivalent to 1% per week of delay or part thereof on delayed supply of goods and/or services until actual delivery or performance subject to a maximum of 5% of the contract price. Once the maximum is reached Purchaser/Consignee may consider termination of the contract as per GCC 24.

During the above-mentioned delayed period of supply and / or performance, the conditions incorporated under GCC sub-clause 22.4 above shall also apply.

24. Termination for default

24.1 The Purchaser/Consignee, without prejudice to any other contractual rights and remedies available to it (the Purchaser/Consignee), may, by written notice of default sent to the supplier, terminate the contract in whole or in part, if the supplier fails to deliver any or all of the goods or fails to perform any other contractual obligation(s) within the time period specified in the contract, or within any extension thereof granted by the Purchaser/Consignee pursuant to GCC sub-clauses 22.3 and 22.4.

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24.2 In the event of the Purchaser/Consignee terminates the contract in whole or in part, pursuant to GCC sub-clause 24.1 above, the Purchaser/Consignee may procure goods and/or services similar to those cancelled, with such terms and conditions and in such manner as it deems fit and the supplier shall be liable to the Purchaser/Consignee for the extra expenditure, if any, incurred by the Purchaser/Consignee for arranging such procurement.

24.3 Unless otherwise instructed by the Purchaser/Consignee, the supplier shall continue to perform the contract to the extent not terminated.

25. Termination for insolvency

25.1 If the supplier becomes bankrupt or otherwise insolvent, the purchaser reserves the right to terminate the contract at any time, by serving written notice to the supplier without any compensation, whatsoever, to the supplier, subject to further condition that such termination will not prejudice or affect the rights and remedies which have accrued and / or will accrue thereafter to the Purchaser/Consignee.

26. Force Majeure

26.1 Notwithstanding the provisions contained in GCC clauses 22, 23 and 24, the supplier shall not be liable for imposition of any such sanction so long the delay and/or failure of the supplier in fulfilling its obligations under the contract is the result of an event of Force Majeure.

26.2 For purposes of this clause, Force Majeure means an event beyond the control of the supplier and not involving the supplier's fault or negligence and which is not foreseeable and not brought about at the instance of , the party claiming to be affected by such event and which has caused the non – performance or delay in performance. Such events may include, but are not restricted to, acts of the Purchaser/Consignee either in its sovereign or contractual capacity, wars or revolutions, hostility, acts of public enemy, civil commotion, sabotage, fires, floods, explosions, epidemics, quarantine restrictions, strikes excluding by its employees , lockouts excluding by its management, and freight embargoes.

26.3 If a Force Majeure situation arises, the supplier shall promptly notify the Purchaser/Consignee in writing of such conditions and the cause thereof within twenty one days of occurrence of such event. Unless otherwise directed by the Purchaser/Consignee in writing, the supplier shall continue to perform its obligations under the contract as far as reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.


26.4 If the performance in whole or in part or any obligation under this contract is prevented or delayed by any reason of Force Majeure for a period exceeding sixty days, either party may at its option terminate the contract without any financial repercussion on either side.

26.5 In case due to a Force Majeure event the Purchaser/Consignee is unable to fulfil its contractual commitment and responsibility, the Purchaser/Consignee will notify the supplier accordingly and subsequent actions taken on similar lines described in above sub-paragraphs.

27. Termination for Convenience

27.1 The Purchaser/Consignee reserves the right to terminate the contract, in whole or in part for its (Purchaser's/Consignee 's) convenience, by serving written notice on the supplier at any time during the currency of the contract. The notice shall specify that the termination is for the

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convenience of the Purchaser/Consignee. The notice shall also indicate interalia, the extent to which the supplier's performance under the contract is terminated, and the date with effect from which such termination will become effective.

27.2 The goods and services that are complete and ready in terms of the contract for delivery and performance within thirty days after the supplier's receipt of the notice of termination shall be accepted by the Purchaser/Consignee following the contract terms, conditions and prices. For the remaining goods and services, the Purchaser/Consignee may decide:

- a) To get any portion of the balance completed and delivered at the contract terms, conditions and prices; and / or
- b) To cancel the remaining portion of the goods and services and compensate the supplier by paying an agreed amount for the cost incurred by the supplier towards the remaining portion of the goods and services.

28. Governing language

28.1 The contract shall be written in English language following the provision as contained in GIT clause 4. All correspondence and other documents pertaining to the contract, which the parties exchange, shall also be written accordingly in that language.

29. Notices

29.1 Notice, if any, relating to the contract given by one party to the other, shall be sent in writing or by cable or telex or facsimile and confirmed in writing. The procedure will also provide the sender of the notice, the proof of receipt of the notice by the receiver. The addresses of the parties for exchanging such notices will be the addresses as incorporated in the contract.

29.2 The effective date of a notice shall be either the date when delivered to the recipient or the effective date specifically mentioned in the notice, whichever is later.

30. Resolution of disputes


30.1 Disputes, if any, shall be invariably sorted out by mutual discussions and resolved. In case of disputes, not resolved by this process shall be referred to the Sole Arbitrator, to be appointed by the Chairman & Managing Director, of employer. The place of arbitration shall be Chennai. The award of the arbitrator shall be binding on both the parties.


30.2 Deleted

30.3 Venue of Arbitration: The venue of arbitration shall be – Chennai.

31. Applicable Law

The contract shall be governed by and interpreted in accordance with the laws of India for the time being in force.

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32. General/ Miscellaneous Clauses

- 32.1 Nothing contained in this Contract shall be constructed as establishing or creating between the parties, i.e. the Supplier/CMC Provider on the one side and the Purchaser on the other side, a relationship of master and servant or principal and agent.
- 32.2 Any failure on the part of any Party to exercise right or power under this Contract shall not operate as waiver thereof.
- 32.3 The Supplier shall notify the Purchaser/Consignee /the Government of India of any material change would impact on performance of its obligations under this Contract.
- 32.4 Each member/constituent of the Supplier/ CMC Provider, in case of consortium shall be **jointly and severally liable** to and responsible for all obligations towards the Purchaser/Consignee/Government for performance of contract/services including that of its Associates/Sub Contractors under the Contract.
- 32.5 The Supplier/CMC Provider shall at all times, indemnify and keep indemnified the Purchaser/Government of India against all claims/damages etc. for any infringement of any Intellectual Property Rights (IPR) while providing its services under CMC or the Contract.
- 32.6 The Supplier/CMC Provider shall, at all times, indemnify and keep indemnified the Purchaser/Consignee/Government of India against any claims in respect of any damages or compensation payable in consequences of any accident or injury sustained or suffered by its employees or agents or by any other third party resulting from or by any action, omission or operation conducted by or on behalf of the supplier/its associate/affiliate etc.
- 32.7 All claims regarding indemnity shall survive the termination or expiry of the contract

33. Integrity Pact

The Integrity Pact Annexed as Section-XXII shall be part and parcel of this tender and has to be signed by the bidder(s) at the pre tendering stage itself as a pre-bid obligation and should be submitted along with the financial & technical bids. All the bidders are bound to comply the Integrity Pact Clauses. Bids submitted without signing Integrity Pact will be ab initio rejected without assigning any reason.

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SECTION – V

SPECIAL CONDITIONS OF CONTRACT (SCC)


The following Special Conditions of Contract (SCC) will apply for this purchase. The corresponding clauses of General Conditions of Contract (GCC) relating to the SCC stipulations have also been incorporated below.


These Special Conditions will modify/substitute/supplement the corresponding (GCC) clauses.

Whenever there is any conflict between the provision in the GCC and that in the SCC, the provision contained in the SCC shall prevail.

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SECTION – VI

LIST OF REQUIREMENTS

Part I

Refer technical specifications and BOQ under Chapter 2.4 & Chapter 2.6 of tender.

Part II: Required Delivery Schedule:

- a) For Indigenous goods or for imported goods if supplied from India:
As mentioned in Specification. The day starts from date of Notification of Award to delivery at consignee site. The date of delivery will be the date of delivery at consignee site (Tenderers may quote earliest delivery period which will however not attract any preference for earlier delivery).
- b) Deleted

Part III: Scope of Incidental Services:

Installation & Commissioning, Supervision, Demonstration, Trial run and Training etc. as specified in GCC Clause 13

Part IV: Turnkey (if any) as per details in Technical Specification.

Part V: Comprehensive Maintenance Contract (CMC) as per details in Technical Specification if mentioned .

Part VI: Required Terms of Delivery and Destination.



a) For Indigenous goods or for imported goods if supplied from India:


At Consignee Site

Insurance (local transportation and storage) would be borne by the Supplier from warehouse to the consignee site for a period including 3 months beyond date of delivery.

b) Deleted

Destination/Consignee details are given in Section XXI

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SECTION – VII


TECHNICAL SPECIFICATIONS


- Note 1:** Tenderer's attention is drawn to GIT clause 18 and GIT sub-clause 11.1 under heading (c) preparation of tenders. The tenderer is to provide the required details, information, confirmations, etc. accordingly failing that it's tender is liable to be ignored.
- Note 2:** General: Bidders are requested to make sure that they should attach the list of equipments for carrying out routine and preventive maintenance wherever asked for .
- Note 3:** OPTIONAL ITEMS: Bidders are requested to quote for all the available options as asked in the bidding document with reasonable pricing. However the pricing for optional items will not be considered for price comparison for ranking purpose. If the firm has not quoted for any optional item (except the items of turnkey) their offer will be treated as TECHNICALLY RESPONSIVE if otherwise meeting the specification.

Refer Chapter 2.3 & 2.4 for Design Criteria & Technical Specifications

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SECTION-VII

TECHNICAL SPECIFICATIONS

GENERAL TECHNICAL SPECIFICATIONS

GENERAL POINTS:

1. Warranty:
 - a) Two years Comprehensive Warranty as per Conditions of Contract of the TE document for complete equipment and Turnkey Work from the date of satisfactory installation, commissioning, trial run & handing over of equipment to CONSIGNEE.
 - b) 98% up time Warranty of complete equipment with extension of Warranty period by double the downtime period on 24 (hrs) X 7 (days) X 365 (days) basis.
 - c) All software updates should be provided free of cost during Warranty period.

2. After Sales Service:


After sales service centre should be available at the city of CONSIGNEE on 24 (hrs) X 7 (days) X 365 (days) basis. Complaints should be attended properly, maximum within 48 hrs. The service should be provided by Tenderer. Undertaking by the Principals that the spares for the equipment shall be available for at least 10 years from the date of supply. However if the manufacturer does not have the service centres in India will have to set up the same within 45 days after award of the contract.

3. Training:

On Site training to operators/ Technicians/ staff is to be provided by the Supplier for operation and maintenance of the equipment to the satisfaction of the consignee.

4. Annual Comprehensive Maintenance Contract (CMC) of subject equipment with Turnkey:
 - a) The cost of Comprehensive Maintenance Contract (CMC) which includes breakdown maintenance and preventive maintenance including consumables, testing & calibration, labour and spares as per technical/ service /operational manual of the manufacturer, labour and spares, after satisfactory completion of Warranty period may be quoted for next 5 years on yearly basis for complete equipment and Turnkey (if any). The supplier shall visit each consignee site as recommended in the manufacturer's technical/ service /operational manual, but at least once in three months during the CMC period.
 - b) The cost of CMC may be quoted along with taxes applicable on the date of Tender Opening. The taxes to be paid extra, to be specifically stated. In the absence of any such stipulation the price will be taken inclusive of such taxes and no claim for the same will be entertained later.
 - c) Cost of CMC will be added for Ranking/Evaluation purpose. In case vendor has not quoted for CMC, his offer is liable for rejection.
 - d) The payment of CMC will be made on quaterly basis, after satisfactory completion of said period, duly certified by end user .
 - e) There will be 98% uptime warranty during CMC period on 24 (hrs) X 7 (days) X 365 (days) basis, with penalty, to extend CMC period by double the downtime period.


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- f) During CMC period, the supplier is required to visit at each consignee's site at least once in 3 months commencing from the date of the successful completion of warranty period for preventive maintenance of the supplied systems.
- g) All software updates should be provided free of cost during CMC.
- h) Failure of the above [4. e) to 4. g)] by the supplier, may lead to the forfeiture of the Bank Guarantee for Annual CMC.
- i) The payment of CMC will be made as stipulated in GCC Clause 21
- j) The contractor shall send his claim for payment in writing, when contractually due, along with relevant documents etc., duly signed with date, to the Client.
- k) The payment of Annual CMC will be made against the bills raised to the Client by the supplier on three monthly basis after satisfactory completion of said period, duly certified by the concerned person. The payment will be made in Indian Rupees
- l) The Performance Bank Guarantee/ Security Deposit submitted by the Supplier shall be returned only on entering into the CMC agreement. However, entering into an agreement on CMC with the Contractor is the sole discretion of the Client.
- m) The vendor should provide yearly CMC break up.
- n) The supplier shall furnish the performance guarantee and agreement form for the CMC three months prior to complete of warranty.
- o) During CMC period any complaint from the part of client shall be attended by the supplier/CMC Provider within 48 hours of receipt of the written complaint and problem shall be rectified within shortest possible time. In case of any failure in above measures, the client has rights to withhold a part of the quarterly CMC payment or recover the losses incurred from the due payment.

Turnkey:

Turnkey is indicated in the technical specification of the respective items, wherever required. The Tendered shall examine the existing site where the equipment is to be installed. Turnkey details are given at the end of Technical Specification. The Tenderers to quote prices indicating break-up of prices of the Machine and Turnkey Job for each site. The Turnkey costs may be quoted (Inclusive of all taxes /duties) in Indian Rupee will be added for Ranking Purpose.

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SECTION – VIII

QUALITY CONTROL REQUIREMENTS

(Proforma for equipment and quality control employed by the manufacturer(s))

Tender Reference No.

Date of opening

Time

Name and address of the Tenderer:

Note: All the following details shall relate to the manufacturer(s) for the goods quoted for.

01 Name of the manufacturer

- a) Full Postal Address
- b) Full Address of the Premises
- c) Email ID
- d) Telephone Number
- e) Fax Number

02 Plant and machinery details

03 Manufacturing process details

04 Monthly (single shift) production capacity of goods quoted for

- a) Normal
- b) Maximum

05 Total annual turn-over (value in Rupees) for the last three calendar years excluding the year of tender opening:


06 Quality control arrangement details

- a) For incoming materials and bought-out components
- b) For process control
- c) For final product evaluation

07 Test certificate held

- a) Type Test
- b) BIS/ISO Certification

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c) Any other


08 Details of staff


- a) Technical
- b) Skilled
- c) Unskilled

09 Please furnish documentation details with clarifications etc as asked for at the end of the equipment specification.

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SECTION – IX

QUALIFICATION CRITERIA (FOR EVERY SCHEDULE QUOTED)


1. The firm should have proven and demonstrable experience in supply and installation of Waste water treatment system for the **last five** years.
2. The firm must have supplied, installed and commissioned at least **5 packages** wastewater treatment system above 15KLD for ETP and STP during the last five years.
3. Average Turnover of the company must be minimum **Rs 50 lakhs** during last three financial year. Furnish the information under section B.
4. Net worth of the company should be positive during the last three financial years.
5. No blacklisting for non-completion of work/ rejection of client / rejection by consultant in last 2 years.

Note:

In support of above the Tenderer shall furnish the details in the below tables.

1. The manufacturer as well as the Tenderer shall furnish Satisfactory Performance cum Installation Certificate or Completion Certificate in respect of above, duly translated in English and duly notarized in the country of origin, along with the tender. The Satisfactory Performance cum Installation Certificate or Completion Certificate should be issued by Client.
2. The Tenderer shall furnish a brief write-up, packed with adequate data explaining and establishing his available capacity/capability (both technical and financial) to perform the Contract (if awarded) within the stipulated time period, after meeting all its current/present commitments. The Tenderer shall also furnish details of Equipment and Quality Control in the enclosed Section below.
3. Notwithstanding anything stated above, the Purchaser reserves the right to assess the Tenderer's capability and capacity to perform the contract satisfactorily before deciding on award of Contract, should circumstances warrant such an assessment in the overall interest of the Purchaser. The Purchaser reserves the right to ask for a free demonstration of the quoted equipment to similar/identical specification at a pre determined place acceptable to the purchaser for determining technical responsiveness, before the opening of the Price Bid.


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PROFORMA:


A. General information:	
1	Name of Company
2	Registration No.
3	Number of Years in Operation
4	Registered Address
5	Operating Address
6	Telephone No
7	Telefax
8	Email Address
9	SERVICE TAX No.
10	PAN No.
11	TIN No.

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B. FINANCE	
1	Name & Address of Banks and Branches used :
1.1	
1.2	
1.3	Documentary evidence (duly signed & stamped) must be enclosed. <input type="checkbox"/> Yes <input type="checkbox"/> no
3	What is your average annual invoiced sales value (based on past previous 5 year's records) for each of the type of equipments under consideration.
	Equipment Name: ----- (If more than one equipment, enclose the same separately)
3.1	2011-12 _____ (Value in Lakhs)
	2010-11 _____ (Value in Lakhs)
	2009-10 _____ (Value in Lakhs)
	2008-09 _____ (Value in Lakhs)
	2007-08 _____ (Value in Lakhs)
3.2	Documentary evidence (duly signed & stamped) must be enclosed. <input type="checkbox"/> Yes <input type="checkbox"/> no
4	Annual Turnover of the Firm/ company:
4.1	2011 – 2012: _____ (Value in Lakhs)
	2010 – 2011: _____ (Value in Lakhs)
	2009 – 2010: _____ (Value in Lakhs)
4.2	Documentary evidence (duly signed & stamped) must be enclosed. <input type="checkbox"/> Yes <input type="checkbox"/> no
5	Bidders are to submit copy of valid current Income Tax Return submitted, Sales Tax Registration failing which their offer may be liable to be rejected. <input type="checkbox"/> Yes <input type="checkbox"/> no

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C EXPERIENCE:						
1 Past Project Experience:						
The firm should have proven and demonstrable experience in supply, installation and commissioning of wastewater system or above in the last five years.						
Sr. No.	Year awarded	Project Name	Equipments Supplied	CONTRACT VALUE (INR)	CLIENT NAME & REFERENCE (Contact details)	
1.1						
1.2						
1.3						
1.4						
1.5						
1.6						
1.7						
1.8						
1.9						
Documentary evidence of the same to be enclosed						<input type="checkbox"/> Yes <input type="checkbox"/> no
2 Details of Ongoing project:						
S. No.	Year awarded	Project Name	Equipments Supplied	CONTRACT VALUE (INR)	CLIENT NAME & REFERENCE (Contact details)	Remarks
2.1						
2.2						
2.3						
2.4						
2.5						
Documentary evidence of the same to be enclosed						<input type="checkbox"/> Yes <input type="checkbox"/> no


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D. QUALITY	
1	ISO CERTIFICATION
	<p>Is your company ISO certified, if so mention the certification number and enclose the photocopy of the certificate:</p> <p>ISO 9001: 2008</p> <p>ISO _____</p> <p>ISO _____</p> <p style="text-align: right;"><input type="checkbox"/> Yes <input type="checkbox"/> no</p>
2	Enclose the company Quality policy
	<input type="checkbox"/> Yes <input type="checkbox"/> no
3	<p>The equipment supplied should comply with the State or Central Pollution Control Board guidelines / standards.</p> <p>Note: Subject to the kind of equipment supplied.</p> <p style="text-align: right;"><input type="checkbox"/> Yes <input type="checkbox"/> no</p>

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E. ATTACHMENTS		
S.No.	Please provide the following documents in your submissions:	Enclosed
1	Company Brochure / Literature	<input type="checkbox"/> Yes <input type="checkbox"/> no
2	Product profile	<input type="checkbox"/> Yes <input type="checkbox"/> no
3	Technical Details of equipments	<input type="checkbox"/> Yes <input type="checkbox"/> no
4	Name & Address of Banks and Branches used : (duly signed & stamped)**	<input type="checkbox"/> Yes <input type="checkbox"/> no
	Annual turnover for the following years	
5	2012 – 2011: Balance sheet and P/L Statement (duly signed & stamped)**	<input type="checkbox"/> Yes <input type="checkbox"/> no
	2011 – 2010: Balance sheet and P/L Statement (duly signed & stamped)**	<input type="checkbox"/> Yes <input type="checkbox"/> no
	2010 – 2009: Balance sheet and P/L Statement (duly signed & stamped)**	<input type="checkbox"/> Yes <input type="checkbox"/> no
6	Current Income Tax Return	<input type="checkbox"/> Yes <input type="checkbox"/> no
	Sales Tax Registration	<input type="checkbox"/> Yes <input type="checkbox"/> no
7	Past project experience: Completion certificate (duly signed & Stamped)**	<input type="checkbox"/> Yes <input type="checkbox"/> no
8	Ongoing project details.	<input type="checkbox"/> Yes <input type="checkbox"/> no
9	ISO Certificates	<input type="checkbox"/> Yes <input type="checkbox"/> no
10	Company policies	<input type="checkbox"/> Yes <input type="checkbox"/> no
11	Equipment list / scope of supply	<input type="checkbox"/> Yes <input type="checkbox"/> no

Signature and seal of the Tenderer

** The documentary proof will be a certificate (enclosed) from the consignee/end user with cross-reference of order no. and date in the certificate duly notarised certification authenticating the correctness of the information furnished- If at any time, information furnished is proved to be false or incorrect, the earnest money and or performance security furnished will be forfeited .such certificates from a third party or middleman other than actual end user will not be accepted .

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FORMAT OF PERFORMANCE CERTIFICATE


To whom it may concern


Date. _____

Certified that M/s -----(name & address of the manufacturer) supplied us -----Nos (indicate quantity) of equipment, -----(indicate name of the equipment) against our order no -----dt -----(please indicate order no & date as figuring in the performance statement). The equipment was installed, commissioned & handed over to us on -----(indicate date) & since then the equipment has been working to our entire satisfaction.

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SECTION – X

TENDER FORM

Date _____
To _____

HLL Lifecare Limited, Chennai

Ref. Your TE document No. _____ dated _____

We, the undersigned have examined the above mentioned TE document, including amendment/corrigendum No. _____, dated _____ (if any), the receipt of which is hereby confirmed. We now offer to supply and deliver _____ (Description of goods and services) in conformity with your above referred document for the sum of _____ (total tender amount in figures and words), as shown in the price schedule(s), attached herewith and made part of this tender.

If our tender is accepted, we undertake to supply the goods and perform the services as mentioned above, in accordance with the delivery schedule specified in the List of Requirements.

We further confirm that, if our tender is accepted, we shall provide you with a performance security of required amount in an acceptable form in terms of GCC clause 5, read with modification, if any, in Section - V – “Special Conditions of Contract”, for due performance of the contract.

We agree to keep our tender valid for acceptance as required in the GIT clause 20, read with modification, if any in Section - III – “Special Instructions to Tenderers” or for subsequently extended period, if any, agreed to by us. We also accordingly confirm to abide by this tender up to the aforesaid period and this tender may be accepted any time before the expiry of the aforesaid period. We further confirm that, until a formal contract is executed, this tender read with your written acceptance thereof within the aforesaid period shall constitute a binding contract between us.

We further understand that you are not bound to accept the lowest or any tender you may receive against your above-referred tender enquiry.


We confirm that we do not stand deregistered/banned/blacklisted by any Govt. Authorities.

We confirm that we fully agree to the terms and conditions specified in above mentioned TE document, including amendment/ corrigendum if any

(Signature with date)

(Name and designation) Duly authorised to sign tender for and on behalf of

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SECTION – XI

PRICE SCHEDULE

A PRICE SCHEDULE FOR DOMESTIC GOODS OR GOODS OF FOREIGN ORIGIN LOCATED WITHIN INDIA (Vendor to quote as per format in the BOQ)

1	2	3	4	5					6	
				Price per unit (Rs.)						
Schedule	Brief Description of Goods	Country of Origin	Quantity (Nos.)	Ex - factory/ Ex -warehouse /Ex-showroom /Off - the shelf (a)	Excise Duty (if any) [%age & value] (b)	Sales Tax/ VAT (if any) [%age & value] ©	Packing and Forwarding charges (d)	Incidental Services (including Installation & Commissioning, Supervision, Demonstration, Training Documentation and Qualification) at the Consignee's site (e)	Unit Price (at Consignee Site) basis (g) =a+b+c+d+e	Total Price (at Consignee Site) basis (Rs.) 4 x 5(g)

NB: Unit price shall be written in figures and words

Total Tender price in Rupees: _____

In words:

Note: -

1. If there is a discrepancy between the unit price and total price THE UNIT PRICE shall prevail.
2. The prices as quoted in the bill of quantity(Chapter 2.6) shall be attached in the price bid along with this price schedule summary.
3. The charges for Annual CMC after warranty shall be quoted separately as per Section – XI – Price Schedule C

Name _____

Business Address _____


Place: _____

Signature of Tenderer _____

Date: _____

Seal of the Tenderer _____

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SECTION – XI


PRICE SCHEDULE


B. PRICE SCHEDULE FOR GOODS TO BE IMPORTED FROM ABROAD

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SECTION – XI PRICE SCHEDULE

PRICE SCHEDULE FOR ANNUAL COMPREHENSIVE MAINTENANCE CONTRACT AFTER WARRANTY PERIOD (Vendor to quote for CMC as per BOQ format)

1 Sched ule No.	2 BRIEF DESCRIPTION OF GOODS	3 QUANTI TY. (Nos.)	4 Annual Comprehensive Maintenance Contract Cost for Each Unit year wise*.					5 Total Annual Comprehensive Maintenance Contract Cost for 5 Years [Quantity x (4a+4b+4c+4d+4e)]
			1st	2nd	3rd	4th	5th	
			a	B	C	d	e	

* After completion of Warranty period

NOTE:-


1. Waste water plant will operate for 16 hrs. daily, accordingly consider spare parts and related maintenance service work recommended by plant suppliers for the service for 5 Years.
2. In case of discrepancy between unit price and total prices, THE UNIT PRICE shall prevail.
3. The cost of Comprehensive Maintenance Contract (CMC) which includes preventive & breakdown maintenance including testing & calibration as per technical/ service /operational manual, labour and spares, after satisfactory completion of Warranty period may be quoted for next 5 years on yearly basis for complete equipment and Turnkey (if any).
4. The cost of CMC may be quoted along with taxes applicable on the date of Tender Opening. The taxes to be paid extra, to be specifically stated. In the absence of any such stipulation the price will be taken inclusive of such taxes and no claim for the same will be entertained later.
5. Cost of CMC will be added for Ranking/Evaluation purpose.
6. The payment of CMC will be made as per clause GCC clause 21.1 (D).
7. The uptime warranty will be 98 % on 24 (hrs) X 7 (days) X 365 (days) basis or as stated in Technical Specification of the TE document.
8. All software updates should be provided free of cost during CMC period.
9. The stipulations in Technical Specification will supersede above provisions
10. The supplier shall keep sufficient stock of spares required during Annual Comprehensive Maintenance Contract period. In case the spares are required to be imported, it would be the responsibility of the supplier to import and get them custom cleared and pay all necessary duties.
11. Agency commission may be shown in separate column in price schedule.

Name _____ Business Address _____

Place: _____ Signature of Tenderer _____

Date: _____ Seal of the Tenderer _____

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SECTION – XI PRICE SCHEDULE

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SECTION – XII


QUESTIONNAIRE


Fill up the Section XX – Check List for Tenderers and enclose with the Tender

1. The tenderer should furnish specific answers to all the questions/issues mentioned in the Checklist. In case a question/issue does not apply to a tenderer, the same should be answered with the remark “not applicable”
2. Wherever necessary and applicable, the tenderer shall enclose certified copy as documentary proof/ evidence to substantiate the corresponding statement.
3. In case a tenderer furnishes a wrong or evasive answer against any of the question/issues mentioned in the Checklist, its tender will be liable to be ignored.

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SECTION – XIII

BANK GUARANTEE FORM FOR EMD

Whereas _____ (hereinafter called the "Tenderer") has submitted its quotation dated _____ for the supply of _____ (hereinafter called the "tender") against the purchaser's tender enquiry No. _____ Know all persons by these presents that we _____ of _____ (Hereinafter called the "Bank") having our registered office at _____ are bound unto _____ (hereinafter called the "Purchaser) in the sum of _____ for which payment will and truly to be made to the said Purchaser, the Bank binds itself, its successors and assigns by these presents. Sealed with the Common Seal of the said Bank this _____ day of _____ 20____. The conditions of this obligation are:

- (1) If the Tenderer withdraws or amends, impairs or derogates from the tender in any respect within the period of validity of this tender.
- (2) If the Tenderer having been notified of the acceptance of his tender by the Purchaser during the period of its validity:-
 - a) Fails or refuses to furnish the performance security for the due performance of the contract.
or
 - b) Fails or refuses to accept/execute the contract.
or
 - c) If it comes to notice that the information/documents furnished in its tender is incorrect, false, misleading or forged


We undertake to pay the Purchaser up to the above amount upon receipt of its first written demand, without the Purchaser having to substantiate its demand, provided that in its demand the Purchaser will note that the amount claimed by it is due to it owing to the occurrence of one or both the two conditions, specifying the occurred condition(s).


This guarantee will remain in force for a period of forty-five days after the period of tender validity and any demand in respect thereof should reach the Bank not later than the above date.

(Signature of the authorised officer of the Bank)

Name and designation of the officer

Seal, name & address of the Bank and address of the Branch

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SECTION – XIV

MANUFACTURER'S AUTHORISATION FORM

To

HL Lifecare Limited, Chennai

Dear Sirs,

Ref. Your TE document No _____, dated _____

We, _____ who are proven and reputable manufacturers of _____ (name and description of the goods offered in the tender) having factories at _____, hereby authorise Messrs _____ (name and address of the agent) to submit a tender, process the same further and enter into a contract with you against your requirement as contained in the above referred TE documents for the above goods manufactured by us.

We further confirm that no supplier or firm or individual other than Messrs. _____ (name and address of the above agent) is authorised to submit a tender, process the same further and enter into a contract with you against your requirement as contained in the above referred TE documents for the above goods manufactured by us.

We also hereby extend our full warranty, CMC as applicable as per clause 15 of the General Conditions of Contract, read with modification, if any, in the Special Conditions of Contract for the goods and services offered for supply by the above firm against this TE document.

Yours faithfully,


[Signature with date, name and designation]


for and on behalf of Messrs _____

[Name & address of the manufacturers]

Note: 1. This letter of authorisation should be on the letter head of the manufacturing firm and should be signed by a person competent and having the power of attorney to legally bind the manufacturer.

1. Original letter may be sent.

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SECTION – XV

BANK GUARANTEE FORM FOR PERFORMANCE SECURITY/ CMC SECURITY

To
HLL Lifecare Limited

WHEREAS _____ (Name and address of the supplier) (Hereinafter called "the supplier") has undertaken, in pursuance of contract no _____ dated _____ to supply (description of goods and services) (herein after called "the contract").

AND WHEREAS it has been stipulated by you in the said contract that the supplier shall furnish you with a bank guarantee by a nationalized bank recognised by you for the sum specified therein as security for compliance with its obligations in accordance with the contract;

AND WHEREAS we have agreed to give the supplier such a bank guarantee;

NOW THEREFORE we hereby affirm that we are guarantors and responsible to you, on behalf of the supplier, up to a total of _____ (Amount of the guarantee in words and figures), and we undertake to pay you, upon your first written demand declaring the supplier to be in default under the contract and without cavil or argument, any sum or sums within the limits of (amount of guarantee) as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the supplier before presenting us with the demand.



We further agree that no change or addition to or other modification of the terms of the contract to be performed there under or of any of the contract documents which may be made between you and the supplier shall in any way release us from any liability under this guarantee and we hereby waive notice of any such change, addition or modification.


This guarantee shall be valid up to 30 (thirty) months from the date of Notification of Award i.e up to -----
- (indicate date)

.....
.....
(Signature with date of the authorised officer of the Bank)

.....
Name and designation of the officer

.....
Seal, name & address of the Bank and address of the Branch

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SECTION – XVI

CONTRACT FORM - A

CONTRACT FORM FOR SUPPLY, INSTALLATION, COMMISSIONING, HANDING OVER, TRIAL RUN, TRAINING OF OPERATORS & WARRANTY OF GOODS

HLL Lifecare Limited

Contract No _____ dated _____


This is in continuation to this office's Notification of Award No _____ dated _____


1. Name & address of the Supplier: _____
2. Purchaser's TE document No _____ dated _____ and subsequent Amendment No _____, dated _____ (if any), issued by the purchaser
3. Supplier's Tender No _____ dated _____ and subsequent communication(s) No _____ dated _____ (if any), exchanged between the supplier and the purchaser in connection with this tender.
4. In addition to this Contract Form, the following documents etc, which are included in the documents mentioned under paragraphs 2 and 3 above, shall also be deemed to form and be read and construed as integral part of this contract:
 - (i) General Conditions of Contract;
 - (ii) Special Conditions of Contract;
 - (iii) List of Requirements;
 - (iv) Technical Specifications;
 - (v) Quality Control Requirements;
 - (vi) Tender Form furnished by the supplier;
 - (vii) Price Schedule(s) furnished by the supplier in its tender;
 - (viii) Manufacturers' Authorisation Form (if applicable for this tender);
 - (ix) Purchaser's Notification of Award

Note: The words and expressions used in this contract shall have the same meanings as are respectively assigned to them in the conditions of contract referred to above. Further, the definitions and abbreviations incorporated under clause 1 of Section II – 'General Instructions to Tenderers' of the Purchaser's TE document shall also apply to this contract.

5. Some terms, conditions, stipulations etc. out of the above-referred documents are reproduced below for ready reference:

Brief particulars of the goods and services which shall be supplied/ provided by the supplier are as under:

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Schedule No.	Brief description of goods/services	Accounting unit	Quantity to be supplied	Unit Price	Total price	Terms of delivery

Any other additional services (if applicable) and cost thereof: _____

Total value (in figure) _____ (In words) _____

1. Delivery schedule

(i) Details of Performance Security

(ii) Quality Control

(a) Mode(s), stage(s) and place(s) of conducting inspections and tests.

(b) Designation and address of purchaser's inspecting officer

(iii) Destination and despatch instructions

(iv) Consignee, including port consignee, if any

2. Warranty clause

3. Payment terms

4. Paying authority

(Signature, name and address of CONSIGNEE)

For and on behalf of _____

Received and accepted this contract

(Signature, name and address of the supplier's executive duly authorised to sign on behalf of the supplier)



For and on behalf of _____


(Name and address of the supplier)

(Seal of the supplier)

Date: _____

Place: _____

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SECTION – XVI

CONTRACT FORM – B

CONTRACT FORM FOR ANNUAL COMPREHENSIVE MAINTENANCE CONTRACT

Annual CM Contract No. _____ dated _____
Between _____

CONSIGNEE

And _____

(Name & Address of the Supplier)

Ref: Contract No _____ dated _____ (Contract No. & date of Contract for supply, installation, commissioning, handing over, Trial run, Training of operators & warranty of goods)



In continuation to the above referred contract


1. The Contract of Annual Comprehensive Maintenance is hereby concluded as under: -

1 Schedule No.	2 BRIEF DESCRIPTION OF GOODS	3 QUANTITY. (Nos.)	4 Annual Comprehensive Maintenance Contract Cost for Each Unit year wise*.					5 Total Annual Comprehensive Maintenance Contract Cost for 5 Years [Quantity x (4a+4b+4c+4d+4e)]
			1 st	2nd	3rd	4th	5th	
			A	b	c	d	e	

Total value (in figure) _____ (In words) _____

- The CMC commence from the date of expiry of all obligations under Warranty i.e. from _____ (date of expiry of Warranty) and will expire on _____ (date of expiry of CMC)
- The cost of Annual Comprehensive Maintenance Contract (CMC) which includes breakdown maintenance, preventive maintenance inclusive of consumables, labour and spares, after satisfactory completion of Warranty period may be quoted for next 5 years as contained in the above referred contract on yearly basis for complete equipment and Turnkey (if any).
- There will be 98% uptime warranty during CMC period on 24 (hrs) X 7 (days) X 365 (days) basis, with penalty, to extend CMC period by double the downtime period.
- During CMC period, the supplier shall visit at each consignee's site for preventive maintenance including testing and calibration as per the manufacturer's service/ technical/ operational manual. The supplier shall visit each consignee site as recommended in the manufacturer's manual, but at least

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once in 3 months commencing from the date of the successful completion of warranty period for preventive maintenance of the goods.

f) All software updates should be provided free of cost during CMC.

g) **Payment terms:** The payment of Annual CMC will be made against the bills raised to the consignee by the supplier on quaterly basis after satisfactory completion of said period, duly certified by the HOD concerned. The payment will be made in Indian Rupees.

_____ (name of the consignee)

(Signature, name and address of Consignee)

For and on behalf of _____

Received and accepted this contract

(Signature, name and address of the supplier's executive duly authorised to sign on behalf of the supplier)

For and on behalf of _____


(Name and address of the supplier)


(Seal of the supplier)

Date: _____

Place: _____

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SECTION – XVII


CONSIGNEE RECEIPT CERTIFICATE


(To be given by consignee’s authorized representative)

The following store (s) has/have been received in good condition:

- 1) Contract No. & date : _____
- 2) Supplier’s Name : _____
- 3) Consignee’s Name & Address with telephone No. & Fax No. : _____
- 4) Name of the item supplied : _____
- 5) Quantity Supplied : _____
- 6) Date of Receipt by the Consignee : _____
- 7) Name and designation of Authorized Representative of Consignee : _____
- 8) Signature of Authorized Representative of Consignee with date : _____
- 9) Seal of the Consignee : _____

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SECTION – XVIII

PROFORMA OF FINAL ACCEPTANCE CERTIFICATE BY THE CONSIGNEE / PURCHASER

No _____

Date _____

To
M/s _____

Subject: Certificate of commissioning of equipment/plant.

This is to certify that the equipment(s)/plant(s) as detailed below has/have been received in good conditions along with all the standard and special accessories and a set of spares (subject to remarks in Para no.02) in accordance with the contract/technical specifications. The same has been installed and commissioned.

- (a) Contract No _____ dated _____
- (b) Description of the equipment(s)/plants: _____
- (c) Equipment(s)/ plant(s) nos.: _____
- (d) Quantity: _____
- (e) Bill of Loading/Air Way Bill/Railway Receipt/ Goods Consignment Note no _____ dated _____
- (f) Name of the vessel/Transporter: _____
- (g) Name of the Consignee: _____
- (h) Date of commissioning and proving test: _____
Details of accessories/spares not yet supplied and recoveries to be made on that account.

Sl. No.	Description of Item	Quantity	Amount to be recovered
---------	---------------------	----------	------------------------


The proving test has been done to our entire satisfaction and operators have been trained to operate the equipment(s)/plant(s).

The supplier has fulfilled its contractual obligations satisfactorily ## or

The supplier has failed to fulfil its contractual obligations with regard to the following:

- **He has not adhered to the time schedule specified in the contract in dispatching the documents/drawings pursuant to 'Technical Specifications'.**

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He has not supervised the commissioning of the equipment(s)/plant(s) in time, i.e. within the period specified in the contract from date of intimation by the Purchaser/Consignee in respect.

- of the installation of the equipment(s)/plant(s).
- The supplier as specified in the contract has not done training of personnel.

The extent of delay for each of the activities to be performed by the supplier in terms of the contract is:

The amount of recovery on account of non-supply of accessories and spares is given under Para no.02.

The amount of recovery on account of failure of the supplier to meet his contractual obligations is _____ (here indicate the amount).

Signature

Name

Designation with stamp


Explanatory notes for filling up the certificate:

He has adhered to the time schedule specified in the contract in dispatching the documents/drawings pursuant to 'Technical Specification'.

He has supervised the commissioning of the equipment(s)/plant(s) in time, i.e. within the time specified in the contract from date of intimation by the Purchaser/Consignee in respect of the installation of the equipment(s)/plant(s).

Training of personnel has been done by the supplier as specified in the contract. In the event of documents/drawings having not been supplied or installation and commissioning of the equipment(s)/plant(s) having been delayed on account of the supplier, the extent of delay should always be mentioned in clear terms.

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SECTION – XIX

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SECTION – XX


CHECKLIST

Name of Tenderer:

Name of Manufacturer:

Sl No.	Activity	Yes/ No/ NA	Page No. in the TENDER document	Remarks
1. a.	Have you enclosed EMD of required amount for the quoted schedules?			
b.	In case EMD is furnished in the form of Bank Guarantee, has it been furnished as per Section XIII?			
c.	In case Bank Guarantee is furnished, have you kept its validity of 135 days from Technical Bid Opening date as per clause 19 of GIT?			
2. a.	Have you enclosed duly filled Tender Form as per format in Section X?			
b.	Have you enclosed Power of Attorney in favour of the signatory?			
3.	Are you a SSI unit, if yes have you enclosed certificate of registration issued by Directorate of Industries/NSIC			
4. a.	Have you enclosed clause-by-clause technical compliance statement for the quoted goods vis-à-vis the Technical specifications?			
b.	In case of Technical deviations in the compliance statement, have you identified and marked the deviations?			
5. a.	Have you submitted satisfactory performance certificate as per the Proforma for performance statement in Sec. IX of TE document in respect of all orders?			
b.	Have you submitted copy of the order(s) and end user certificate?			
6.	Have you submitted manufacturer's authorization as per Section XIV?			
7.	Have you submitted prices of goods, turnkey (if any), CMC etc. in the Price Schedule as per Section XI?			
8.	Have you kept validity of 120 days from the Technical bid Opening date as per the TE document?			
9. a.	In case of Indian Tenderer, have you furnished Income Tax Account No. as allotted by the Income Tax Department of Government of India?			
10.	Have you intimated the name and full address of your Banker (s) along with your Account Number			

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SI No.	Activity	Yes/ No/ NA	Page No. in the TENDER document	Remarks
11.	Have you fully accepted payment terms as per TE document?			
12.	Have you fully accepted delivery period as per TE document?			
13.	Have you submitted the certificate of origin			
14.	Have you accepted the warranty as per TE document?			
15.	Have you accepted terms and conditions of TE document?			
16.	Have you furnished documents establishing your eligibility & qualification criteria as per TE documents?			
17.	Have you furnished Annual Report (Balance Sheet and Profit & Loss Account) for last three years prior to the date of Tender opening?			
18.	Have all pages of the tender including all amendment, if any, have been signed?			

N.B.



- All pages of the Tender, its amendment and minutes of Prebid meeting should be page numbered and indexed.
- The Tenderer may go through the checklist and ensure that all the documents/confirmations listed above are enclosed in the tender and no column is left blank. If any column is not applicable, it may be filled up as NA.
- It is the responsibility of tendered to go through the TE document to ensure furnishing all required documents in addition to above, if any.


(Signature with date)

(Full name, designation & address of the person duly authorised sign on behalf of the Tenderer)

For and on behalf of

(Name, address and stamp of the tendering firm)

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SECTION – XXI

CONSIGNEE LIST


All Goods shall be delivered at


**BCG Vaccine Laboratory, Guindy,
Chennai-600032, TamilNadu, India.**

Tel. +91 44 22500476

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SECTION – XXII

To be signed by the bidder and same signatory competent/authorized to sign the relevant contract of behalf of HLL Lifecare Limited

INTEGRITY AGREEMENT

This Integrity Agreement is made at on this Day of.....20.....

BETWEEN

President of India represented through Vice President (Projects), HLL Lifecare Limited (Hereinafter referred as the "Principal/Owner", which expression shall unless repugnant to the meaning or context hereof include its successors and permitted assigns).

AND

.....
 through(Hereinafter referred to as the "**Bidder/Contractor**" and which expression shall unless repugnant to the meaning or context hereof include its successors and permitted assigns).

Preamble

WHEREAS the Principal / owner has floated the Tender (NIT No)
 (hereinafter referred to as "**Tender/Bid**") and intends to award, under laid down organizational procedure, contract for Hereinafter referred to as the "**Contract**"


AND WHEREAS the Principal /Owner values full compliance with all relevant laws of the land, rules, regulations, economic use of resources and of fairness/transparency in its relation with its Bidder(s) and Contractor(s).

AND WHEREAS to meet the purpose aforesaid both the parties have agreed to enter into this Integrity Agreement (hereinafter referred to as "**Integrity Pact**" or "**Pact**"), the terms and conditions of which shall also be read as integral part and parcel of the Tender Bid documents and Contract between the parties. NOW, THEREFORE, in consideration of mutual covenants' contained in this Pact, the parties hereby agree as follows and this Pact witnesses as under:

Article 1: Commitment of the Principal Owner

- 1) The Principal /Owner commits itself to take all measures necessary to prevent corruption and to observe the following principles.X
 - (a) No employee of the Principal/Owner, personally or through any of his/her family members, will in connection with the Tender, or the execution of the Contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.
 - (b) The Principal/Owner will, during the Tender process, treat all Bidder(s) with equity and reason.

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The Principal/owner will , in particular, before and during the Tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential / additional information through which the Bidder(s) could obtain an advantage in relation to the Tender process or the Contract execution.

- (c) The Principal /Owner shall Endeavour to exclude from the Tender process any person, whose conduct in the past has been of biased nature.
- 2) If the Principal/Owner obtains information on the conduct of any of its employees which is a criminal offence under the Indian Penal code (IPC)/Prevention of Corruption Act, 1988 (PC Act) or is in violation of the principles herein mentioned or if there be a substantive suspicion in this regard, the Principal/Owner will inform the Chief Vigilance Officer and in addition can also in initiate disciplinary actions as per its internal laid down policies and procedures.

Article 2: Commitment of the Bidder(s) / Contractor(s)

- 1) It is required that each Bidder/Contractor(including their respective officers, employees and agents) adhere to the highest ethical standards, and report to the Government/Department all suspected acts of **fraud or corruption or Coercion or Collusion** of which it has knowledge or becomes aware, during the tendering process and throughout the negotiation or award of a contract.
- 2) The Bidder(s)/Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the Tender process and during the Contract execution.
- (a) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm, offer, promise or give to any of the Principal/owner's employees involved in the Tender process or execution of the Contract or to any third person any material or other benefit which he/she which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the Tender process or during the execution of the Contract.
- (b) The Bidder(s) will not enter with other Bidder(s) into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certification, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to cartelize in the bidding process.
- (c) The Bidder(s)/Contractor(s) will not commit any offence under the relevant IPC/PC Act. Further the Bidder(s) /Contractor(s) will not use improperly, (for the purpose of competition or personal gain).or pass on to others, any information or documents provided by the Principal/Owner as part of the business relationship, regarding plans, technical proposals and business details, including and business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
- (d) The Bidder (s) /Contractor(s) of foreign origin shall disclose the names and addresses of agents/representatives in India, if any Similarly Bidder(s)/Contractor(s) of Indian Nationality shall disclose names and addresses of foreign agents/representatives, if any. Either the Indian agent on behalf of the foreign principal or the foreign principal directly could bid in a tender but not both. Further, in cases where an agent participate in a tender on behalf of one manufacturer, he shall not be allowed to quote on behalf of another manufacturer along with the first manufacturer in a subsequent/parallel tender for the same item.

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(e) The Bidder (s)/Contractor (s) will , when presenting his bid, disclose (with each tender as per proforma unclosed) any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the Contract.


- 3) The Bidder(s) /Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.
- 4) The Bidders0/contractor(s) will not, directly or through any other person or firm indulge in fraudulent practice means a willful misrepresentation or omission of facts or submission of fake/forged documents in order to induce public official to act in reliance thereof, with the purpose of obtaining unjust advantage by or causing damage to justified interest of others and /or to influence the procurement process to the detriment of the Government interests.
- 5) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm use Coercive Practices (Means the act of obtaining something, compelling an action or influencing a decision through intimidation, threat or the use of force directly or indirectly, where potential or actual injury may befall upon a person, his/her reputation or property to influence their participation in the tendering process).

Article 3: Consequences of Breach

Without prejudice to any rights that may be available to the Principal/Owner under law or the Contract or its established policies and laid down procedures, the Principal/Owner shall have the following rights in case of breach of this integrity Pact by the Bidder (s)/Contractor(s) and the Bidder(s)/Contractor(s) accepts and undertakes to respect and uphold the Principal /Owner's absolute right:

- 1) If the Bidders) / Contractor(s), either before award or during execution of Contract has committed a transgression through a violation of Article 2 above or in any other form, such as to put his reliability or credibility in question, the Principal/owner after giving 14 days notice to the contractor shall have powers to disqualify the Bidder (s)/Contractor(s) from the Tender process or terminate/determine the Contract, if already executed or exclude the Bidder/Contractor from future contract award processes. The imposition and duration of the exclusion will be determined by the severity of transgression and determined by the Principal/owner. **Such exclusion may be forever or for a limited period as decided by the Principal/owner.**
- 2) **Forfeiture of EMD/performance Guarantee/Security Deposit:** If the Principal/owner has disqualified the Bidder(s) from the Tender process prior to the award of the Contract or terminated/determined the Contract or has accrued the right to terminate/determine the Contract according to Article 3(1), the Principal /Owner apart from exercising any legal rights that may have accrued to the Principal/Owner, may in its considered opinion forfeit the entire amount of Earnest Money Deposit, Performance Guarantee and security Deposit, Performance Guarantee and security Deposit of the Bidder/Contractor.
- 3) **Criminal Liability:** If the Principal/Owner obtains knowledge of conduct of a Bidder or Contractor, or of and employee or a representative or an associate of a Bidder or Contractor which constitutes corruption within the meaning of Indian Penal code (IPC)/Prevention of corruption Act, or if the Principal/owner has substantive suspicion in this regard, the Principal/owner will inform the same to law enforcing agencies for further Investigation.

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Article 4- Previous Transgression

- 1) The Bidder declares that no previous transgressions occurred in the last 5 years with any other Company in any country confirming to the anticorruption approach or with Central Government or State Government or any other Central/State Public sector Enterprises in India that could justify his exclusion from the Tender process.
- 2) If the Bidder makes incorrect statement on this subject, he can be disqualified from the Tender process or action can be taken for banning of business dealings/ holiday listing of the Bidder/Contractor as deemed fit by the Principal/owner.
- 3) If the Bidder/Contractor can prove that he has resorted / recouped the damage caused by him and has installed a suitable corruption prevention system, the Principal/owner may, at its own discretion, revoke the exclusion prematurely.

Article 5- Equal Treatment of all Bidders/Contractors/Subcontractors

- 1) The Bidder(s) /Contractor(s) undertake(s) to demand from all subcontractors a commitment in conformity with this Integrity Pact. The Bidder/Contractor shall be responsible for any violation(s) of the principles laid down in this agreement /pact by any of its Sub-contractors/sub-vendors.
- 2) The Principal/owner will enter into Pacts on identical terms as this one with all Bidders and Contractors.

Article 6- Duration of the Pact


This Pact begins when both the parties have legally signed it. It expires for the Contractor/Vendor 12 months after the completion of work under the contract or till the continuation of defect Liability period, whichever is more and for all other bidders, till the Contract has been awarded.

If any claim is made/lodged during the time, the same shall be binding and continue to be valid despite the lapse of this Pacts as specified above, unless it is discharged /determined by the competent authority, HLL Lifecare Limited.

Article 7- other Provisions

- 1) This Pact is subject to Indian Law., place of performance and jurisdiction is the Head quarters of HLL Lifecare Limited of the Principal/Owner, who has floated the Tender.
- 2) Changes and supplements need to be made in writing. Side agreements have not been made.
- 3) If the Contractor is a partnership or a consortium, this Pact must be signed by all the partners or by one or more partner holding power of attorney signed by all the partners or by one or more partner holding power of attorney signed by all partners and consortium members. In case of a company, the Pact must be signed by a representative duly authorized by board resolution.
- 4) Should one or several provisions of this Pact turn out to be invalid; the remainder of this Pact remains valid. In this case, the parties will strive to come to an agreement to their original intensions.
- 5) It is agreed term and condition that any dispute or difference arising between the parties with

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regard to the terms of this Integrity Agreement/pact, any action taken by the Owner/Principal in accordance with this **Integrity Agreement/Pact or interpretation thereof shall not be subject to arbitration.**

Article 8- LEGAL AND PRIOR RIGHTS:

All rights and remedies of the parties hereto shall be in addition to all the other legal rights and remedies belonging to such parties under the Contract and /or law and the same shall be deemed to be cumulative and not alternative to such legal rights and remedies aforesaid. For the sake of brevity, both the Parties agree that this Integrity Pact will have precedence over the Tender /Contact documents with regard any of the provisions covered under this Integrity Pact.

IN WITNESS WHEREOF the parties have signed and executed this Integrity Pact at the place and date first above mentioned in the presence of following witnesses:

.....

 (For and on behalf of
 Principal/owner)

.....
 (For and on behalf of
 Bidder/Contractor)

WITNESSES:

1.


(Signature, Name & address)


2.

(Signature, Name & address)

Place:

Date:


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CHAPTER 2.2

DESCRIPTION / SCOPE OF WORK

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2.2 INTRODUCTION

The BCG Vaccine Laboratory under DGHS, Ministry of Health and Family Welfare, Govt. of India was established in the year 1948 to produce and supply BCG vaccines and tuberculin with the help of Sateen's Serum Institute (SSI), Copenhagen, Denmark through World Health Organization. The bacterial strain used for the manufacture was DANISH -1331. This institute is a sub-ordinate office of the Directorate General of Health Services under the Ministry of Health and Family Welfare of the Government of India, situated at Guindy, Chennai (Tamilnadu) near King Institute of Preventive medicine.

The activities of BCGVL, Guindy consists of

- Manufacture and supply of Freeze dried BCG vaccine (10 doses) for the control of childhood tuberculosis and tuberculosis meningitis in children for the UIP of Govt. of India.
- Manufacture and supply of freeze dried BCG therapeutic vaccine (40 mg) for cancer chemotherapy.

BCG Vaccine Lab is a pioneer in the manufacture of freeze dried BCG vaccine for UIP of Govt. of India. Up to 2000-01, Govt of India has imported the BCG vaccine to meet the country's demand in addition to the vaccines supplied by BCGVL.

In 2008, the NRA has suspended the manufacturing license of BCG Vaccine Lab due to non-compliance to cGMP.

Ministry of Health and Family Welfare (MHFOW) has appointed HLL Lifecare Limited as Project Management Consultant (PMC) to revive the BCG Vaccine Manufacturing Facility. Further, HLL Lifecare Limited has associated with NNE Pharmaplan India Limited, hereinafter called as "NP" has been appointed as "Engineering Consultants". NNE Pharmaplan shall design and engineer this facility, incorporating the latest GMP Standards and best practices. This facility shall be built as per the latest International trends and upon completion, shall be in compliance with Indian FDA (Schedule M), WHO/GMP regulations.

One amongst the several other jobs in this project is Construction and Commissioning of ETP and STP as per enclosed Bill of Quantities (BOQ) and drawings.

The scope of work involved is detailed in the subsequent paragraphs and is precise to the extent possible. However, in order to ascertain the actual site conditions, it is requested to all contractors to visit the site and get well versed with the actual site conditions or discuss with consultants / client about the type and quantum of works involved.


2.2.1 Purpose

The Specification covers the general requirements for the design, supply and, installation and testing of wastewater treatment plant for the upcoming Facility for M/s. BCG Vaccine Laboratory at Chennai.

This specification shall be used in conjunction with all specifications and drawings attached.

The scope of vendor covers the design, fabrication, procurement, manufacture, assembly, testing, delivery at site including unloading of wastewater treatment plant as plant site as per specification. The scope also includes Testing and commissioning of wastewater treatment plant and putting into successful and satisfactory operation as per attached BOQ.

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2.2.2 Scope of Contractor

Construction, Testing and Commissioning of **15 KLD ETP AND 10 KLD STP (CIVIL AND ELECTRO – MECHANICAL WORKS) FOR THE BCG VACCINE PRODUCTION FACILITY AT GUINDY, CHENNAI.** The Contractor should obtain all the necessary clearance for execution and functioning of the WWTP and STP.

It is now proposed to BCG vaccine production facility which will generate a waste water flow of 15 KLD and Domestic waste of 10 KLD. The Waste Water Treatment Plant and STP shall meet the quality of effluent as stipulated by TNSPCB (TamilNadu State Pollution Control Board) norms. The site plan of the proposed work is enclosed.

2.2.3 Salient Features of the ETP and STP

The facility under consideration is for treatment of waste water generated during the manufacturing of BCG vaccines. The new WWTP and STP upon shall meet all of the requirements of the **TNSPCB discharge permit norms and Employer's requirements.**

The contractor will be responsible to get the clearance from TNSPCB for the compliance before handing over the plant to the end user.

Approximate ETP/STP layout area is 273 sq. mts and built-up area is 65 sq. mts for ETP and 16 Sqm for STP. The construction is of Modular Type in which Civil Pedestal and few tanks are executed in Civil works and majority of treatment Units are fabricated in MS (average of 4mm thickness) with Epoxy Coating (Modular Type).

Unit Sizes and other features of the various treatment units are described in layouts and Site Master Plan in subsequent chapter.

2.2.4 Information Required From Vendor:-

Following information shall be furnished by the contractor:-



Along with the offer


- i) Technical particulars of various equipments as format (Annexure) enclosed with this specification. This shall include the unit/model numbers., its output at the given conditions, electrical/utility details etc.
- ii) G.A. drawing of ETP and STP.

After award of work (For approval)

Foundation drawings of all equipment, GA drawings (clearly showing terminal arrangement in plan & in elevation) and all other equipment (within one week of the award of contract).

- i) Utility requirements
- ii) Cable list/schedule & interconnection diagram, interconnection diagram (within two weeks after award of contract).
- iii) Test certificates of equipment.
- iv) Four copies of final drawings with one auto cad CD, operation, installation and

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maintenance manual shall be supplied well in advance before inspection.

v) Wastewater treatment plant supplier has to check the scheme prior to the supply.

2.2.5 Completeness

- It is not the intent to specify completely herein all details of the equipment. Nevertheless, the equipment shall be complete and operative in all aspects.
- Any material or accessories which may not have been specifically mentioned but which is necessary usual for satisfactory and trouble free operation and maintenance of the equipment, shall be furnished by the contractor without any extra charge to the Employer.

2.2.6 Notes To Bidder


It is necessary to follow the following points while submitting the offer :


- All equipment shall meet the requirement of this specification. Deviations (if any) with respect to this specifications shall clearly be indicated in the offer in Annexure under "Deviations" with page no. & clause no. of specification.
- Quantities of equipment indicated herein are subject to change.

All technical particulars and other details as asked for shall be furnished in the specification only. Additional information, if desired by the bidder, can also be furnished separately.

COMPLETED

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CHAPTER-2.3

DESIGN CRITERIA

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2.3 WASTEWATER CHARACTERISTICS

The wastewater characteristics for the design of proposed WWTP are given in the Table below:

Waste Water characteristics

S. No.	Wastewater Characteristics	Value
1	Bio-Chemical Oxygen Demand (BOD)	1375 mg/l
2	Chemical Oxygen Demand (COD)	4330 mg/l
3	Total Dissolved Solids (TDS)	2000 mg/l
4	Chlorides	783 mg/l
5	Sulphates	3052 mg/l
6	pH	6-7
7	Total Suspended solids	465 mg/l

2.3.1 Effluent Standards for the Discharge as per TNSPCB Requirement

The effluent standards for the discharge from WWTP as per TNSPCB standards are as follows:


Few of Effluent Standards Requirement of TNSPCB is given below

S. No.	Wastewater Characteristics	Value
1	Bio-Chemical Oxygen Demand (BOD)	< 20 mg/l
2	Chemical Oxygen Demand (COD)	< 250 mg/l
3	Total Dissolved Solids (TDS)	<2000 mg/l
4	Total Suspended Solids (TSS)	< 20 mg/l
5	Chlorides	< 800 mg/l
6	Sulphates	<900 mg /l

2.3.2 Site Visit

The tenderer must inspect the site at his own cost and shall satisfy himself with regard to the nature and extent of the work involved, the actual site conditions, existing facilities, utility structures that are above or under the ground etc. and shall collect any other information that may be required before submitting the tender. Any claim afterwards by the tenderer shall not be entertained on account of the ignorance of the site conditions.

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2.3.3 ETP Scheme and Process Description (15 KLD)

A. Preliminary Treatment

2.3.3.1 Screen Chamber

The effluent is allowed to pass through a MS Bar Screen provided in Screen Chamber to remove floating and suspended material. This bar screen is for the purpose of arresting solid particles, trash and solids of larger than 8 mm size and preventing them from passing through the succeeding treatment units

The waste water passes through fine bar Screen Chamber which consists of 2 mm fine screen before entering collection tank or equalisation tank. pH Correction is also done in this stage by dosing the acid (HCl/H₂SO₄) to bring down the PH to 5- 5.5 as barium chloride works only with low pH.

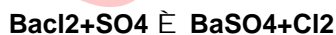
2.3.3.2 Equalization Tank

Effluent generation is not uniform and maximum quantity comes out during day time or during the shifts. To optimize the size of the plant, the plant is designed for continuous operation and hence there is a need to provide a buffer tank to store sewage during its peak hour generation and supply the same during lean or no flow hours. Hence plant is provided with a good capacity of buffer tank called as "EQUALISATION TANK". The Waste water is pumped from the Collection Sump also called as Equalisation Tank into the Flocculation tank.

B. Primary Treatment

2.3.3.3 Primary Flocculation Tank-1

Once the effluent is transferred to Flocculation Tank, required quantity of Barium Chloride is dosed into the tank. Here barium chloride reacts with sulphates and forms Barium Sulphate which precipitates as sludge.




2.3.3.4 Primary Clarifier-1

The sludge from the clarifier is sent to Sludge Holding Tank and then conveyed to Centrifugal Decanter where the solids are separated. The separated solids are dried in sludge drying beds and the dried sludge can be used for gardening. The clarified liquid from centrifugal decanter is sent back to the equalisation tank with a outlet moisture content of 30 % after decanting.

2.3.3.5 Secondary Flocculation Tank-2

The waste water from Primary Clarifier -1 is conveyed to Secondary Flocculation Tank 2. In the flocculation Tank 2 Alum is dosed to make the flocculation process more effective.

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2.3.3.6 Secondary CLARIFIER-2

Further from the Secondary Flocculation tank-2 waste water over flows to the Secondary Clarifier-2. Sludge from the clarifier will be transferred to sludge holding tank through sludge transfer pump. From the sludge holding tank the sludge is conveyed to sludge drying bed through decanter. Dried sludge shall be removed on weekly or fortnightly basis.

C. Secondary Treatment

2.3.3.7 Anaerobic Tank

Clarified Water from Secondary Clarifier-2 is conveyed to Anaerobic Tank, where BOD, COD and sulphates reduction takes place due to anaerobic condition. Minimum retention of 10 hours is maintained for the anaerobic condition to develop..

By-products produced are: Methane gas in traces . Further, no need to dose the nutrients, no regular sludge is formed, TSS & VSS are not required to be maintained.

2.3.3.8 MBBR (Moving Bed Bio Reactor) TANK

The water from the Anaerobic Tank overflows to MBBR-1 and from MBBR-1, water overflows into MBBR-2.



The MBBR -1 and MBBR-2 are also called as Roughing Reactor and Polishing Reactor respectively as majority of BOD/COD reduction takes place in MBBR-1 and is further reduced in MBBR-2.


The MBBR technology is a treatment process based on biofilm principles. The process uses plastic media to grow the biofilm, which is retained in a reactor using media retention screens while an aeration system provides oxygen (through air) to allow the bacteria/biofilm to provide the treatment required.

Moving Bed Bio Reactor (MBBR) process improves reliability, simplify operation and require less space than conventional waste water treatment systems. The MBBR configuration offers a treatment process based on a bio-film that provides organic carbon removal, as well as nitrification and de-nitrification whenever needed, without circulation of the activated sludge. The process is simple, robust and requires minimal operator intervention. Wastewater is introduced into a single or multiple-stage system (depending on whether nitrogen removal is required), each of which contains the suitable volume of biomass carriers.

The MBBR Aeration tanks are two in number and are located next to each other. Each of the tanks shall be provided with aeration pipelines at the bottom, which shall be in anti corrosive material and cover the total periphery of the tank. Aeration tank is filled with a specific quantity of the bio-media, which is made of plastic material with a specific gravity just below that of water, to enable it to remain in suspension. The design of associated aerators, grids, sieves, spray nozzles and other integral parts to the reactor is also of great importance in making up the system as a whole.

The inlet of the aeration tank is on the top with the waste water falling freely into the MBBR tank. The outlet is located on the opposite side, which has a perforated screen mounted on it, which prevents the bio-media from flowing out of the MBBR-1 & 2. Both compartments are connected to each other by openings, which has perforated pipe on each side.

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2.3.3.9 Flocculation Tank-3

The waste water from MBBR is conveyed to Flocculation Tank- 3. Polyelectrolyte (PAC) is dosed into the flocculation tank-3, to make fine particles to agglomerate and form coagulated particles.

2.3.3.10 Clarifier-3

Further from the Flocculation Tank - 3, clarified water over flows to the Clarifier-3 (Lamella Clarifier) and then flows into Filter Feed tank.

The sludge from the Clarifier is sent to Sludge Holding Tank and Then Conveyed to Centrifugal Decanter where the solids are separated. The separated Solids are dried in Sludge drying beds and dried sludge might be used for gardening purpose.

D. Tertiary Treatment

2.3.3.11 Filter Feed Tank

The treated water from Clarifier -3 over flows into the Filter Feed Tank. The collected water is pumped with pressure into the Sand Filter and Carbon Filter..

CLAIRE FONTAINE AUTOMATIC DUAL FILTRATION SYSTEM:


This is a set of sand and gravel filter followed by a activated carbon filter and hence the name dual filtration system. Sand and Carbon filters are widely used to remove suspended particles, turbidity, odor, color and iron present in the raw water The filtration process of water may reduce the concentration of particulate matter including suspended particles, parasites, bacteria, algae, viruses and a range of dissolved and particulate material. The selection of one or many different media like sand, carbon etc is based upon requirements of outlet water quality. Carbon filter removes the turbidity of water while sand filter removes particles up to 50 micron size.


2.3.3.12 Treated Water Tank (FINAL TANK)

Finally the treated water is sent into Treated Water Tank where chorine is dosed as a disinfectant for reuse purpose and remaining is sent to the existing sewage network which is conveyed to Common ETP.

BOD removal Efficiency for ETP

ETP			
Units	Inlet BOD	% Reduction	Outlet BOD mg/l
Anaerobic Tank	1375	35	893
MBBR-1	893	90	89
MBBR-2	89	80	17

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ETP			
Units	Inlet COD	% Reduction	Outlet COD mg/l
Anaerobic Tank	4330	35	2814
MBBR-1	2814	90	281
MBBR-2	281	80	56

The Sizes of the various units are given in table **Area table for 15 KLD Modular ETP**

LIST OF FABRICATION UNIT			
S. No.	DESCRIPTION	DIMENSION	CAPACITY
1	PRIMARY FLOCULATOR -1	0.7m x 1.24m x 1.3m(1.0m LD)	0.86 KL
2	PRIMARY CLARIFIER-1	1.0m x 1.24m x 2.5m (1.4m SWD)	1.7 KL
3	SECONDARY FLOCULATOR -2	0.7m x 1.24m x 1.4m(1.0m LD)	0.86 KL
4	SECONDARY CLARIFIER-2	1.0m x 1.24m x 2.5m (1.35m SWD)	1.6 KL
5	ANAEROBIC TANK	1.75m x 2.5mx 2.5m(1.75m LD)	7.6 KL
6	MOVING BED BIO REACTOR-1	1.65m x 1.24m x 2.5m(2.2m LD)	4.5 KL
7	MOVING BED BIO REACTOR-2	1.65 x 1.24m x 2.5m(2.2m LD)	4.5 KL
8	FLOCCULATION TANK-3	1.0m x 1.24m x 1.1m(0.7m LD)	0.86 KL
9	CLARIFIER-3	1.0m x 1.24m x 2.5m (1.37m SWD)	1.6 KL
10	FILTER FEED TANK	1.2m x 1.59m x 2.5m(1.8m LD)	3.4 KL
11	SLUDGE HOLDING TANK	1.2m x 0.9 m x 2.5m(2.2m LD)	2.3KL

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LIST OF CIVIL UNIT			
S. No.	DESCRIPTION	DIMENSION	CAPACITY
1	SCREEN CHAMBER	0.7 m X 0.5 m X 0.6m	0.21 kL
2	EQUALIZATION TANK	1.5m x 1.4m x 2.5m(2.2m LD)	4.6 kL
3	SLUDGE DRY BED	1.2m x 1.4m x 1.5m(1.2m LD)	2.0kL
4	SLUDGE DRY BED	1.2m x 1.4m x 1.5m(1.2m LD)	2.0kL
5	FINAL TANK	1.5m x 1.4m x 2.5m(2.2m LD)	4.6kL

2.3.4 Sewage Treatment Plant Scheme and Process Description (10 KLD)

A. Preliminary Treatment

2.3.4.1 Screen Chamber

The effluent is allowed to pass through a MS bar Screen to remove floating, suspended material. This Bar Screen is for the purpose of arresting solid particles, trash and solids of larger than 8 mm size and preventing them from passing through the succeeding treatment units

B. Primary Treatment


2.3.4.2 Equalization Tank


The Sewage is conveyed and collected in an Equalization Tank.

Sewage generation is not uniform and maximum quantity comes out during day time or during the shifts. To optimize the size of the plant, the plant is designed for continuous operation and hence there is a need to provide a buffer tank to store sewage during its peak hour generation and supply the same during lean or no flow hours. Hence plant is provided with a good capacity of buffer tank called as "EQUALISATION TANK".

Screened sewage is passed into the equalization tank to homogenize the Wastewater quality, to equalize the flow fluctuations and feed wastewater of uniform quality at constant rate to subsequent treatment units. Air mixing is also provided to mix the contents of the equalization tank. A coarse bubble aeration grid system is provided to mix the contents of the equalization tank and also to avoid septic conditions in the tank.

The sewage is conveyed from the Collection Tank/Equalisation tank into the MBBR Aeration Tank.

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C. Secondary Treatment

2.3.4.3 MBBR (Moving Bed Bio Reactor) Tank

The Waste water containing sewage is pumped from Collection Tank into MBBR-1 and the sewage from MBBR-1 over flows to MBBR-2 Aeration Tank for further treatment.

The MBBR -1 and MBBR-2 is also called as Roughing Reactor and Polishing Reactor respectively.

The MBBR technology is a treatment process based on biofilm principles. The process uses plastic media to grow the biofilm, which is retained in a reactor using media retention screens while an aeration system provides oxygen (through air) to allow the bacteria/biofilm to provide the treatment required.

Moving Bed Bio Reactor (MBBR) process improves reliability, simplify operation and require less space than conventional Waste water Treatment Systems. In the MBBR configuration offers a treatment process based on a bio-film which provides organic carbon removal, as well as nitrification and de-nitrification where needed, without circulation of activated sludge. The process is simple, robust, and requires minimal operator intervention. Wastewater is introduced into a single or multiple-stage system (depending on whether Nitrogen removal is required), each of which contains the suitable volume of biomass carriers.

The MBBR Aeration tanks are two in number and are located next to each other. Each of the tanks shall be provided with aeration pipelines at the bottom, which shall be in anti corrosive material and are manifold to cover the total periphery of the tank. Aeration tank is filled with a specific quantity of the bio-media, which is made of plastic material with a specific gravity just below that of water, to enable it to remain in suspension. The design of associated aerators, grids, sieves, spray nozzles and other integral parts to the reactor is also of great importance in making up the system as a whole.

The inlet of the aeration tank is on the top with the waste water falling freely into the MBBR tank. The outlet is located on the opposite side, which has a perforated Screen mounted on it, which prevents the bio-media from flowing out of the MBBR Tank. Both compartments are connected to each other by openings, which has Perforated Pipe on each side.

80 % of the BOD is removed from MBBR-1

65 % of the BOD is removed from MBBR-2

Flocculation Tank


The waste water from MBBR overflows into Flocculation Tank. Polyelectrolyte is dosed into the flocculation Tank to enable fine/tiny particles to form Settleable particles.

2.3.4.4 Clarifier

Further from the Flocculation Tank, the sewage over flows to the Clarifier where the coagulated solids/particles settle at the bottom of the clarifier.

The sludge from the Clarifier is sent to Sludge Holding Tank and sent to Sludge drying beds for drying of the sludge (to remove moisture content) and after drying the sludge can be used for gardening purpose.

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The clarified effluent overflows to filter feed Tank and pumped to Sand and Gravel Filtration tank.

D. Tertiary Treatment

2.3.4.5 Claire Fontaine Automatic Dual Filtration System

The clarified effluent overflows to filter feed tank and pumped to Sand and Gravel Filtration tank.

CLAIRE FONTAINE is an automatic dual filtration system of gravel stacked filters. It operates on a micro controlled system with the primary vessel handling a pressure of 3 bar and a combination of pressurized chemical equivalent elements of crushed coke with automatic back wash.

2.3.4.6 Chlorination

The Treated water from the clarifier is dosed with liquid chlorine (NaOCl) for disinfection and the water is sent into the Treated Water Tank (final tank). The treated water is disinfected to destroy and render harmless disease-causing organisms, such as bacteria, viruses, etc, The primary action of the chemical involves damaging the cell wall, resulting in cell lysis and death.

2.3.4.7 Treated Water Tank (FINAL TANK)


Finally the treated and disinfected water is sent into this tank for reuse purpose.


The sizes of various units proposed in the treatment Scheme are given below:

Area Table for 10 KLD Modular STP

List of Fabrication Unit

S. No.	DESCRIPTIONS	DIMENSIONS	CAPACITY
1.	MOVING BED BIO REACTOR	0.6m x 0.623m x 2.5m(2.2m LD)	0.8 KL
2	MOVING BED BIO REACTOR	0.8m x 1.25m x 2.5m(2.2m LD)	2.2KL
3	FLOCCULATION TANK	0.3m x 0.6m x 0.8m(0.6m LD)	0.1 KL
4	CLARIFIER	1.0m x 1.25m x 2.3m(1.2m SWD)	1.5 KL
5	FILTER FEED TANK	0.5m x 1.25m x 2.0m(1.9m LD)	1.2
6	SLUDGE HOLDING TANK	0.5m x 1.25m x 2.0m(1.9m LD)	1.2

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List of Civil Unit

Sl. No.	DESCRIPTIONS	DIMENSIONS	CAPACITY
1	EQUALIZATION TANK	1.5m x 1.0m x 2.3m(2.0m LD)	3.0 KL
2	FINAL TANK	1.5m x 1.0m x 2.3m(2.0m LD)	3.0 KL
3	SLUDGE DRYING BED-1	0.8m x 0.8m x 1.0 m(0.8 m LD)	0.5 KL
4	SLUDGE DRYING BED-2	0.8m x 0.8m x 1.0 m(0.8 m LD)	0.5 KL
5	Bar Screen Chamber	0.6m x 0.4m x 0.5 m	

STP			
Units	Inlet BOD	% Reduction	Outlet BOD mg/l
MBBR-1	250	80%	50
MBBR-2	50	65%	18


STP			
Units	Inlet COD	% Reduction	Outlet COD mg/l
MBBR-1	400	80%	80
MBBR-2	80	65%	28

2.3.5 Time Schedules

The proposed time frame fixed for the execution of works is Four and half (4.5) months including, commissioning and trial runs etc.

The following maximum time schedule shall be allowed in months from the date of award of work in executing the works of WWTP.

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Time Schedule

S. No	Activity	Maximum Time allowed from the date of award of work
1	Commencement of the Services	0 Month
2	Submission and approval of detailed M,E&I drawings	1 Month
3	Procurement of Mechanical(M), Electrical(E) and Instrumentation(I) items	1.5 Month
4	Installation of M,E&I equipment	3.0 Month
5	Testing, Commissioning and Trial runs	4.0 Month

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CHAPTER 2.4

TECHNICAL SPECIFICATIONS

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2.4 TECHNICAL SPECIFICATION OF MATERIALS

- Materials shall be of the approved quality best obtainable. A list of materials of approved brand(s) and manufacturers(s) is indicated. Testing of materials of approved brand(s) may have to be done at the discretion of Consultant / Employer. The cost to be borne by the Contractor.

In case, for some reason or other materials are required to be obtained from any manufacturer other than those listed, then prior approval from Consultants/Employer will be necessary supported by a relevant test certificates qualifying the required standard. Further tests as directed by the Consultant/Employer shall also be carried out by the Contractor at their own cost, if required.

- Samples of all materials including the sources shall be got approved before placing order and the approved sample shall be carefully preserved in an appropriate manner at the site office for verification from time to time.
- For standard bought out items, the sizes manufactured by the firms listed, shall prevail when there is discrepancy in the sizes mentioned in the schedule without any financial adjustment.
- Materials shall be tested in any approved Testing Laboratory conforming to the requirements and frequency indicated in the list of Mandatory test. The test certificate in original shall be submitted to the Consultants/Employer and entire charges connected with testing including charges for repeated tests if ordered, shall be borne by the Contractor.
- It shall be obligatory for the Contractor to furnish certificates(s), if demanded by the Consultants/Employer, from the manufacturer or the material supplier that the work has been carried out by using their material and as per their recommendations.
- All materials supplied by the Employer / any other specialist firms shall be properly stored and the Contractor shall be responsible for its safe custody until they are required on the works and till the completion of work.
- The Contractors without any extra cost shall provide all equipment and facilities for carrying out field tests on materials.
- Unless otherwise shown on the drawings or mentioned in the Schedule of quantities or special specifications, the quality of materials, workmanship, dimensions etc. shall be followed hereunder.


2.4.1 Earth Filling

Shall be selected earth suitable for filling as approved by the Consultants/Employer and free from building rubbish or organic decomposed materials. It shall be obtained either from excavation or brought from outside as specified in the schedule of items. Black cotton soil shall not be used for filling.

2.4.2 Cement

Cement of grade 43, 53 or higher grade shall be used and as specified by the Consultants/Employer for all construction. Cement shall comply in every respect with the requirements of the latest publication of IS 269/ IS: 455. The use of cement other than ordinary Portland cement / Blast furnace slag cement may be allowed with prior approval of Employer / Consultant if not mentioned in the approved list of materials.

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The weight of cement shall be taken as 1440 kg per cum (90 lbs per cft), Cement shall be measured by weight and in whole bags, and each undisturbed and sealed 50 kg bag being considered equivalent to 1.25 cft in volume. Care should be taken to see that each bag contains full quantity of cement. When part bag is required cement shall be taken by weight or measured in measuring boxes.

No other make of cement but that approved by the Consultant/Employer once will be allowed on works and the source of supply shall not be changed without approval of the Consultant/Employer in writing. Test certificates to show that the cement is fully complying the specifications shall be submitted by the Contractors to the Consultant/Employer. Notwithstanding this, cement brought on site shall be re-tested in an approved testing laboratory every 50.00 M.T. or part thereof. Cement ordered for re-testing shall not be used for any work pending results of retest.

Cement shall be stored in order to prevent deterioration by dampness or intrusion of foreign matter. It shall be stored in such a way as to allow the removal and use of cement in chronological order of receipt i.e. first received being first used. Cement deteriorated and or coloured shall not be used on work but shall be removed at once from the site. However, allowing use of warehouse set cement shall be determined by the Consultant/Employer whose decision in this regard shall be final and binding. Weekly record of cement received and consumed shall be maintained by the Contractor in the prescribed format at site and submitted to Consultant/Employer, if called for. Theoretical consumption vis-a-vis materials brought at site by the Contractor shall also be submitted with proper documents with every bill for verification.

2.4.3 Fine Aggregate

Sand shall be from natural source or crushed stone screenings, if allowed, chemically inert, clean, sharp, hard, durable and well graded and free from excessive deleterious materials. The silt content shall be within 8%. If it is excess, washing shall be done in an approved manner to bring it within allowable limit.

The fine aggregate for concrete shall be graded and the fineness modulus may range between 2.60 to 3.20. The fineness modulus of fine aggregate may range between 1.80 to 2.60 for plasterwork and all other works.

2.4.4 Coarse Aggregate

Shall consist of crushed or broken stone 95% of which shall be retained on 4.75 mm IS test sieve. It shall be obtained from crushing Granite, Quartzite, Trap, basalt or similar approved stones. Coarse aggregate shall be chemically inert when mixed with cement and shall be roughly cubical in shape and free from soft friable, thin laminated or flaky pieces.


2.4.5 Steel Reinforcement Mild Steel Bars

Mild steel reinforcement bars shall conform to IS 226- latest "Standard quality" or IS 432- latest - Grade-II. Other qualities of steel shall not be acceptable. (Refer section VII for the list of approved makers).

2.4.6 High Strength Deformed Bars

Where deformed high strength reinforcement bars are specified, the Contractors shall use the following:

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"Torsteel" as manufactured by SAIL or other approved manufacturers confirming to IS 1786 - latest. (Refer section VII for the list of approved makers).

2.4.7 Bricks

The bricks shall be first class table moulded bricks, wire cut bricks, of regular and uniform size, shape and colour, uniformly well burnt throughout but not over burnt. They shall be free from cracks or other flaws.

They shall show a fine grained uniform homogeneous and dense texture on fracture and be free from lumps of lime laminations, cracks, air holes, soluble salts causing efflorescence or other defects which may in any way impair the purpose intended. They shall not break even when thrown on the ground on their flat face in a saturated condition from a height of 90.00 cm (About 3 feet).

The size of brick shall be (230 mm x 115 mm x 75 mm only). Tolerance on dimensions shall be as per I.S. code.

After immersion in water, absorption by weight shall not exceed 20 percent of the dry weight of the brick when tested according to I.S.S. No. 1077- latest. The brick shall have a minimum average compressive strength of 35 to 50kg/ per cm² as specified on the nomenclature of the item. The bricks to be used for the work shall be approved by the Employer / Consultants before hand.

2.4.8 Water

Water for mixing Cement mortar or concrete shall not be salty or brackish and shall be clean, reasonably clean and free from objectionable quantities of silt and traces of oil, acid and injurious alkali, salts organic matter and other deleterious materials which will either weaken the mortar or concrete or cause efflorescence or attack the steel in reinforced cement concrete. Water shall be obtained from sources approved by the Consultant/Employer. Potable water is generally considered satisfactory for mixing and curing concrete, mortar, masonry etc. Where water other than municipal source is used this shall be tested in an approved testing laboratory to establish its suitability. All charges connected therewith shall be borne by the Contractor.

2.4.9 Cement Mortar



Cement mortar shall be of proportions specified for each type of work in the Bill of quantities. It shall be composed of Portland cement and sand.


The ingredients shall be accurately gauged by measure and shall be well & evenly mixed together preferably in a mechanical pan mixture. Care being taken not to add more water than is required. No mortar that has begun to set shall be used.

If hand mixing is done, then it shall be done on firm waterproof platform. The gauged materials shall be put on the platform and mixed dry. Water will then be added and the whole mixed again until it is homogeneous and of uniform colour. (Refer section VII for the list of approved makes).

2.4.10 Admixture

Consultant/Employer may at his discretion instruct Contractor to use any other admixture in the concrete.

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M&E EQUIPMENTS / ELECTRICAL / PIPING MAKES FOR ETP/STP

Equipment Specifications

The specifications for general list of equipment are attached as **Section VII**

The schedule and specifications of preliminary Instrumentation list are attached as **Section VII**

Electrical Works

All related electrical works in power supply, MV/LV switch room, interconnecting power and control cables, MCC panels, earthing etc. as required to complete the works

Incoming Power Supply cables shall be laid from existing transformer/Sub station within the factory premises to the MCC/Switch gear room in WWTP.

General Specifications:

Equipment shall be of approved make only. Contractor shall select such equipment, which suit General Arrangement drawing of units issued along with tender. Marginal modifications as per equipment vendor's requirement shall only be permitted in general arrangement shown in drawing. Material of construction of individual component shall be carefully selected for keeping in mind the duty conditions.

Electrical panel for grit removal mechanism

A field mounted electrical panel for controlling all drives of treatment equipment shall be provided. The panel shall be complete with relays, starter, switches, fuses and overload protection etc.

Cabling and Earthing


Cabling and earthing from the above panel to the components of the degritting equipment to be included in the scope for degritting equipment.

Contractor shall submit details of equipment for approval before placing order with vendor.

PIPE WORK AND VALVES

The pipework within the ETP and STP Units shall be MS/ UPVC mounted at appropriate level, to prevent ingress of water during normal operation.

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6.	Section – VI	List of Codes
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SECTION – I

EARTHWORK

- 1.1 **Site Clearance:** The site shall be cleared of rubbish of all kinds, rocks, trees, dirt and superfluous earth, all mud, brush wood, stumps of trees and saplings, grass and other rank vegetation etc. the serviceable materials to be stacked at site and in a manner as directed by the Consultant / Employer. All cavities or holes formed shall be filled with good earth well rammed and leveled neatly. Site clearance shall be done 7 meters around the proposed construction. The Contractor shall provide all labour and materials for site clearance at his own cost.
- 1.2 **Profiles:** Shall be with pegs, bamboos, strings or burgies to show the correct formation before the start of work and maintained till the completion of the work.
- 1.3 **Bench mark and levels:** The Contractor shall layout one or more permanent bench marks in some central place before start of the work, from which all important levels, exact bed levels for the excavation will be set. The Contractor shall provide all labour and material for setting, levels and profiles at his own cost.
- 1.4 **Leveling Site:** The ground levels after site clearance shall be taken before the start of the work & recorded in a level book duly signed by the Contractor and the Consultant/Employer. Similarly final levels shall be taken and recorded in the level book signed by the Contractor and the Consultant/Employer or their authorized representative. The quantities shall be computed by averages method. The cross sections shall be taken at every 15 M apart on both directions in a fairly level ground and in an undulating ground cross-sections shall be taken at closer distances to be decided by the Consultant / Employer.

In case the earthwork is to be paid for filling computed from the cross sections, the quantity computed from such cross-sections shall be reduced by 1/13 for payment as excavation.



All useful materials such as gravel, stone, relics of antiquity, coins, fossils, etc. met with during excavation shall remain the property of the Employer and shall be handed over to the Employer.


All cutting shall be done from top to bottom. No undermining shall be permitted, cutting shall be done to precise level and any cutting taken deeper shall be made good to the required level without any extra cost. The final surface shall be neatly dressed.

- 1.5 **Excavation:** The foundation trenches shall be excavated to the exact width of the lowest step of the foundation or footing as shown on drawing. The sides of the trenches shall be kept in steps and bottom horizontal both transversely and longitudinally as shown on the drawings. Steps shall be squarely benched out as shown on the drawings or as directed by the Consultant/Employer. The excavated earth shall be deposited at least three meter or 1/3rd of depth away from the edge of excavation whichever is more. Working space on the outer periphery, if required, shall be provided by the Contractor as per IS code and shall be paid as per actual or as per I.S. Code which ever is less.

The bed of the trenches shall be made level and compact by watering and ramming, any soft and defective spots detected shall be filled with concrete of the mix as specified for foundations or as directed by the Consultant/Employer. Cost of such concrete shall be paid to the Contractor. In case excavation is taken deeper than required, the extra depth shall be made good with concrete as specified for foundation or as directed by the Consultant at no cost to the Employer.

The Contractor shall at his own expense without extra charges shall make provision for all shoring, strutting, close or open timbering, pumping, dredging or bailing out water, and the trenches shall be kept

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free from water until the work in foundations is completed and trenches refilled. The trenches shall be inspected and passed before concrete is placed.

The measurements shall be the exact length and width of the allowed step of the trench or footings as shown on the drawing including the working space, and depth shall be measured vertically. The extra earthwork done by the Contractor, providing steps etc. and earth work done in making ramps/steps as approach to work place shall not be measured and paid for.

- 1.6 **Earth Filling:** Filling can be general in the sides of foundation trenches, under floors and for site formation. The earth to be used for filling shall be free from saltpeter organic or other foreign matter. The space around the foundations in trenches and under floors shall be cleared of all debris, brick piece, or any other rubbish, surplus mortar falls etc. Filling shall be done in layers not exceeding 150 mm thickness. Each layer shall be well watered and rammed to the satisfaction of the Consultant/Employer. Final surface shall be neatly dressed.

The earth filling shall be computed from levels recorded before start of filling and after completion of filling, and the quantity so computed shall be paid with deduction of 1/13 as mentioned in para 1.4 above for open site formation and without any deduction of 1/13 for filling under floors i.e. in confined situations.

- 1.7 **Sand-Filling:** The sand shall be clean and free from any foreign matter. Sand filling shall be done, measured and paid in the same manner as earth filling as described in the foregoing para 1.6.

- 1.8 **Hard Core:** Shall either be of stone ballast, gravel or stone rubble of size mentioned in the schedule of quantities and shall be free from dust and other impurities.


Hard core of stone ballast not exceeding 40 mm, and shall be laid in required thickness, dry, rolled and consolidated with a power roller to the satisfaction of the Consultant/Employer unless otherwise specified in the schedule of quantities.

Hard core of rubble stone shall be laid with stones of required height vertically, closely and hand packed with smaller pieces and / or stone ballast 40 mm, as directed by the Consultant/Employer and consolidated dry with a ten tonne power roller unless otherwise specified in the schedule of quantities to the satisfaction of the Consultant/Employer.

No separate payment shall be made for re-excavation or loosening of excavated soil for disposal and transportation due to its having become hard or consolidated due to passage of time, rains or any other cause whatsoever. The lead shall be measured by the shortest route possible.

Antitermite treatment: This shall be as per IS-6313 (part II) latest with a guarantee period of 10 years and shall be carried out by an approved specialist agency.

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SECTION – II

PLAIN AND REINFORCED CONCRETE WORK

2.1 Cement Concrete: For foundations shall be mixed in proportion and with ingredients as specified in the schedule of quantities. The concrete shall be mixed in a mechanical mixer. No more concrete shall be mixed than can be consumed within half an hour. It shall be deposited gently in the trenches in horizontal layers not more than 30 cm. thick and rammed and consolidated with steel rammers of 5 to 6 kg., weight. After laying and consolidation is completed watering twice a day for a week from the next day shall be done.

2.2 Reinforced Cement Concrete Work:

2.2.1 General: It is intent of these specifications to ensure that all concrete placed at various locations in the job should be durable, strong enough to carry the design loads, it should bear well and be practically impervious to water. It should be free from such defect as shrinkage, cracking, and honey combing and soiling of the surface. Unless otherwise called for in these specifications, plain and reinforced concrete shall conform in all respect to IS 456: latest.

2.2.2 Proportions: The proportion by volume of the concrete in the various parts of the work will be specified on the drawings and shall be accurately measured. The quantity of water used shall be the minimum consistent with practical workability and shall be varied as required to suit the moisture content of the aggregate and to produce concrete having the specified slumps.

2.2.3 Mixing: The aggregate and sand shall be free from all list and earthy matter and washed if required by the Consultants/Employer before using. The materials shall be accurately measured in boxes and mixed in a machine. Water being added in required quantity only. The mixture shall be semi-liquid mass with cement uniformly distributed.

2.2.4 Strength: Concrete mixed in the proportions desired should have compressive strength at 7 and 28 days after placing not less than the following :


Concrete Mix Minimum crushing strength (kg / sq.cm)

		7 days	28 days
1.	1:2:4 (M-150)	100	150
2.	1:1-1/2:3 (M-200)	135	200
3.	1:1:2(M-250)	170	250

The Contractor shall as and when directed by the Consultants/Employer cast 6 cubes of the concrete being used in the work and after maturing shall get them tested. The cost of all testing shall be borne by the Contractor.

2.2.5 Mixing: All concrete whether plain or reinforced, ordinary or controlled shall be mixed in a full bag mechanical mixer, having a minimum drum speed of 60 revolutions per minute. The cement and aggregate shall be first mixed dry until all particles of aggregate are coated with cement. Water shall be added and mixing continued for one and a half to two minutes time resulting a concrete of a uniform colour and consistency. If there is segregation after unloading from the mixture the concrete should be remixed.

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2.2.6 **Water Cement Ratio:** The water cement ratio shall be carefully controlled throughout the work. This calls for regular check on the equipment used for measuring water. Only graded liter containers shall be used for this purpose.

2.2.7 **Pouring:** Concrete should not be dropped from height greater than 2 M. properly constructed chutes shall be used in such cases where it is necessary to exceed this height. Concrete must be thoroughly worked in to the forms so that they are entirely filled between the reinforcing bars adequately and tightly surrounded, and entrapped air released from the mass of concrete.

Placing shall be carried out by hand punning as well as vibrators. Concrete should not be moved any considerable distance in the moulds, being consolidated as nearly as possible in the place where it is dumped. In casting beams or other deep sections concrete shall not be placed in layers.

2.2.8 **Transportation:** Concrete should be placed in its final position within 30 minute of mixing. The Contractor shall arrange the mixer position and adopt a method of transportation so as to ensure that this period is not exceeded under any circumstances. Transportation shall be smooth and free from jolting.

2.2.9 **Consolidation:** All plain and reinforced concrete shall be consolidated by means of mechanical vibration. Adequate number of vibrators shall be used to ensure full compaction of concrete in about 10 minutes of placing. If needle vibrators are used, these shall be inserted at place not exceeding 0.5 M. apart until it is immersed to the full depth of concrete. Where ever possible shutter vibrators shall be used and the Contractor shall design the shuttering so that this can withstand vibration. Care shall be taken to ensure that concrete is not over vibrated so as to cause segregation. In addition to mechanical vibration, sufficient hand tools must be used to ensure full consolidation against reinforcement and at edges and corners.


2.2.10 **Construction Joints:** Construction joints shall be made only where shown on the drawing or approved by the Consultant/Employer. Such joints shall be kept to the minimum and shall not be located in valleys. The joints shall be at right angles to the direction of main reinforcement. In case of columns and walls the joint shall be horizontal and 2 to 5 cms, below the bottom of the beam or slab running into the column or wall head or below the anchor reinforcement of beam and slab coming into the column and wall and the portion of the column into wall between the stopping of level and the top on the slab shall be concreted with the beam or slab.


2.2.11 **Testing:**

Consistency : Only sufficient water shall be added to the cement and aggregate during mixing to produce a consistency so that the concrete shall be sufficiently workable to enable it to be well consolidated to be worked into the corners of the shuttering and around the reinforcement and to give the specified strength. Slump tests shall be carried out from time to time as directed by the Consultants/Employer on concrete actually being placed in the works at the commencement of each period of concrete placing in accordance with the procedure laid down in the latest Indian Standards specifications.

The slump shall not exceed in limits specified for different items of works as given below or as directed.

- | | | |
|--------------------|---|-----------------|
| a. Pre-cast work | - | 1" (25mm) slump |
| b. Footing & roads | - | 3" (75mm) slump |
| c. Columns | - | 3" (75mm) slump |
| d. Walls | - | 3" (75mm) slump |
| e. Floor slabs | - | 3" (75mm) slump |

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2.2.12 **Preliminary Test:** The Contractor will be called upon to submit representative samples of materials to be used for concrete so that preliminary tests in accordance with I.S. 456- latest may be carried out in a recognized laboratory to establish the suitability of the materials and proportion of mix by weight proposed by the Contractor.

The Contractor shall have to bear all costs in connection with this test.

2.2.13 **Curing of Concrete:** All exposed faces of concrete shall be covered with Hussein, sand or similar material which shall be kept continuously wet for a period of at least 10 days after casting. After removal of Hussein or sand from all concrete surfaces shall be well wetted at intervals for a period of at least three weeks.

2.2.14 **Protections of completed Works:** The Contractor shall take suitable precautionary measures to prevent breaking and chipping of corners and edges of completed work.

2.2.15 **Surface Finish of Concrete:** All framework, centering and shuttering used for concreting shall be rigid and straight so as to produce all concrete members true to line and level with a tolerance of 1/8" (3mm). This shall be cast against an approved pattern made up of new material such as timber / steel / ply to give neat and exposed finish. No old shuttering material is allowed to site work.

2.3 Form Work

2.3.1 Form work shall be erected true to line and to the shapes required in the work and shall carry without deformation the full weight of wet concrete, and other live loads. It should also withstand the effect of vibration without deflection, bulging distortion or loosening of its component parts. The Contractor shall be responsible for the sufficiency of the form work, centering and moulds. Form work shall be oiled thoroughly before concreting.

Wire or similar ties shall not be left in concrete having face exposed to weather. Bolts shall be permitted if they are greased to allow for easy withdrawal and the holes subsequently made good.



The form work shall be designed so that the sufficient slabs and the side of beams may be removed first. Form work at the soffit of beams and their supports shall be kept in position. Wedges shall be provided to allow accurate adjustment of form work and its easy removal.


All joints shall be tongued and grooved and sufficiently tight to prevent leakage of grout. Chamfer fillets shall be provided at all corners wherever called for on the drawings. The boards shall be planned and straightened in order that the surface against the corner shall not be coated with approved oil before it is fixed in position.

Clean out holes shall be provided at the bottom of all columns and pier form work and care shall be taken to remove any rubbish, wood shaving or any other foreign material before concreting temporary supports shall be provided as required and / or ordered by Consultant/Employer. The Contractor shall provide steel / plywood form work in place of timber boarding wherever called for by the Consultant/Employer.

2.3.2 **Removal of Form work:** All form work shall be kept in position until the expiry of a minimum period after concreting as specified below :-

- a. Forms supporting sides of beams, walls and columns. 2 days

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- b. Bottoms of slabs upto 15ft. (4.50 M) span. 7 days
- c. Bottoms of slabs above 15 ft. (4.50 M) span to 20 ft. (6 M) span 10 days
- d. Bottoms of beams upto 20 ft. (6.00M) 14 days
- e. Bottoms of beams over 30 ft. (9.00M) span 21 days

After removal of form adequate props shall be provided to support beams / slabs until 28 days after concreting.

2.3.3 AGGREGATES

- a. **Fine Aggregate:** Colour being an important consideration, for exposed concrete, colour of sand used shall also be uniform throughout the entire construction. Preferably total quantity required for the work shall be collected and well mixed together to uniform shade.
- b. **Coarse Aggregate:** The colour of the aggregate shall be maintained the same throughout. Unless otherwise specified, exposed concrete in walls parapets and facias, which are non-load bearing and are less than 120 mm in thickness, the maximum size of the coarse aggregate shall be limited to 12mm. for which nothing extra shall be admissible. Flat or flaky pieces shall not be allowed.



2.3.4 **Reinforcement & Cover of Concrete:** Correct placing of the reinforcement with proper cover is important in all exposed concrete work to avoid discoloration by rusting. The minimum cover specified under specification for R.C.C. work shall be maintained throughout. Concrete blocks or spacers shall be sparingly used at exposed surfaces. When used such blocks shall preferably be cast on vibrating table or in some other similar manner so that it may match the concrete surface in texture and colour.


These shall be put at regular intervals. Cover blocks of materials other than cast blocks shall not be allowed for use.

2.3.5 Timber Shuttering

Form work for exposed concrete work shall be of seasoned wrought hard wood timber planks, free from loose knots. The planks shall be 50 mm. thick, 100 to 125 mm. wide with tongued and grooved joints assembled to pattern approved by the Consultants/Employer. The form work shall be so constructed, bracketed and stayed as to remain absolutely rigid and true during and after pouring. The boards shall be planed to thickness, so that the surface against the concrete shall not be broken at joint between boards. Chamfers, groove, mouldings, bevelled edges etc. shall be made in the form itself to the size, profiles and details called for on the drawings.

The Contractor shall provide 12 mm thick shuttering quality plywood of approved make or equivalent approved by the Consultant/Employer in place of 40 mm thick timber plate shuttering mentioned above for such location as called for by the Consultant/Employer. The joints in the plywood shuttering shall be located as directed by the Consultant/Employer. Shuttering, centering and form work for all exposed concrete work like exposed column, beams, ribs, coffer, slabs, chajjas, facias, walls etc. shall be of such finish and rigidity as to produce all faces fair smooth true to line, level and plumb. No rendering or touching up shall be permitted on these faces.

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2.3.6 Steel Shuttering

Steel shuttering for exposed concrete work shall be made of shuttering plates of standard sizes and to suit the pattern of exposed concrete indicated in Consultant/Employer drawings. The shuttering plates used will be made of steel sheets strengthened at the edges and in middle to prevent sagging or any deflection when concrete is laid. These plates will be free from any deformity or dents and should fit with each properly without any space or grooves being left between adjacent plates to avoid any leakage of concrete slurry. If any concrete projects out between plates this will be neatly cut away.

The Contractor shall be required to produce working drawings showing the general construction of form work and panels with details such as nail positions and holes for supports that may be required. Nail head shall be positioned as instructed by the Consultant/Employer. Grooves and Chambers shall be formed as shown on the drawings without any extra cost.

Any holes for the supports, which the Contractor may need, shall be approved by the Consultant/Employer. All such holes shall be subsequently filled in carefully so as to match with the other surfaces. Walls, columns etc. shall generally be cast to the full height in more operation and the form work shall be put in accordingly. If permitted by the Consultant/Employer, these may be completed in two or more heights when the form work shall be carefully and correctly raised for further height so as to ensure a neat joint without disturbing the pattern. Any groove required by the Consultant/Employer at the joint shall be provided by the Contractor at no extra cost.

Coating for Shuttering: Burma shell shuttering oil, colourless and emulsifiable in water shall be used for oiling the wood work, when only thin film shall be neatly applied avoiding collection at one place. Any mark left by the shuttering oil shall be washed clean.

2.4 Measurements And Proportioning Of Concrete Materials :


This shall be as laid down generally for RCC work. In no case extra dust or sand or additional quantity of water shall be allowed with the intention of getting better finish which shall only be obtained by erecting centering as specified above and proper vibrating of the mix after placing. In no case, the slump limit, specified under the specification for RCC work shall be exceeded.


2.5 Mechanical Vibration:

All concrete for exposed concrete work shall be vibrated; using needle vibrators 30/32 mm. Surface vibrators may be permitted to be used for thin slabs. External vibrators for walls may be allowed but this shall be done carefully to safeguard the displacement of the shuttering. Vibrators shall only be operated by skilled labour over or under vibration shall not be permitted. Any spillage or leakage, which is unavoidable and which flows down the exposed concrete surfaces shall be immediately washed away with clean water and brushed before setting. All finishing to the top surface of exposed concrete member shall be finished to desired surface while the concrete is still green.

2.6 Finishing:

Exposed concrete surface shall on no account be permitted to any sort of repairs or patching after striking the form work. In the event of any portion not coming upto standard, this shall be taken down by the Contractor at no extra cost. Decision of the Consultant/Employer as to the rejection of such work shall be final and binding on the Contractor.

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2.7 Reinforcement:

Steel reinforcement shall be either mild steel of tested quality to IS 432- latest or square or round twisted steel confirming IS 1786- latest or confirming to IS 1139- latest as called for on the drawings. Fabric reinforcement in topping slab or pre-cast concrete units shall be of hard drawn mild steel wire mesh, IRC weld mesh or other equivalent as approved. Bars shall be free from mill scale, excessive rust, oil or paint.

The Contractor shall submit bar bending schedules for the approval of the Consultant/Employer prior to commencement of fabrication. These will indicate the accurate dimensions and bending of bar as required on the structural drawings. Fabrication shall be accurately done to the dimensions, spacing and minimum cover as shown on structural drawings.

All steel shall be rigidly held in place with 18 gauge annealed steel wire. Cement mortar (1:2) cubes, M.S. chairs and spacer bars shall be used in order to ensure accurate positioning of reinforcement.

All joints in Mild steel reinforcement upto and including 16 mm dia shall be over-lapped. The lengths of overlap for tension and compression joints shall be in accordance with the typical detail. Joints in mild steel reinforcement above 16 mm diameter may be welded if permitted by the Consultant/Employer in writing. All joints in to steel reinforcement shall be over-lapped strictly in accordance with typical drawing. The laps shall be as agreed in such a way that at one particular section not more than 25% of the bars are lapped. (Refer section VII for the list of approved makes).

2.7.1 Measurements: The length of bars shall be measured correct to cm. of reinforcement placed in position as per drawings. Only such laps, dowels, chairs, spacer pins, as approved by the Consultant/Employer or as shown on drawings shall be measured. All wastage such as cut piece etc., shall be included in rates and no extra amount shall be paid. In case of Contractor's own supply, the weight of various diameter bars shall be as per standard ISI weight. No allowance shall be made for rolling margins. In case of issue by the Employer the mode of payment shall be identical to the mode of issue.


2.7.2 Cover to Reinforcement: Care shall be taken to maintain the correct cover to reinforcement. Unless otherwise specified on the drawing the following minimum covers (exclusive of rendering or other decorative finish) shall be provided in all reinforced concrete work.

2.8 UNDER WATER CONCRETING:

For under water concreting, the methods, equipment, materials and proportions of the mix to be used shall be submitted to and approved by the Consultant/Employer before the work is started. The concreting operation shall be done as per provisions of IS: 4560 - latest (clause 13.2) unless other wise directed by the Consultant.

2.9 All the reinforced cement concrete works shall be design mix concrete of M15, M20 & M25 grade and or as specified. The Contractor prior to commencement of concreting work and get the same approved in writing from the Consultant.

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SECTION – III

STRUCTURAL STEEL WORK

3.0 Structural Steel Work

3.1 FABRICATION

3.1.1 Straightening

All materials shall be straight and if necessary, before being worked shall be straightened and / or flattened by pressure, unless required to be curvilinear form and shall be free from twists.

3.1.2 Clearance

The erection clearance for cleaned ends of members connecting steel to steel should be preferably not greater than 2mm at each end, the erection clearance at ends of beams without web cleats should be not more than 3mm at each end and where for practical reasons, greater clearance is necessary suitable designed seatings should be provided.

Where black bolts are used, the holes may be made not more than 2mm greater than the diameter of the bolts unless otherwise specified by the Consultant/Employer.

3.1.3 Cutting

Cutting may be affected by shearing, crapping or sawing; gas-cutting by mechanically controlled torch may be permitted for mild steel only. Gas cutting of high tensile steel may also be permitted provided special care is taken to leave sufficient metal to be removed by machining so that all metal that has been hardened by flame is removed. Hand flame cutting may be permitted subject to approval of the Consultant/Employer. Except where the material is subsequently jointed by welding no load shall be transmitted into metal through a gas cut surface.

Shearing, cropping and gas cutting shall be clean, reasonably square and free from any distortion and should the Consultant/Employer find it necessary the edges shall be ground afterwards.


The edges of plates that have been cut, when the plate is to subjected to dynamic or fatigue loading, shall be machined over the full thickness.


3.1.4 Holes

Holes through more than one thickness of materials or members such as compound stanchion and girder flanges shall,(where possible) be drilled after the members are assembled. Drilling is permitted before assembly, provided the holes are punched 3mm less in diameter than the required size and reamed after assembly to the full diameter. The thickness of material punched shall be not greater than 16mm.

When holes are drilled in one operation through two or more separable parts, those parts when so specified by the Consultant/Employer, shall be separated after drilling and the burrs removed.

Holes in connecting angles and plates other than splices, also in R.C. roof members and light framing, may be punched full size through material not over 13mm thick except where required for close tolerance or barrel bolts.

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Matching holes for reverts and black bolts shall register with each other so that a gauge of 1.5mm or 2.00mm (as the case may be depending on whether the diameter of the rivet or bolt is less than or more than 25mm less in diameter than the diameter of the holes), will pass freely through the assembled members in the direction at right angle to such members. Finished holes shall be not more than 1.5mm or 2mm (as the case may be) in diameter larger than the diameter of the rivet or black bolt passing through them unless otherwise specified by Consultant/Employer.

Holes for turned and fitted bolts shall be drilled to a diameter equal to the normal diameter of shank of barrel subject to HB tolerance specified in IS-919-1963 (Recommendations for limits and fits for Engineering). Preferably, parts to be connected with close tolerance or barrel bolts shall be firmly held together by tacking bolts or clamps and the holes drilled through all the thickness at one per operation and subsequently reamed to size. All holes not drilled through all thickness at one operation shall be drilled to a smaller size and reamed out after assembly where this is not practicable the parts shall be drilled and reamed separately through hard brushed steel jobs. Holes for bolts shall not be formed by a gas cutting process.

3.1.5 Assembly

The component parts shall be assembled in such a manner that they are neither twisted not otherwise damaged and shall be so prepared that the specified cambers, if any, are provided.

No drifting shall be allowed except for bringing together several parts forming a member. But the drifts must not be driven with such a force as to disturb the metal around the holes.

All members must be so formed that they may be accurately assembled without being unduly packed strained or forced into position and when built shall be true and free from any twist, link buckle or open joints between component pieces. Failure in this respect involves the rejection of the defective members.

3.1.6 Bolting

Where necessary washers shall be tapered or otherwise suitably shaped to give the heads and nuts of bolts a satisfactory bearing.

In all cases where the full bearing area of the bolt is to be developed, the bolt shall be provided with a washer of sufficient thickness under the butt to avoid any threaded portion of the bolt being within the thickness of the parts bolted together. Threaded portion of bolt shall be projected on thread beyond nut.

3.1.7 Welding

Welding shall be accordance with any of the following standard as appropriate:-

IS 816, 819 and 823 (latest)


All electrodes used shall conform to IS: 814 & 815 (latest).

For welding of any particular type of joint, welders shall give evidence acceptable to the Employer of having satisfactorily completed appropriate tests as described in any of the following standards as relevant: -

IS: 817 - latest

IS: 1181 - latest

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3.1.8 Matching of Butts, Caps and Bases

Column splices and butt joints of struts and compression members depending on contact for stress transmission shall be accurately machined and close butted over the whole section with a clearance not exceeding 0.1mm locally at any place. " I " column caps, attached gussets, angles, channels etc, after bolting together should be accurately machined so that the parts connected get butt over the entire surfaces of contacts. Care should be taken that these connecting angles or channels are fixed with such accuracy that they are not reduced in thickness by machining by more than 1.0mm

Where sufficient gussets are provided to transmit the entire loading the column ends need not be machined.

Ends of all bearing stiffeners shall be machined or ground to fit tightly at both top and bottom.

3.1.9 Slab Bases and Caps

Slab bases and slab caps, except when cut from material with true surfaces shall be accurately machined over the bearing surfaces and shall be in effective contact with the end of the stanchion. The bearing faces which are to be grouted direct to a foundation need not be machined if such is true and paralleled to the upper face.

To facilitate grouting, holes shall be provided where necessary in stanchion bases for the escape of air.

3.1.10 Painting

3.1.10.1 General

All steel work shall be painted with one coat of red oxide zinc chromate primer or other similar approved paint as under coat at fabrication shop before erection.

3.1.10.2 Shop Painting

All surfaces which are to be painted shall be dry and thoroughly cleaned to remove all grease loose scales and rusts.

Shop contact surface need not be painted unless so specified. If specified, they shall be brought together with the paint still wet.

Surface not in contact but inaccessible after shop assembly shall receive the full specified protective treatment before assembly. This does not apply to the interior of sealed hollow sections.


Welds and adjacent parent metals shall not be painted prior to deslagging inspection and approval.

Parts to be encased in concrete shall be painted.

3.1.10.3 Protective Painting And Erection

The specified protective treatment shall be completed after erection. All bolt heads and the site welds after deslagging shall be cleaned. Damaged paint surfaces shall first be made good with the same type of paint as the shop coat. All site welds and hot heads after proper cleaning shall receive one coat of shop paint, before application of protective painting.

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Site protective painting should not be done in frostily of foggy weather or when humidity is such as to cause condensation on the surfaces to be painted.
Second coat of protective paint shall be applied after the first coating is completely dry.

3.1.11 Marking

Each piece of steel work shall be distinctly marked before delivery in accordance with a marking diagram and shall bear such other marks as will facilitate erection viz. the relevant drawing number, its orientation where erected, its weight when this exceeds 5 tons etc.

3.1.12 Shop Erection

The steel work shall be temporarily shop erected or as arranged with the Consultant/Employer so that accuracy of fit may be checked before dispatch. The parts shall be shop assembled with a sufficient number of paralleled drifts to bring and keep the parts in place.

3.1.13 Packing

All projection plates or bars and all ends of members at joints shall be bundled. All screwed ends and machine surface shall be suitably packed and all nuts, washers and small loose parts shall be packed separately in cases so as to prevent damage or distortion during transit.

The Consultant/Employer shall have free access at all reasonable times to those parts of the manufacturer's works are concerned with the fabrication of the steel work and shall be afforded all reasonable facilities for satisfying himself that the fabrication is being undertaken in accordance with the provisions of the standard.

Unless specified otherwise, inspection shall be made at the place of manufacture prior to dispatch and shall be conducted so as to not interfere unnecessarily with the operation of the work.

The manufacturer shall guarantee compliance with the provisions of the standards if required to do so by the Consultant/Employer. Should any structure, or part of a structure be found not to comply with any of the provisions of the standards, it shall be liable to rejection. No structure or part of the structure, once rejected shall be resubmitted for test except in cases where the Employer or his authorised representative considers the defect as rectifiable. Defects which may appear during fabrication shall be made good in accordance to the procedure laid down by the Consultant/Employer.


All gauges and templates necessary to satisfy the Consultant/Employer shall be supplied by the manufacturer. The Consultant/Employer may, at his discretion, check the test results obtained at the manufacturer's works by independent tests at the Government Test House or elsewhere and should the materials so tested be found to be unsatisfactory, the costs of such tests shall be borne by the manufacturer, and if satisfactory, the cost shall be borne by the Employer.


3.1.14 Erection

3.1.14.1 Plant and Equipment

The Contractor shall supply all plant and equipment necessary for the efficient erection of steel work.

The suitability and capacity of all plant, equipment need for erection shall be to the satisfaction of the Consultant/Employer.

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3.1.14.2 Storing and Handling

All structural steel should be so stored and handled at the site that the members are not subject to excessive stresses and damage. The mode of storing and handling operation must satisfy the Consultant/Employer.

3.1.14.3 Setting Out

The positioning and leveling of all steel work, the plumbing of stanchions and the placing of every part of the structure with accuracy shall be in accordance with the approved drawing and to the satisfaction of the Consultant/Employer. If not stated otherwise in the drawing, the maximum tolerance etc. will be as follows:

The maximum tolerance for line and level of the steel work shall be plus or minus 3mm on any part of the structure. The structure shall be not out of plumb by more than 3mm on any part of the structure. The structure shall be not out of plumb by more than 3mm on each 15mm section of height and not more than 5mm for the entire height. The final positioning of the structure including level should require the approval of the Consultant/Employer.

3.1.14.4 Security During Erection

During erection, the steel work shall be bolted or otherwise fastened and shown necessary temporarily braced to provide for all loads to be carried by the structure during erection including those due to the erection equipment and its operation.



No permanent bolting or welding should be done until proper alignment has been obtained.


3.1.14.5 Field Connections

All field assembly and welding shall be executed in accordance with the requirements for shop fabrication excepting such as manifestly apply to shop conditions only. Where the steel has been delivered, painted, the paint shall be removed before field welding for a distance of at least 50mm on either of the joints.

3.1.15 Application of epoxy :

- Priming:** After thorough surface preparation the floor shall be treated with one full coat of primer, a solvent based epoxy primer. The coverage of primer may vary with the porosity of the substrate; normally on a good concrete surface one pack (5 kg) of primer will cover 20 – 25 sqm.
- After the primer has become tack free, the base hardener and colour paste of epoxy must be mixed together in the bucket with a paddle attached to a slow speed heavy duty drilling machine for about 3 / 4 minutes till a uniform colour and consistency of the mix is obtained. Ensure that the machine speed should not exceed 350 to 400 RPM. If the speed of the paddle increases it heats up the contents and pot life of the mixed material is drastically reduced. This causes problems in laying the product and rolling it efficiently.
- The mixed material should be then poured on the primed substrate and spread to the required thickness with a steel serrated trowel. For approx. 4.5 Sqm. 1 pack of epoxy would give a thickness of 4 mm. This could also be ensured with a wet film thickness gauge. After trowelling the Epoxy material must be rolled with a spiked roller thoroughly to release the entrapped air in the

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film. This will ensure a perfect bond between the Epoxy topping and the substrate. Spike rolling can be done for about 30 to 45 minutes. Initially rolling will be very easy and the spike marks will close up immediately since the material is very fluid. As the material gets the spike rolling, it becomes more and more difficult and the roller marks close very slowly. At this stage the rolling operation shall be stopped. While laying large areas of Epoxy spiked shoes shall be used to walk around to minimize the contact area.

3.1.16 Curing :

Epoxy cures in 18 hours @ 30⁰ C. Occasional and light foot traffic can start at this time. Full traffic shall be started after 36 hours @ 30⁰ C. The system fully cures in 7 days and will deliver all the properties built into the system.

3.1.17 Floor Joints in Epoxy Floors :

Floor expansion joints shall be sealed with two part polysulphide sealant and Epoxy system shall not be carried over the joint. Mixing and application procedure of Thioflex 600 will be as per the Data Sheet.

Non movable joints in the floor shall be filled with low MAF epoxy polyurethane sealant. The sealant is available in different colours to match the colour of applied Epoxysystem.

3.1.18 Application Temperature :

The application temperature range of Epoxy is between 15⁰ C & 35⁰ C. During winters it is advisable to carry out the application during day time or suitable heating devices shall be used to make the area warm.

3.1.19 Specifications for Epoxy Wall Coating :

Product : Fosroc or Equivalent Make (Refer section VII for the list of approved makers).
 No. of Coats : three
 Thickness : 150 microns (dry film thickness in three coats)


3.1.19.1 Cement

Ordinary cement shall be either ordinary Portland cement confirming to IS: 8112 or Portland Pozzolona Cement confirming to IS: 1489. Cement shall be fresh when delivered to the site. (Refer section VII for the list of approved makers).

3.1.19.2 Fine Aggregate

Fine aggregate shall be clear pit sand or other approved sand confirming to IS:383. It shall be free injurious amounts of soft and flaky particles and free from vegetable, organic, clay matter, loom, mice, salts and other deleterious substances.

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3.1.19.3 Water


Water used for both mixing and curing shall be fresh, clean, free from oil, salt, acid, alkali or other chemicals and deleterious matter.


3.1.19.4 Preparation of Surfaces

The joints shall be raked out to a depth of atleast 15 mm in masonry wall. In case of concrete walls the surface shall be hacked and roughened with wire brushes. The surface shall be cleaned thoroughly, washed with and kept wet before skirting is commenced.

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SECTION – IV

PAINING WORKS

4.1 PAINTING WORKS

4.1.1 Paint (Refer section VII for the list of approved makes).

4.1.2 Preparation of Surface

For new work, the surface shall be thoroughly cleaned of all mortar dropping, dirt, dust, algae, grease and the foreign matter by brushing & washing. The surface shall be thoroughly wetted with clean water before the cement paint is applied.

In the case of old work, all loose pieces and scales shall be cleaned of all dirt, dust, algae, oil etc. by brushing & washing. Pitting in plaster shall be made good and a coat of water proof cement paint shall be applied over patches after wetting them thoroughly.

4.1.3 Preparation of Mix

Cement paint shall be mixed in such quantities as can be used up within a hour of its mixing as otherwise the mixture will set & thicken, affecting flow & finish.

Cement paint shall be mixed with water in two stages. The first stage comprises of 2 parts of cement paint and one part of water stirred thoroughly & allowed to stand for five minutes. Care shall be taken to add the cement paint gradually to the water and not vice-versa. The second stage shall comprise of adding further one part of water to the mix and stirring thoroughly to obtain a liquid of workable and uniform consistency. In all cases the manufacturer's instructions shall be followed meticulously.

The lids of cement paint drums shall be kept tightly closed when not in use, as by exposure to atmosphere the cement paint rapidly becomes air set due to its hygroscopic qualities.

4.1.4 Application

The solution shall be applied on the clean and wetted surface above 1 coat of grey cement wash with brushes or spraying machine. The solution shall be kept well stirred during the period of application. It shall be applied on the surface which is on the shady side of the building so that the direct heat of the sun on the surface is avoided. The method of application of cement paint shall be as per manufacturer's specification. The completed surface shall be watered after the day's work.

The second coat shall be applied after the first coat has been set for at least 24 hours before application of the second or subsequent coats, the surface of the previous coat shall not be wetted.


For new work, the surface shall be treated with three or more coats of water proof cement paint as found necessary to get a uniform shade.

4.2 PRIMING COAT ON WOOD, IRON OR PLASTERED SURFACE

4.2.1 Iron And Steel Surface

All rust and scales shall be removed by scarping or by brushing with steel wire brushes. Hard skin of oxide formed on the surface of wrought iron during rolling which become loose by rusting, shall be

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removed. All dust and dirt shall be thoroughly wiped away from the surface. If the surface is wet, it shall be dried before priming coat is undertaken.

4.2.2 Application

The primer shall be applied with brushes, worked well in to the surface and spread even and smooth. The painting shall be done by brushing and laying off as described in cement paint above.

4.3 PAINTING WITH READY MIXED PAINT/SYNTHETIC ENAMEL PAINT

4.3.1 Iron And Steel Work


The priming coat shall have dried up completely before removed by scrapping or by brushing with steel wire brushes. All dust and dirt shall be carefully & thoroughly wiped away.


4.3.2 Application

The specification described in Cement Paint shall be hold good as far as applicable. The number of coats to be applied will be as stipulated in the item. The painted surface shall present a uniform appearance and glossy/ matt finish described in Schedule of Quantities free from streaks, blisters etc.

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SECTION - V

WATER PROOFING

5.0 SPECIFICATION FOR WATER PROOFING

5.1 WATER PROOF TREATMENT TO WATER STORAGE TANKS

5.1.1 Material

Epoxy based coating like "TECHOXY" or similar product approved by Consultant / Employer. (Refer section VII for the list of approved makes).

5.1.2 Application

Leakage point and damp patches are identified after testing the storage tank filled with water.

The leakage points and damp areas are treated with injection pressure grouting through 12 mm dia. grout holes placed @ 500 mm square grid over the affected areas as approved by Consultant/ Employer.

The entire inner surfaces of the base slab and walls are then cleaned off loose/foreign materials by wire brush.

Apply one coat of Techoxy coating on the above treated surface.

After a time gap of 10-12 hours apply the second coat Techoxy.

Spray washed dry coarse sand @ 500 gm/m² on the treated surface while the second coat is still green.


Apply 20 mm thick cement sand plaster 1:4 (one part cement and 4 parts sand) added with approved water proofing compound as per direction of the Consultant / Employer. The plaster is to be finished with neat cement punning.

5.2 Polymeric Felt Membrane

Two layers of Polymeric Polyethylene felt, each layer laid on the base in semi-hot asphalt over a coat of bituminous primer with 75mm and 100mm side and end laps respectively. Joints of both the layers of Polymeric felt are staggered. Joints are further sealed with bitumen. On vertical faces, two layers of fibre glass tissue shall be applied. Each layer of fibre glass tissue shall be laid in semi-hot asphalt over a coat of bitumenous primer, joint staggered with bitumen. The specification for the vertical faces shall overlap the base specification by 100mm.

The water proofing is to be laid on a smooth plastered surface after a chase 50mm x 50mm is cut at a height of minimum 150mm above the proposed roof finish level. Immediately after the waterproofing has been laid, it should be covered and protected with concrete laid to slope and finally brick tiles / stone etc. or as shown in the drawing.

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5.3 Water Proofing By Injection Grout Method:-

- 5.3.1 Placing and fixing of 25mm dia nozzles of C-Class G.I. pipe as per item of Bill of Quantities and protruding at least 25mm from the R.C.C. surface of raft / R.C.C. wall.
- 5.3.2 Injection of cement slurry of different viscosity mixed with waterproofing expansive plasticizing agent (non shrinkage grouting compound) through nozzles under pressure by pump as per manufacturer's specifications using admixture of approved quality & brand conforming to IS-2645 latest.
- 5.3.3 Sealing of the nozzle after injection operation with cement sand mortar in 1:4 (1 cement: 4 fine sand) mixed with suitable admixture.
- 5.3.4 Application of polymer modified cementitious coating (Acrylic polymer latex) as per manufacturer's specifications of chemseal, tapecrete, pidicrete or approved equivalent make conforming to IS-2645 latest in two coats applied in perpendicular directions; second coat is to be applied atleast 4 hrs. later than first coat over the P.C.C. surface / surface of R.C.C. wall, any undulations in P.C.C. shall be smoothed first by the contractor (without any extra cost).
- 5.3.5 Above cementitious coating is to be protected by a layer of 20mm thick cement plaster in 1:4 (1 cement: 4 coarse sand) mixed with liquid waterproofing admixture as stated in the item.
- 5.3.6 Cementitious coating and protective plaster as above for walls, shall be done on water side incase the U.G. Sump & earth side in case of Basement and for raft, above raft surface in case of U.G. Sump & above raft surface in case of the basement.
- 5.3.7 Work to be get executed through a approved specialised agency & covered by a 10 years guarantee by the main contractor.
- 5.3.8 Measurement of raft shall be done on horizontal surface, measurement of wall shall be done on one face of wall only.
- 5.3.9 Rates shall be inclusive of all operations including labour, material, T&P, scaffolding etc. complete. Nothing extra shall be payable on any account.

Guarantee

On award of the work contractor shall submit a guarantee covering the quality and performance of all material supplied and installed under the contract. This guarantee shall cover each and every material whether manufactured by the contractor or not.

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SECTION –VI

LIST OF CODES


6.1 The materials and workmanship shall be in accordance with the requirement of the appropriate IS code wherever applicable together with any building regulations or bye-laws governing the works.

The following list is included for guidance only and the omission from the list does not relieve the Contractor from compliance there with:

IS 1200	:	Mode of measurement.
IS 269	:	Ordinary portland cement.
IS 2386	:	Method of test for aggregate for concrete.
IS 516	:	method of test for strength of concrete.
IS 383	:	Coarse and fine aggregate from natural sources for concrete.
IS 456	:	Code of practice for plain and reinforced concrete.
IS 1786	:	Cold twisted steel bars for concrete reinforcement.
IS 6313 PART 2	:	Anti-termite measures in buildings, pre-constructional Chemical Treatment measures
IS 104	:	Specification for ready mixed painted, brushing, zinc chrome, priming
IS 137	:	Ready mixed paint, brushing, matt or egg-shell flat, finishing, Interior to Indian standard colour as required
IS 428	:	Distemper, oil emulsion, colour required.
IS 2720	:	Density test of aggregate.

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SECTION VII

TRIAL RUN PERIOD AND CONTRACTOR'S OBLIGATIONS

7.1 TRIAL RUN PERIOD AND CONTRACTOR'S OBLIGATIONS

7.1.1 Trial Run & Hydraulic Testing:

1. On completion of erection and testing at site, the contractor shall carry out trial run & hydraulic testing of all individual items. The duration of trial run and hydraulic testing for individual items shall not be less than 24 hours in continuous operation. On satisfactory performance of individual items, trial run and hydraulic testing of individual and composite units; trial run of complete 'Installation' shall be carried out. The duration of each trial run for each composite unit shall not be less than 48 (forty eight) hours continuous operation, and the duration of trial run for complete 'Installation' shall not be less than ninety six (96) hours continuous operation. All defective items or any defect observed during trial run shall be replaced and/or rectified by the contractor.
2. The detailed schedule of trial run and procedure shall be furnished by the Contractor. Record of test results shall be maintained by the contractor for all testing and trial run.
3. Record Books of operating log sheets shall be handed over by the contractor to the Engineer-in-charge in an approved form before the completion of the trial run period.


7.1.2 Performance Guarantee Test:

1. The complete 'Installation' shall be tested for demonstration of guaranteed performance. The duration for such 'Performance Guarantee Test' shall not be less than continuous twenty days (480 hours).
2. The performance guarantee test by the Contractor shall demonstrate satisfactory operation of all individual pumps, equipments, controls, instruments, auxiliaries & accessories, etc. covered under the scope of work of the contract and the following major guaranteed parameters:
 - Guaranteed pumping capacities and diesel generator capacities
 - Guaranteed instrumentation and control of the STP
3. All consumables required for the trial run, performance guarantee test etc. at any stage shall be the contractor's responsibility, including cost of power consumption during the above tests & trial run.

7.1.3 Performance guarantee:

1. The contractor shall guarantee the rated capacity, discharge, head, kilo-wattage, energy consumption, etc. for the individual pumps.
2. In case the stipulated capacity of the concerned equipment/ facility/ installation is not achieved, the same shall be rejected at Contractors cost and risk. No extra payment shall be permissible and be claimed by the contractor for any excess (+) tolerance in rated capacity.
3. Any variation in tolerance beyond the permissible limit shall not be accepted and such installation be summarily rejected.

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7.1.4 Guarantee:

The Contractor shall guarantee the design, materials, quality, workmanship and the satisfactory performance of all the equipments, accessories, auxiliaries, piping, electrics, instruments, installations, constructions, buildings, structure etc. under the scope of work for a period of 12 (twelve) months from the date of preliminary acceptance. Any defects noticed during the guarantee period shall be replaced/rectified immediately without any extra cost to the Board.

7.1.5 Acceptance:

On completion of erection, the contractor shall clear all the left over surplus earth, bricks, boulders, debris, scrap, temporary structures etc. from the erection site and present the entire premises in a neat and tidy manner. All units, equipments, pipelines etc. shall be cleaned thoroughly. On completion of finishing work, colour wash & painting work, the contractor shall provide name plates on the main units.

1. Preliminary Acceptance:

On completion of successful testing, trial running, satisfactory performance guarantee test, successful training, submission of O&M Manual, operating log sheets and as-built drawings, the 'Installation' shall be preliminarily accepted by the client and put into regular operation.

2. Final Acceptance:

Following final inspection and when the Engineer is satisfied that the entire works have been completely constructed, tested, commissioned all in completely operable and reliable order, and only when all specified tests certificate, the appropriate documents are supplied and trial run period of three continuous months has been completed, the Engineer will issue Certificate of Final Acceptance.

A final acceptance certificate defines the start of the maintenance period but its issue does not relieve the Contractor of his obligations to complete commissioning.

3. During the period of trial run the Contractor shall:



- a) Supply the labour, materials and all the consumable for all-routine maintenance and renovation of the work. However, Client shall bear the cost of power consumption during the period of trial run and all tests.
- b) Carry out maintenance repairs on defects immediately


7.2 OPERATION AND MAINTENANCE MANUAL:

7.2.1 General

The contractor shall deliver to the Engineer-in-charge two copies of draft operational and maintenance manual for the plant. The manual shall be an organized compilation of operating and maintenance data including detailed technical information, documents and records describing operation and maintenance of individual components.

The Operation & Maintenance Manual shall fully and clearly set out the contractor's own recommendations, and instructions for the satisfactory operation and maintenance of the Etp and STP equipment. The manual shall also accompany drawings. Draft manual shall, during the testing and

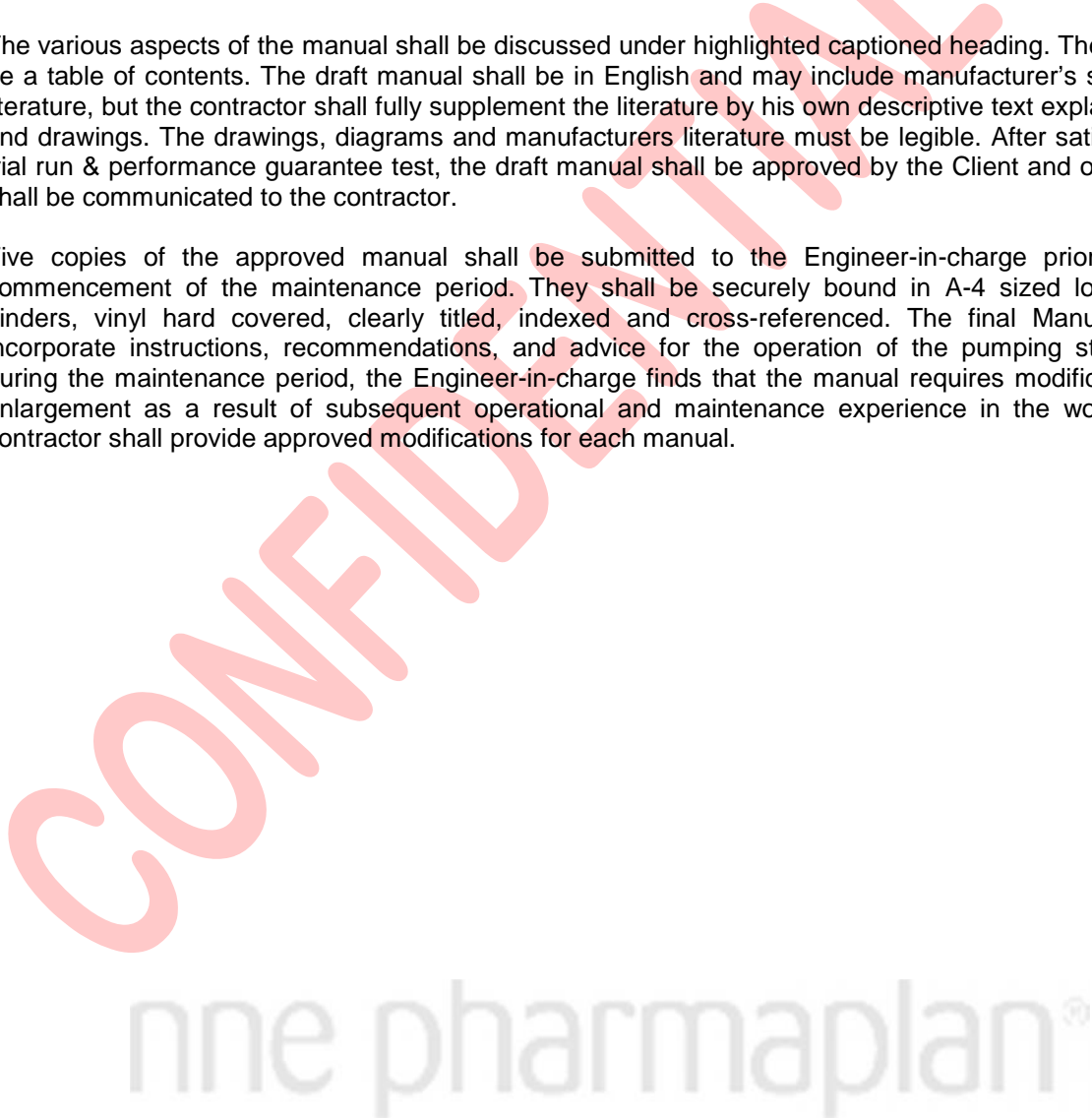
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commissioning of the works, be carefully checked by the contractor and updated and modified to ensure that it is fully descriptive and applicable to the pumping station as installed. The Operation & Maintenance Manual shall also highlight handling of emergency situations during electric short-circuiting, personnel safety and hygiene.

The various aspects of the manual shall be discussed under highlighted captioned heading. There shall be a table of contents. The draft manual shall be in English and may include manufacturer's standard literature, but the contractor shall fully supplement the literature by his own descriptive text explanations and drawings. The drawings, diagrams and manufacturers literature must be legible. After satisfactory trial run & performance guarantee test, the draft manual shall be approved by the Client and one copy shall be communicated to the contractor.

Five copies of the approved manual shall be submitted to the Engineer-in-charge prior to the commencement of the maintenance period. They shall be securely bound in A-4 sized loose-leaf binders, vinyl hard covered, clearly titled, indexed and cross-referenced. The final Manual shall incorporate instructions, recommendations, and advice for the operation of the pumping station. If during the maintenance period, the Engineer-in-charge finds that the manual requires modification or enlargement as a result of subsequent operational and maintenance experience in the works, the contractor shall provide approved modifications for each manual.



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7.2.2 Contents


A typical content of the manual is indicated here. The manual shall contain:


- Cover sheet containing:
 - Date submitted
 - Project Title, location and project number
 - Name and addresses of Contractor and all manufacturers
- Table of contents of all folders
- List of maintenance materials
- Warranties, guarantees
- Copies of approvals and certificates
- As-built drawings.
- Shop drawings
- List of equipment including service depots
- Nameplate information including equipment number, make, size, capacity, model number, and serial number.
- Parts list
- Design data for pumps, motors, pumping main, standby power, overflow point and elevation, telemetry and sulfide control system as applicable.
- Pump curve with computed system curve showing design operating point.
- Startup and shutdown procedures
- Analysis of critical safety issues
- Description of the maintenance management system, including preventive and predictive maintenance.
- Installation details
- Operating instructions.
- Maintenance instructions for equipment.
- Maintenance instructions for surface finish.
- List of local contractors for emergency repairs.
- List of vendors and manufacturers of critical system components.
- Staff training plan.

The manual shall also include a list of the mechanical and electrical parts, procedures for their assembly, smooth operation and maintenance and including the following:

- Calibration, adjustment, checking and lubrication of each component.
- Attention at weekly, monthly or other regular intervals to ensure reliable trouble free operation.
- Complete overhaul, dismantling, reassembling and re-commissioning of various components.
- Identification and selection of suitable lubricants of various Indian Manufacturers' / suitable equivalents.
- Fault findings.
- Maintenance of protective coatings.

The work shall not be considered as complete unless the above requirement has been met.


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CHAPTER - 2.5

PREAMBLE

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1. The Bill of Quantities shall be read in conjunction with the Instructions to Bidders, General and Special Conditions of Contract. Specification and Drawings.
2. The quantities given in the Bill of Quantities are approximate and are given to provide a common basis for bidding. It shall be definitely understood that these are the estimated quantities only and are liable to alteration by omission, deductions or additions at the discretion of the Owner without affecting the Terms of Contract. The basis of payment shall however, be the actual quantities of work executed at site as measured by the Contractor and verified by the Consultant/Employer, valued at the awarded rates and prices. No claim whatsoever shall be entertained due to variations in quantities.
3. The rates and prices in the priced Bill of Quantities shall, except, insofar as it is otherwise provided under the Contract, include all Constructional Plant, labour, supervision, materials, erection, maintenance, insurance, profit, taxes and duties, together with all general risks, liabilities and obligations set out or implied in the Contract.
4. A rate or price shall be entered against each item in the priced Bill of Quantities, whether quantities are stated or not. The cost of Items against which the Contractor has failed to enter a rate or price shall be deemed to be covered by other rates and prices entered in the Bill of Quantities.
5. The whole cost of complying with the provisions of the Contract shall be included in the items provided in the priced Bill of Quantities, and where no items are provided the cost shall be deemed to be distributed among the rates and prices entered for the related items of Work.
6. General directions and descriptions of work and material are not necessarily repeated nor summarized in the Bill of Quantities. Reference to the relevant sections of the Contract documenting shall be made before entering prices against each item in the priced Bill of Quantities.
7. The method of measurement of completed work for payment shall be in accordance with the modes stipulated in the Bill of Quantities and specification where in such modes are not specified the works shall be measured as per the relevant IS/BIS codes 1200, latest revisions. Reference Guide or Full Details of the Methods to be used).
8. Errors will be corrected by the Consultant/Employer for the arithmetic errors in computation or summation as follows:-
 - a. Where there is a discrepancy between amount in figures and in words, the amount in words will govern, and
 - b. Where there is a discrepancy between the unit rate and the total amount derived from the multiplier of the unit price and the quantity, the unit rate quoted will govern, unless in the opinion of Consultant/Employer, there is an obviously gross misplacement of the decimal point in the unit price in which the total amount as quoted will govern and the rate will be corrected.
 - c. Bidders shall price the Bill of Quantities in Indian Rupees only.

9. Non tendered items;

Rate analysis of the non tendered items to be submitted before the execution of the non tendered work.

But contractor will have to take authorization in writing from employer before doing any non tendered

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item. In case of any dispute about rates, Consultant's/Employer's verdict will be final binding to both the parties.


- a. Bill of these non tendered items will be settled at the end or till value of these items crossed to an amount equivalent to 5% of contract value

10. All the tiles used in the plant for walls or floor shall be machine cut.

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PREAMBLE TO SCHEDULE OF QUANTITIES

1. The work comprised in the contract generally consists of all general ETP/STP works, complete in all respects as shown in the drawings and as indicated in the Schedule of Quantities.
2. The Contractor shall carefully go through the clauses in the invitation to Tender, Articles of Agreement, General Conditions of Contract, Technical Specification, Bill of Quantities and drawings and shall include in his rates any sum he may consider necessary to cover the fulfilment of various clauses contained therein.
3. The quotation submitted by the Contractor should be based on the probable quantities of the several items of work which are furnished for the Contractor's convenience in Bill of Quantities and it must be clearly understood that the contract is not a lump sum contract, that neither the probable quantities nor the value of the individual items nor the aggregate value of the entire tender will form part of the contract and the Owner does not in any way assure the Contractor or guarantee that the probable quantities are correct or that the work should correspond thereto.
4. The item of work and the unit prices stated in the Bill of Quantities shall be inclusive of everything necessary to complete the said item of work within the contemplation of the contract and beyond the unit price no extra payment will be allowed for any incidental or contingent work, labour, materials, tools & plant.
5. No change in unit rate will be admissible for any variation in quantities.
6. Contractor shall note that
 - a) All materials & water supply will have to be borne by the Contractor.
 - b) The electricity, if available at site will be provided to the contractor at a single point on a chargeable basis. The contractor shall pay the employer at the prices at the actuals (applicable by TN electricity board). The quantities consumed shall be determined by the Employer's representative, who shall include the amounts due as deductions in Interim and final payment certificates. The contractor shall, at his risk and cost, provide any apparatus necessary for such determination and for his use of these services. **The contractor should make his own arrangements for the providing back up power supply (like D.G sets of required capacity) during the work.**

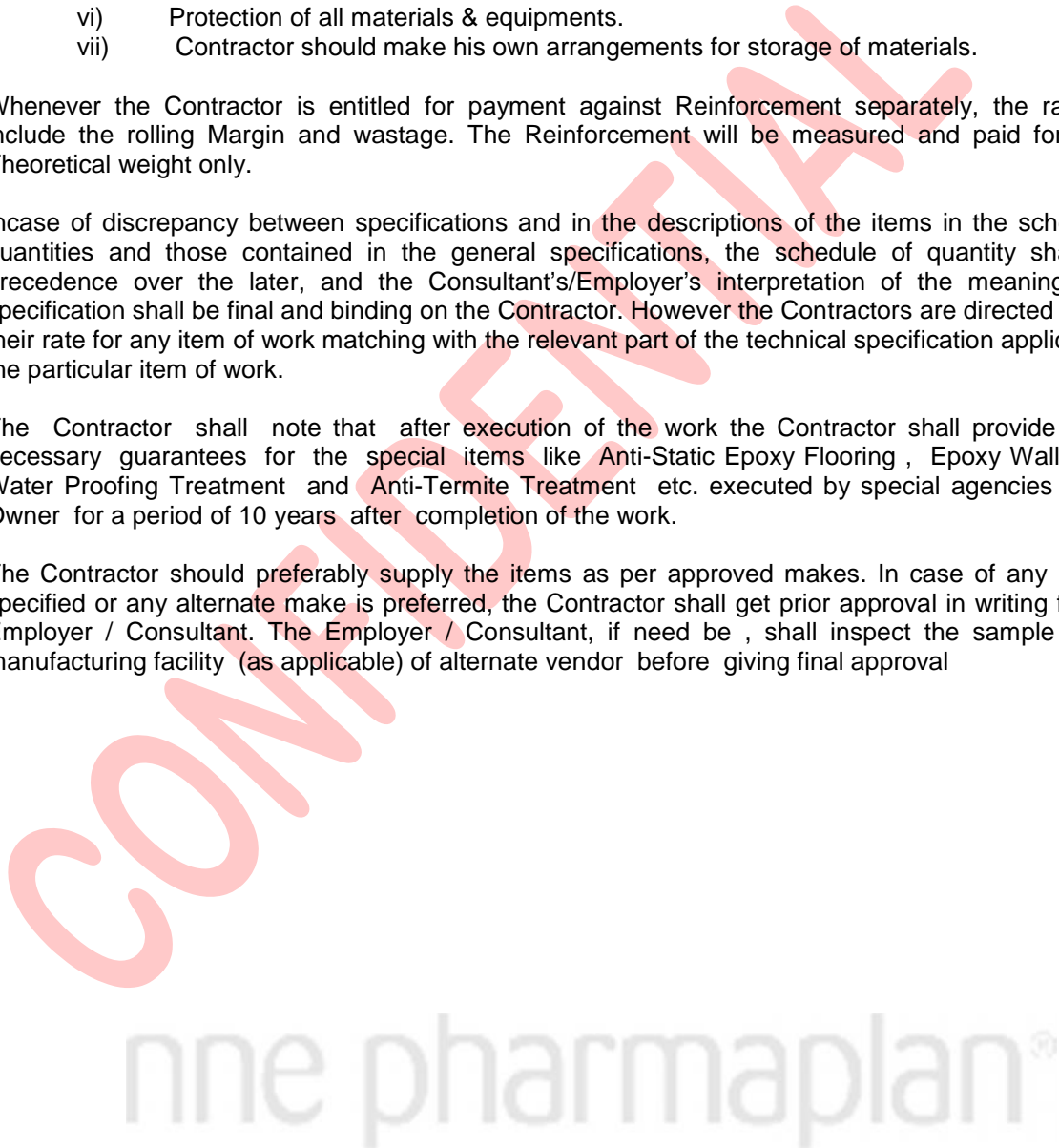
However, water required for construction and other purposes has to be arranged by Contractor at his own cost..

- c) The rate in Bill of Quantities shall also include the cost of the following:
 - i) Transportation of constructional plant, personnel etc. to the site at the start of work and their withdrawal on completion of work.
 - ii) Storage of material and hoisting and lowering to all levels.
 - iii) Supplying, transporting to site, unloading, protecting and installation of materials in accordance with the specification.
 - iv) Accommodation of the Contractor's staff & labourers outside the building.


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- v) Insurance of materials at site as stipulated in the conditions.
 - vi) Protection of all materials & equipments.
 - vii) Contractor should make his own arrangements for storage of materials.
7. Whenever the Contractor is entitled for payment against Reinforcement separately, the rate shall include the rolling Margin and wastage. The Reinforcement will be measured and paid for as per Theoretical weight only.
 8. In case of discrepancy between specifications and in the descriptions of the items in the schedule of quantities and those contained in the general specifications, the schedule of quantity shall have precedence over the later, and the Consultant's/Employer's interpretation of the meaning of the specification shall be final and binding on the Contractor. However the Contractors are directed to quote their rate for any item of work matching with the relevant part of the technical specification applicable for the particular item of work.
 9. The Contractor shall note that after execution of the work the Contractor shall provide all the necessary guarantees for the special items like Anti-Static Epoxy Flooring , Epoxy Wall Finish , Water Proofing Treatment and Anti-Termite Treatment etc. executed by special agencies to the Owner for a period of 10 years after completion of the work.
 10. The Contractor should preferably supply the items as per approved makes. In case of any item not specified or any alternate make is preferred, the Contractor shall get prior approval in writing from the Employer / Consultant. The Employer / Consultant, if need be , shall inspect the sample or the manufacturing facility (as applicable) of alternate vendor before giving final approval





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PREAMBLE FOR EARTHWORK

The rates quoted shall include for:

- Setting out of works and site clearance.
- Excavation either straight, inclined or curved in trenches, footings, water tanks, basements, etc. including marking out, cutting and dressing sides and bottom to true dimensions and deposition of excavated material within the plot boundary at least 3.0 m clear of the edge of excavated area.
- De-watering, bailing out pumping-out or otherwise removing all water that may accumulate in the excavation from any cause whatsoever.
- All labor and materials required for fencing and protection against risk of accident to open excavation etc., with necessary shoring, planking and strutting and for providing gangway with hand rails across open trenches etc. wherever necessary during the progress of the work.
- Watching and lighting arrangements wherever necessary whether instructed by the Consultant/Employer or otherwise.
- Filling back excavated earth from stacks or earth brought from outside in trenches, sides of foundation, basements walls and the like etc. as required in 200mm thick layers, ramming, watering, consolidation and dressing the filled up areas including spreading to proper levels and grade as shown and compaction / consolidation of the same to OMC. Fill shall have 95% dry density / Proctor density.
- Battering, benching and forming steps in the sides of foundations, mass excavation where required.
- Clearing all shrubs, roots, rank vegetation and trees up to 300 mm girth, from alignment of the building.
- Blasting in rock strata, both controlled and uncontrolled, is strictly prohibited. The contractor shall submit the proposed Method Statement, list of equipment and manpower deployment and excavation programme with the Tender.
- Removal of slips or falls in excavation due to reason whatsoever.
- Disconnection, reconnection, diversion and slinging and supporting service pipes, electrical cables or any other utility etc. met during excavation.
- The measurement for earthwork shall be for the dimension of PCC / member forming the external face of the building at the lowest level multiplied by the depth of the excavation i.e the difference between the initial level and final level as shown in the drawing or as directed. Extra working space as excavated or 600 mm, whichever is less shall be considered for payment. The initial levels before the start of the work shall be recorded in the presence of Consultant/Employer.
- In case sub soil water is encountered the Contractor shall keep the work area and building free of such water from accumulation by installing suitable system of dewatering as approved by the Consultant/Employer. The system shall run continuously or as directed, till such time the uplift pressure is countered by the super structure building load.
- All excavated materials belongs to the Employer and the contractor shall provide for stacking of usable and disposal of surplus materials in his rates in the manner stated in this documents and as directed by Consultant/Employer.


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- If excavated materials such as boulders / rocks etc. are allowed to be used in the work, the contractor shall pay to the Employer at the market rate the cost of such materials, unless mentioned free of cost to the Contractor in particular items.
- The excavated rock shall be reduced to the sizes required for packing / soling as directed by Consultant /Employer. The rate for soling / packing by the excavated material shall be inclusive of this operation.
- The anti-termite treatment shall be carried out by an approved specialized agency and shall carry at least 10 years guarantee duly counter-signed by main contractor. The agency shall be a member of the Pest Control Association of India. The Main Contractor and agency shall follow all the safety precautions while handling, storing and application of the chemical.
- Clearing of all debris material like steel concrete, windows, doors etc termed as scrap as identified & approved by the project incharge.

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PREAMBLE FOR CONCRETE, FORMWORK, AND REINFORCEMENT.

Note: These notes shall be read along with the common specifications and the detailed item specifications

Unless otherwise specified the following will apply for all items of plain and reinforced cement concrete and formwork. Rates quoted shall be inclusive of the cost of the following but will exclude the cost of reinforcement and inserts like bolts, plates, sleeves, pipes, etc.

- a. All materials, labour and all form work, moulds, centering and shuttering.
- b. Adequate protection to edges and corners from damage during construction.
- c. Work either straight, curved, sloping, plain or tapered.
- d. Keeping the work well watered for at least 10 days after casting.
- e. Roughening/hacking concrete surface where required after removal of centering or shuttering to receive plaster.
- f. Work on all floors at all levels, locations, conditions and situations.
- g. Building in and placing in position any inserts supplied.
- h. Machine mixing and consolidation using vibrators of approved type.

Coarse graded sand shall be used for all concrete works.

Machine crushed coarse aggregate shall be of hard broken granite or Basalt or trap of sizes specified.

Deshuttering, clearing and cleaning.

Test cubes and testing charges as specified.

Use of weigh batching equipment for design mix concrete, including the charges for getting the Mix Design done for grades as required.

Cost of all formwork including vertical supports of timber, MS props, MS spans, MS shuttering sheets, wooden planks, runners, plywood, battens, bolts, etc;

Cost of all supports, struts, braces, ties, wedges, poles or other suitable arrangements to support the formwork.

Cost of making and erecting formwork, scaffolding, staging, deshuttering, transporting, etc;


Cost of approved shuttering oil and labour, and consumables like wires, nails, ropes, clamps, bolts or other items to hold the sheathing together.


Providing cutouts wherever necessary as indicated in the drawings.

Working scaffolds, gangways, ladders and similar items.

Filleting to form stop - chamfered edge or splayed external angle, not exceeding 20 mm wide to beams, columns and the like.

Spayed edges, notching allowance for overlaps, passings at angles, sheathing battens, strutting, bolting, nailing, wedging, casing, striking and removing.

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Bracing the scaffolding and staging at every 1.5 mtrs in both the directions.
 Providing adequate no of props at suitable spacing so as to support the weight of wet concrete, workmen during pouring, vibration due to equipments till formwork is removed.

Unless otherwise specified the material for formwork for different parts shall be as follows.

Receiving materials like water proofing compound, fiber mesh, fiber HARBUORITE etc supplied by employer and fixing it to the concrete or mortar in proportion as directed by Architect.



PART	TYPE OF FORM WORK.
1. Foundations	MS Sheet and/or wooden planks and runners.
2. Pedestals, columns, beams, lintels, pergolas, walls, fascia, drops and fins	Form work with plywood lining.
3. Slabs and flat slabs of all types	Formwork with MS sheets.
4. Staircases, lofts, cover Slabs, coping, chajja and platforms	Formwork with MS Sheet and/or wooden planks.
5. Pre cast concrete panels	Formwork with plywood lining.


REINFORCEMENT STEEL:

Unless otherwise specified the rate quoted for reinforcement steel shall include the cost of the following.

The Cost of Steel including loading and delivery to site, unloading and storing at site or cost at issue prices as specified and Receiving steel supplied by the Owner, unloading and storing.

- a.. Straightening, cutting, bending, conveying, hoisting and laying in position.
- b. Providing 18 G black annealed binding wire in two folds.
- c. Providing pre cast concrete cover blocks as specified.
- d. Removing and cleaning oil, grease, oil stains, bitumen, paints, etc, from the steel rods, sheets, etc; as directed.
- e. Work at all heights and situations.


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CHAPTER- 2.6
BILL OF QUANTITIES


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HLL LIFECARE LIMITED, CHENNAI			
REVIVAL OF BCG VACCINE LABORATORY, GUINDY, CHENNAI			
Document Name : BILL OF QUANTITIES – SUMMARY			
Document Number: NPI/110729/WTP/TD/08			
Sl.No.	Description	Total Amount (In Figure) in INR (Inclusive of applicable taxes and charges)	Total Amount (In Words) in INR (Inclusive of applicable taxes and charges)
1.	Total for Bill of Quantities for 15 KLD ETP		
2.	Total for Bill of Quantities for 10 KLD STP		
3.	Sub Total without CMC (1 - 2)		
4.	CMC charges for 5 years		
Grand Total with CMC (3+4)			

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Sl.no	DESCRIPTION	Unit	Quantity	Rate in figures	Rate in words	Amount in figures	Amount in words
I	Bill of Quantities for 15 KLD ETP						
	M&E EQUIPMENTS / ELECTRICAL / PIPING						
	Supply, Installation and Commissioning of all Equipments/Machineries/ Electricals/ all Piping as described in the Specification.						
1	M S Bar Screen with 8 mm size opening	Set	1				
2	SS motorized Fine Screen with 2 mm pore	Set	1				
3	Drum for Neutralisation tank with HCl Dosing System 0-3 lph to adjust pH with a storing capacity of 50Litres	Set	2				
4	Raw Effluent Pumps of 1.05 KLH @ 10 M head. (1W& 1S) with non-return valve (NRV) and pressure gauge at discharge.	Set	2				
5	BaCl dosing system 0-3 lph with a storing capacity of 50 Litres	Set	2				
6	Alum dosing system 0-3 lph with a storing capacity of 50 Litres	Set	2				
7	Air Blower 80 m ³ /hr@0.5KG (which shall connect to MBBR and Flocculation Tanks)	Set	2				

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Sl.no	DESCRIPTION	Unit	Quantity	Rate in figures	Rate in words	Amount in figures	Amount in words
8	HDPE Virgin Plastic media for MBBR unit	Set	1				
9	Aeration Grid, Biomass Carriers & Sieves as per design for MBBR tank	Set	1				
10	PE Dosing System 0-3 lph with a storing capacity of 50 Litres	Set	2				
11	Filtration system						
a	Dual filters comprising layers of gravel and crushed coke with a flow rate of 1100 lph @ 2.5 kg/cm ² with manual mode of back wash multiport valve and monoblock pumps (1.1 cumtrs/hr @10 mtrs head (1 w + 1 s) with Non-return valve & pressure gauge (Kindly add the pump specification)	Set	1				
	Waterflow meter Transmitter (mechanical) at outlet of Filtration system and for water which is drained out. (with Flow Totalizer)						
12	Chlorine dosing system of Capacity 0-3 lph with a storing capacity of 50 Litres	Set	2				

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Sl.no	DESCRIPTION	Unit	Quantity	Rate in figures	Rate in words	Amount in figures	Amount in words
13	Decanter System to handle Sludge for an ETP of 20 cum per day or equivalent Sludge	Set	1				
14	Pre -Fabricated Modular System with MS (average thickness of 4mm with Epoxy Coating) Flocculation tank 1,2,3,Lamella clarifier-1,2,3 , Biological tank, Filter Feed Tank	Set	1				
15	Sludge Transfer pump (2W+1S) 200 lph	nos	3				
16	LT Control Panel with internal wiring with all the require switches,controller,contactors,all control cabling required for the instrument to control panel.	Set	1				
18	Providing and Fixing of online Monitoring 1. Online pH Transmitter 2. online TDS measurement 3. Online flow meter		1				
19	Providing and laying U-PVC pipes of 40 mm dia from UG sump to Screen chamber of ETP (as per ISO standards) with fittings (considering 1-1.5 m depth).	RMT	40				
Total Amount (I)							

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Sl.no	DESCRIPTION	Unit	Quantity	Rate in figures	Rate in words	Amount in figures	Amount in words
II.	Civil works						
	Construction of the Civil Works as per specification						
1	Screen chamber – 0.7m x 0.5m x 0.6m						
2	Equalization Tank – 1.5m x 1.4m x 2.5m(2.2m LD)	KL	4.6				
3	Pedestal for the Skid-2 no's – 4.57 m X3.21m, 6.175m X 3.21m		1				
4	Sludge Drying Beds 2 no's – 1.2 m X 1.4m X 1.5m(1.2m LD)		1				
5	Final Treated Tank – 1.5m x 1.4m x 2.5m (2.2 LD)	KL	4.6				
	Total Amount (II)						
	Grand Total Amount (I+II)						

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S. No.	Specification /Description	Unit	Quantity	Rate in figures	Rate in words	Amount in figures	Amount in words
Bill of Quantities for 10 KLD STP , Modular Type with MBBR System							
A EQUIPMENTS / ELECTRICAL / PIPING							
	Providing, Installation and Commissioning of all equipments/machineries/ electrical/ piping as described in the specification.						
1	M S Bar Screen -8mm	Set	1				
2	SS Automatic motorized Fine Screen -2mm pore	Set	1				
3	Monoblock Raw Effluent Pumpsof 0.5 KLH @ 10 M head.(1W & 1S) with non-return valve and pressure gauge at discharge.	Nos	2				
4	Air Blower 25 Cum/hr@0.5KG which shall connect MBBR, Equilization tank and flocculation tank	Set	1				
5	HDPE Virgin Plastic Media for MBBR Unit	Set	1				
6	Aeration Grid & Sieves as per design for MBBR tank,	Set	1				
7	Alum dosing system- 0-4 LPH with 50 L tank capacity.	No	1				
8	Filtration system						

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S. No.	Specification /Description	Unit	Quantity	Rate in figures	Rate in words	Amount in figures	Amount in words
	Comprising layers of gravel and crushed coke with a flow rate of 500 lph @ 2.5 kgscm2 with manual mode of back wash multiport valve and monoblock pumps (0.5 cumtrs/hr @10 mtrs head (1 w + 1 s)) with Non-return valve and pressure gauge	Set	1				
	Waterflow meter Transmitter (mechanical) at outlet of Filtration system and for water which is drained out. (with Flow Totalizer)						
9	Chlorinator dosing system 0-3 lph (1W+1S)	No.	2				
10	Pre -fabricated modular STP plug and use model-CF M1 with collection, pedestal and final tanks in civil works as per the drawings(MBBR Tank, Flocculation tank, Clarifier and filter Feed Tank)	Set	1				
11	Sludge transfer pump of 200 lph (1W +1S)	Nos	2				
12	LT Control Panel with internal wiring with all the require switches,controller,contactors,all control cabling required for the instrument to control panel.	Set	1				
13	Providing and Fixing of online Monitoring 1. Online pH Transmitter 2. Online TDS measurement 3. Online Flow meter	No	1				
14	Waste transfer pump to pump from Sewage collection tank to STP 1.0 KLH @ 20 m head.(1W & 1S) with non-return valve and pressure gauge at discharge.	No	2				

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S. No.	Specification /Description	Unit	Quantity	Rate in figures	Rate in words	Amount in figures	Amount in words
15	Providing and laying U-PVC pipes of 40 mm dia from UG sump to Screen chamber of STP (as per ISO standards) with fittings (considering 1-1.5 m depth).	RMT	120				
	Total Amount (A)						
B	Civil works						
	Construction of the Civil Works (RCC) as per specification						
1	Screen chamber, 0.6m x 0.4m x 0.5m						
2	Collection Tank - 1.5m x 1m x 2.3m (2.0 m LD)	KL	3				
3	Treated Water Tank - 1.5m x 1m x 2.3m (2.0 m LD)	KL	3				
4	Pedestal for the Skid - 4.52m x 1.658m x 0.3 m	LS					
5	Sludge Drying Beds - 0.8 m X 0.8m X 1.0m(0.8m LD)	no's	2				
	Total Amount (B)						
	Grand Total Amount (A+B)						

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S. No.	Specification /Description	Unit	Quantity	Rate in figures	Rate in words	Amount in figures	Amount in words
Bill of Quantities for 10 KLD STP , Modular Type with MBBR System							
A EQUIPMENTS / ELECTRICAL / PIPING							
	Providing, Installation and Commissioning of all equipments/machineries/ electrical/ piping as described in the specification.						
1	M S Bar Screen -8mm	Set	1				
2	SS Automatic motorized Fine Screen -2mm pore	Set	1				
3	Monoblock Raw Effluent Pumpsof 0.5 KLH @ 10 M head.(1W & 1S) with non-return valve and pressure gauge at discharge.	Nos	2				
4	Air Blower 25 Cum/hr@0.5KG which shall connect MBBR, Equilization tank and flocculation tank	Set	1				
5	HDPE Virgin Plastic Media for MBBR Unit	Set	1				
6	Aeration Grid & Sieves as per design for MBBR tank,	Set	1				
7	Alum dosing system- 0-4 LPH with 50 L tank capacity.	No	1				
8	Filtration system						

	File Name Wastewater Treatment Plant - Rev.05.docx	Checked By : NNE Pharmaplan	
Prepared By: TTI	Approved By : HLL/BCGVL	Page 148 of 162	


Project:		TENDER DOCUMENT FOR WASTEWATER TREATMENT PLANT AT BCGVL, GUINDY	Revision: 05
Project No.:	110729	DOCUMENT NO. NPI/110729/WTP/TD/08	Date: 26.08.2013


S. No.	Specification /Description	Unit	Quantity	Rate in figures	Rate in words	Amount in figures	Amount in words
	Comprising layers of gravel and crushed coke with a flow rate of 500 lph @ 2.5 kgscm ² with manual mode of back wash multiport valve and monoblock pumps (0.5 cumtrs/hr @10 mtrs head (1 w + 1 s)) with Non-return valve and pressure gauge	Set	1				
	Waterflow meter Transmitter (mechanical) at outlet of Filtration system and for water which is drained out. (with Flow Totalizer)						
9	Chlorinator dosing system 0-3 lph (1W+1S)	No.	2				
10	Pre -fabricated modular STP plug and use model-CF M1 with collection, pedestal and final tanks in civil works as per the drawings(MBBR Tank, Flocculation tank, Clarifier and filter Feed Tank)	Set	1				
11	Sludge transfer pump of 200 lph (1W +1S)	Nos	2				
12	LT Control Panel with internal wiring with all the require switches,controller,contactors,all control cabling required for the instrument to control panel.	Set	1				
13	Providing and Fixing of online Monitoring 4. Online pH Transmitter 5. Online TDS measurement 6. Online Flow meter	No	1				
14	Waste transfer pump to pump from Sewage collection tank to STP 1.0 KLH @ 20 m head.(1W & 1S) with non-return valve and pressure gauge at discharge.	No	2				

	File Name Wastewater Treatment Plant - Rev.05.docx	Checked By : NNE Pharmaplan	nne pharmaplan® Page 149 of 162
Prepared By: TTI	Approved By : HLL/BCGVL		

Project:		TENDER DOCUMENT FOR WASTEWATER TREATMENT PLANT AT BCGVL, GUINDY	Revision: 05
Project No.:	110729	DOCUMENT NO. NPI/110729/WTP/TD/08	Date: 26.08.2013


S. No.	Specification /Description	Unit	Quantity	Rate in figures	Rate in words	Amount in figures	Amount in words
Unit rate for components common to ETP and STP							
<i>Note: These unit rates will be considered only in case additional components are required by the client.</i>							
1	Valves						
a	Ball Valves (MS / CI)	No	1				
b	Butterfly valves (MS / CI)	No	1				
c	NRV (MS / CS)	No	1				
2	Pressure gauges	No	1				
3	Piping (MOC: u-PVC)	RMT	1				
4	Piping (MOC: MS)	RMT	1				
	Total Amount						


	File Name Wastewater Treatment Plant - Rev.05.docx	Checked By : NNE Pharmaplan	nne pharmaplan®
Prepared By: TTI	Approved By : HLL/BCGVL	Page 150 of 162	

Project:		TENDER DOCUMENT FOR WASTEWATER TREATMENT PLANT AT BCGVL, GUINDY	Revision: 05
Project No.:	110729	DOCUMENT NO. NPI/110729/WTP/TD/08	Date: 26.08.2013

Note :


- Charges for all wiring to and from LT Panel of ETP and STP for all equipments should be taken into consideration and as per the makes specified in the tender. No Extra charges will be applicable for the same.
- All the extra material to be taken back after completion of the work. Payment will be based on actual measurement at site. Quantities mentioned in the BOQ are tentative and may change according to site condition or actual quantum of work.
- Civil works like excavation, foundation , plinth beam, tanks etc for ETPand STP shall be carried out by ETP contractor.
- MOC of pumps & impellers shall be CI and motor shall conform with IP-55 protection and efficiency category should be EFF-1
- All electrical motors / electrical components between the treatment modules will be part of the package scope including necessary accessories and instruments. The system shall be treated as package.
- All inter connecting pipings, valves and fittings to and from tanks (including from blowers and pumps) should be as per P&ID and no extra charges will be applicable for the same.


	File Name Wastewater Treatment Plant - Rev.05.docx	Checked By : NNE Pharmaplan	nne pharmaplan®
Prepared By:	TTI	Approved By : HLL/BCGVL	Page 151 of 162

Project:		TENDER DOCUMENT FOR WASTEWATER TREATMENT PLANT AT BCGVL, GUINDY	Revision: 05
Project No.:	110729	DOCUMENT NO. NPI/110729/WTP/TD/08	Date: 26.08.2013

HLL LIFECARE LIMITED, CHENNAI	
REVIVAL OF BCG VACCINE LABORATORY, GUINDY, CHENNAI	
Document name : Supply & Installation of Wastewater Treatment Plant	
Document Number : NPI/110729/WTP/TD/08	
Year	Annual Comprehensive Maintenance Contract Charges (Rs)
Year 1	
Year 2	
Year 3	
Year 4	
Year 5	
Total CMC charges for five years (inclusive of all taxes and duties applicable)	
Total Amount in Words	

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	File Name : Wastewater Treatment Plant - Rev.05.docx	Checked By : NNE Pharmaplan	nne pharmaplan®
	Prepared by: TTI	Approved By : HLL/BCGVL	


Project:		TENDER DOCUMENT FOR WASTEWATER TREATMENT PLANT AT BCGVL, GUINDY	Revision: 05
Project No.:	110729	DOCUMENT NO. NPI/110729/WTP/TD/08	Date: 26.08.2013

CONFIDENTIAL

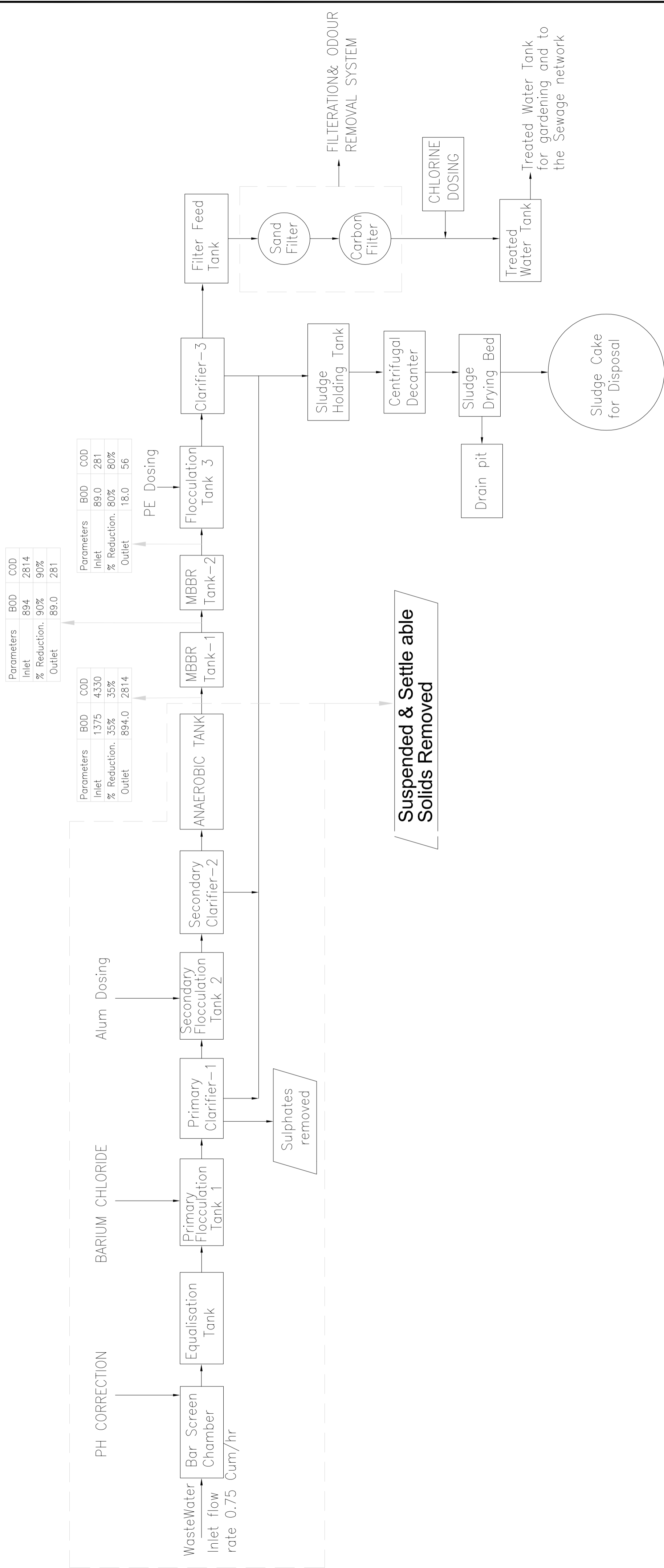
CHAPTER 2.7

DRAWINGS

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	File Name :	Wastewater Treatment Plant - Rev.05.docx	Checked By :	NNE Pharmaplan	nne pharmaplan® Page 153 of 162
	Prepared by:	TTI	Approved By :	HLL/BCGVL	

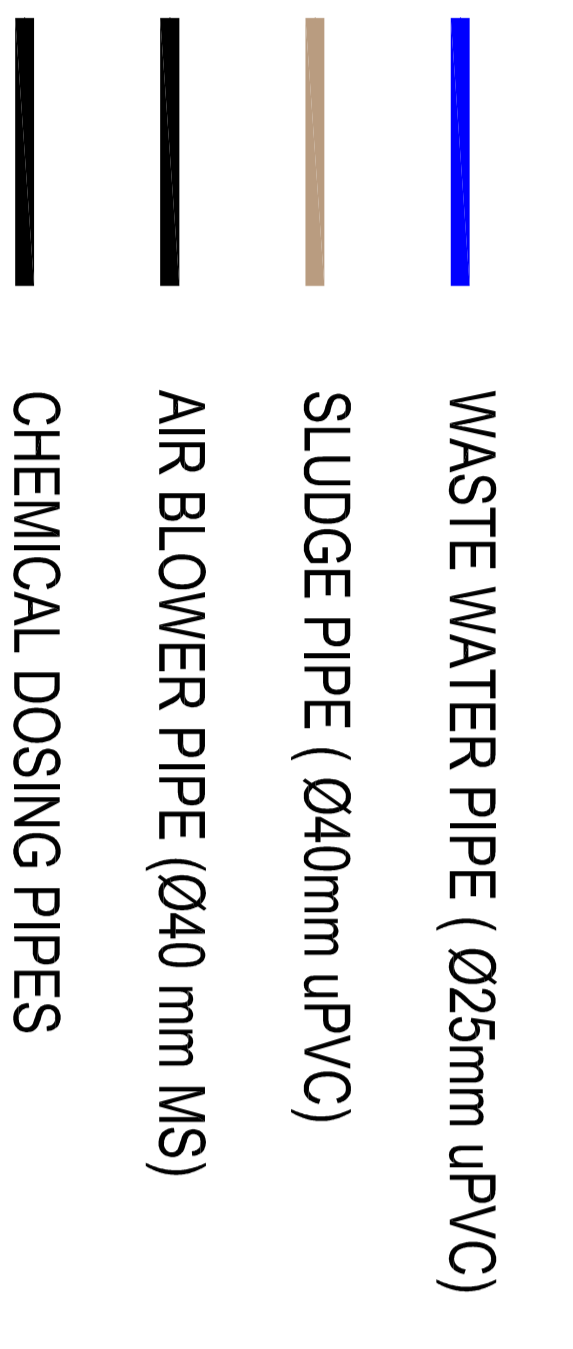
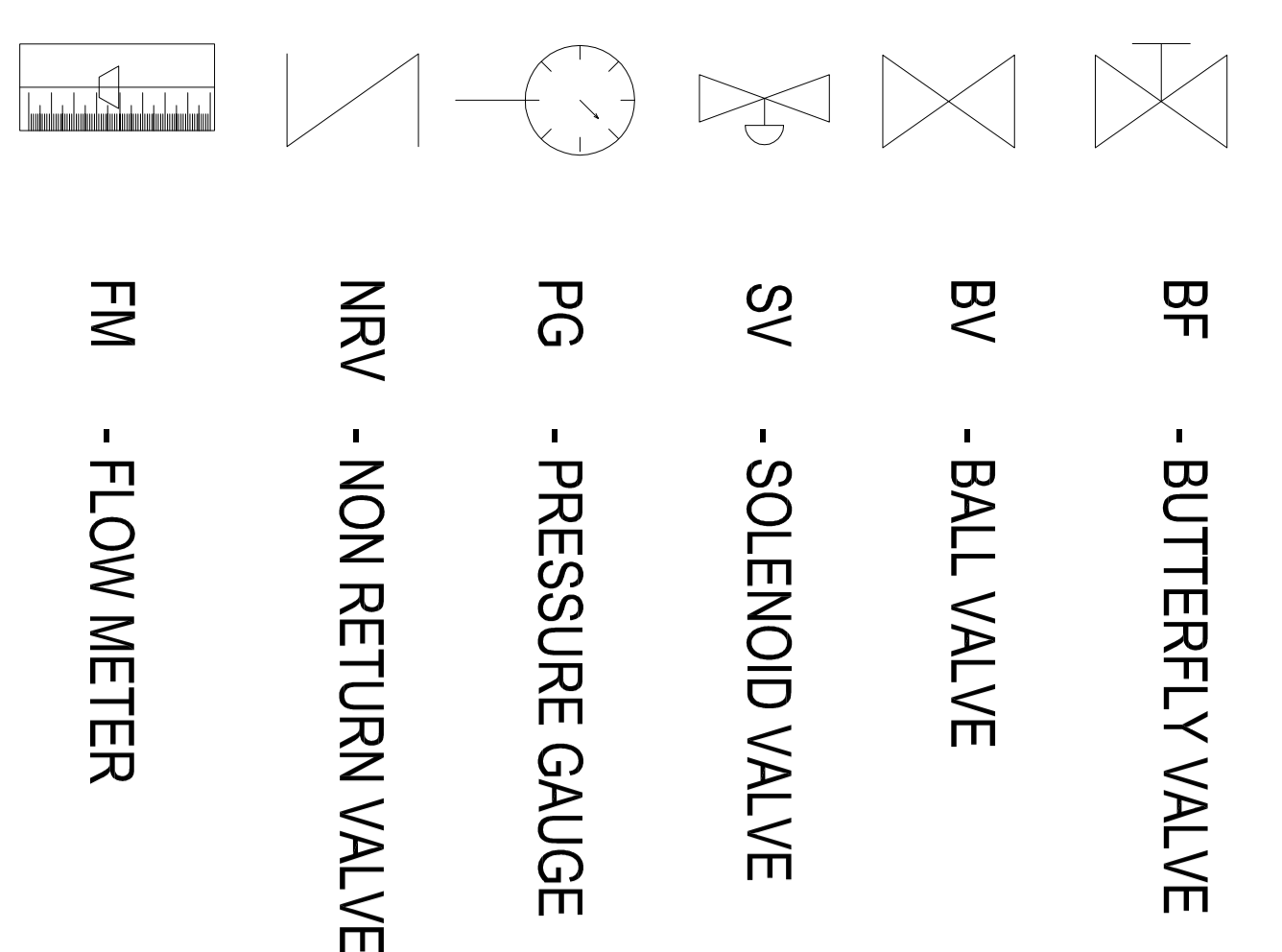
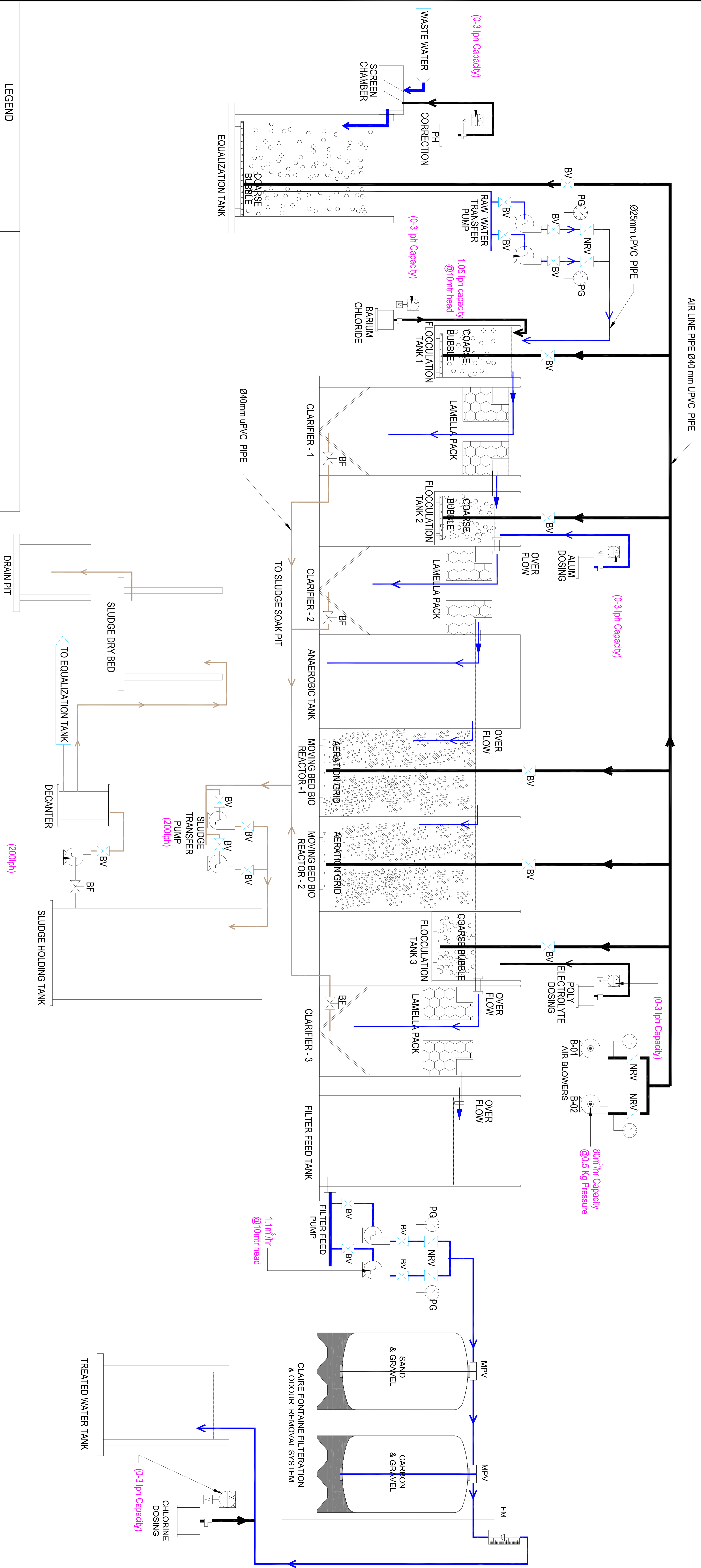
Effluent Treatment Process Flow Chart. (15 KLD Capacity)



02	09.07.2013	SAPL	NVNG	Revised as per clients comments.
01	21.04.2013	SAPL	NVNG	Revised as per clients comments.
Rev.	Date	Changed	Checked	Kind of revision
File name :				No. Of Prints
Originated From Drg. No :				Date
Project No.:				Issued To
Project:		Location:		
BGV VACCINES LABORATORY AT GUINDY, CHENNAI		CHENNAI		
HLL LIFECARE LIMITED				
Description:				
EFFLUENT TREATMENT PLANT-15KLD				
PROCESS FLOW CHART				
Drawing no:				Rev.
NPI/110729/ETP(SCH)/EG-01				02

nne pharmaplan
NNE Pharmaplan India Limited
 #14, Achiah Shetty Layout,
 Bangalore - 560 080, INDIA.

Drawn	Date	Name
Checked	19/10/2012	PJNJ
Approved	19/10/2012	SKM/NN
Scale-NTS	Units : mm	NP
		Size : A3



Rev.	Date	Checked	Kind of revision	No. of	Date	Issued To
03	08.08.2013	SRTK	NVNG			Revised as per clients comments.
02	09.07.2013	SAPL	NVNG			Revised as per clients comments.
01	21.04.2013	SAPL	NVNG			Revised as per clients comments.
		Changed	Checked			Kind of revision

Originated From Dwg. No.:		Project No.:	
BGC VACCINES LABORATORY, GUMINDY, CHENNAI		110729	
HILL LIFE CARE LIMITED		Location	
		CHENNAI	

Description:		Project Name:	
EFFLUENT TREATMENT PLANT - 15KLD		#12, Achiah Shetty Layout	
P&I DIAGRAM		Bangalore - 560 080, INDIA.	

Drawn	08.03.2013	TTI
Checked	08.03.2013	SLMU/NVNG
Approved	08.03.2013	NARP
Scale: NTS	Units: mm	Size: A2
Drawing no.:	NPI/110729/E/TP/ID/EG-01	
Rev.	03	

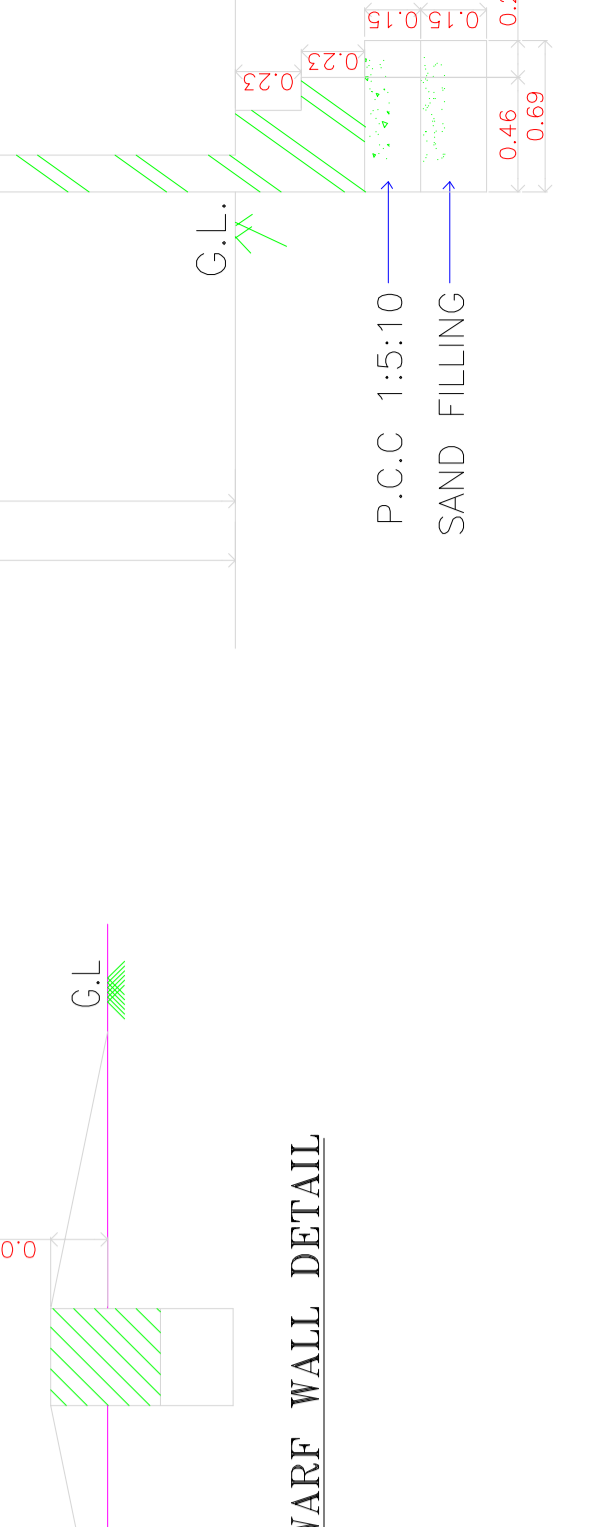
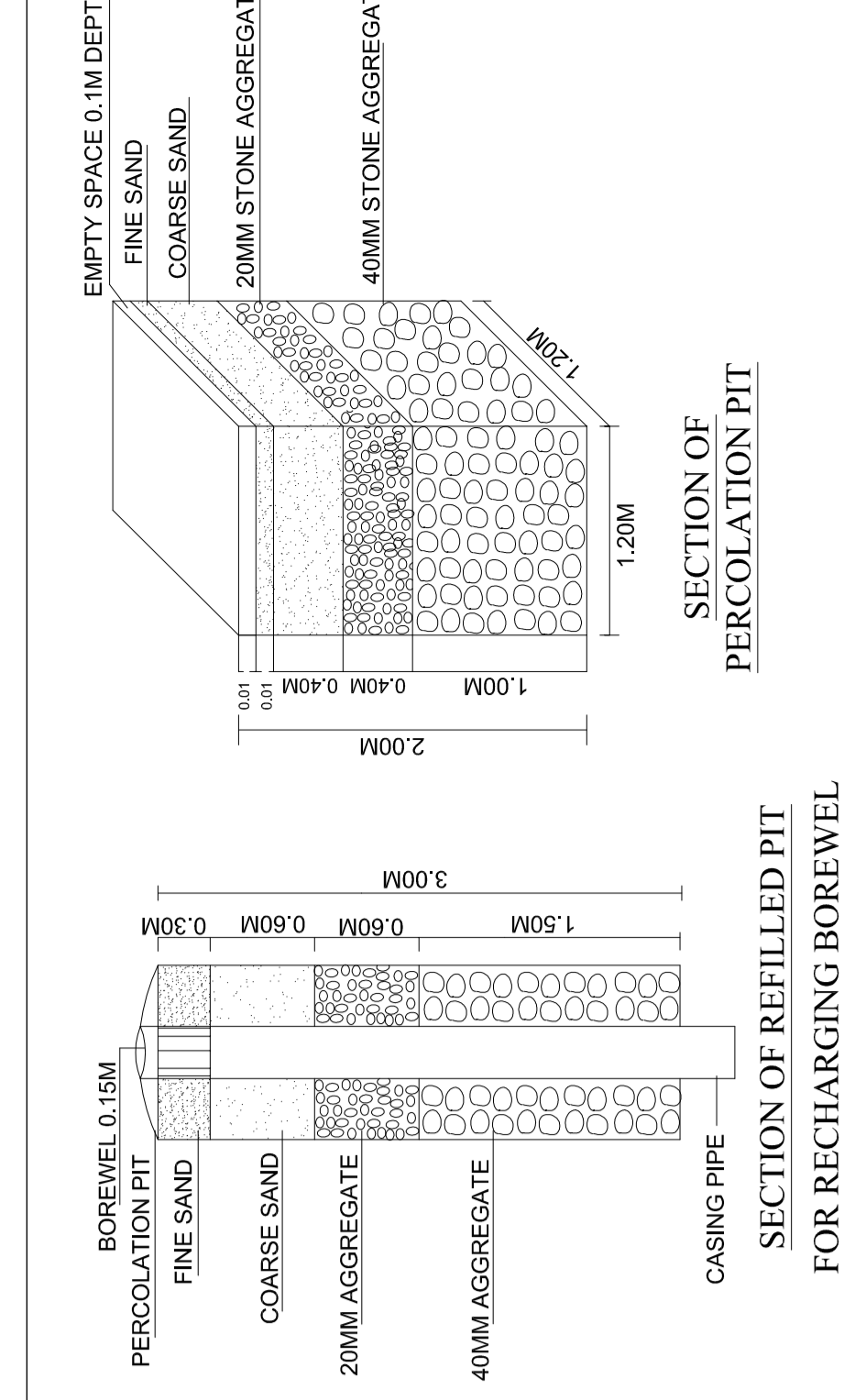
MARKS	DESCRIPTION	DIMENSION	CAPACITY	HRT
T-02	MOVING BED BIO REACTOR	6.0m x 0.625m x 2.5m(2.2m LD)	0.8 KL	1.6hr
T-03	MOVING BED BIO REACTOR	6.0m x 0.625m x 2.5m(2.2m LD)	0.8 KL	1.6hr
T-04	FLOCCULATION TANK	6.0m x 0.6m x 0.8m(0.6m LD)	0.1 KL	0.21hr
T-05	CLARIFIER	7.0m x 1.25m x 2.5m(1.7m SWD)	1.8 KL	3.0hr
T-06	FILTER FEED TANK	6.0m x 1.25m x 2.5m(1.7m SWD)	1.8 KL	2.3hr
T-07	SLUDGE HOLDING TANK	6.0m x 1.25m x 2.5m(1.7m SWD)	1.8 KL	2.3hr

MARKS	DESCRIPTION	DIMENSION	CAPACITY	HRT
T-08	EQUALIZATION TANK	1.5m x 1.0m x 2.3m(2.0m LD)	3.0KL	6.0hr
T-13	SLUDGE DRY BED	1.2m x 1.4m x 1.5m(1.2m LD)	2.0KL	1.0hr
T-14	SLUDGE DRY BED	1.2m x 1.4m x 1.5m(1.2m LD)	2.0KL	1.0hr
T-15	FINAL TANK	1.5m x 1.5m x 2.5m(2.2m LD)	4.6KL	1.0hr
T-16	SCREEN CHAMBER	0.7m x 0.5m x 0.6m	0.8KL	1.0hr

MARKS	DESCRIPTION	DIMENSION	CAPACITY
T-01	EQUALIZATION TANK	1.5m x 1.4m x 2.5m(2.2m LD)	4.6KL
T-13	SLUDGE DRY BED	1.2m x 1.4m x 1.5m(1.2m LD)	2.0KL
T-14	SLUDGE DRY BED	1.2m x 1.4m x 1.5m(1.2m LD)	2.0KL
T-15	FINAL TANK	1.5m x 1.5m x 2.5m(2.2m LD)	4.6KL
T-16	SCREEN CHAMBER	0.7m x 0.5m x 0.6m	0.8KL

S. NO.	Bld No.	Building Name	Finsh Floor Area Sq. mt	Ground Floor Area Sq. mt	1st Floor Area Sq. mt	2nd Floor Area Sq. mt	U/L Shitcase Area Sq. mt	Total Area Sq. mt
EXISTING BUILDINGS - A								
1	2	Sales & storage	52.85	52.85				105.70
2	10	Animal House	207.00	231.69	319.09	14.69		772.47
3	15	Main Laboratory building	1,686.00	1,683.00	1,535.08	77.00		5,181.08
4	18.19 & 20	Toilet blocks	41.70	41.70				83.40
TOTAL - A								
Total Area sq. mt			2,107.55		2,199.24		5,461.58	
PROPOSED BUILDINGS - B								
1	23	BOG proposed lab	1,167.00	1,242.00	1,242.00	1,242.00	225.00	5,518.00
2	24	Toilet block	37.00	37.00				74.00
Total Area sq. mt			1,204.00		1,242.00		225.00	
Total Area sq. mt			3,311.55		3,441.24		5,686.58	

MARKS	DESCRIPTION	DIMENSION	CAPACITY
T-02	FLOCCULATION -1	0.7m x 1.24m x 1.5m(1.0m LD)	0.86 KL
T-03	CLARIFIER -1	1.0m x 1.24m x 2.5m(1.4m SWD)	1.7 KL
T-04	FLOCCULATION -2	0.7m x 1.24m x 1.5m(1.0m LD)	0.86 KL
T-05	CLARIFIER -2	1.0m x 1.24m x 2.5m(1.35m SWD)	1.6 KL
T-06	ANAEROBIC TANK	1.75m x 2.5m x 2.5m(1.75m LD)	7.6 KL
T-07	MOVING BED BIO REACTOR	1.65m x 1.24m x 2.5m(2.2m LD)	4.5 KL
T-08	MOVING BED BIO REACTOR	1.65m x 1.24m x 2.5m(2.2m LD)	4.5 KL
T-09	FLOCCULATION TANK -3	1.0m x 1.24m x 1.1m(0.7m LD)	0.86 KL
T-10	CLARIFIER -3	1.0m x 1.24m x 2.5m(1.37m SWD)	1.6 KL
T-11	FILTER FEED TANK	1.2m x 1.59m x 2.5m(1.8m LD)	3.4KL
T-12	SLUDGE HOLDING TANK	1.2m x 0.9m x 2.5m(2.2m LD)	2.3KL

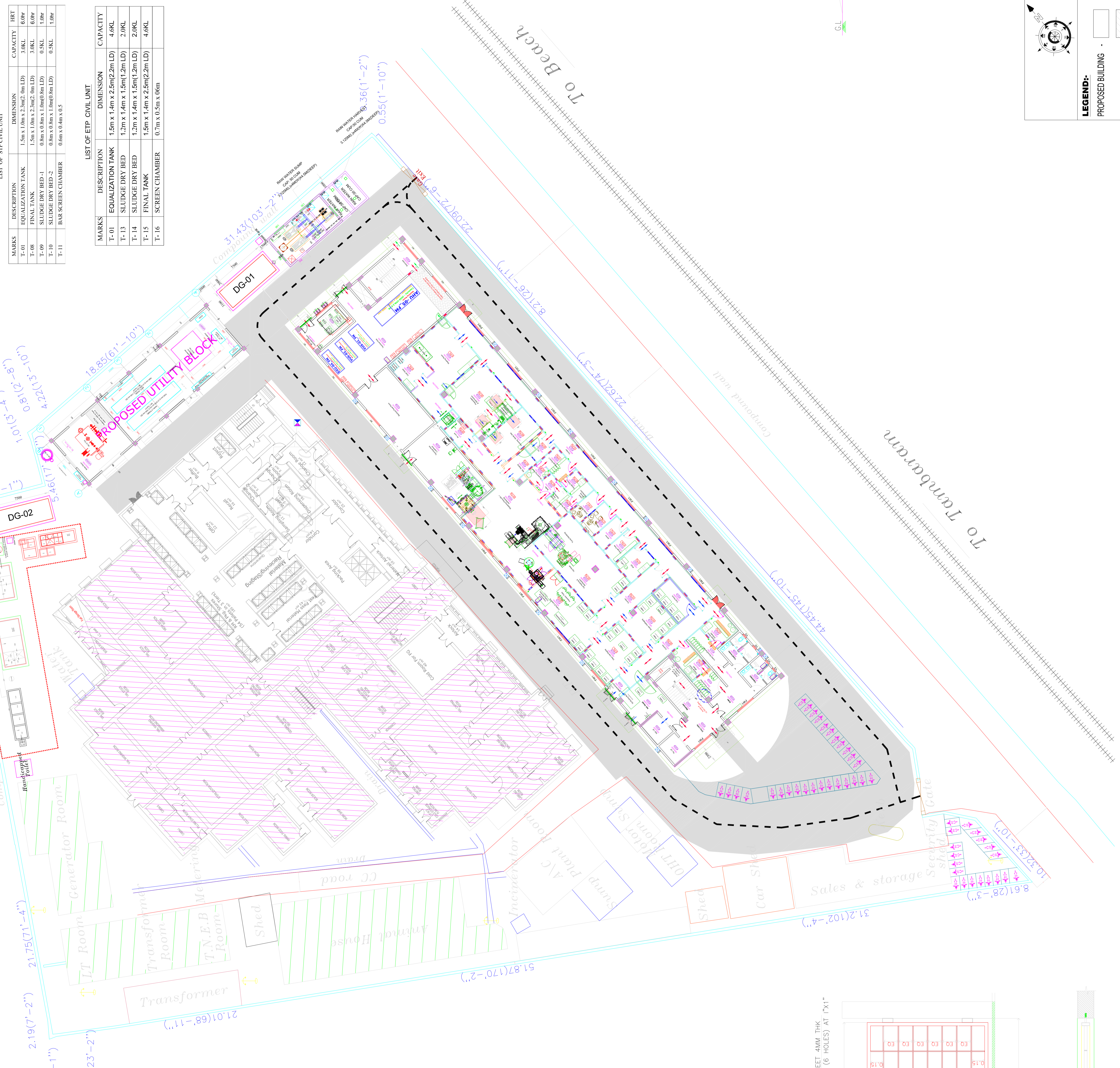


No.	Date	Description
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02	16.06.2013	SKM, SNU
03	27.05.2013	SKM, SNU
04	13.02.2013	SKM, SNU
05	13.02.2013	SKM, SNU
06	07.12.2012	SKM, SNU
07	20.11.2012	SKM, SNU
08	14.03.2012	SKM, SNU
09	16.01.2012	SKM, SNU

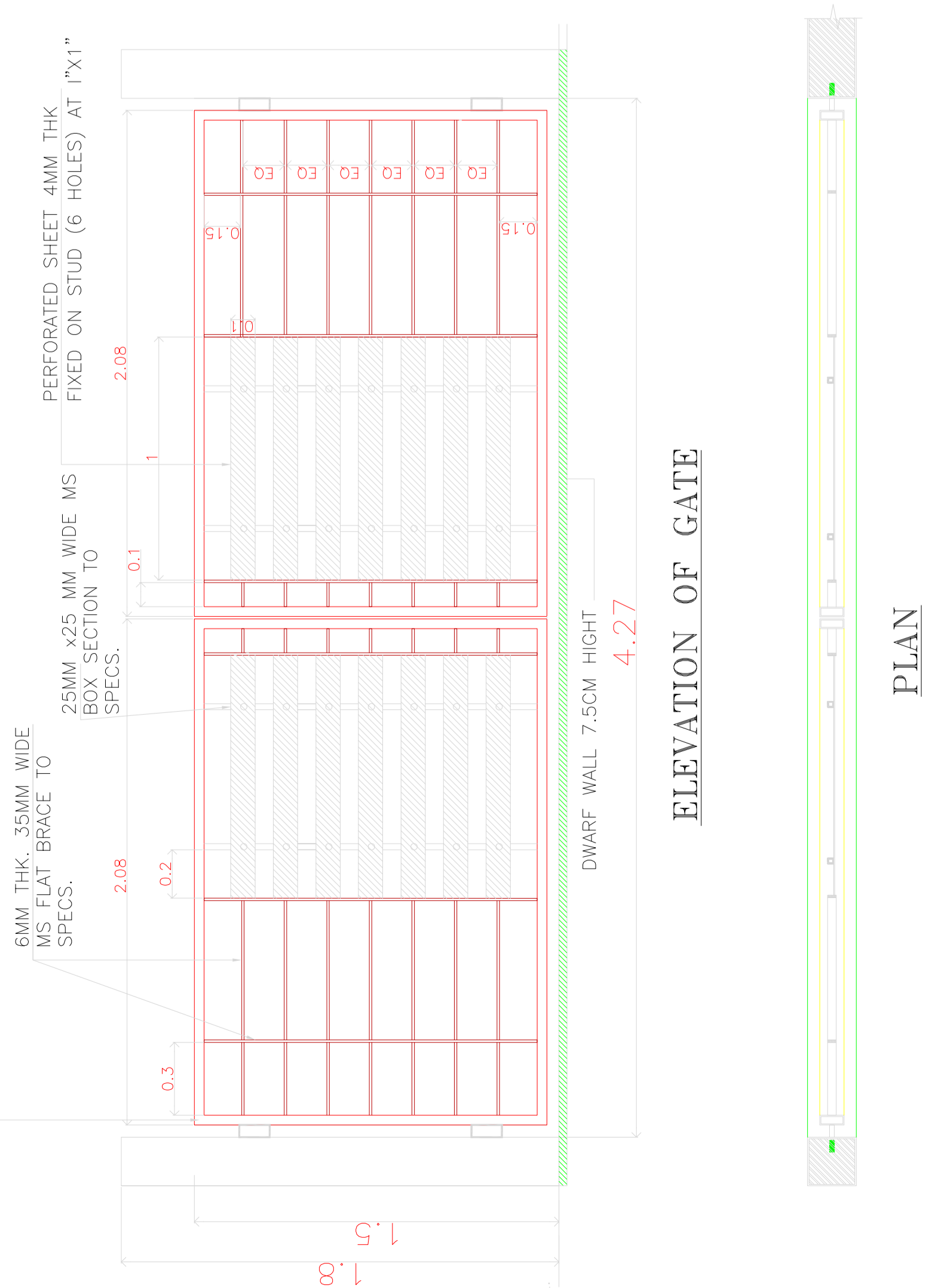
Prepared by	SKM, SNU
Checked by	SKM, SNU
Date	16/06/2013
Project	SSP VACCINES LABORATORY AT GUINOOY, CHENNAI
Scale	1:200
Sheet No.	SSP/107/29/SP/GEN/S/01

SITE MASTER PLAN
ETP & STP LOCATION

Building no	Description	G F	1 F	2 F	Area in sq.m
Existing Building					
1	Security Shed	6.80			6.80
5	OHT	19.57			19.57
6	Motor Room	11.75			11.75
7	Sump	9.41			9.41
8	Sump	27.22			27.22
10	Animal House	221.69	319.09		540.78
11	Shed	22.64			22.64
12	LT. EB room	147.13			147.13
13	Transformer	102.89			102.89
14	Generator Room	60.59			60.59
15	Main Lab Building	1833.00	1535.00		3368.00
26	Water Tank	5.12			5.12
Proposed Building					
23	Main Building	1242.00	1242.00		3726.00
24	Toilet Block	37.00			37.00
25	ETP & STP Block	120.00			120.00

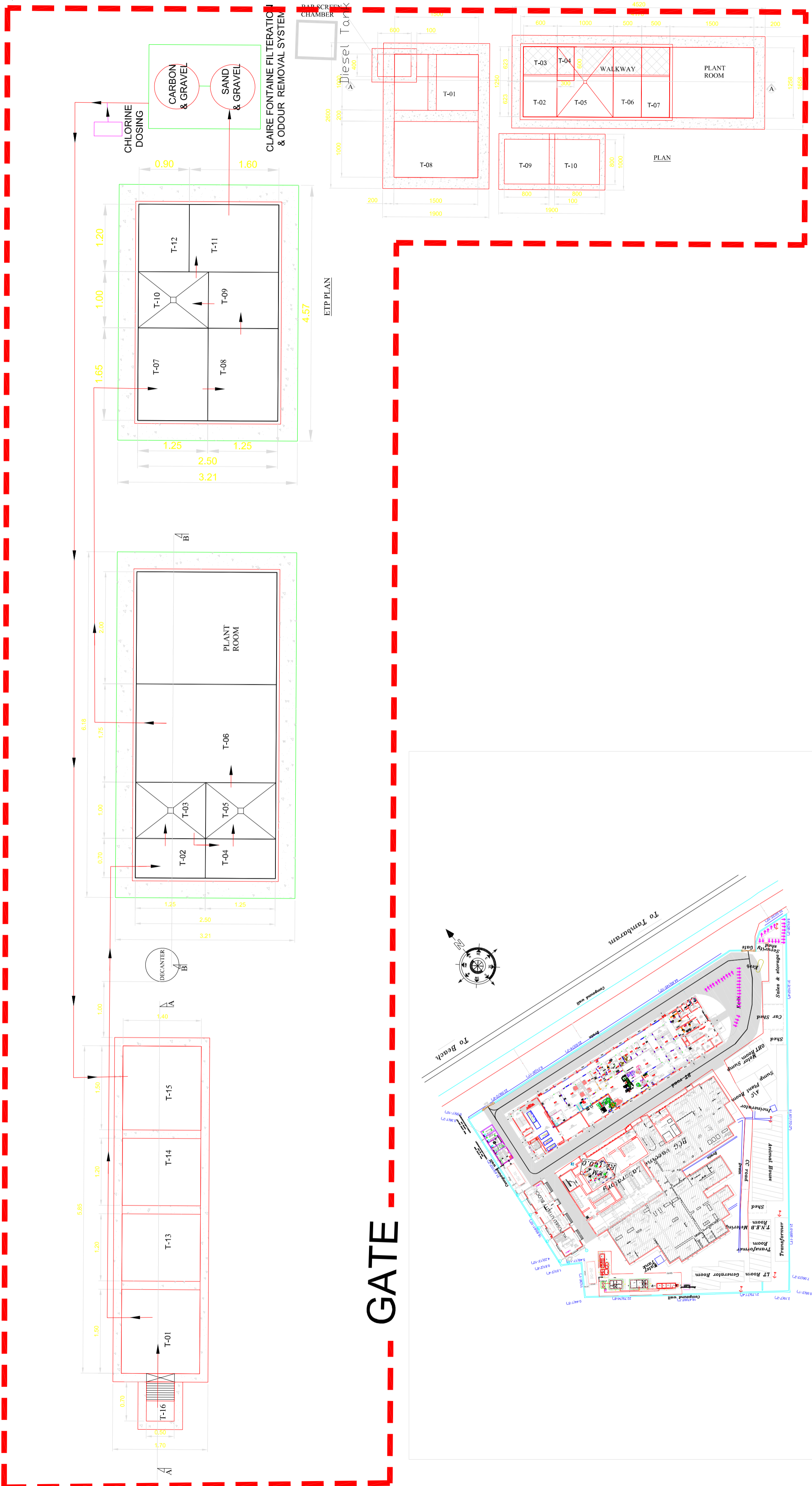
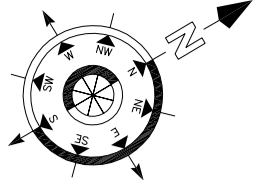


Building no	Description	G F	1 F	Area in sq.m
21	Store Room/Proposed Utility Bldg	285.84		285.84
2	Sales and storage	52.85		52.85
3	Office room	49.75		49.75
4	shed	18.00		18.00
9	A/C plant room	70.53		70.53
16	Motor Room	6.33		6.33
17	Stage	6.40		6.40
18	Gents Toilet	18.46		18.46
19	Handicapped Toilet	6.33		6.33
20	Ladies Toilet	16.91		16.91
22	Motor Room	11.40		11.40
27	Old Animal House	73.18		73.18

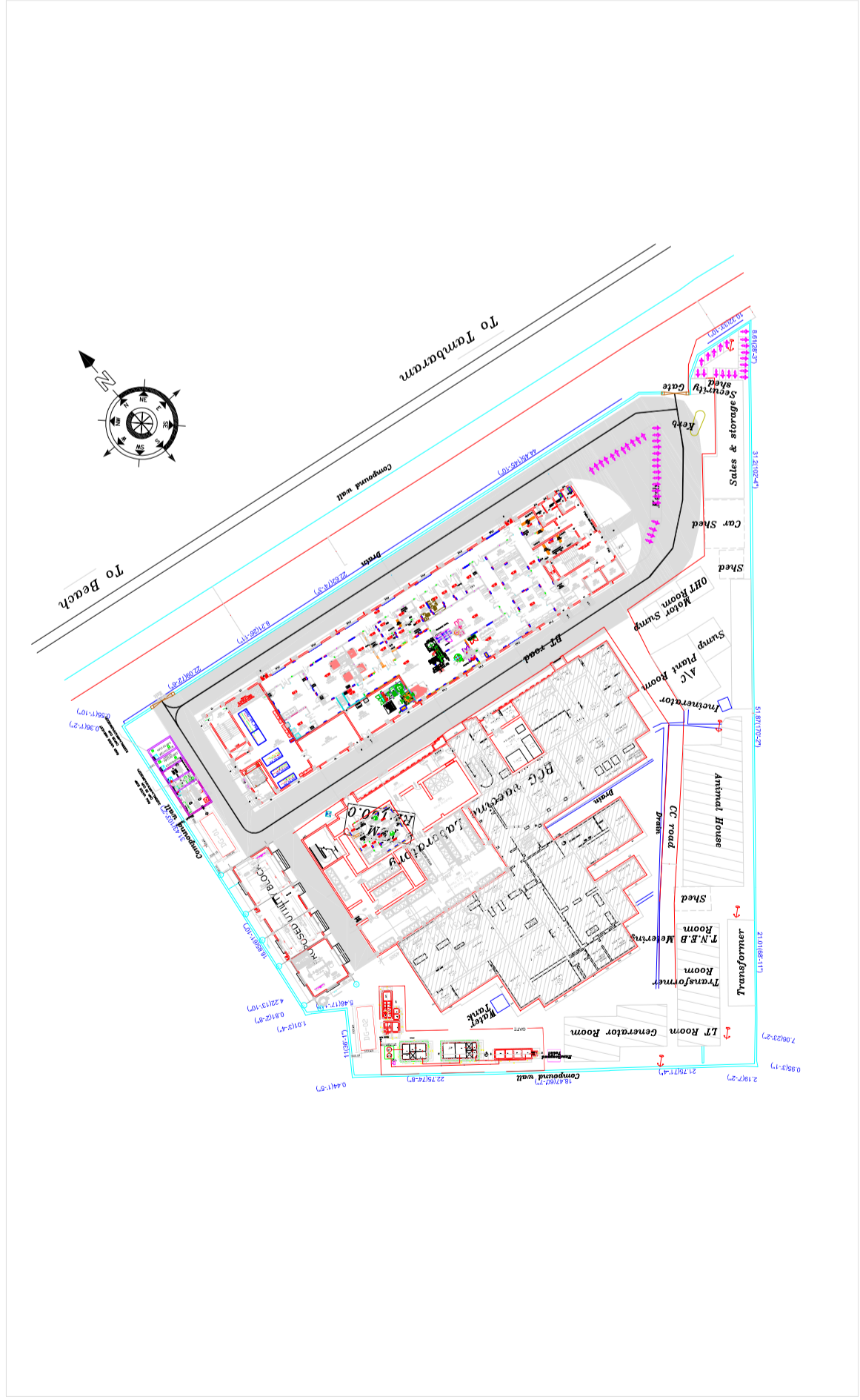


Building no	Description	G F	1 F	Area in sq.m
21	Store Room/Proposed Utility Bldg	285.84		285.84
2	Sales and storage	52.85		52.85
3	Office room	49.75		49.75
4	shed	18.00		18.00
9	A/C plant room	70.53		70.53
16	Motor Room	6.33		6.33
17	Stage	6.40		6.40
18	Gents Toilet	18.46		18.46
19	Handicapped Toilet	6.33		6.33
20	Ladies Toilet	16.91		16.91
22	Motor Room	11.40		11.40
27	Old Animal House	73.18		73.18

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GATE



LIST OF ETP FABRICATION UNIT

MARKS	DESCRIPTION	DIMENSION	CAPACITY
T-01	EQUALIZATION TANK	1.5m x 1.4m x 2.5m(2.2m LD)	4.6KL
T-13	SLUDGE DRY BED	1.2m x 1.4m x 1.5m(1.2m LD)	2.0KL
T-14	SLUDGE DRY BED	1.2m x 1.4m x 1.5m(1.2m LD)	2.0KL
T-15	FINAL TANK	1.5m x 1.4m x 2.5m(2.2m LD)	4.6KL
T-16	SCREEN CHAMBER	0.7m x 0.5m x 0.6m	

LIST OF STP FABRICATION UNIT

MARKS	DESCRIPTION	DIMENSION	CAPACITY
T-02	MOVING BED BIO REACTOR	0.6m x 0.623m x 2.5m(2.2m LD)	0.8 KL
T-03	MOVING BED BIO REACTOR	0.6m x 0.623m x 2.5m(2.2m LD)	0.8KL
T-04	FLOCCULATION TANK	0.3m x 0.6m x 0.8m(0.6m LD)	0.1 KL
T-05	CLARIFIER	1.0m x 1.25m x 2.3m(1.2m LD)	1.5KL
T-06	FILTER FEED TANK	0.5m x 1.25m x 2.0m(1.9m LD)	1.2KL
T-07	SLUDGE HOLDING TANK	0.5m x 1.25m x 2.0m(1.9m LD)	1.2KL

LIST OF STP CIVIL UNIT

MARKS	DESCRIPTION	DIMENSION	CAPACITY	HRT
T-01	EQUALIZATION TANK	1.5m x 1.0m x 2.3m(2.0m LD)	3.0 KL	6.0hr
T-08	FINAL TANK	1.5m x 1.0m x 2.3m(2.0m LD)	3.0 KL	6.0hr
T-09	SLUDGE DRY BED -1	0.8m x 0.8m x 1.0m(0.8m LD)	0.5 KL	1.0hr
T-10	SLUDGE DRY BED -2	0.8m x 0.8m x 1.0m(0.8m LD)	0.5 KL	1.0hr
T-11	BAR SCREEN CHAMBER	0.6m x 0.4m x 0.5		

LIST OF ETP FABRICATION UNIT

MARKS	DESCRIPTION	DIMENSION	CAPACITY
T-02	FLOCCULATION -1	0.7m x 1.24m x 1.3m(1.0m LD)	0.86 KL
T-03	CLARIFIER -1	1.0m x 1.24m x 2.5m(1.4m SWD)	1.7 KL
T-04	FLOCCULATION -2	0.7m x 1.24m x 1.4m(1.0m LD)	0.86 KL
T-05	CLARIFIER -2	1.0m x 1.24m x 2.5m(1.35m SWD)	1.6 KL
T-06	ANAEROBIC TANK	1.75m x 2.5m x 2.5m(1.75m LD)	7.6 KL
T-07	MOVING BED BIO REACTOR	1.65m x 1.24m x 2.5m(2.2m LD)	4.5 KL
T-08	MOVING BED BIO REACTOR	1.65m x 1.24m x 2.5m(2.2m LD)	4.5 KL
T-09	FLOCCULATION TANK -3	1.0m x 1.24m x 1.1m(0.7m LD)	0.86 KL
T-10	CLARIFIER -3	1.0m x 1.24m x 2.5m(1.37m SWD)	1.6 KL
T-11	FILTER FEED TANK	1.2m x 1.59m x 2.5m(1.8m LD)	3.4KL
T-12	SLUDGE HOLDING TANK	1.2m x 0.9m x 2.5m(2.2m LD)	2.3KL

Rev.	Date	Checked	Kind of revision	No. of prints	Issued To
02	09.07.2013	SAPL	Revised as per clients comments.		
01	21.04.2013	SAPL	Revised as per clients comments.		

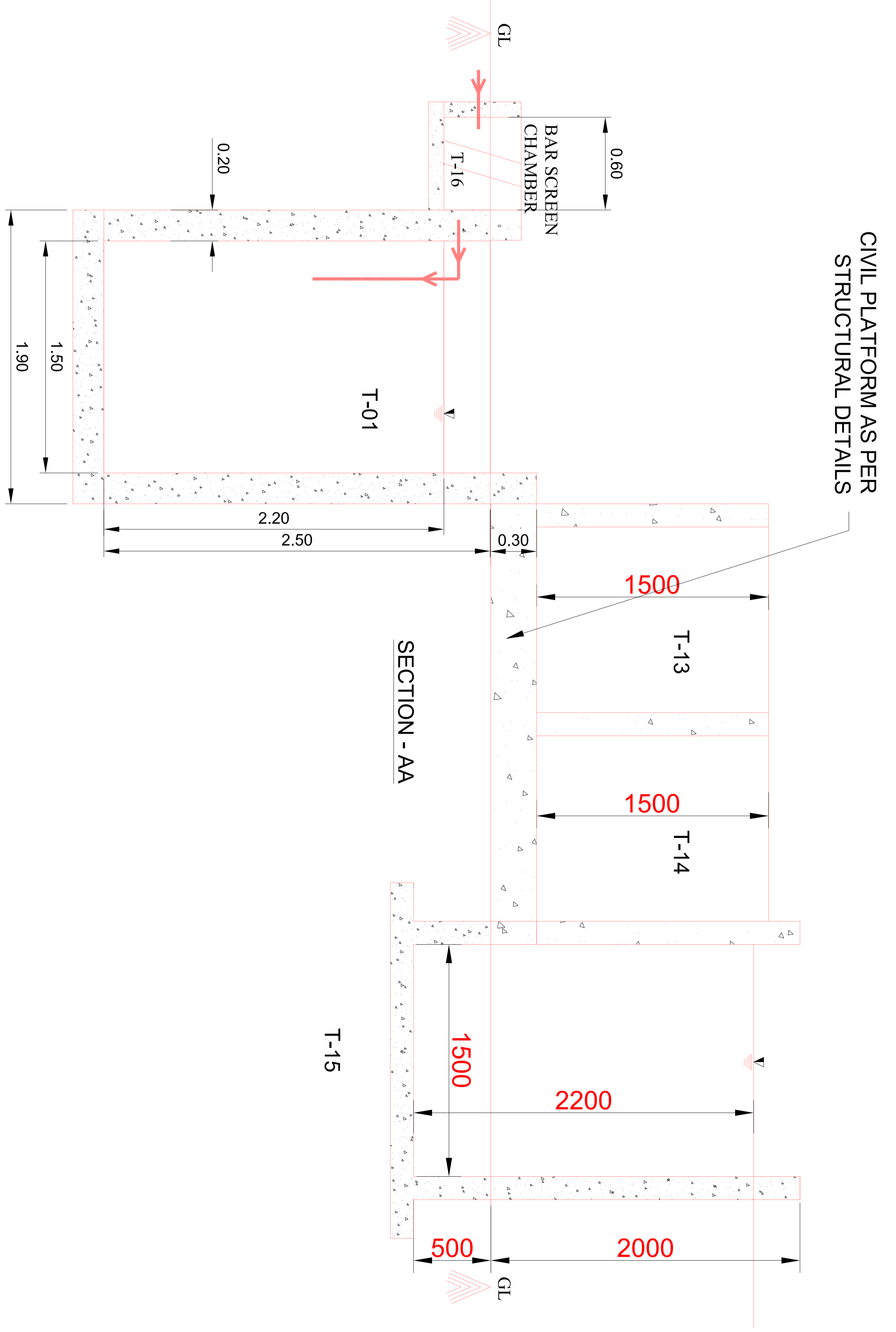
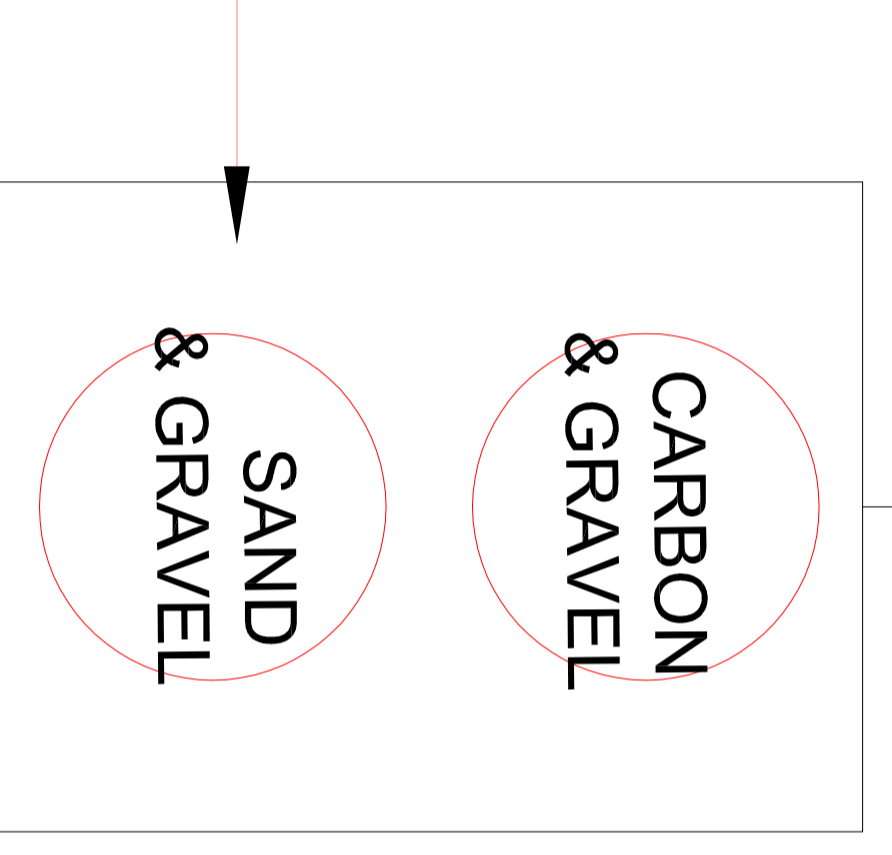
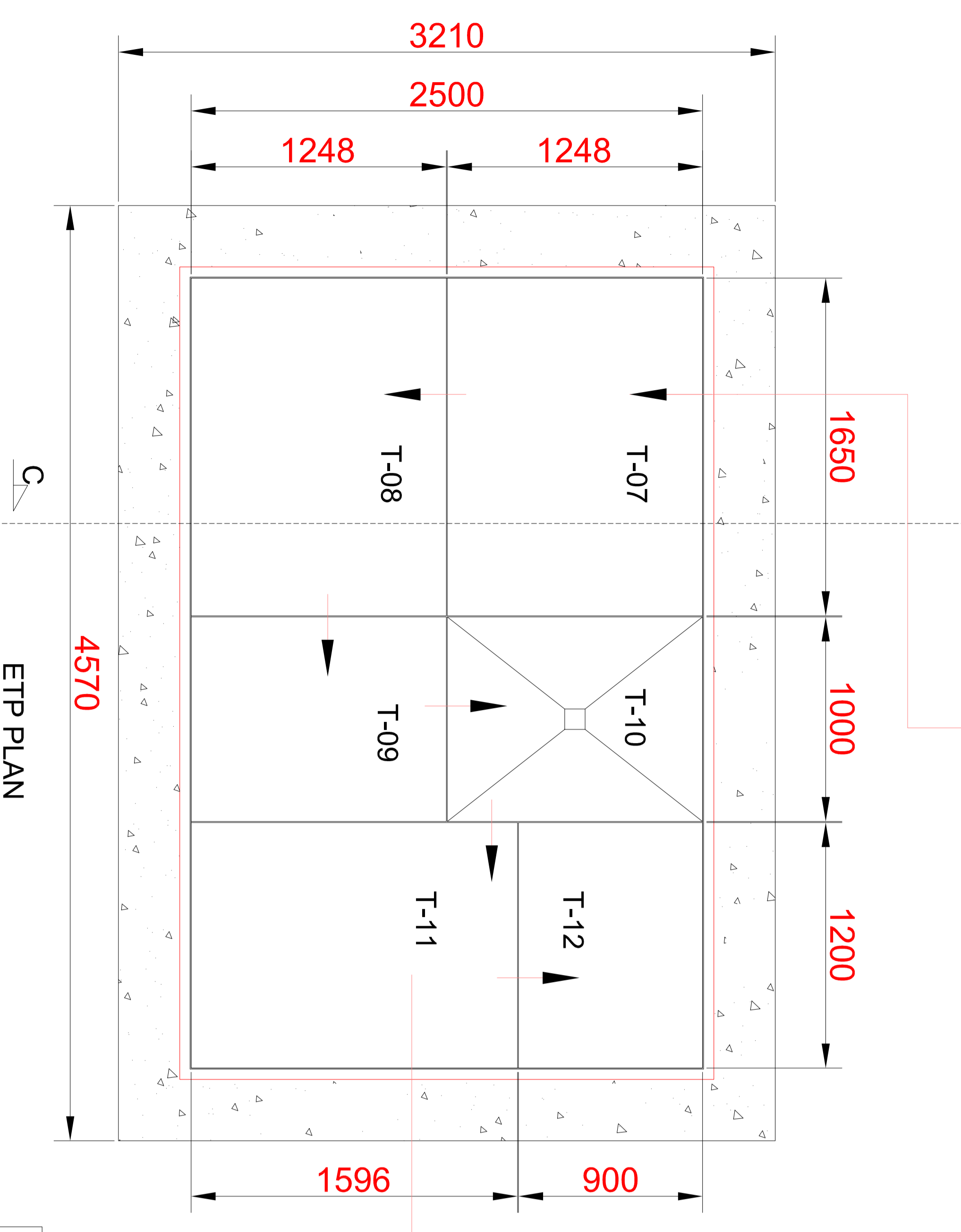
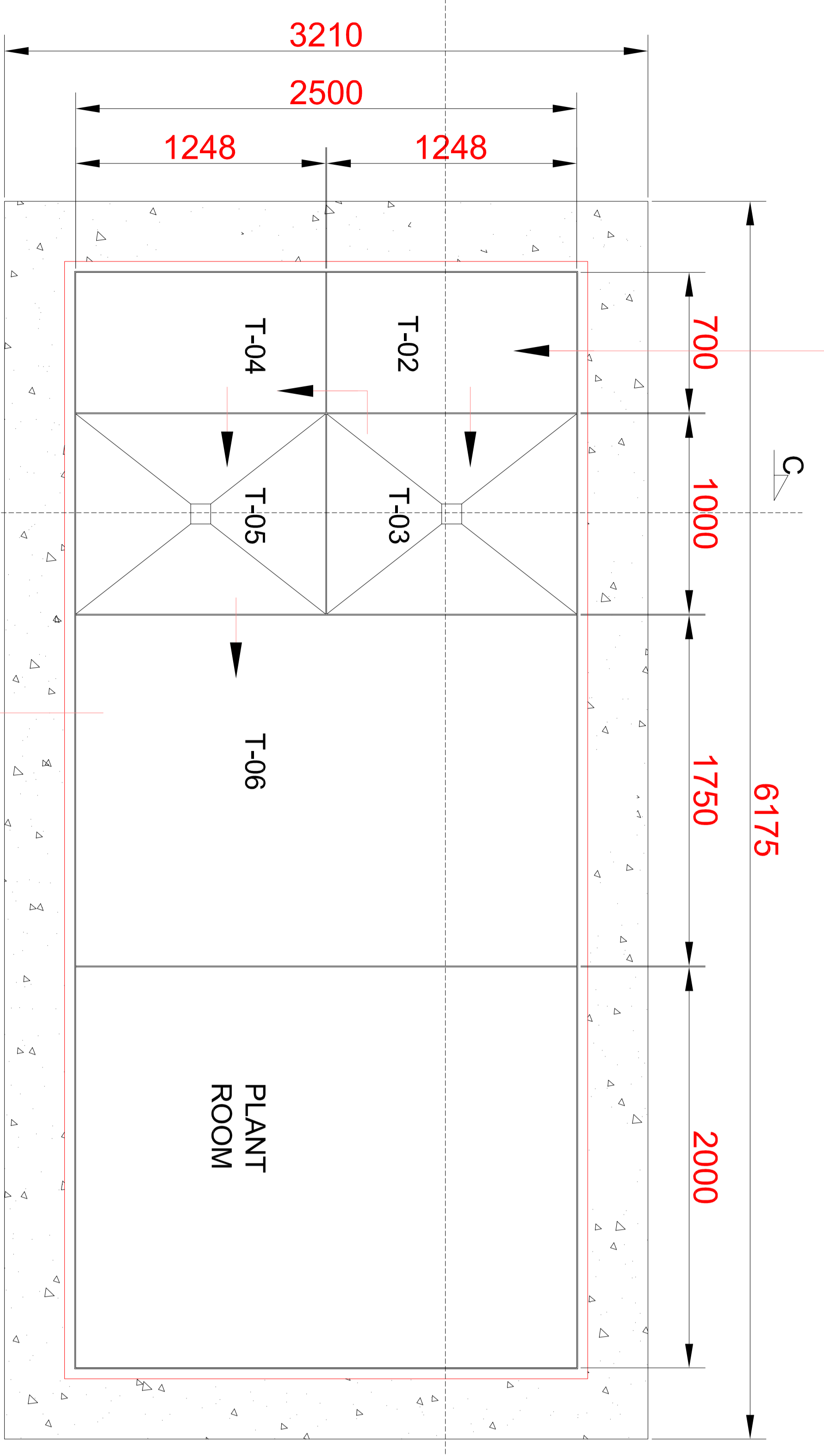
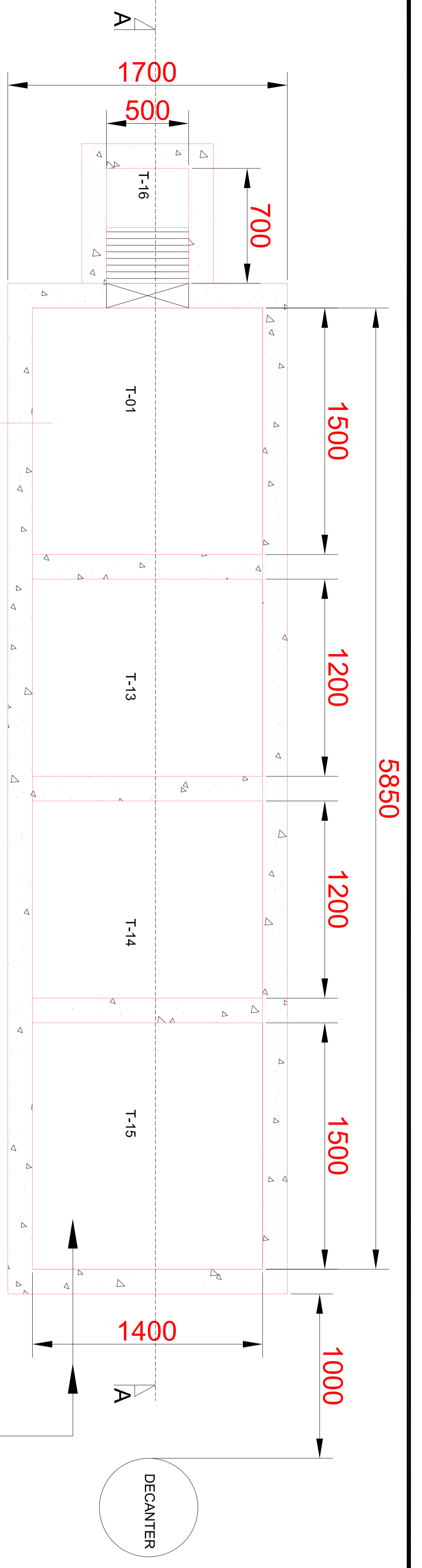
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Project:	BCG VACCINES LABORATORY, GUINDY, CHENNAI
Location:	CHENNAI
Client:	HLL LIFECARE LIMITED
Drawn:	08.03.2013
Checked:	08.03.2013
Approved:	08.03.2013
Scale:	AS PER
Units:	mm
Size:	A2

Project No.:	110729
Project:	BCG VACCINES LABORATORY, GUINDY, CHENNAI
Location:	CHENNAI
Client:	HLL LIFECARE LIMITED
Drawn:	08.03.2013
Checked:	08.03.2013
Approved:	08.03.2013
Scale:	AS PER
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Size:	A2

Project No.:	110729
Project:	BCG VACCINES LABORATORY, GUINDY, CHENNAI
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Approved:	08.03.2013
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Units:	mm
Size:	A2

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LIST OF ETP FABRICATION UNIT

LIST OF ETP FABRICATION UNIT

MARKS	DESCRIPTION	DIMENSION	CAPACITY
T-01	EQUALIZATION TANK	1.5m x 1.4m x 2.5m(2.2m LD)	4.6KL
T-13	SLUDGE DRY BED	1.2m x 1.4m x 1.5m(1.2m LD)	2.0KL
T-14	SLUDGE DRY BED	1.2m x 1.4m x 1.5m(1.2m LD)	2.0KL
T-15	FINAL TANK	1.5m x 1.4m x 2.5m(2.2m LD)	4.6KL
T-16	SCREEN CHAMBER	0.7m x 0.5m x 0.6m	

LIST OF CIVIL UNIT

MARKS	DESCRIPTION	DIMENSION	CAPACITY
T-02	FLOCCULATION -1	0.7m x 1.24m x 1.3m(1.0m LD)	0.86 KL
T-03	CLARIFIER -1	1.0m x 1.24m x 2.5m(1.4m SWD)	1.7 KL
T-04	FLOCCULATION -2	0.7m x 1.24m x 1.4m(1.0m LD)	0.86 KL
T-05	CLARIFIER -2	1.0m x 1.24m x 2.5m(1.35m SWD)	1.6 KL
T-06	ANAEROBIC TANK	1.75m x 2.5m x 2.5m(1.75m LD)	7.6 KL
T-07	MOVING BED BIO REACTOR	1.65m x 1.24m x 2.5m(2.2m LD)	4.5 KL
T-08	MOVING BED BIO REACTOR	1.65m x 1.24m x 2.5m(2.2m LD)	4.5 KL
T-09	FLOCCULATION TANK -3	1.0m x 1.24m x 1.1m(0.7m LD)	0.86 KL
T-10	CLARIFIER -3	1.0m x 1.24m x 2.5m(1.37m SWD)	1.6 KL
T-11	FILTER FEED TANK	1.2m x 1.59m x 2.5m(1.8m LD)	3.4KL
T-12	SLUDGE HOLDING TANK	1.2m x 0.9m x 2.5m(2.2m LD)	2.3KL

- NOTE:-
- 1) ALL DIMENSION ARE IN mm FROM FINISHED LEVELS.
 - 2) CIVIL PLATFORM -1 FOR ETP - 6.175x3.21m(AS PER STRUCTURAL DETAIL)
 - 3) CIVIL PLATFORM -2 FOR ETP - 4.57x3.21m(AS PER STRUCTURAL DETAIL)
 - 4) RAW SEWAGE INLET & EQUALIZATION TANK DEPENDING ON SITE CONDITION.

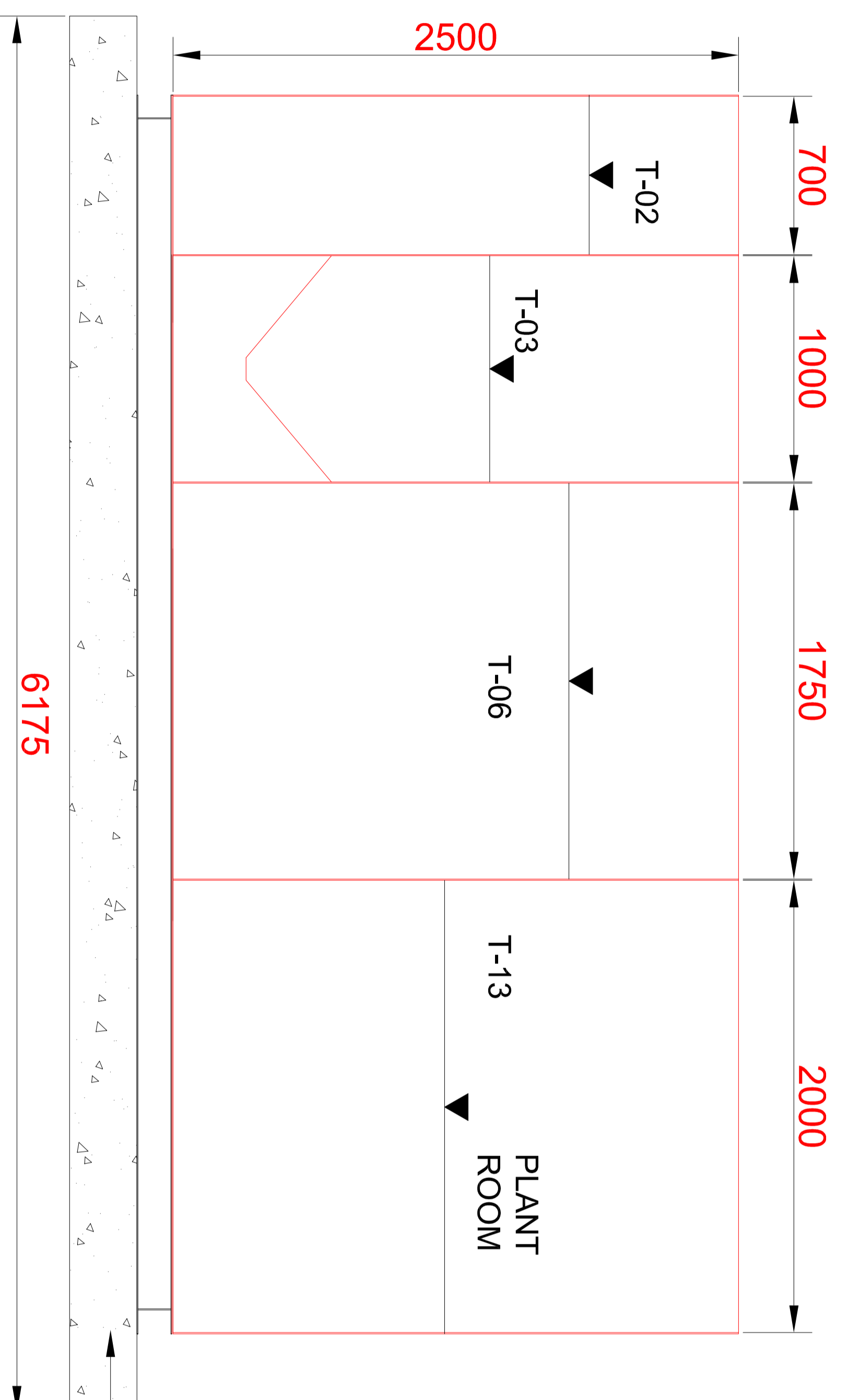
Rev.	Date	Changed	Checked	Kind of revision	No. of Prints	Date	Issued To
03	08.08.2013	SRTR	NVNG	Revised as per clients comments.			
02	09.07.2013	SAPL	NVNG	Revised as per clients comments.			
01.	06.01.2012	MNPR	NVNG	AS PER SURVEY DRAWING			

File name :
Originated From Dwg. No. :
Project: **BCG VACCINES LABORATORY AT GUNDIRY, CHENNAI**
Location: **HILL LIFE CARE LIMITED CHENNAI**

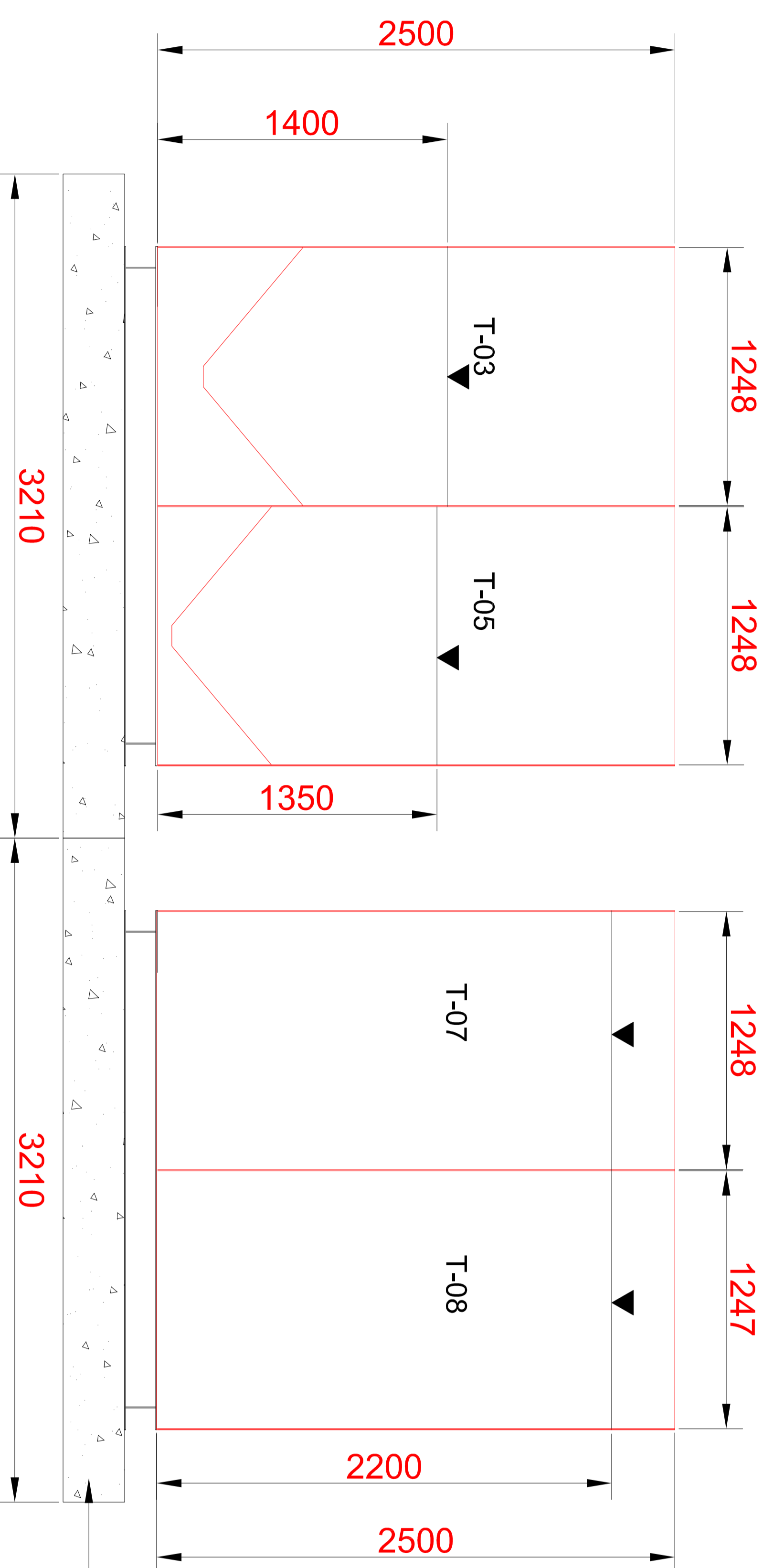
one pharmaplan®
#14, Achiah Shetty Layout,
Bangalore - 560 080., INDIA.

EFFLUENT TREATMENT PLANT-15KLD
LAYOUT PLAN & SECTION

Drawn: 19/10/2012 PNI
Checked: 19/10/2012 SKV/NN
Approved: NP
Scale: NTS Units: mm Size: A3
Drawing no: NPI/110729/LYT(GEN)/EG-02
Rev: 03



CIVIL PLATFORM AS PER
STRUCTURAL DETAILS



CIVIL PLATFORM AS PER
STRUCTURAL DETAILS

03	08.08.2013	SRTR	NVNG	Revised as per clients comments.
02	09.07.2013	SAPL	NVNG	Revised as per clients comments.
01.	06.01.2012	MNPR	NVNG	AS PER SURVEY DRAWING
Rev.	Date	Changed	Checked	Kind of revision

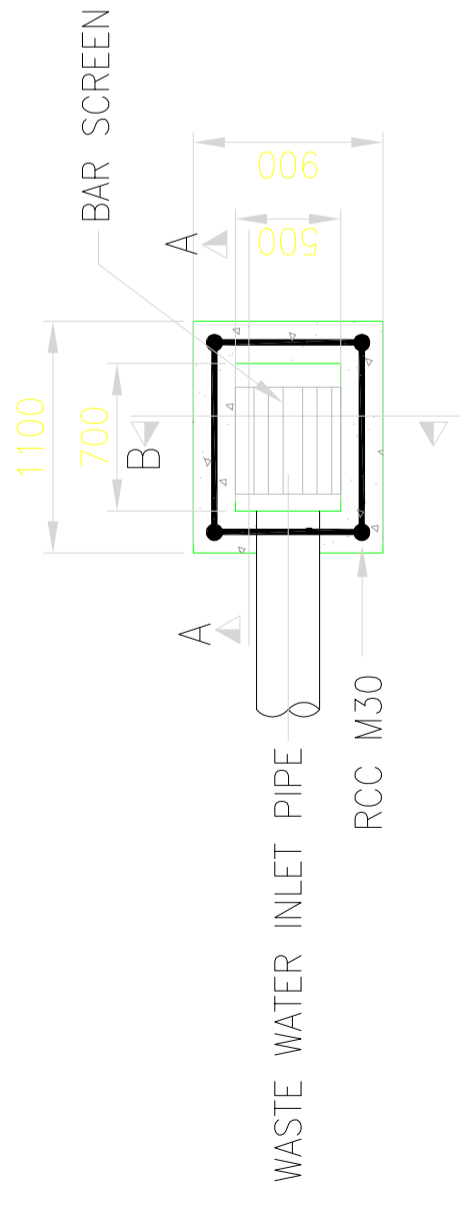
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Originated From Drg. No. :

Project: **BCG VACCINES LABORATORY AT GUNDIRY, CHENNAI**
HILL LIFECARE LIMITED
 Location: **CHENNAI**

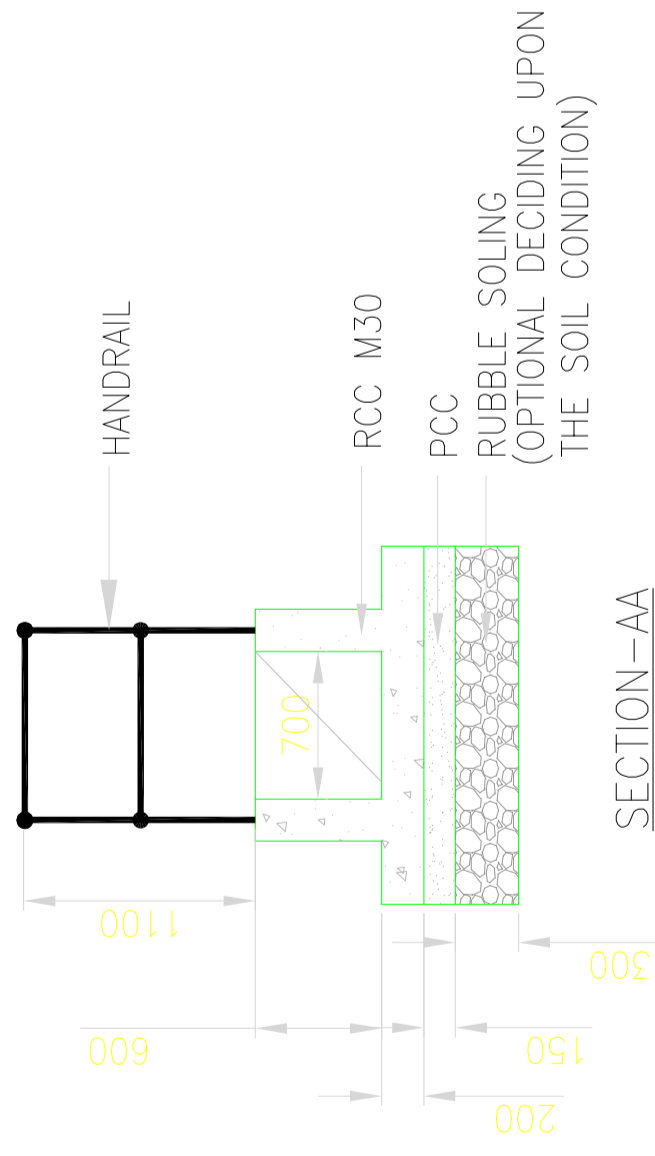
one pharmaplan®
 #14, Achiah Shetty Layout,
 Bangalore - 560 080., INDIA.

Description: **EFFLUENT TREATMENT PLANT-15KLD LAYOUT PLAN & SECTION**

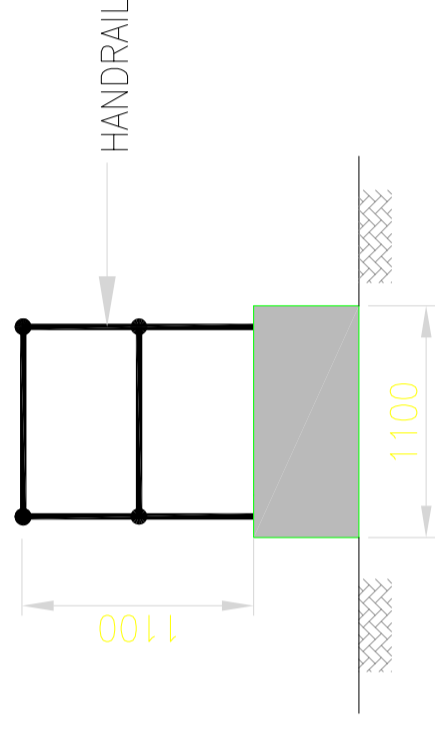
Drawn	Date	Name
Checked	19/10/2012	PJNJ
Approved	19/10/2012	SKW/NN
Scale-NTS	Units : mm	Size : A3
Drawing no:	NPI/110729/LYT(GEN)/EG-02	
Rev.	03	



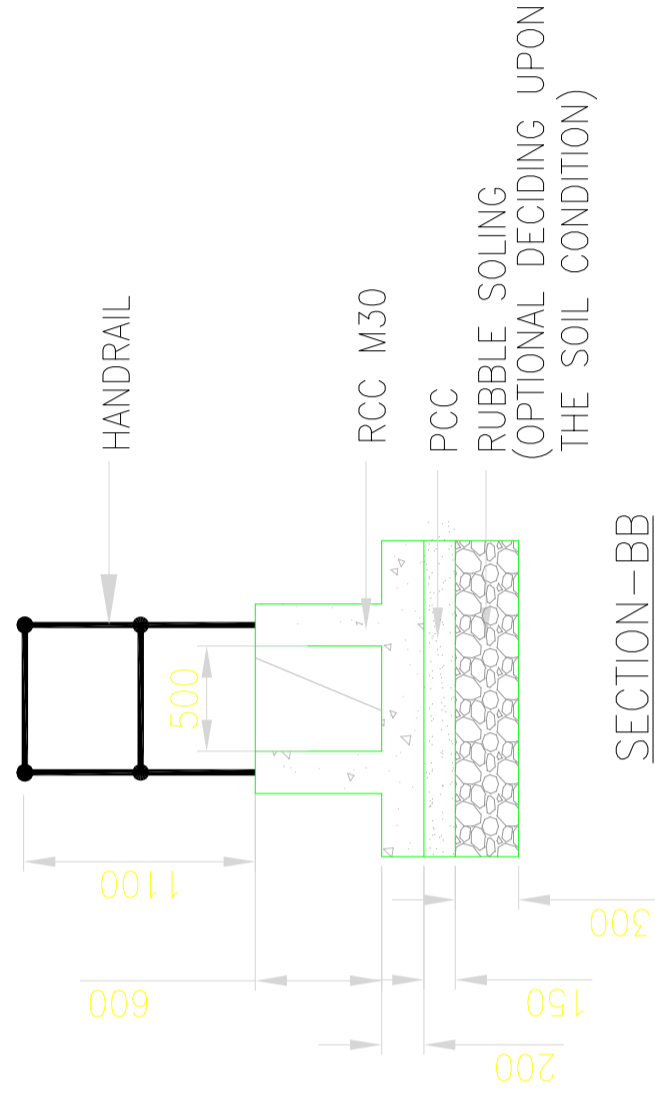
B
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PLAN



SECTION-AA



ELEVATION-11

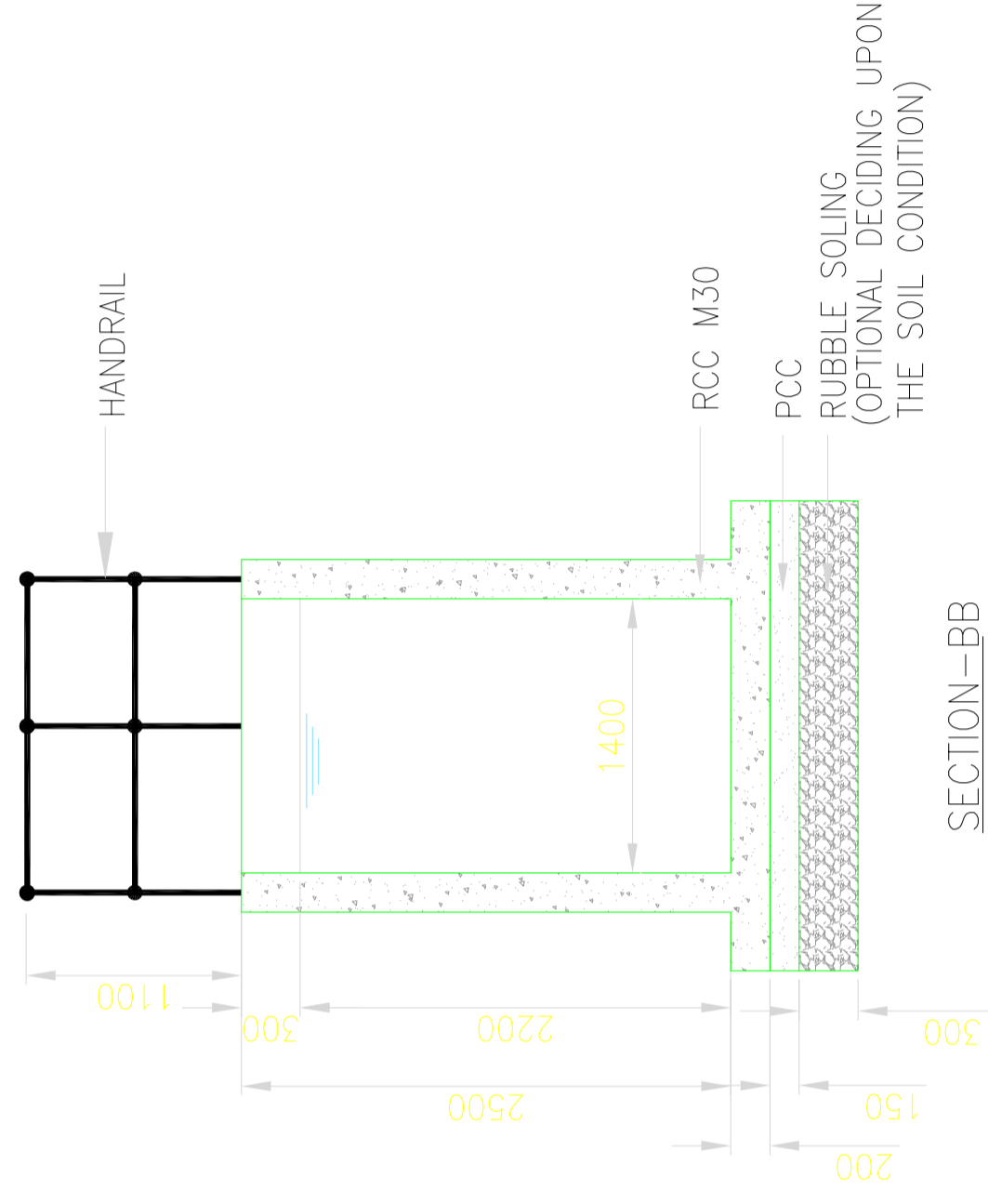
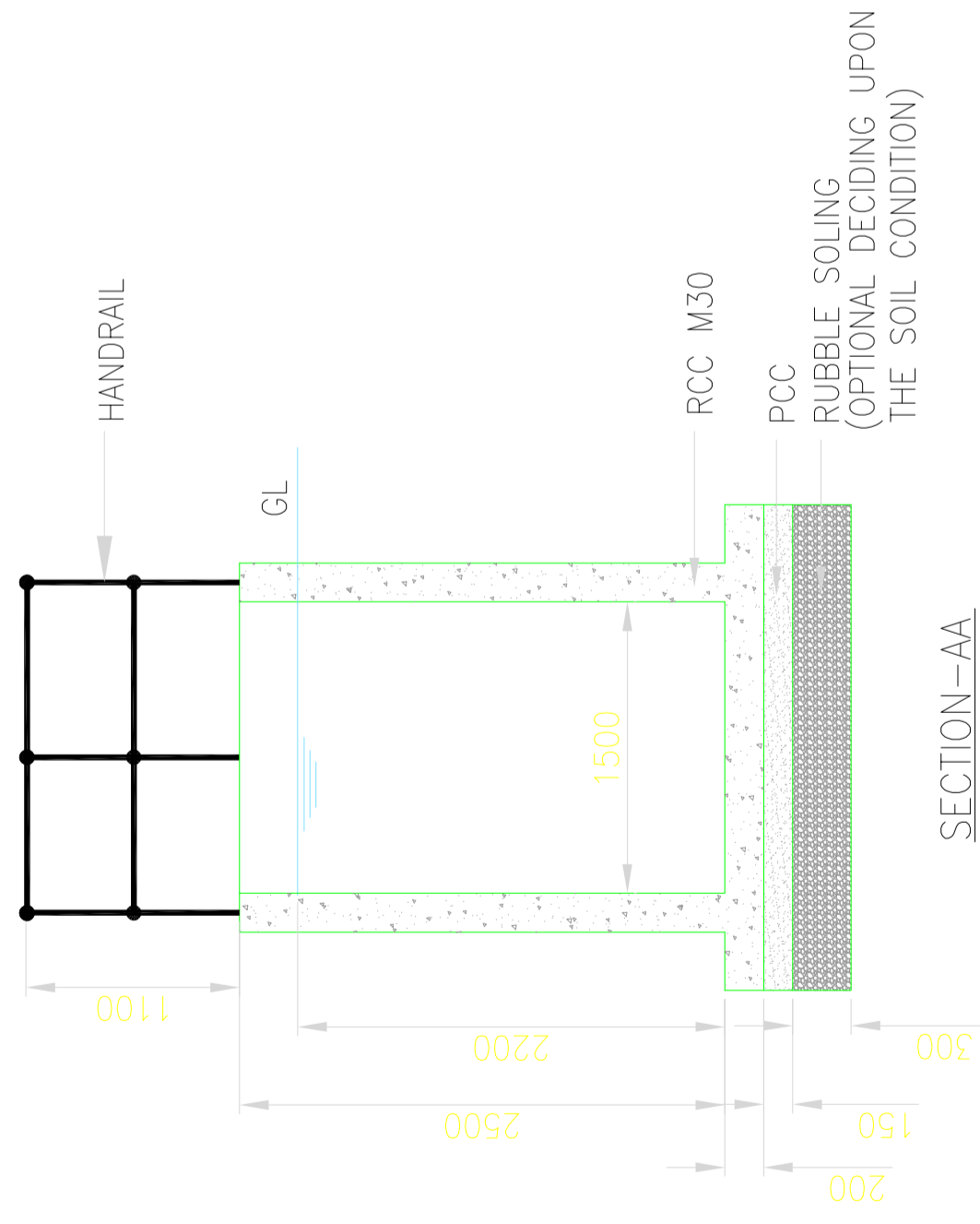
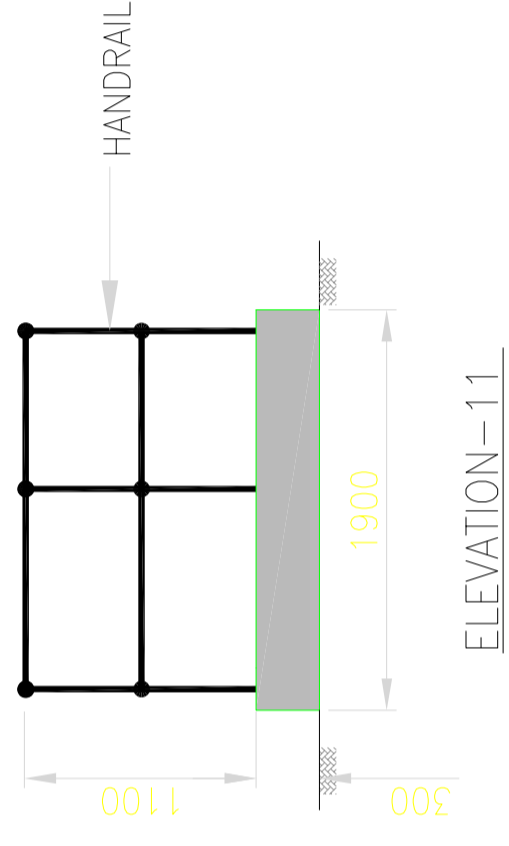
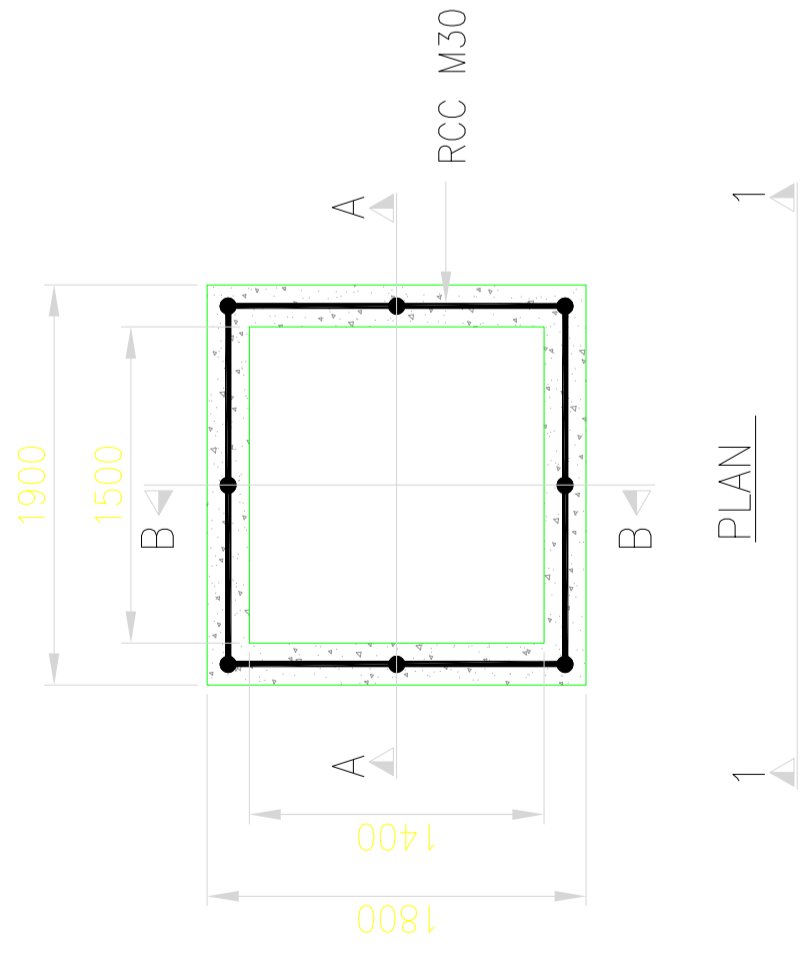


SECTION-BB

Rev.	Date	Changed/Checked	Kind of revision	No. of prints	Issued To
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01	21.04.2013	SAPL	NVNG		Revised as per clients comments.

File name :		Project No. :	
Originated From Dwg. No. :		110729	
Project :		Location	
BCG VACCINES LABORATORY, GUINDY, CHENNAI		CHENNAI	
HLL LIFECARE LIMITED			
Description :			
EFFLUENT TREATMENT PALNT- 15 KLD			
BAR SCREEN CHAMBER			
Drawing no. : (SHEET 1 OF 4)			

nne pharmaplan	
NNE Pharamplan India Limited	
#12, Achiah Shetty Layout,	
Bangalore - 560 080, INDIA.	
Drawn	Name
Checked	08.03.2013
Approved	08.03.2013
Scale:NTS	Units : mm
Size : A3	
Rev.	
	02

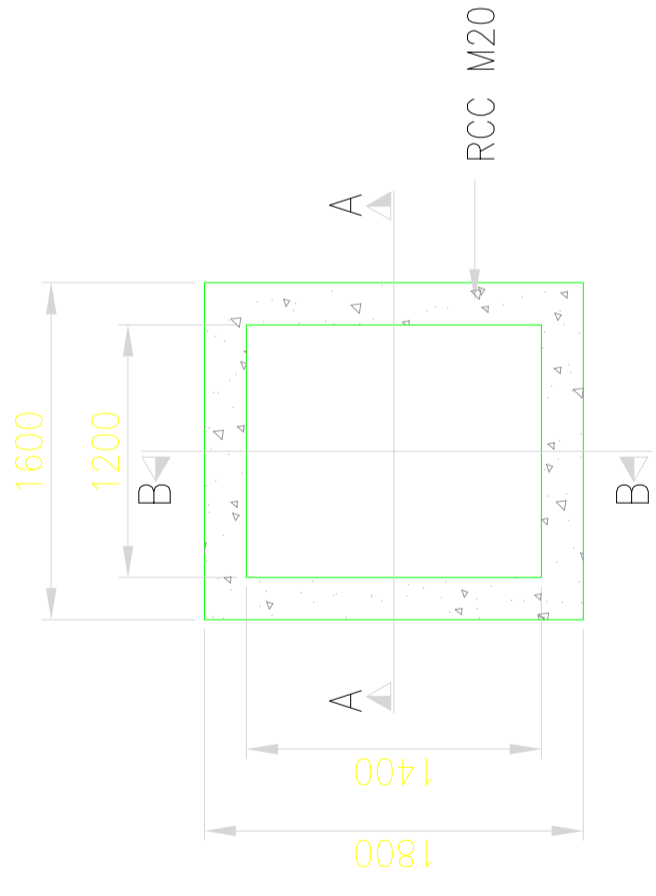


Rev.	Date	Changed/Checked	Kind of revision	No. of prints	Issued To
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01	21.04.2013	SAPL	NVWG		Revised as per clients comments.

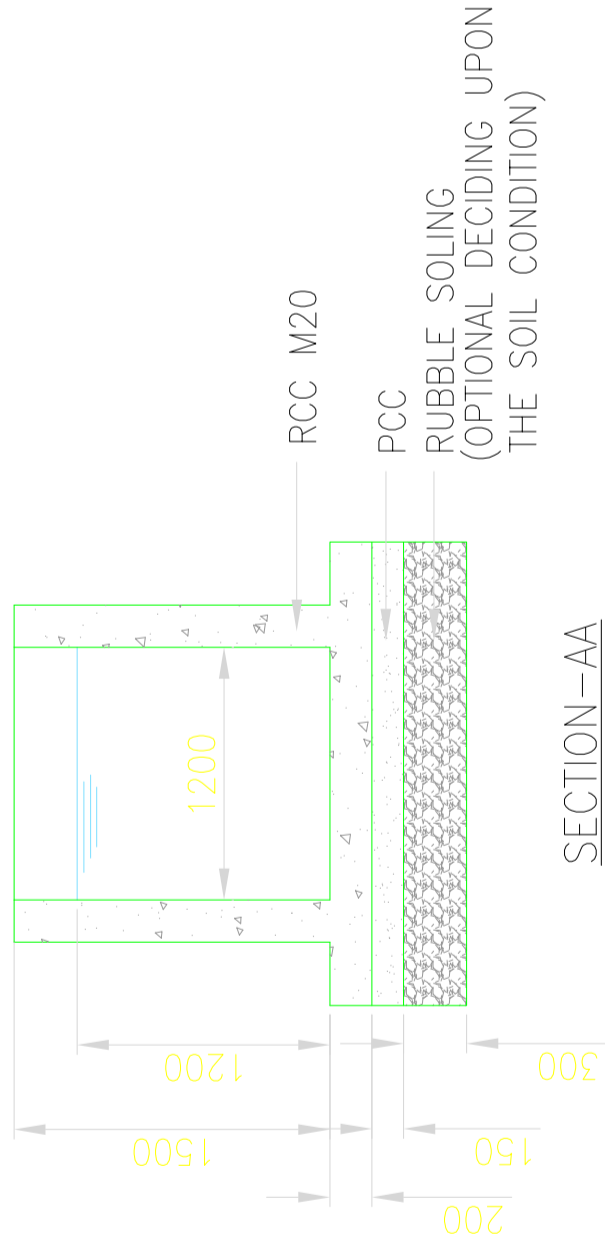
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Originated From Dwg. No. :		110729	
Project:		Location	
BCG VACCINES LABORATORY, GUINDY, CHENNAI		CHENNAI	
HLL LIFE CARE LIMITED			
Description:			
EFFLUENT TREATMENT PALNT- 15 KLD			
EQUALIZATION TANK			
Drawing no: (SHEET 2 OF 4)			

nne pharmaplan		Date		Name	
NNE Pharmaplan India Limited		08.03.2013		TTL	
#12, Achiah Shetty Layout,		08.03.2013		SLM/JNVWG	
Bangalore - 560 080, INDIA.		08.03.2013		NWRP	
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				02	

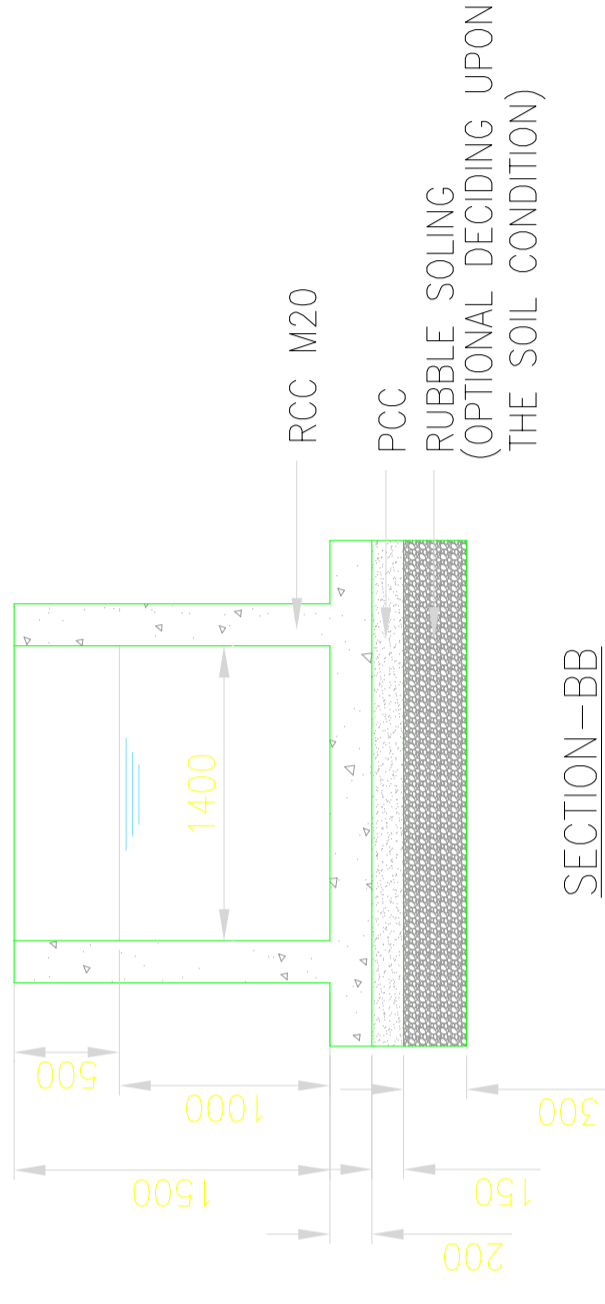
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PLAN



SECTION-AA

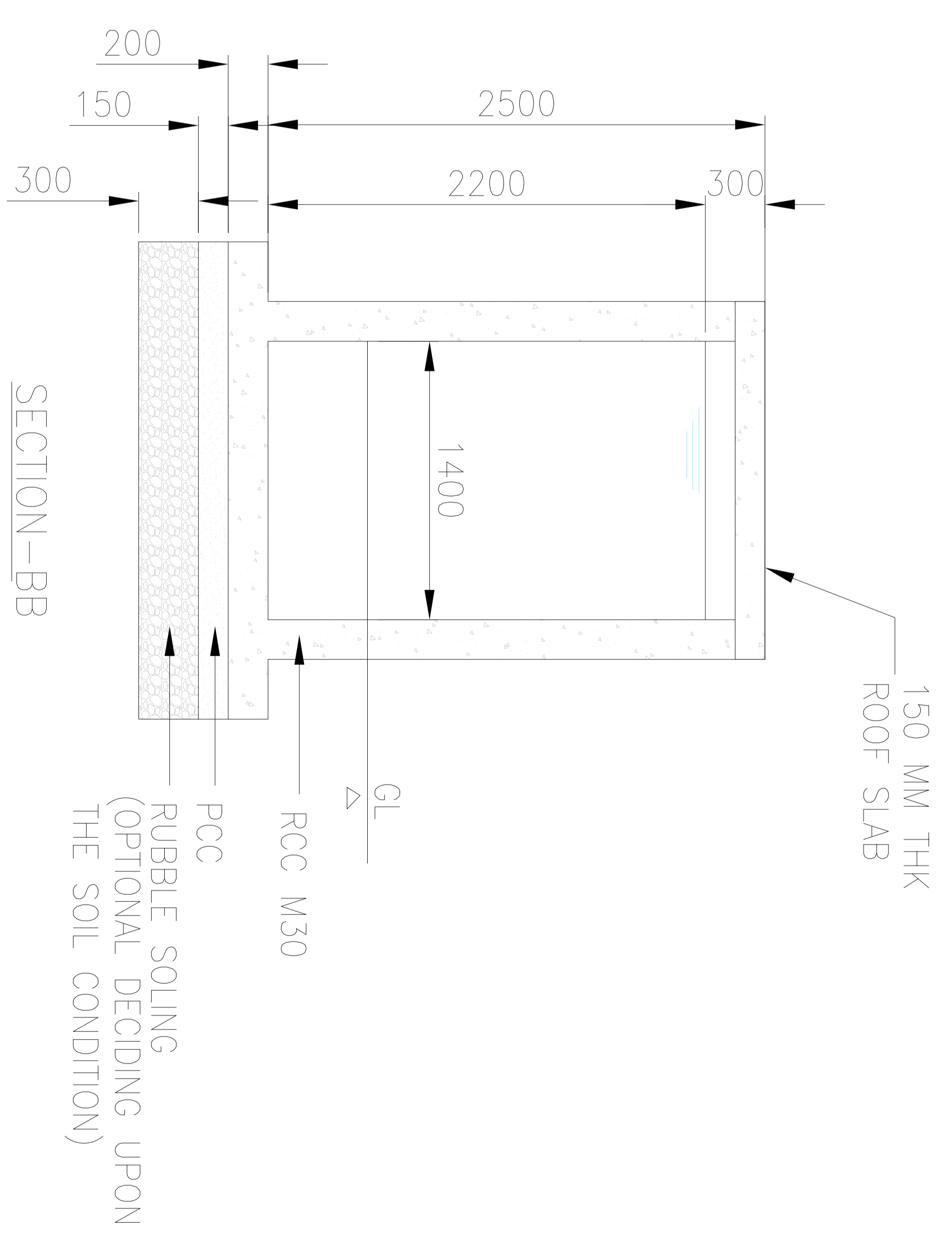
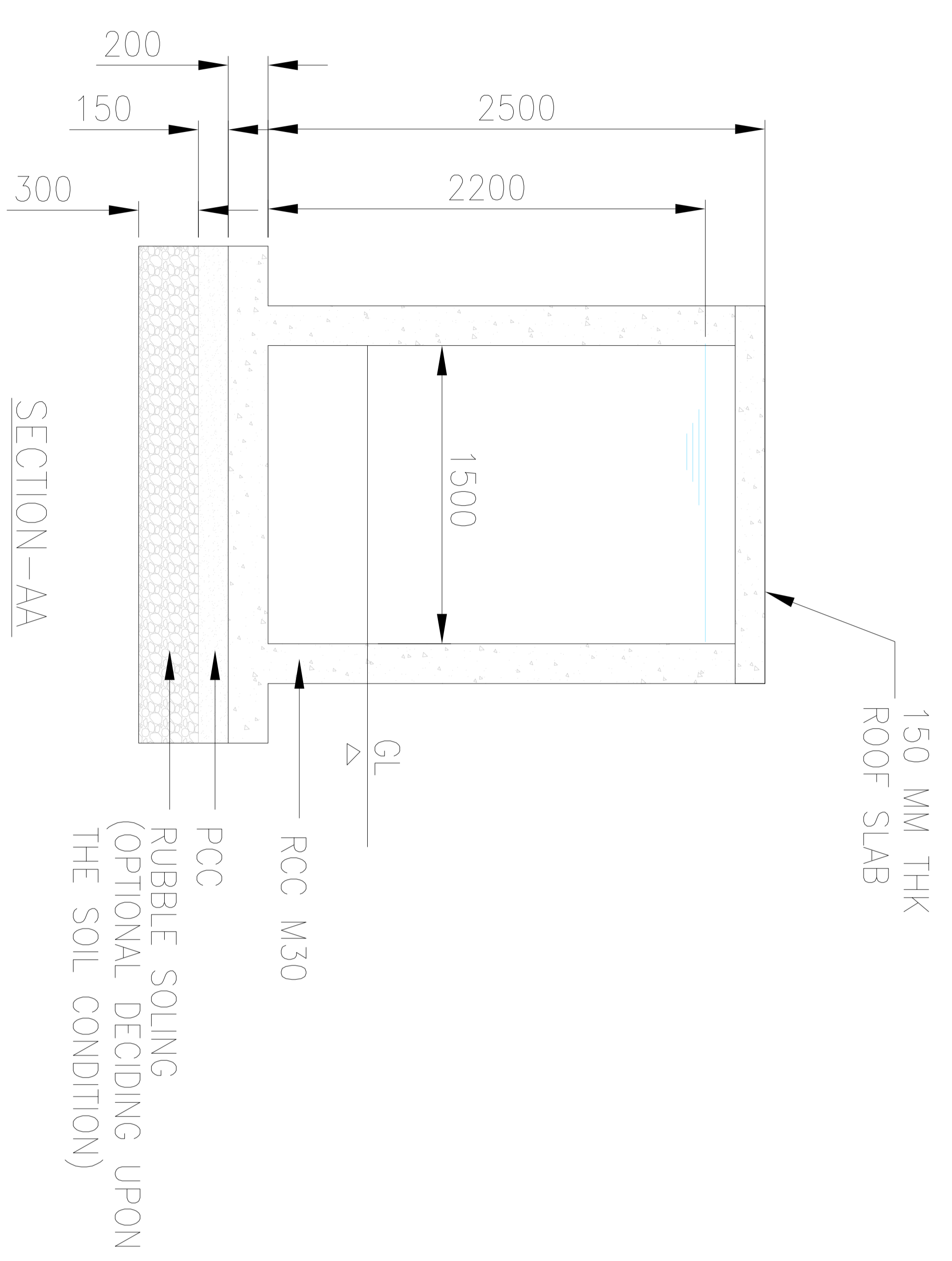
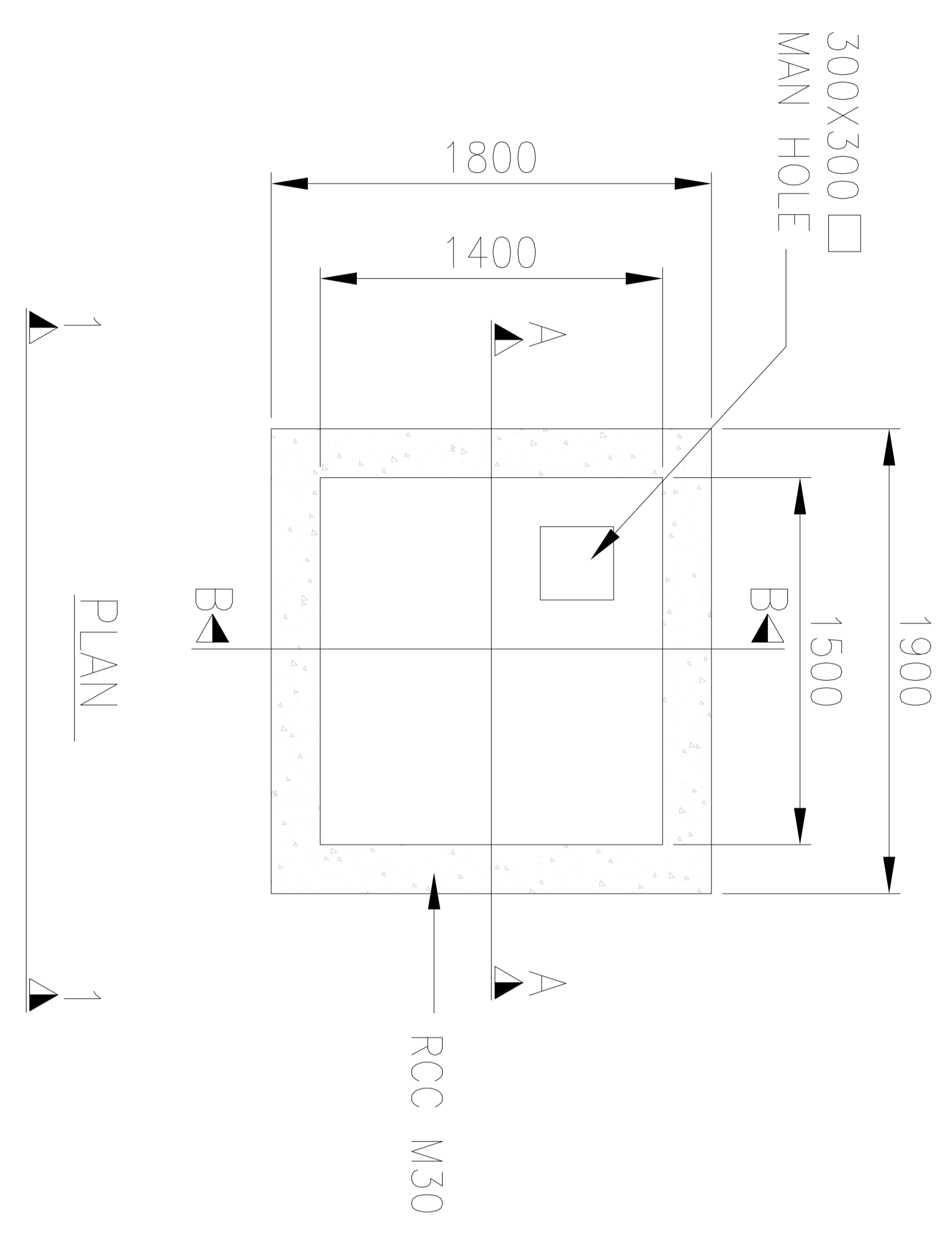


SECTION-BB

Rev.	Date	Changed/Checked	Kind of revision	No. of prints	Issued To
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01	21.04.2013	SAPL	NVWG		Revised as per clients comments.

File name :		Project No.:	
Originated From Dwg. No. :		110729	
Project:		Location	
BCG VACCINES LABORATORY, GUINDY, CHENNAI		CHENNAI	
HLL LIFECARE LIMITED			
Description:			
EFFLUENT TREATMENT PALNT- 15 KLD			
SLUDGE DRY BED 1&2			
Drawing no:			Rev.
NPI/110729/CIV(GEN)/EG-01			02

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NNE Pharmaplan India Limited	
#12, Achiah Shetty Layout,	
Bangalore - 560 080, INDIA.	
Drawn	Date
Checked	08.03.2013
Approved	08.03.2013
Scale:NTS	Units : mm
Size : A3	



Rev.	Date	Changed	Checked	Kind of revision
03	08.08.2013	SRTS	NVNG	Revised as per clients comments.
02	09.07.2013	SAPL	NVNG	Revised as per clients comments.
01	21.04.2013	SAPL	NVNG	Revised as per clients comments.

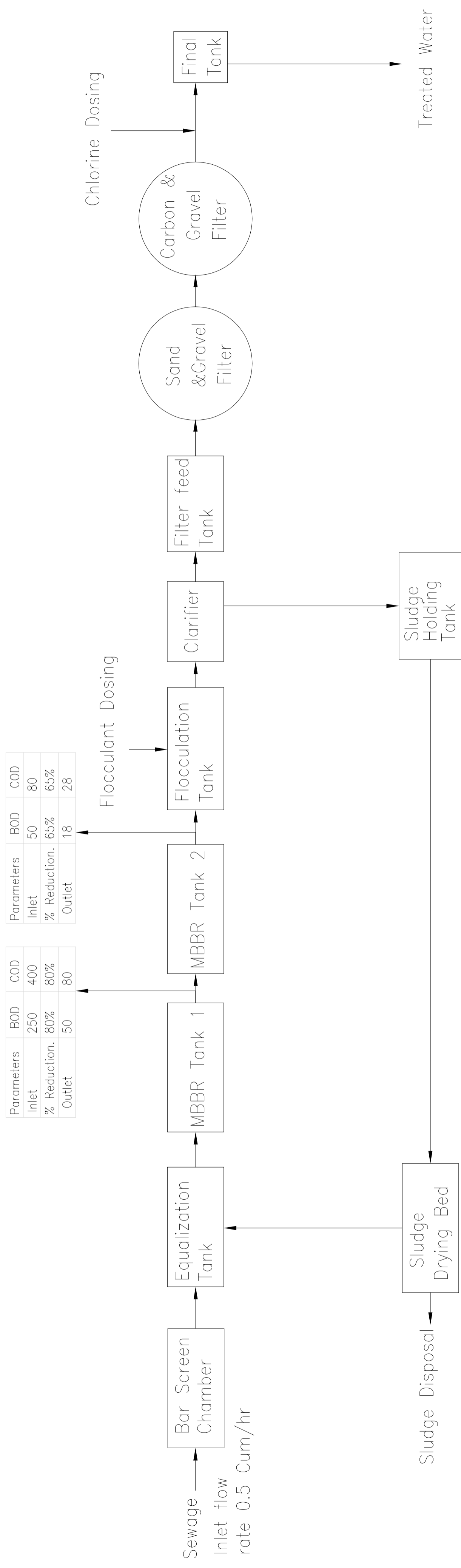
Originated From Dwg. No. :
 Project No. : 110729
 Location : CHENNAI

Project:
BCG VACCINES LABORATORY, GUNDIRY, CHENNAI
HILL LIFE CARE LIMITED

Description:	Date	Name
Drawn	08.03.2013	TTI
Checked	08.03.2013	SLM/NVNG
Approved	08.03.2013	NARP
Scale-NTS	Units : mm	Size : A3
Drawing no.:	NRP/110729/CIV/GENV/EG-01	
Rev.	03	

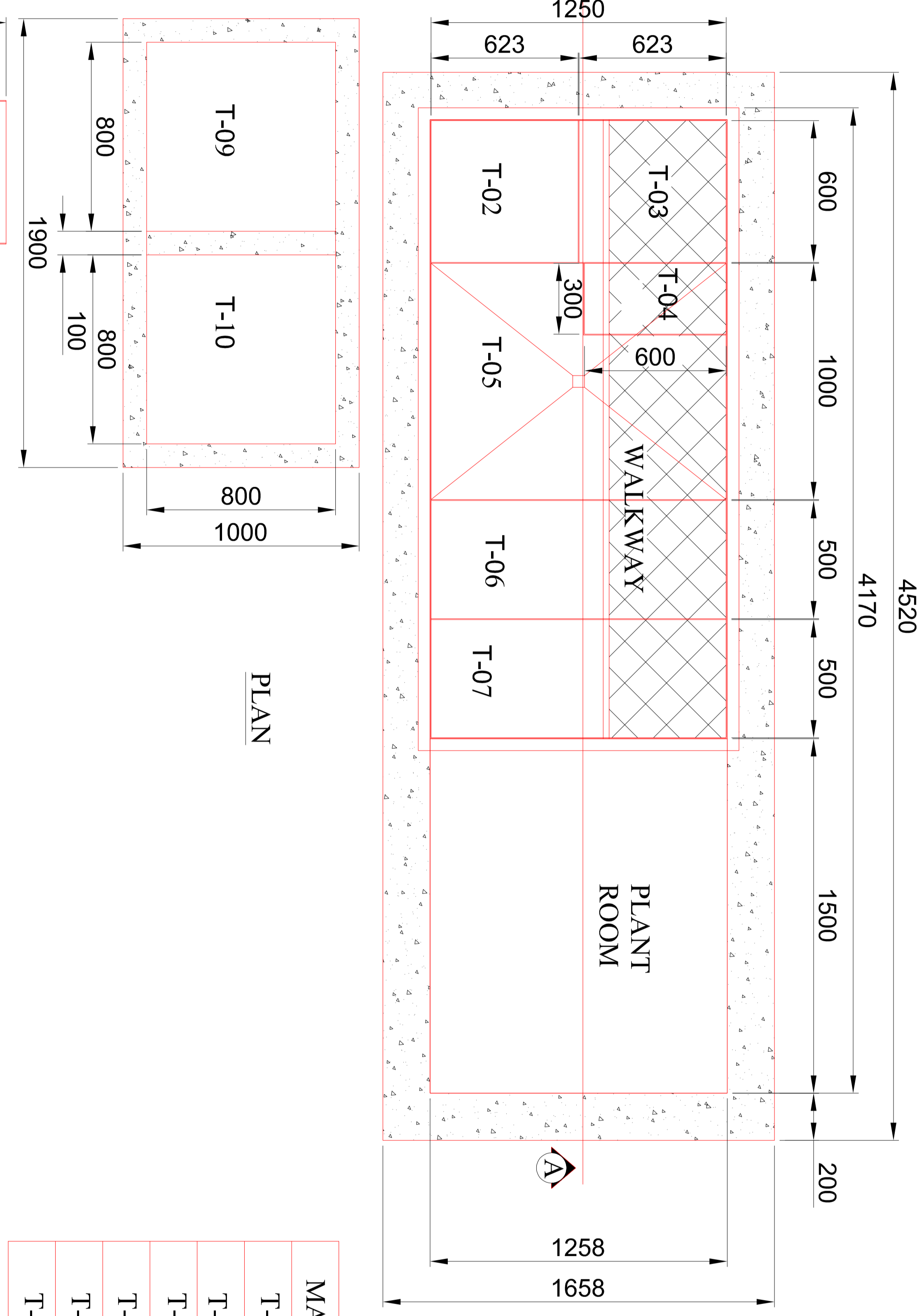
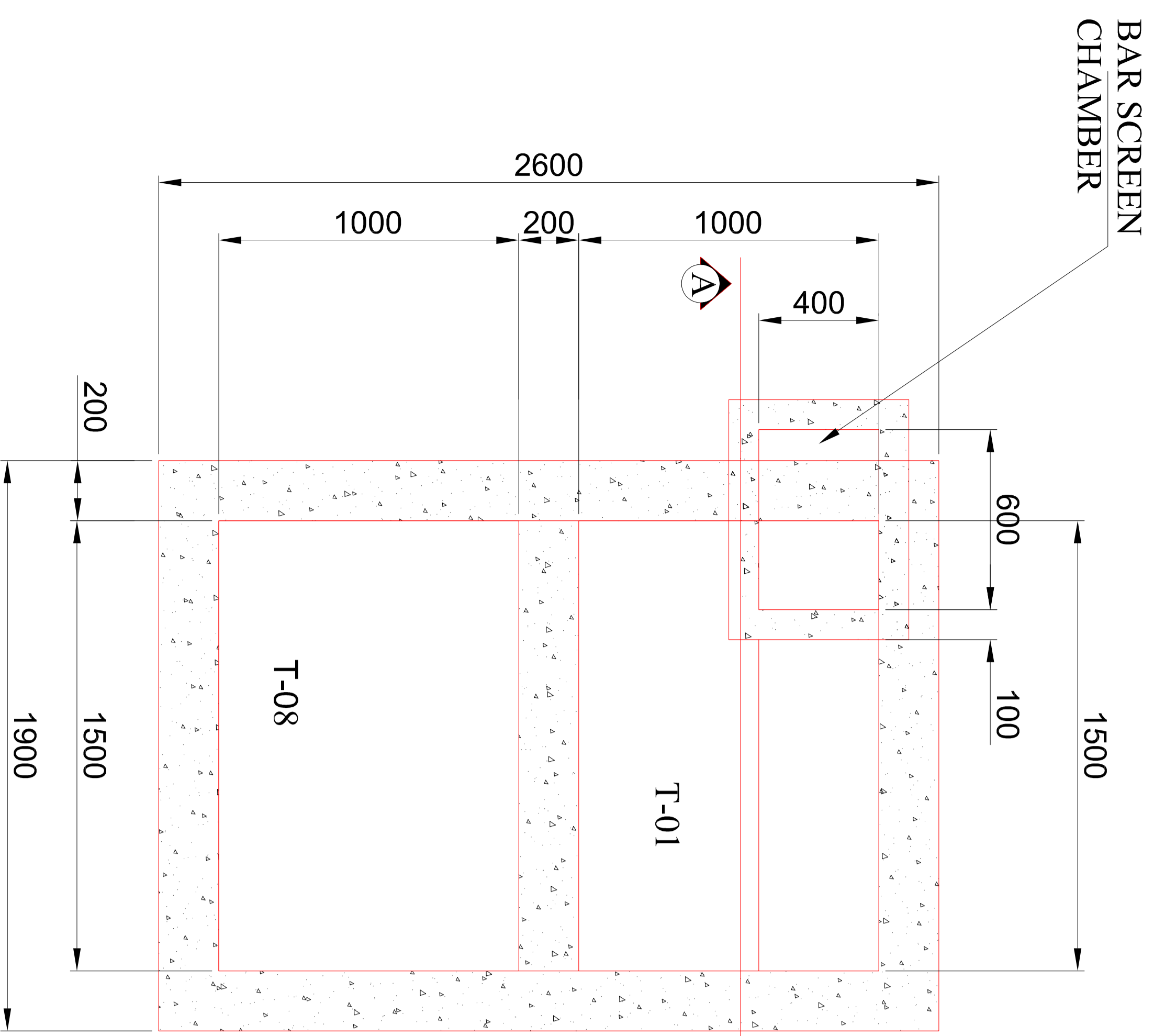
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 #12, Achigh Shetty Layout,
 Bangalore - 560 080, INDIA.

Sewage Treatment Plant - Process Flow Chart.



02	09.07.2013	SAPL	NVNG	Revised as per clients comments.
01	21.04.2013	SAPL	NVNG	Revised as per clients comments.
Rev.	Date	Changed	Checked	Kind of revision
File name :				No. Of Prints
Originated From Drg. No :				Date
Project:				Issued To
BCG VACCINES LABORATORY AT GUINDY, CHENNAI		Project No.:		
HLL LIFECARE LIMITED		110729		
		Location		
		CHENNAI		
nne pharmaplan NNE Pharmaplan India Limited #14, Achiah Shetty Layout, Bangalore - 560 080, ,INDIA.				
Drawn	Date	Name		
Checked	19/10/2012	PJNJ		
Approved	19/10/2012	SKM/NN		
Scale-		NP		
Units : mm		Size : A3		
Drawing no:				Rev.
NP/110729/ETP(SCH)/EG-02				02

Description:
**SEWAGE TREATMENT PLANT-10 KLD
 PROCESS FLOW CHART**

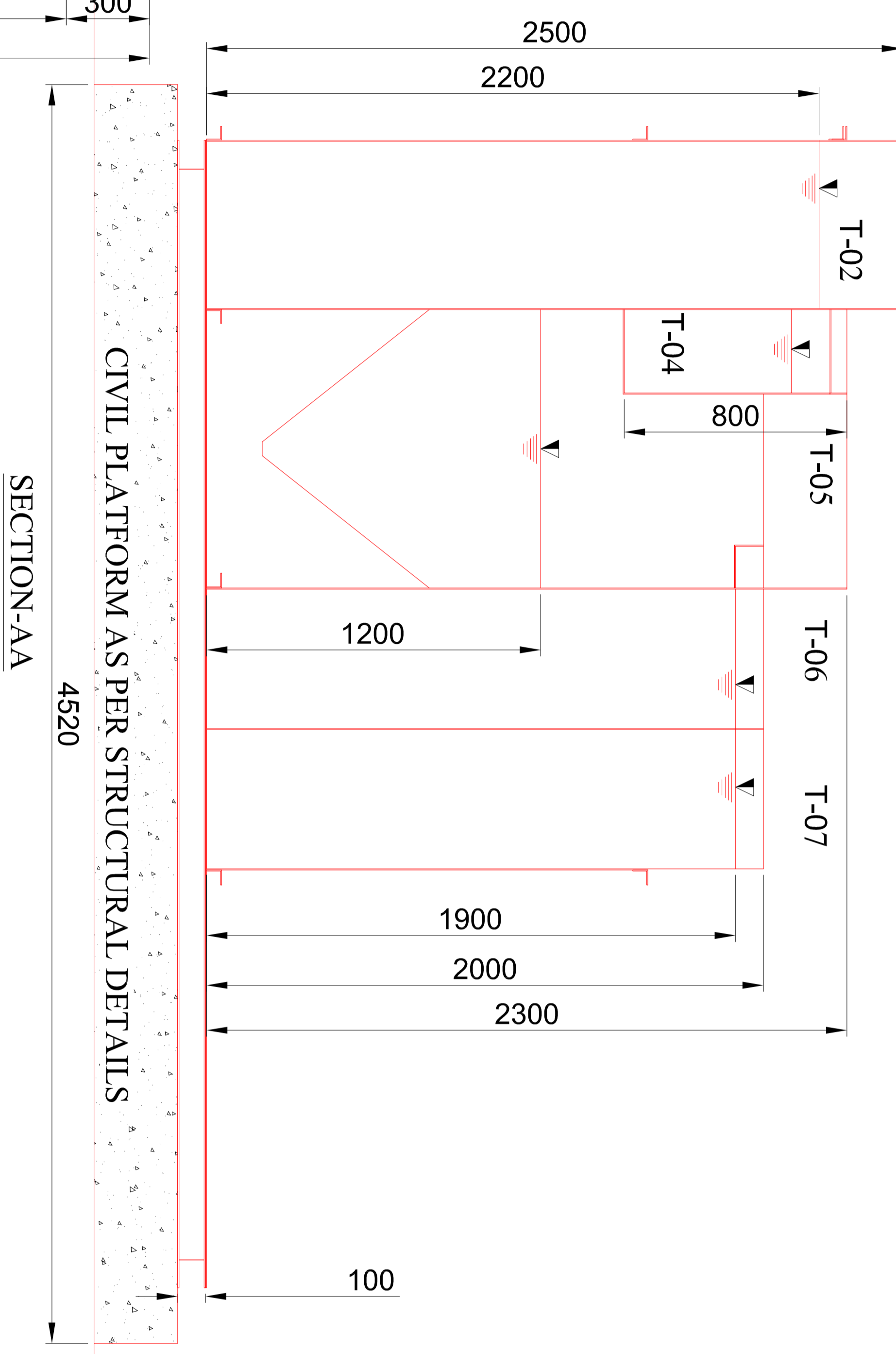


MARKS	DESCRIPTION	DIMENSION	CAPACITY	HRT
T-02	MOVING BED BIO REACTOR	0.6m x 0.623m x 2.5m(2.2m LD)	0.8 KL	1.6hr
T-03	MOVING BED BIO REACTOR	0.8m x 0.623m x 2.5m(2.2m LD)	0.8Kl	1.6hr
T-04	FLOCCULATION TANK	0.3m x 0.6m x 0.8m(0.6m LD)	0.1 KL	0.21hr
T-05	CLARIFIER	1.0m x 1.25m x 2.3m(1.2m SWD)	1.5Kl	3.0hr
T-06	FILTER FEED TANK	0.5m x 1.25m x 2.0m(1.9m LD)	1.2Kl	2.3hr
T-07	SLUDGE HOLDING TANK	0.5m x 1.25m x 2.0m(1.9m LD)	1.2Kl	2.3hr

LIST OF FABRICATION UNIT

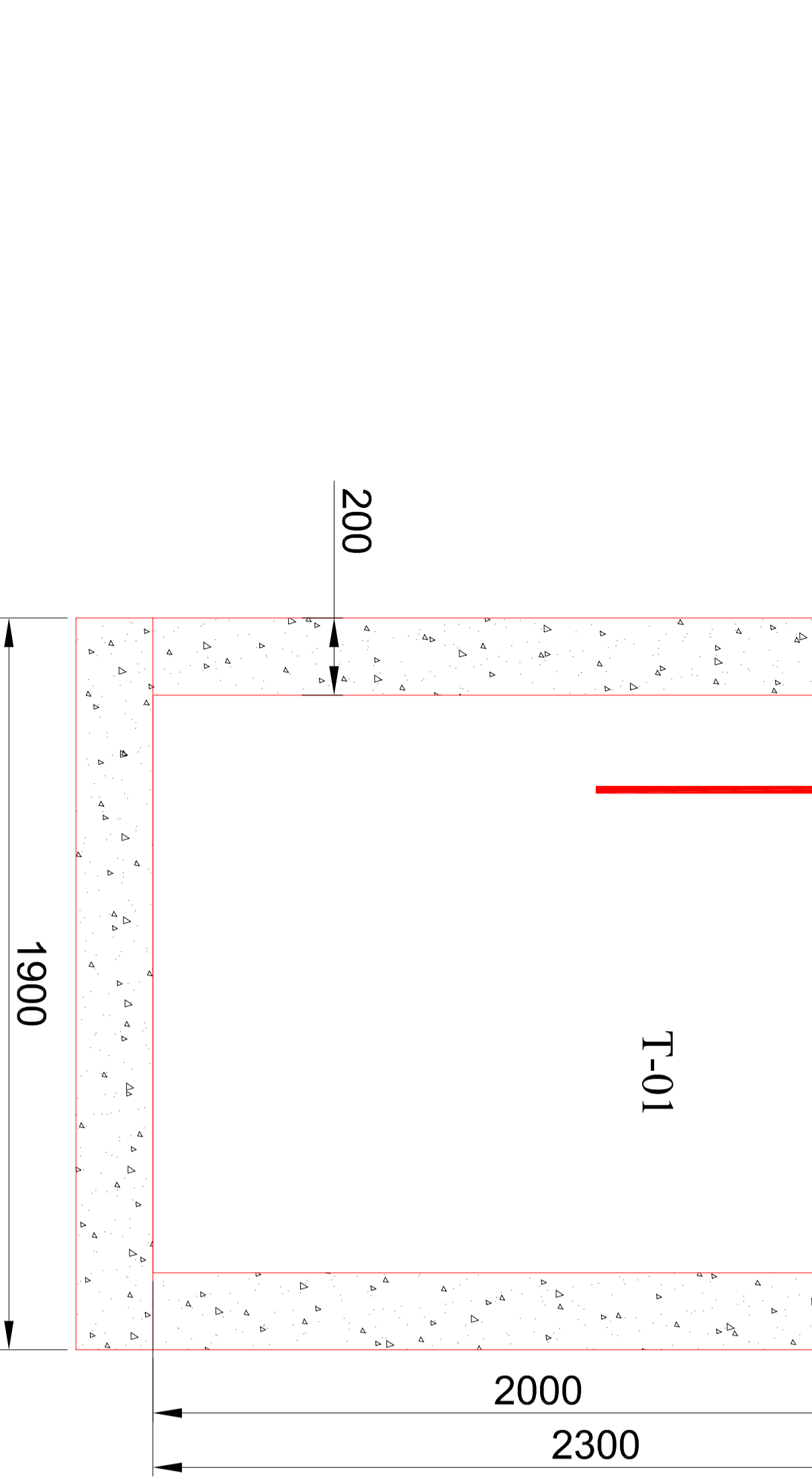
MARKS	DESCRIPTION	DIMENSION	CAPACITY	HRT
T-01	EQUALIZATION TANK	1.5m x 1.0m x 2.3m(2.0m LD)	3.0Kl	6.0hr
T-08	FINAL TANK	1.5m x 1.0m x 2.3m(2.0m LD)	3.0Kl	6.0hr
T-09	SLUDGE DRY BED -1	0.8m x 0.8m x 1.0m(0.8m LD)	0.5Kl	1.0hr
T-10	SLUDGE DRY BED -2	0.8m x 0.8m x 1.0m(0.8m LD)	0.5Kl	1.0hr
T-11	BAR SCREEN CHAMBER	0.6m x 0.4m x 0.5		

LIST OF CIVIL UNIT



SECTION-AA

GL



MARKS	DESCRIPTION	DIMENSION	CAPACITY	HRT
T-01	EQUALIZATION TANK	1.5m x 1.0m x 2.3m(2.0m LD)	3.0Kl	6.0hr
T-08	FINAL TANK	1.5m x 1.0m x 2.3m(2.0m LD)	3.0Kl	6.0hr
T-09	SLUDGE DRY BED -1	0.8m x 0.8m x 1.0m(0.8m LD)	0.5Kl	1.0hr
T-10	SLUDGE DRY BED -2	0.8m x 0.8m x 1.0m(0.8m LD)	0.5Kl	1.0hr
T-11	BAR SCREEN CHAMBER	0.6m x 0.4m x 0.5		

- NOTE:-
 1) ALL DIMENSION ARE IN mm FROM FINISHED LEVELS.
 2) BAR SCREEN CHAMBER & SEWAGE INLET WILL DEPENDING ON SITE CONDITON.

03	08.08.2013	SRR	NVNG	Revised as per clients comments.
02	09.07.2013	SAPL	NVNG	Revised as per clients comments.
01	21.04.2013	SAPL	NVNG	Revised as per clients comments.
Rev.	Date	Checked	Kind of revision	

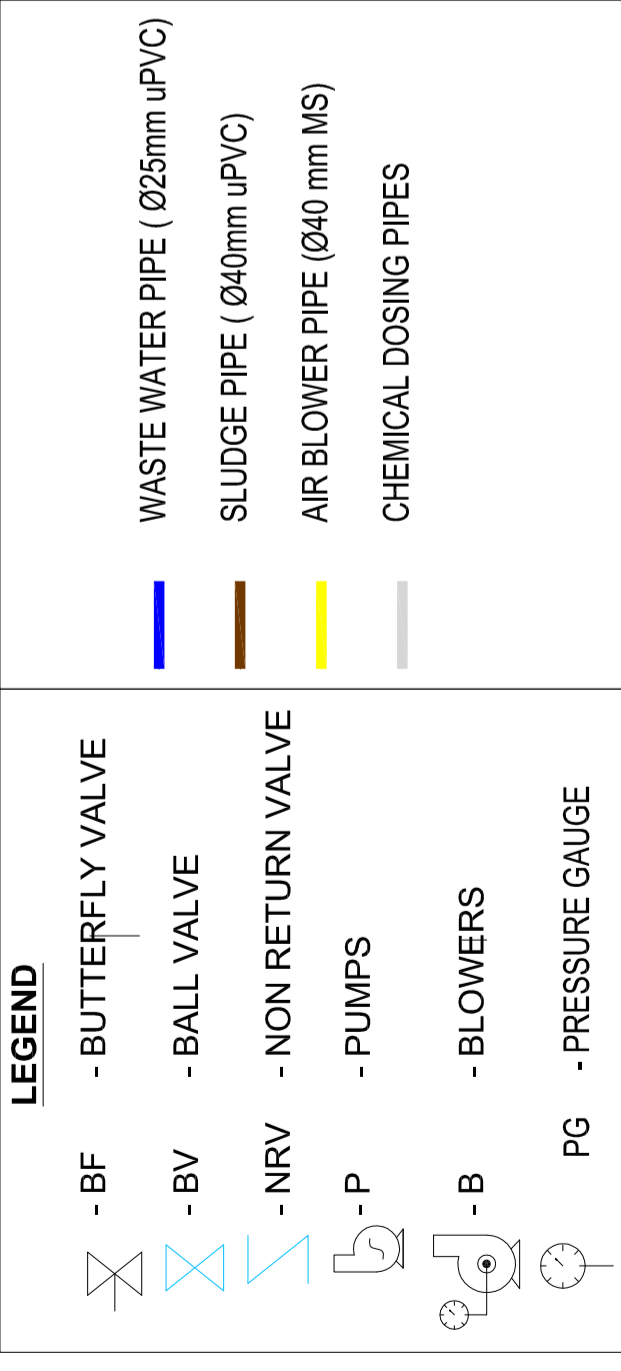
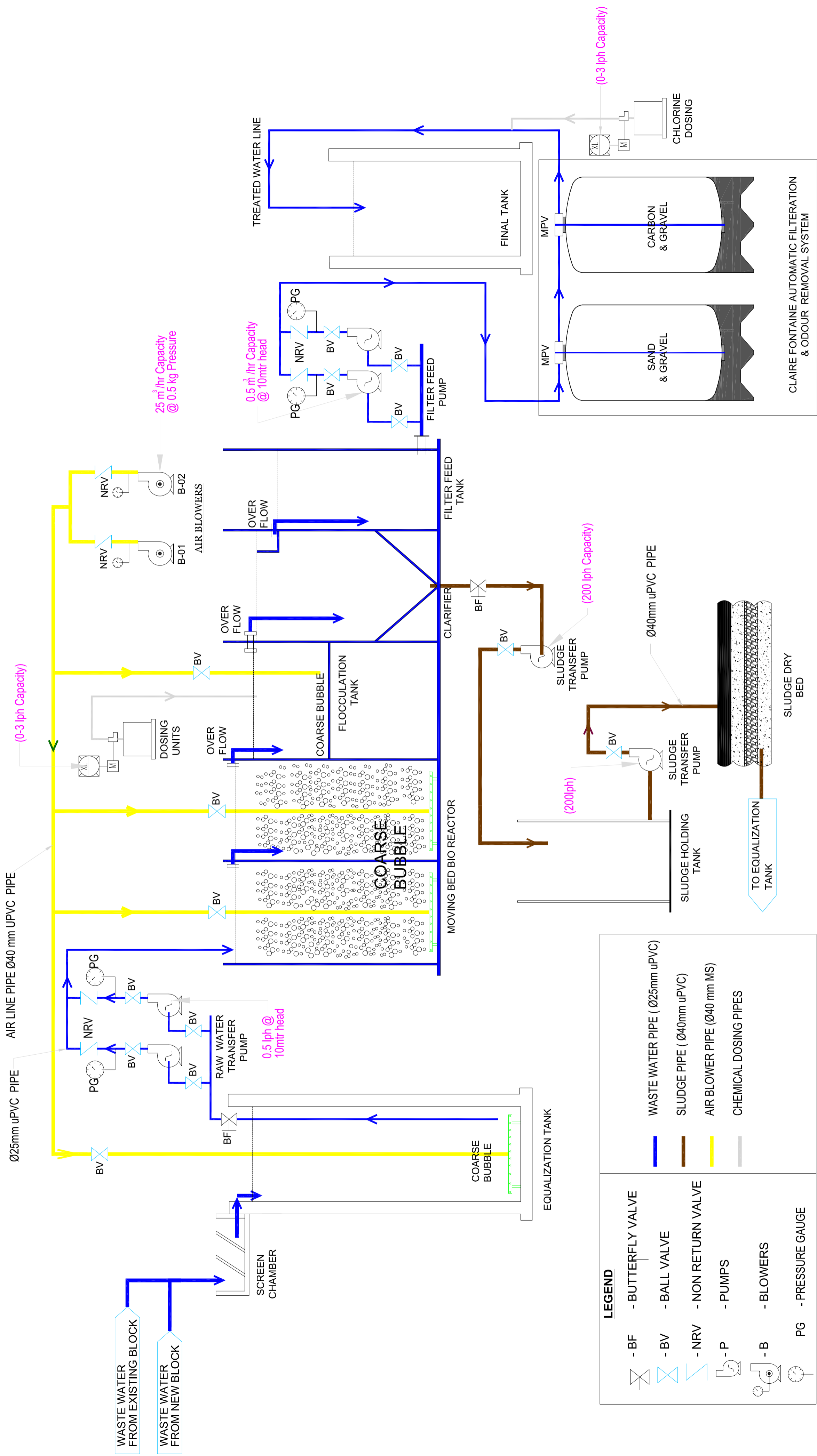
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 Originated From Dwg. No.: _____

Project No.:	110729
Location	CHENNAI
Client	HILL LIFE CARE LIMITED
Project Name	BIG VACCINES LABORATORY, GUNDY, CHENNAI

Drawn: TTI, Date: 08.03.2013
 Checked: NARP, Date: 08.03.2013
 Scale: NTS, Units: mm, Size: A2
 Drawing no: NP/110729/LT/GENV/EG-03

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 Bangalore - 560 080, INDIA.

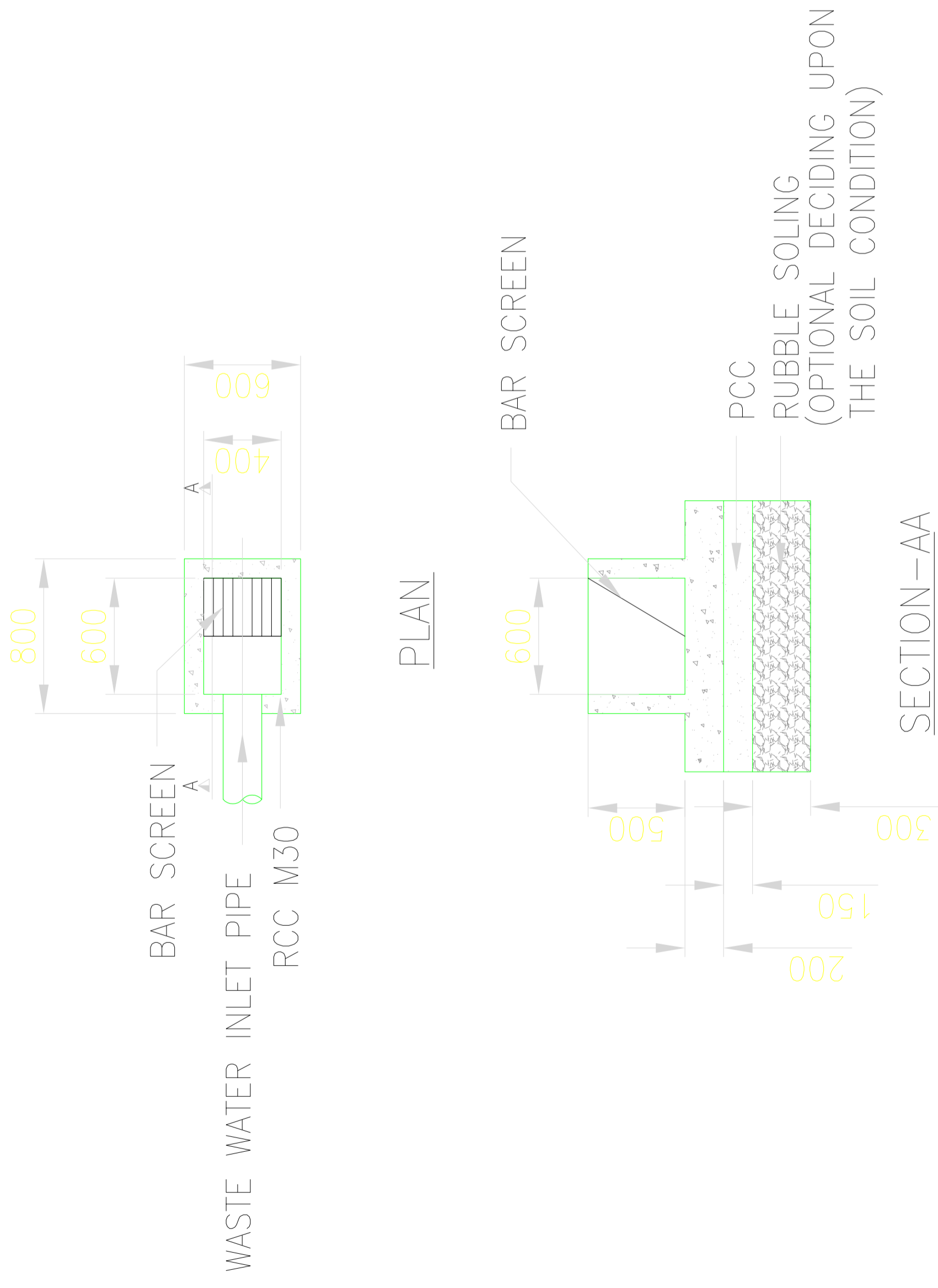
SEWAGE TREATMENT PLANT - 10 KLD
 LAYOUT PLAN & SECTION



Rev.	Date	Checked	Kind of revision	No. of prints	Issued To
02	09.07.2013	SAPL	Revised As Per Clients Comments.		
01	21.04.2013	SAPL	Revised As Per Clients Comments.		

File name :		Date :	
Originated From Dwg. No. :		Name :	
Project :		Project No. :	
BCG VACCINES LABORATORY, GUINDY, CHENNAI		110729	
HLL LIFE CARE LIMITED		Location :	
CHENNAI		CHENNAI	
Description :			
SEWAGE TREATMENT PLANT - 10 KLD			
P&I DIAGRAM			

nne pharmlaplan NNE Pharmlaplan India Limited #12, Achiah Shetty Layout, Bangalore - 560 080, INDIA.		
Drawn	08.03.2013	TTL
Checked	08.03.2013	SLM/JNVNG
Approved	08.03.2013	NARP
Scale: NTS	Units : mm	Size : A2
Drawing no.:		NPI/110729/ETP(PID)/EG-02
Rev.:		02



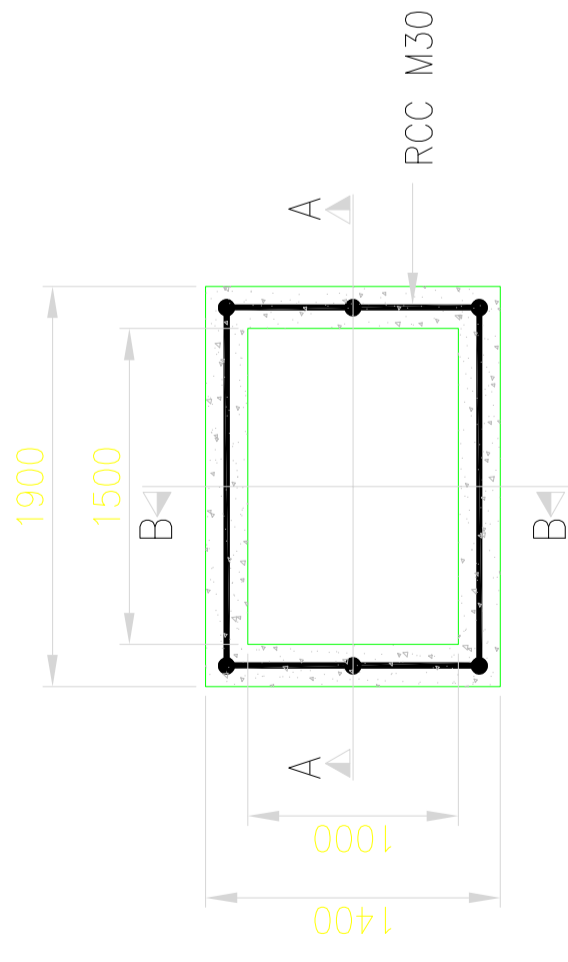
PLAN

SECTION-AA

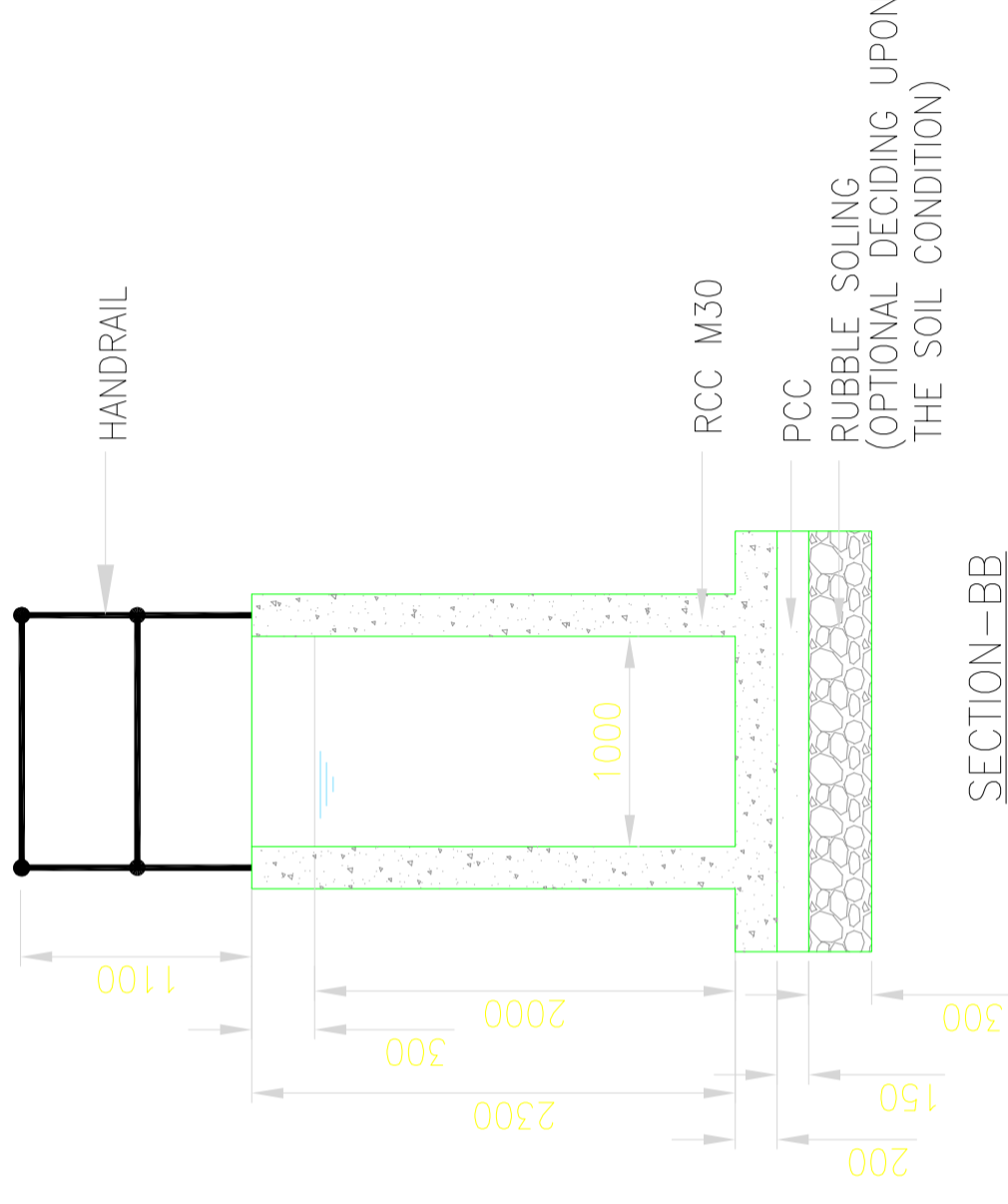
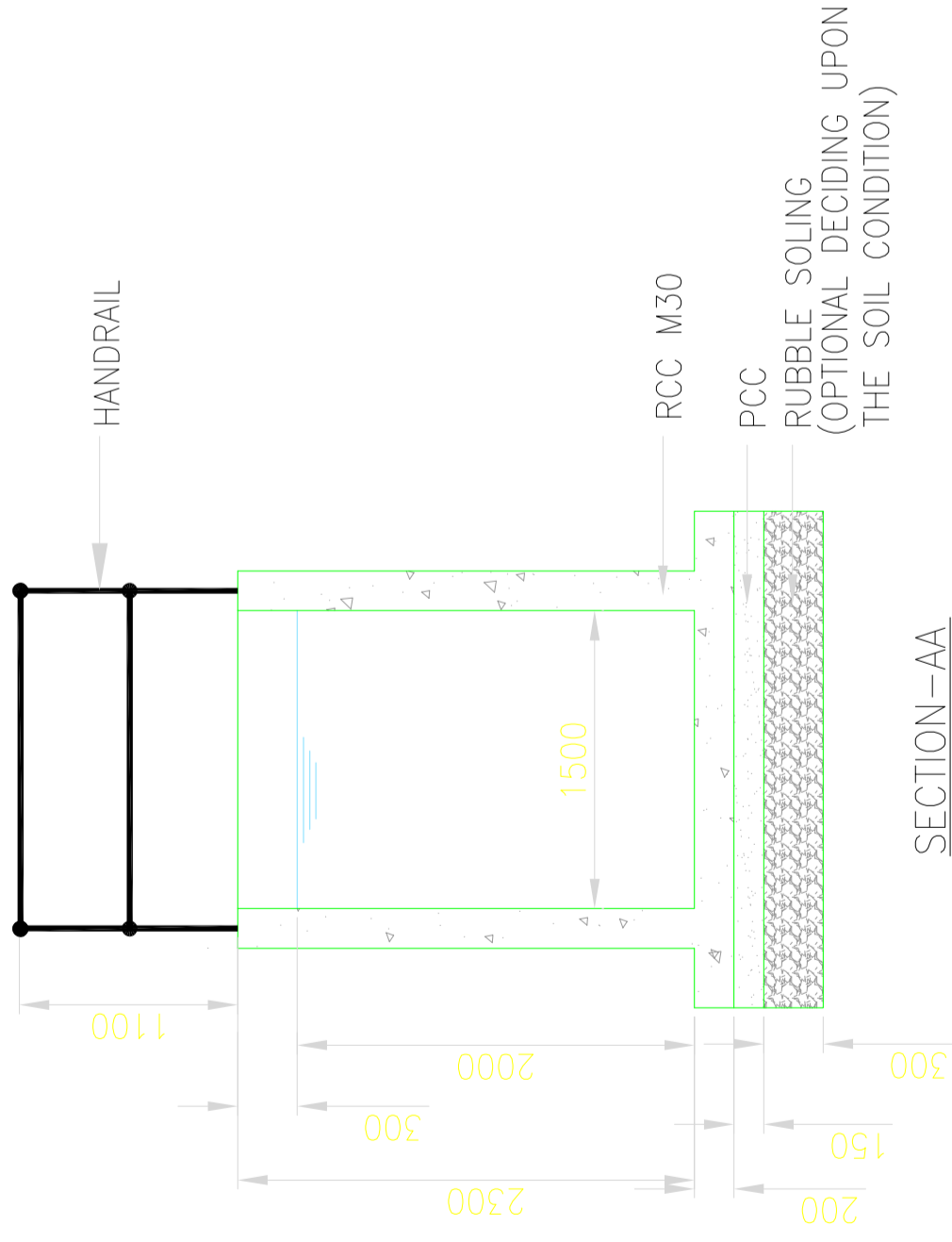
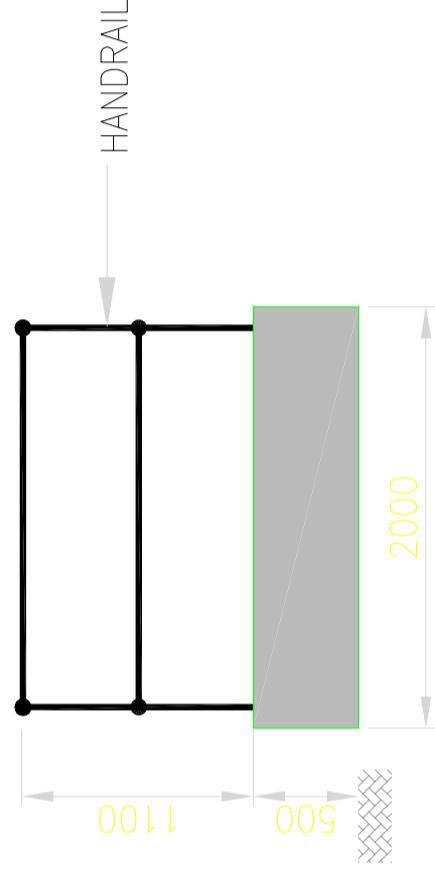
Rev.	Date	Changed/Checked	Kind of revision	No. of prints	Issued To
02	09.07.2013	SAPL	NVWG		Revised as per clients comments.
01	21.04.2013	SAPL	NVWG		Revised as per clients comments.

File name :		nne pharmaplan	
Originated From Dwg. No. :		NNE Pharmaplan India Limited	
Project :		#12, Achiah Shetty Layout, Bangalore - 560 080, INDIA.	
Project No. :		110729	
Location :		CHENNAI	
Client Name :		HLL LIFE CARE LIMITED	
Description :		SEWAGE TREATMENT PLANT - 10 KLD BAR SCREEN CHAMBER	
Drawn	Date	Name	Rev.
Checked	08.03.2013	SLM/JNVWG	02
Approved	08.03.2013	NARP	
Scale:NTS	Units : mm	Size : A3	
Drawing no.:			NPI/110729/CIV(GEN)/EG-02

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ELEVATION - 11



SECTION-AA

SECTION-BB

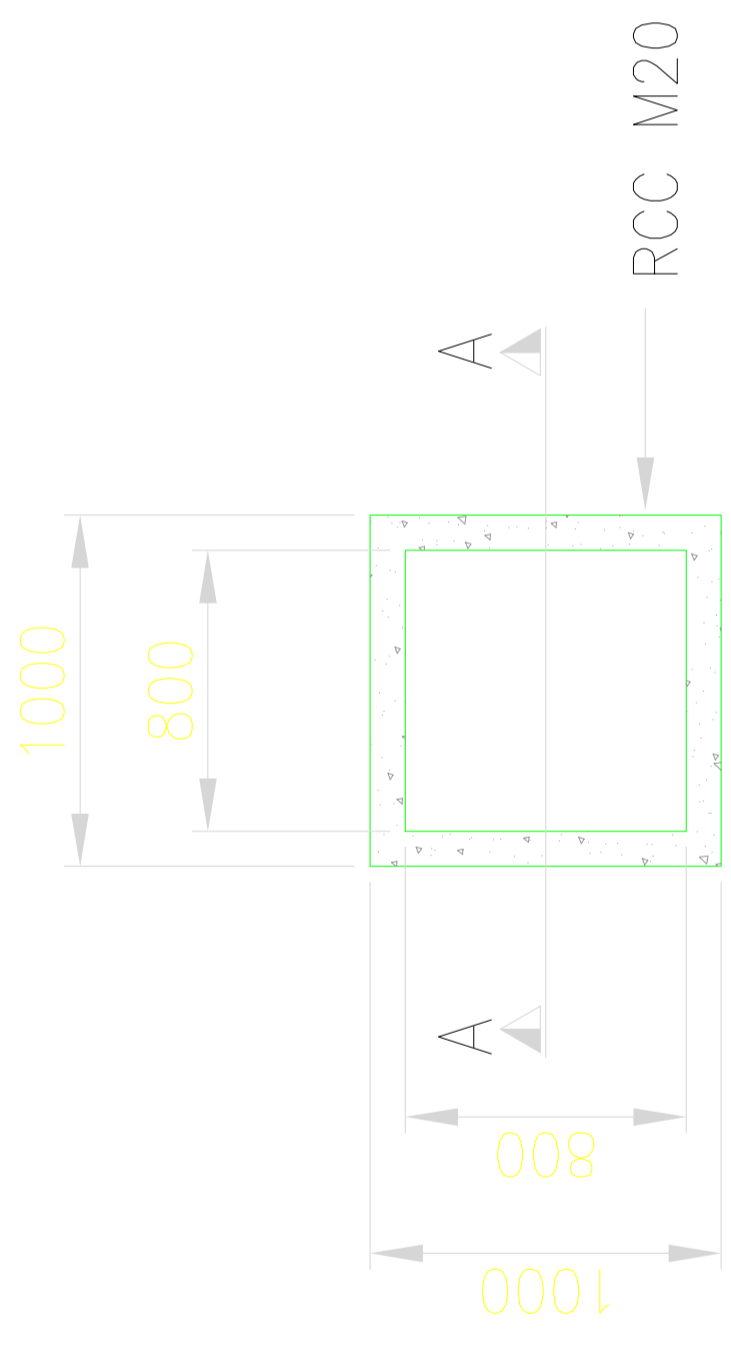
Rev.	Date	Changed/Checked	Kind of revision	No. of prints	Issued To
02	09.07.2013	SAPL	NVNG		Revised as per clients comments.
01	21.04.2013	SAPL	NVNG		Revised as per clients comments.

File name :	Project No. :	Name
Originated From Dwg. No. :	110729	nne pharmaplan
Project :	CHENNAI	NNE Pharmaplan India Limited
		#12, Achiah Shetty Layout, Bangalore - 560 080, INDIA.

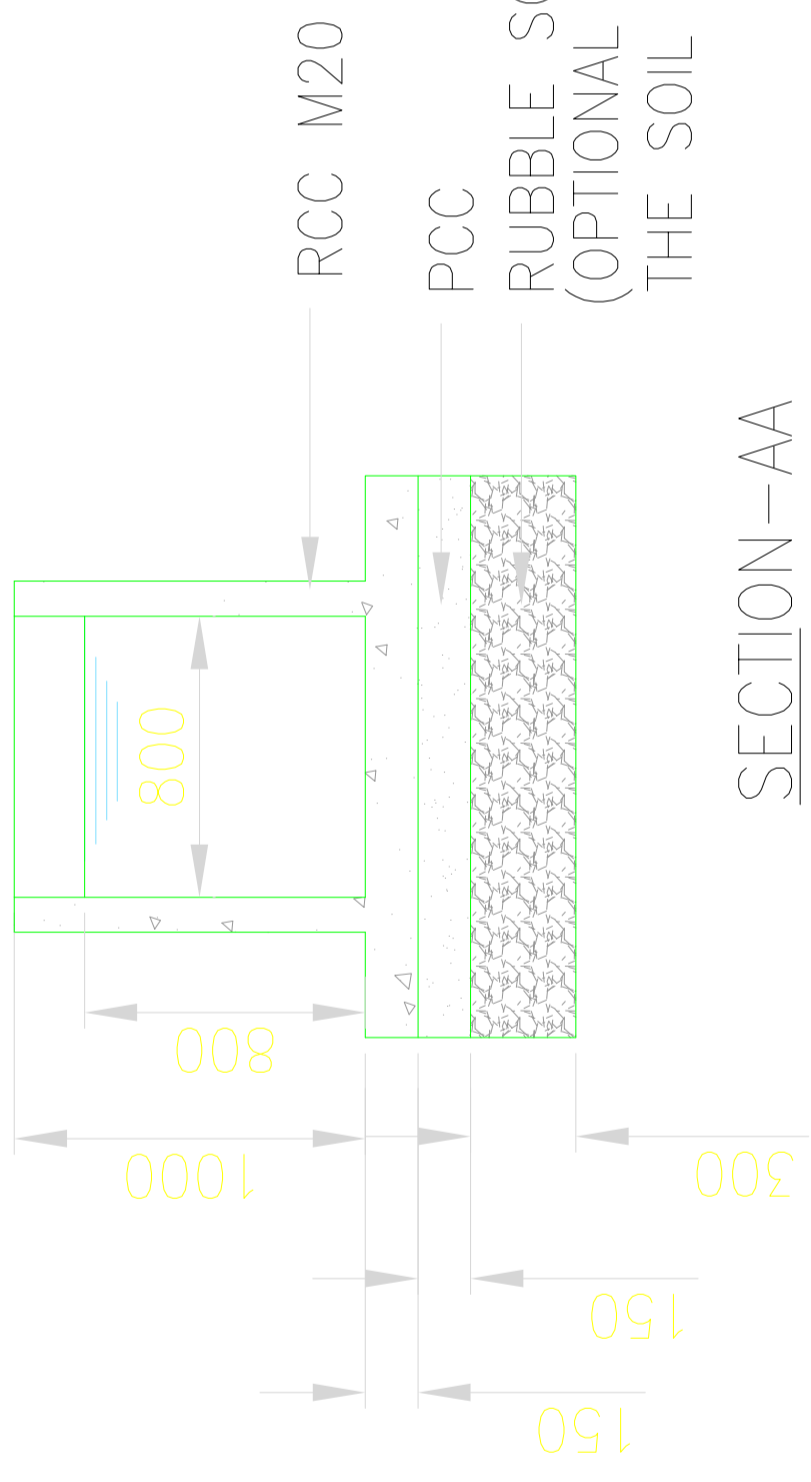
Drawn	Date	Name
Checked	08.03.2013	TTL
Approved	08.03.2013	SLM/JNVNG
Scale:NTS		NARP
Units : mm		Size : A3

Description:	Drawing no:	Rev.
SEWAGE TREATMENT PLANT - 10 KLD EQUALIZATION TANK	NPI/110729/CIV(GEN)/EG-02	02

(SHEET 2 OF 4)



PLAN

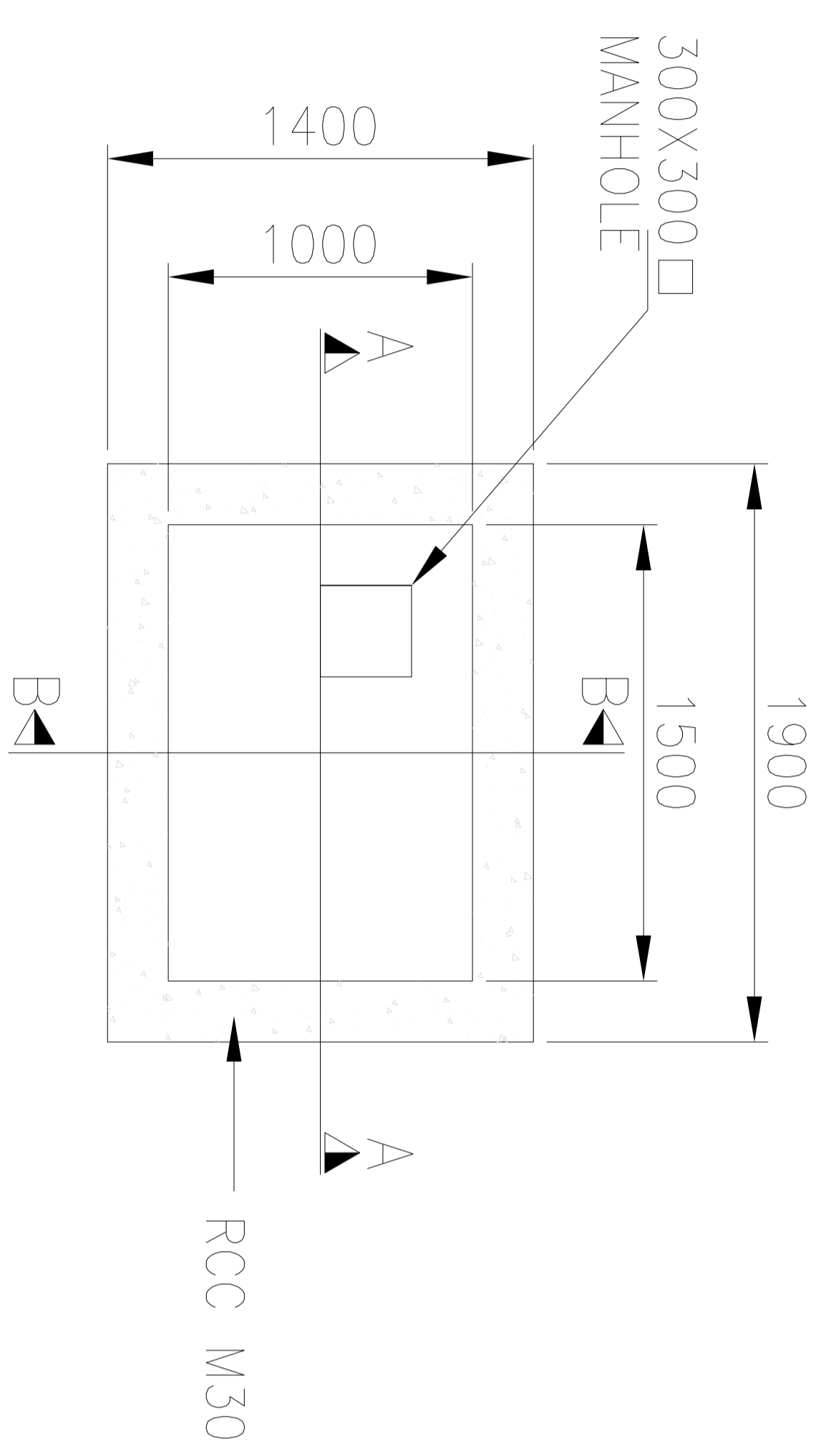


SECTION-AA

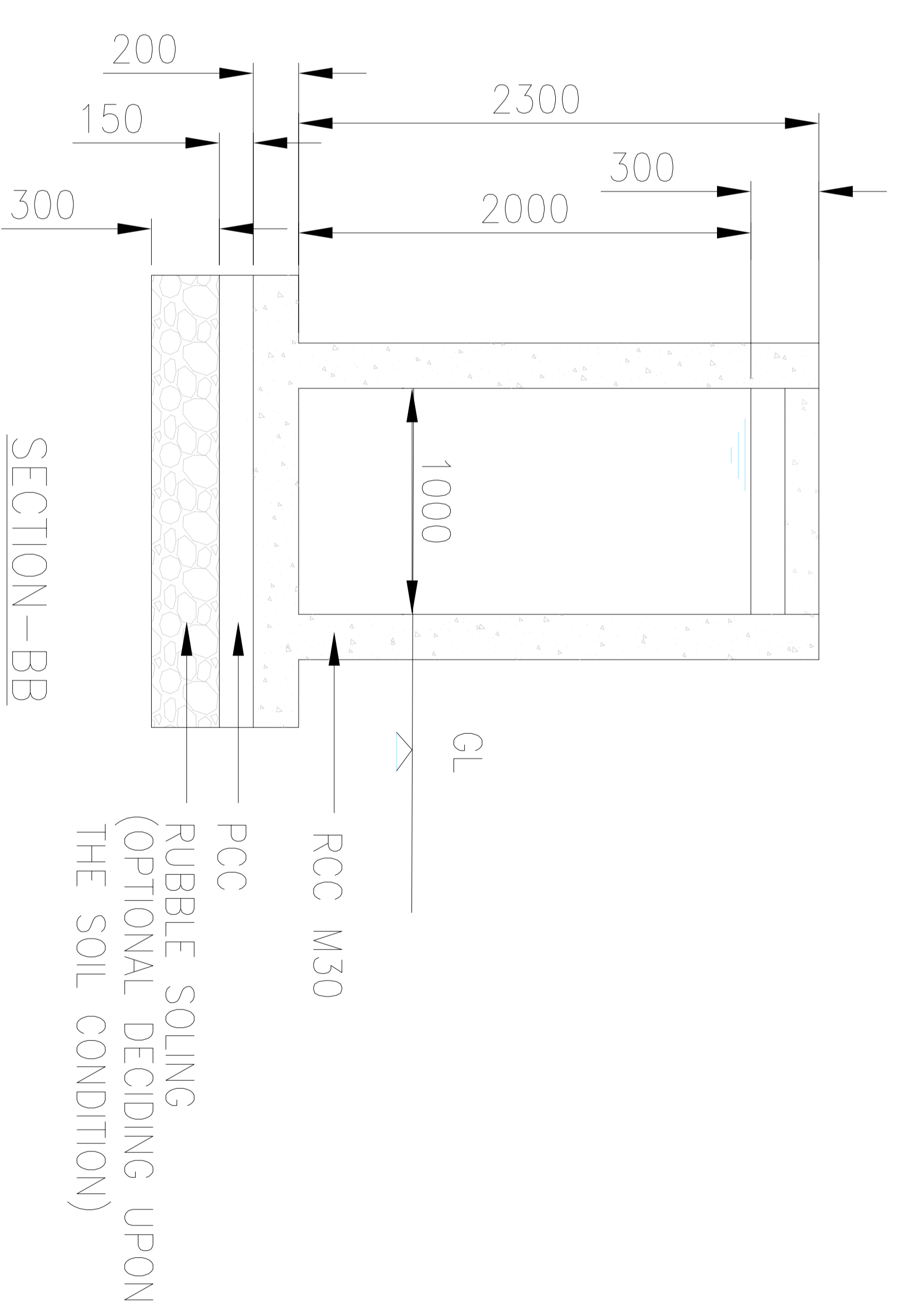
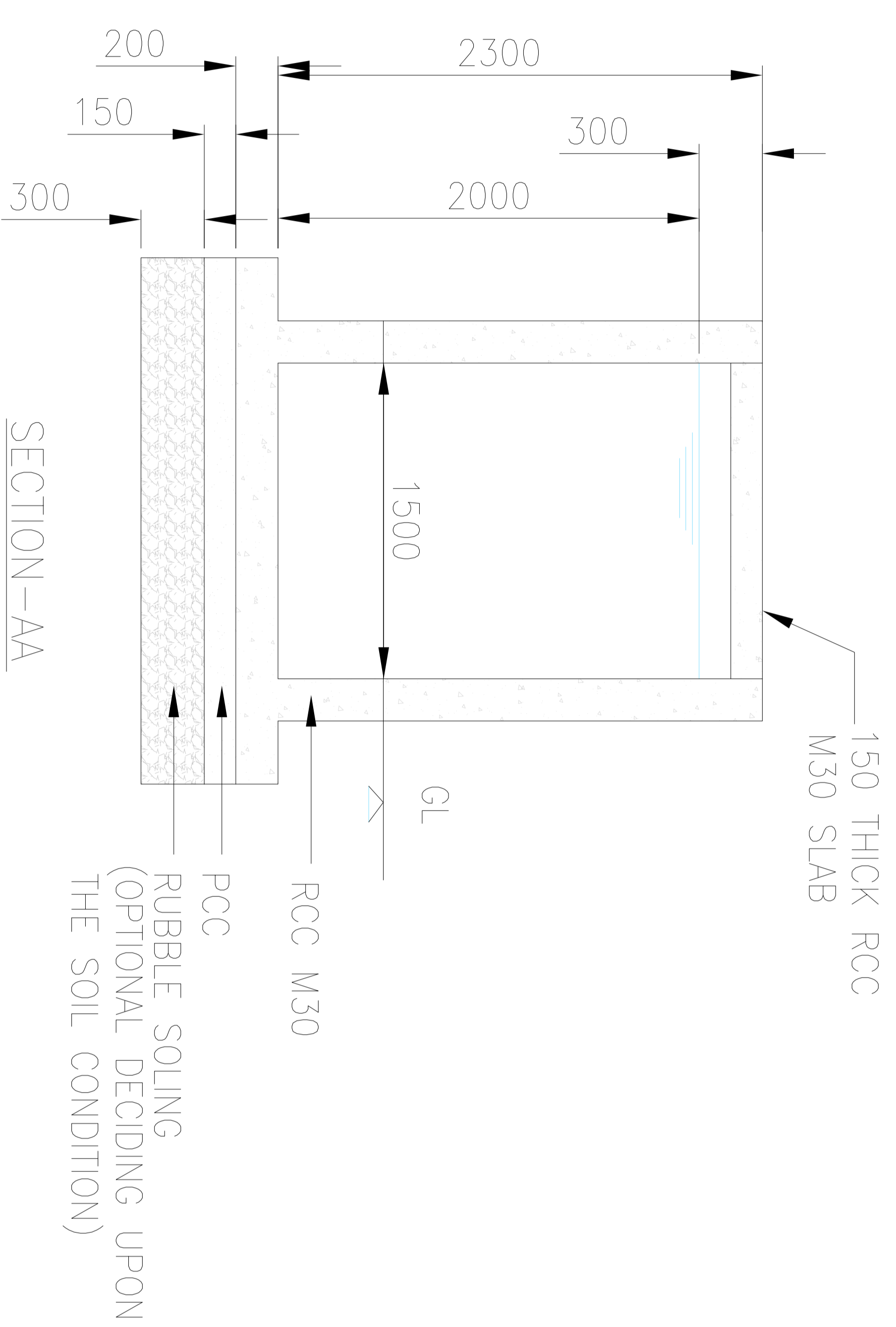
RUBBLE SOLING
(OPTIONAL DECIDING UPON
THE SOIL CONDITION)

Rev.	Date	Changed/Checked	Kind of revision	No. of prints	Issued To
02	09.07.2013	SAPL	NVWG		Revised as per clients comments.
01	21.04.2013	SAPL	NVWG		Revised as per clients comments.

File name :		nne pharmaplan	
Originated From Dwg. No. :		NNE Pharmaplan India Limited	
Project :		#12, Achiah Shetty Layout, Bangalore - 560 080, INDIA.	
Project No. :		110729	
Location :		CHENNAI	
Client :		HLL LIFECARE LIMITED	
Description :		SEWAGE TREATMENT PLANT - 10 KLD SLUDGE DRY BED 1&2	
Drawn	Date	Name	Rev.
Checked	08.03.2013	SLM/JNVWG	02
Approved	08.03.2013	NARP	
Scale:NTS	Units : mm	Size : A3	
Drawing no.:			NPI/110729/CIV(GEN)/EG-02



PLAN




Rev.	Date	Changed	Checked	Kind of revision	No. of	Date	Issued To
03	08.08.2013	SRTS	NVNG	Revised as per clients comments.			
02	09.07.2013	SAPL	NVNG	Revised as per clients comments.			
01	21.04.2013	SAPL	NVNG	Revised as per clients comments.			

File name :
Originated From Dwg. No. :

Project No.: 110729
Location: CHENNAI



Project: BCG VACCINES LABORATORY, GUMDIY, CHENNAI
HILL LIFE CARE LIMITED


Description:	Date	Name
Drawn	08.03.2013	TTI
Checked	08.03.2013	SLMU/NVNG
Approved	08.03.2013	NARP
Scale-NTS	Units : mm	Size : A3
Drawing no:	NPI/110729/CIV/GENV/EG-02	
Rev.	03	

Project:		TENDER DOCUMENT FOR WASTEWATER TREATMENT PLANT AT BCGVL, GUINDY	Revision: 05
Project No.:	110729	DOCUMENT NO. NPI/110729/WTP/TD/08	Date: 26.08.2013

LIST OF DRAWINGS


LIST OF DRAWING-ETP			
S.No.	DRAWINGS NAME	DRAWINGS NUMBER	REV.
1.	Waste Water Treatment Prosses Flow Chart	NPI/110729/ETP(SCH)/EG-01	02
2.	P& I Diagram ETP Plant	NPI/110729/ETP(PID)EG-01	03
3.	Site Master Plan (ETP & STP Location)	NPI/110729/ETP(GEN)/EG-01	03
4.	ETP & STP Layout Plan	NPI/110729/LYT(GEN)/EG-01	02
5.	15 KLD MBBK Modular ½ ETP for Plan & Section (Sheet 1 of 2)	NPI/110729/LYT(GEN)/EG-02	03
6.	15 KLD MBBR Modular EP for Section (Sheet 2 of 2)	NPI/110729/LYT(GEN)/EG-02	03
7.	ETP Bar Screen Chamber (Sheet 4 of 4)	NPI/110729/CIV(GEN)/EG-01	02
8.	Equalization Tank (Sheet 1 of 4)	NPI/110729/CIV(GEN)/EG-01	02
9.	ETP Sludge Dry Bed 1 & 2 (Sheet 3 of 4)	NPI/110729/CIV(GEN)/EG-01	02
10.	Final Treated Water Tank (Sheet 2 of 4)	NPI/110729/CIV(GEN)/EG-01	03
LIST OF DRAWING-STP			
S. No.	DRAWINGS NAME	DRAWINGS NUMBER	
1.	Sewage Treatment Plant Flow Chart	NPI/110729/ETP(SCH)EG-02	02
2.	STP Plan & Section Plant	NPI/110729/LYT(GEN)/EG-03	03
3.	P & I Diagram STP Plant	NPI/110729/ETP(PID)/EG-02	02
4.	Equlization Tank (Sheet 1 Of 4)	NPI/110729/CIV(GEN)/EG-02	02
5.	Final Trated Water Tank (Sheet 2 Of 4)	NPI/110729/CIV(GEN)/EG-02	02
6.	Sludge Dry Bed 1 & 2 (Sheet 3 Of 4)	NPI/110729/CIV(GEN)/EG-01	02
7.	Bar Screen Chamber (Sheet 4 Of 4)	NPI/110729/CIV(GEN)/EG-01	03


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	Prepared by: TTI	Approved By : HLL/BCGVL	

Project:		TENDER DOCUMENT FOR WASTEWATER TREATMENT PLANT AT BCGVL, GUINDY	Revision: 05
Project No.:	110729	DOCUMENT NO. NPI/110729/WTP/TD/08	Date: 26.08.2013

CHAPTER- 2.8
LIST OF APPROVED MAKES

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	Prepared by:	TTI	Approved By :	HLL/BCGVL	


Project:		TENDER DOCUMENT FOR WASTEWATER TREATMENT PLANT AT BCGVL, GUINDY	Revision: 05
Project No.:	110729	DOCUMENT NO. NPI/110729/WTP/TD/08	Date: 26.08.2013

LIST OF APPROVED MAKES

CIVIL WORKS


Sl. No	Particulars	Makes
1.	Cement	OPC - 43 / 53 conforming to BIS-8112 of ACC, Bharathi, Ultratech.
2.	Reinforcement Steel	TMT steel conforming to BIS-1786 of TATA, INDUS, SAIL makes.
3.	Back-up Rod	Supreme Industries or equivalent
4.	M.S. Pipe	Jindal, Birla, TATA
5.	Polysulphide sealant.	Pidilite, Fosroc, Choskey
6.	Polycarbonate Sheets	GE Plastics and LG
7.	Synthetic Enamel Paints	Berger (Luxol gold), Asian(Apcolite), Nerolac (Full gloss hard drying)
8.	Other Paints/Primers	Asian, Berger, Nerolac
9.	Admixtures for concrete.	Fosroc, Roffe, Pidilite, Chemplast
10.	Epoxy Paint.	Nerolac, Shalimar
11.	PVC Water Stops	Supreme, Prince
12.	Proposed Treatment on MS Brackets.	Galvanised Brackets As per IS: 4759-1996 610 gms./sqm. (microns) 80-90
13.	Water proofing / Injection Grouting Corporation or approved equivalent	Fosroc, BASF


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Project:		TENDER DOCUMENT FOR WASTEWATER TREATMENT PLANT AT BCGVL, GUINDY	Revision: 05
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M&E EQUIPMENTS / ELECTRICAL / PIPING MAKES FOR ETP Make and Model

Sl. No	Particulars	Makes
1.	M S Bar Screen with 8 mm size opening	Jindal Steel/TATA Steel
2.	SS motorized Fine Screen with 2 mm pore	Claire fontaine / Jash / Chinshun
3.	Raw Effluent Pumps of 1.05 KLH @ 10 M head. (1W& 1S)	Grundfos Group/kirloskar/Armstrong/Mather &Platt/Johnson/Sulzer
4.	Air Blower 80 m ³ /hr@0.5KG (including for MBR airscouring)	Everest/Hibon/Kay
5.	MBBR unit - HDPE Virgin Plastic media- 1 Lot	Head works USA / Createch, Denmark / Aqwise, Israel.
6.	Aeration grid - for MBBR tank ,Grid & Sieves as per design.	Head works USA /Createch, Denmark/ Aqwise, Israel.
7.	BACI dosing system 0-3 lph	Edose/Milton Roy
8.	NaOCl dosing system 0-3 lph	Edose/Milton Roy
9.	Chlorinator dosing system of Capacity 0-3 lph	Edose/Milton Roy
10.	PAC Dosing System 0-3 lph	Edose/Milton Roy
11.	Drum for Naturalisation tank with HCl Dosing Pumps 0-3 lph	Edose/Milton Roy
12.	Decanter System to handle Sludge for an ETP of 20 cum per day or equivalent Sludge	Claire Fontain
13.	Sludge Transfer pump (1W+1S) 200 lph	Grundfos Group/kirloskar/Armstrong/Mather &Platt/Johnson/Sulzer
14.	Filter Feed pump	Grundfos Group/kirloskar/Armstrong/Mather &Platt/Johnson/Sulzer
	Pre -Fabricated Modular System with MS (average thickness of 4mm with Epoxy Coating) :-	
15.	Lamella clarifier ,Biological tank,	Claire Fontaine / MM Aqua
16.	Plant Piping including necessary Fitting (MOC- UPVC)	GF/Astral/Prime/Fusion/SFMC


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Sl. No	Particulars	Makes
17.	LT Control Panel Board with PLC for MBR	Havells / ABB /Seimens
18.	Providing and Power Wiring	Havells/Poly cab/ Finloex
19	Online Monitoring	E&H / Seimens

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M&E EQUIPMENTS / ELECTRICAL / PIPING MAKES FOR STP

Sl. No	Particulars	Makes
1.	M S Bar Screen -8mm size openings	Jindal Steel/TATA Steel
2.	SS Automatic motorized Fine Screen -2mm pore openings	Claire fontaine / Jash / Chinshun
3.	Monoblock Raw Effluent Pumps of 0.5 KLH @ 10 M head.	Grundfos Group/kirloskar/Armstrong/Mather & Platt/Johnson/Sulzer
4.	Air Blower 25 Cum/hr@0.5KG	Everest/Hibon/Kay
5.	MBBR Unit -HDPE Virgin Plastic Media	Head works USA
6.	Aeration grid - for MBBR tank ,Grid & Sieves as per design	Head works USA / Createch , Denmark / Aqwise, Israel
7.	Alum dosing system- 0-4 LPH	Edose/Milton Roy
8.	Claire Fontaine automatic filtration system comprising layers of gravel and crushed coke with a flow rate of 500 lph @ 2.5 kgscm ² with automation and manual mode of back wash multiport valve and monoblock pumps (0.5 cumtrs/hr @10 mtrs head (1 w + 1 s)	Claire Fontaine / Pentair / Wavecyber / Amiad
9.	Chlorinator dosing system 0-3 lph (1W+1S)	Edose/Milton Roy
10.	Pre -fabricated modular STP plug and use model-CF M1 with collection, pedestal and final tanks in civil works as per the drawings	Claire Fontaine / Pentair / Wavecyber / Amiad
11.	Plant Piping (MOC-UPVC)	GF/Astral/Fusion/Prime/SFMC
12.	LT Control Panel - with PLC for the MBR	Havells / ABB / Seimens
13.	Providing Power Wiring	Havells/Polycab/Finolex
14.	Online Monitoring System	E&H / Seimens

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LIST OF RECOMMENDED MAKES FOR PLUMBING WORKS

SL.	ITEM	MAKE
1	a) G.I. Pipes	TATA, JINDAL
	b) G.I. Fittings	TATA, JINDAL, "R" Brand
2	MS Pipes	TATA, JINDAL
3	uPVC pipes & fittings	Prime/GF/Astral/Fusion/SFMC
4	Ball valves (MS/CI)	/ Zoloto / BDK / Kidzee / Kranthi
5	non-return valves (MS/CS)	BDK / AUDCO / Flowline
6	Butterfly Valves (MS/CI)	Zoloto / BDK / Kidzee / Kranthi
7	Anchor bolts/pipe support system	Hilti / 3M

Important: -

1.	Please Tick (") the make of material considered in tender.
2.	Detail submittals in the form of catalogues specification sheets, and samples were called for, shall be submitted one week from the date of order and approvals shall be obtained on the type of accepted make before procurement are made.
3.	Out of the approved makes of materials mentioned above, the make of materials to be used on the work shall be as decided by the Consultant/Client jointly.
4.	In respect of materials for which approved makes are not specified above, these will be of makes to be decided by the consultant and as per sample approved before procurement.
5.	Equipments approved and supplied shall have local servicing facilities available in the region.

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CHAPTER 2.9


SCHEDULE OF FISCAL ASPECTS

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Project:		TENDER DOCUMENT FOR WASTEWATER TREATMENT PLANT AT BCGVL, GUINDY	Revision: 05
Project No.:	110729	DOCUMENT NO. NPI/110729/WTP/TD/08	Date: 26.08.2013

SCHEDULE OF FISCAL ASPECTS		
Sr. No.	Particulars	Description
1	Submission of complete Tender	9 th October, 2013 15:00 Hrs
2	Opening of Technical Bid	9 th October, 2013 16:00 Hrs
3	Delivery	Within 4 (Four) months from the date of issue of Letter of Intent (LOI)
4	Installation and commissioning	2 (Two) months from the delivery of the equipment at site.
5	Advance	20% of the contract value against Bank Guarantee equivalent to 110% of the advance amount and submission of Security Deposit/ Performance Security of 10% of contract value from a Scheduled Commercial Bank. In case of Foreign tenderer, the bank guarantee shall be routed through a nationalized Indian Bank
6	Payment terms	As mentioned in GCC: Clause. 21
7	Liquidated damages/per week	1% per week inclusive of Sundays & Holidays upto a maximum of 5% of Contract Value
8	Warranty Period	12 (Twelve) months from the date of Completion.
9	Earnest Money Deposit	Rs. 1,20,000/- (Rupees One Lakhs twenty Thousand Only)
10	Refund of Earnest Money Deposit to unsuccessful bidders	On award of contract to successful bidder
11	Transportation & Insurance	On account of Contractor.
12	B.G/ DD to be in favor of	HLL Lifecare Ltd., Chennai
13	All queries / communication to be addressed to	The Vice President – Projects HLL Lifecare Limited C/o HLL Biotech Limited, Ticel Biopark Campus (Module no. 013-015), CSIR Road, Taramani, Chennai- 600 113 Email: eas@lifecarehll.com, Contact No: 044 22544949/70/74, Fax – 044 22540101
14	Pre-bid Meeting	Date and Time : 23rd September, 2013 at 11:00 Hrs Venue: HLL Lifecare Limited, C/o HLL Biotech Limited, Ticel Biopark Campus (Module no. 013-015), CSIR Road, Taramani, Chennai- 600 113
(Contractor)		(Employer)

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ANNEXURE 1
CONTRACT AGREEMENT

Annexure-I
CONTRACT AGREEMENT (DRAFT)
(ON NON-JUDICIAL STAMP PAPER OF APPROPRIATE VALUE)

CONTRACT AGREEMENT FOR THE WORK OF -----DATED-----
Between M/s----- hereinafter called the contractor (which term shall unless excluded by or repugnant to be subject or context include its successors and permitted assigns) of the one part

AND

HLL Lifecare Limited hereinafter called the HLL (which term shall unless excluded by or repugnant to the subject or context include its successes and assigns) of the other part.

WHEREAS

- a. The HLL is desirous that the supply, erection, commissioning and validation of _____ at _____ should be executed as mentioned, enumerated or referred to in the tender document vide tender no. _____ including:
 - i. Notice Inviting Tender,
 - ii. Minutes of Pre-Bid meeting/s
 - iii. General Conditions of the Contract
 - iv. Special Conditions of the Contract,
 - v. Schedule of Quantities and Rates
 - vi. Agreed Variations
 - vii. Tender Form, Manufacturer's Authorization Form/s (if any)
 - viii. other documents, as called for in the Tender.

- b. The contractor has inspected the site and surroundings of the work specified in the tender documents and has satisfied himself by carefully examination before submitting his tender as to the form and nature of the site and local conditions the quantities, nature and magnitude of the work the availability of labour and materials necessary for the execution of work, the means of access to site, the supply of power and water thereto and the accommodation he may require and has made local and independent enquiries and obtained complete information as to the matters and things referred to or implied in the tender documents or having any connection

therewith, and has considered the nature and extent of all the probable and possible situations, delays, hindrances or interferences to or with the execution and completion of the work to be carried out under the contract, and has examined and considered all other matters, conditions and things and probable and possible contingencies, and generally all matters incidental thereto and ancillary thereof affecting the execution and completion of the work and which might have influenced him in making his tender.

AND WHEREAS

HLL accepted the offer of M/s ----- (Contractor) for the supply, erection, commissioning and validation of ----- at ----- and conveyed vide letter No.-----dated -----at the rates stated in the Bill of quantities for the work and accepted by HLL (hereinafter called the Schedule of Rates) upon the terms and subject to the conditions of the contract.

NOW THIS AGREEMENT WITNESSTH & IT IS HEREBY AGREED AND DECLARED AS FOLLOWS.

1. In consideration of the payment to be made to the contract for the work to be executed by him, the contractor hereby covenant with HLL that the contractor shall and will duly provide, execute, complete and maintain the said work and shall do and perform all other acts and things in the contract mentioned or described or which are to be implied and there-from or may be reasonably necessary for the completion of the said works and at the said times and in the manner and subject to the terms and conditions or stipulations mentioned in the contract, AND
2. In consideration of the due provisions execution, completion and maintenance of the said work, the HLL does hereby agree with the contractor that HLL will pay to contractor the respective amounts for the work actually done by him and approved by HLL at the Schedule or Rates and such other sum payable to the contractor under provision of the contract, such payment to be made at such time in such manner as prescribed for in the contract.

It is specifically and distinctly understood and agreed between HLL and the contractor that the contractor shall have no right, title or interest in the site made available by HLL for execution of the works or in the building, structures or works executed on the said site by the contractor or in the goods, articles, materials, etc. brought on the said site (unless the same specifically belongs to the contractor) and the contractor shall not have or deemed to have any lien whatsoever charge for unpaid bills will not be entitled to assume or retain possession or control of the site or structures and HLL shall have an absolute and unfettered right to take full possession of site and to remove the contractor, their servants, agents and materials belonging to the contractor and lying on the site.

In Witness whereof the parties hereto have here-into set their respective hands and seals in the day and the year first above written.

Signed and delivered for and
on behalf of HLL

Signature and delivered for
and on behalf of the contractor

(HLL LIFECARE LIMITED)
OFFICIAL ADDRESS

(Contractor)

Date
Place

Date
Place

IN PRESENCE OF TWO WITNESSES

SIGNATURE
NAME
SIGNATURE
NAME

SIGNATURE
NAME
SIGNATURE
NAME

ANNEXURE 2
PERFORMANCE BANK GUARANTEE

ANNEXURE – 2

**FORM OF PERFORMANCE SECURITY
BANK GUARANTEE**

1. In consideration of HLL Lifecare Limited (hereinafter called “HLL”) having agreed under the terms and conditions of agreement NO..... dated..... made between (here in after called “the said contractor(s)”) for the work (herein after called “the said agreement”) for compliance of his obligation in accordance with the terms and conditions in the said agreement.

We (indicate the name of the Bank) (herein after referred to as “as Bank) hereby undertake to pay to the HLL and amount not exceeding Rs..... (Rupees..... only) on demand by the HLL.

2. We (Indicate the name of the Bank) do hereby undertake to pay the amount due and payable under this Guarantee without any demure, merely on a demand from the HLL stating that the amount claimed is required to meet the recoveries due or likely to be due from the said contractor(s). any such demand made on the Bank shall be conclusive as regards the amount due and payable by the bank under this Guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs..... (Rupees..... only).

3. We undertake to pay to HLL any money so demanded notwithstanding any dispute or disputes raised by the contractor (s) in any suit or proceeding pending before any court or Tribunal relating thereto our liability under this present being absolute and unequivocal.

The payment made by us under this guarantee shall be valid discharge of our liability for payment to there-under and the contractor(s) shall have no claim against us making such payment.

4. We (Indicate the name of Bank) further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said agreement and that it shall continue to be enforceable till all the dues of HLL under or by virtue of the said agreement have been fully paid and its claims satisfied or discharged or till Engineer-in-charge on behalf of HLL. Certified that he terms and conditions of the said Agreement have been fully and properly carried out by the said contractor(s) accordingly discharges this guarantee.

5. We..... (Indicate the name of Bank) further agree with HLL that HLL shall have the fullest liberty without our consent and without affecting any manner our obligations hereunder to vary any of the terms and conditions of the said agreement or to extend time of performance by the said contractor(s) from time to time or to postpone for any of the powers exercisable by HLL against the said contractor(s) and to forebear or enforce any of the terms and conditions relating to the said agreement we shall not be relieved from our liability by reasons of any such variation or extension being granted to the said contractor(s) or for any forbearance act of omission on that part of the HLL or any indulgence by HLL to the said contract(s) or by any such matter or thing whatsoever

which under the law relating to sureties would, but for this provision, have effected or so relieving us.

6. The guarantee will not be discharged due to the change in the constitution of the Bank or the contractor(s).

7. We..... (indicate the name of Bank) lastly undertake not to revoke this guarantee except with the previous consent of HLL in writing.

8. This guarantee shall be valid up to unless extended on demand by HLL. Notwithstanding anything mentioned above our liability against this Guarantee is restricted to RS..... (Rupees.....only) and unless a claim in writing is lodged with us within six months of the date of expiry or the extended date of expiry of this guarantee, all our liabilities under the Guarantee shall stand discharged.

Dated the day of 20....

For
(Indicate the name of Bank)

ANNEXURE 3
INTEGRITY PACT FORMAT

ANNEXURE – 3

To be signed by the bidder and same signatory competent/authorized to sign the relevant contract of behalf of HLL Lifecare Limited

INTEGRITY AGREEMENT

This Integrity Agreement is made at on this Day of.....20.....

BETWEEN

President of India represented through Vice President (Projects), HLL Lifecare Limited (Hereinafter referred as the “Principal/Owner”, which expression shall unless repugnant to the meaning or context hereof include its successors and permitted assigns.

AND

.....
.....
through(Hereinafter referred to as the “**Bidder/Contractor**” and which expression shall unless repugnant to the meaning or context hereof include its successors and permitted assigns).

Preamble

WHEREAS the Principal / owner has floated the Tender (NIT No.....)
(hereinafter referred to as “**Tender/Bid**”) and intends to award, under laid down organizational procedure, contract for
.....
Hereinafter referred to as the “**Contract**”

AND WHEREAS the Principal /Owner values full compliance with all relevant laws of the land, rules, regulations, economic use of resources and of fairness/transparency in its relation with its Bidder(s) and Contractor(s).

AND WHEREAS to meet the purpose aforesaid both the parties have agreed to enter into this Integrity Agreement (hereinafter referred to as “**Integrity Pact**” or “**Pact**”), the terms and conditions of which shall also be read as integral part and parcel of the Tender Bid documents and Contract between the parties. NOW, THEREFORE, in consideration of mutual covenants’ contained in this Pact, the parties hereby agree as follows and this Pact witnesses as under:

Article 1: Commitment of the Principal /Owner

- 1) The Principal /Owner commits itself to take all measures necessary to prevent

Annexure-III

corruption and to observe the following principles.

- (a) No employee of the Principal/Owner, personally or through any of his/her family members, will in connection with the Tender, or the execution of the Contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.
 - (b) The Principal/Owner will, during the Tender process, treat all Bidder(s) with equity and reason. The Principal/owner will, in particular, before and during the Tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential / additional information through which the Bidder(s) could obtain an advantage in relation to the Tender process or the Contract execution.
 - (c) The Principal /Owner shall Endeavour to exclude from the Tender process any person, whose conduct in the past has been of biased nature.
- 2) If the Principal/Owner obtains information on the conduct of any of its employees which is a criminal offence under the Indian Penal code (IPC)/Prevention of Corruption Act, 1988 (PC Act) or is in violation of the principles herein mentioned or if there be a substantive suspicion in this regard, the Principal/Owner will inform the Chief Vigilance Officer and in addition can also initiate disciplinary actions as per its internal laid down policies and procedures.

Article 2: Commitment of the Bidder(s) / Contractor(s)

- 1) It is required that each Bidder/Contractor(including their respective officers, employees and agents) adhere to the highest ethical standards, and report to the Government/Department all suspected acts of **fraud or corruption or Coercion or Collusion** of which it has knowledge or becomes aware, during the tendering process and throughout the negotiation or award of a contract.
- 2) The Bidder(s)/Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the Tender process and during the Contract execution.
 - (a) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm, offer, promise or give to any of the Principal/owner's employees involved in the Tender process or execution of the Contract or to any third person any material or other benefit which he/she which he/she is not legally entitled to, in order to obtain in exchange any advantage of any

Annexure-III

kind whatsoever during the Tender process or during the execution of the Contract.

- (b) The Bidder(s) will not enter with other Bidder(s) into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certification, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to cartelize in the bidding process.
 - (c) The Bidder(s)/Contractor(s) will not commit any offence under the relevant IPC/PC Act. Further the Bidder(s) /Contract(s) will not use improperly, (for the purpose of competition or personal gain).or pass on to others, any information or documents provided by the Principal/Owner as part of the business relationship, regarding plans, technical proposals and business details, including and business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
 - (d) The Bidder (s) /Contractor(s) of foreign origin shall disclose the names and addresses of agents/representatives in India, if any Similarly Bidder(s)/Contractor(s) of Indian Nationality shall disclose names and addresses of foreign agents/representatives, if any. Either the Indian agent on behalf of the foreign principal or the foreign principal directly could bid in a tender but not both. Further, in cases where an agent participate in a tender on behalf of one manufacturer, he shall not be allowed to quote on behalf of another manufacturer along with the first manufacturer in a subsequent/parallel tender for the same item.
 - (e) The Bidder(s)/Contractor(s) will , when presenting his bid, disclose (with each tender as per proforma unclosed) any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the Contract.
- 3) The Bidder(s) /Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.
 - 4) The Bidder(s)/contractor(s) will not, directly or through any other person or firm indulge in fraudulent practice means a willful misrepresentation or omission of facts or submission of fake/forged documents in order to induce public official to act in reliance thereof, with the purpose of obtaining unjust advantage by or causing damage to justified interest of others and /or to influence the procurement process to the detriment of the Government interests.
 - 5) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm use Coercive Practices (Means the act of obtaining something, compelling an action or influencing a decision through intimidation, threat or the use of force directly or indirectly, where potential or actual injury

Annexure-III

may befall upon a person, his/her reputation or property to influence their participation in the tendering process).

Article 3: Consequences of Breach

Without prejudice to any rights that may be available to the Principal/Owner under law or the Contract or its established policies and laid down procedures, the Principal/Owner shall have the following rights in case of breach of this integrity Pact by the Bidder (s)/Contractor(s) and the Bidder(s)/Contractor(s) accepts and undertakes to respect and uphold the Principal /Owner's absolute right:

- 1) If the Bidders) / Contractor(s), either before award or during execution of Contract has committed a transgression through a violation of Article 2 above or in any other form, such as to put his reliability or credibility in question, the Principal/owner after giving 14 days notice to the contractor shall have powers to disqualify the Bidder(s)/Contractor(s) from the Tender process or terminate/determine the Contract, if already executed or exclude the Bidder/Contractor from future contract award processes. The imposition and duration of the exclusion will be determined by the severity of transgression and determined by the Principal/owner. **Such exclusion may be forever or for a limited period as decided by the Principal/owner.**
- 2) **Forfeiture of EMD/performance Guarantee/Security Deposit:** If the Principal/owner has disqualified the Bidder(s) from the Tender process prior to the award of the Contract or terminated/determined the Contract or has accrued the right to terminate/determine the Contract according to Article 3(1), the Principal /Owner apart from exercising any legal rights that may have accrued to the Principal/Owner, may in its considered opinion forfeit the entire amount of Earnest Money Deposit, Performance Guarantee and security Deposit, Performance Guarantee and security Deposit of the Bidder/Contractor.
- 3) **Criminal Liability:** If the Principal/Owner obtains knowledge of conduct of a Bidder or Contractor, or of an employee or a representative or an associate of a Bidder or Contractor which constitutes corruption within the meaning of Indian Penal code (IPC)/Prevention of corruption Act, or if the Principal/owner has substantive suspicion in this regard, the Principal/owner will inform the same to law enforcing agencies for further. Investigation.

Article 4- Previous Transgression

- 1) The Bidder declares that no previous transgressions occurred in the last 5 years with any other Company in any country conforming to the anticorruption approach or with Central Government or State Government or any other Central/State Public sector Enterprises in India that could justify his exclusion from the Tender process.

Annexure-III

- 2) If the Bidder makes incorrect statement on this subject, he can be disqualified from the Tender process or action can be taken for banning of business dealings/ holiday listing of the Bidder/Contractor as deemed fit by the Principal/owner.
- 3) If the Bidder/Contractor can prove that he has resorted / recouped the damage caused by him and has installed a suitable corruption prevention system, the Principal/owner may, at its own discretion, revoke the exclusion prematurely.

Article 5- Equal Treatment of all Bidders/Contractors/Subcontractors

- 1) The Bidder(s) /Contractor(s) undertake(s) to demand from all subcontractors a commitment in conformity with this Integrity Pact. The Bidder/Contractor shall be responsible for any violation(s) of the principles laid down in this agreement /pact by any of its Sub-contractors/sub-vendors.
- 2) The Principal/owner will enter into Pacts on identical terms as this one with all Bidders and Contractors.

Article 6- Duration of the Pact

This Pact begins when both the parties have legally signed it. It expires for the Contractor/Vendor 12 months after the completion of work under the contract or till the continuation of defect Liability period, whichever is more and for all other bidders, till the Contract has been awarded.

If any claim is made/lodged during the time, the same shall be binding and continue to be valid despite the lapse of this Pacts as specified above, unless it is discharged /determined by the competent authority, HLL Lifecare Limited.

Article 7- other Provisions

- 1) This Pact is subject to Indian Law., place of performance and jurisdiction is the Head quarters of HLL Lifecare Limited of the Principal/Owner, who has floated the Tender.
- 2) Changes and supplements need to be made in writing. Side agreements have not been made.
- 3) If the Contractor is a partnership or a consortium, this Pact must be signed by all the partners or by one or more partner holding power of attorney signed by all the partners or by one or more partner holding power of attorney signed by all partners and consortium members. In case of a company, the Pact must be signed by a representative duly authorized by board resolution.

Annexure-III

- 4) Should one or several provisions of this Pact turn out to be invalid; the remainder of this Pact remains valid. In this case, the parties will strive to come to an agreement to their original intentions.
- 5) It is agreed term and condition that any dispute or difference arising between the parties with regard to the terms of this Integrity Agreement/pact, any action taken by the Owner/Principal in accordance with this **Integrity Agreement/Pact or interpretation thereof shall not be subject to arbitration.**

Article 8- LEGAL AND PRIOR RIGHTS

All rights and remedies of the parties hereto shall be in addition to all the other legal rights and remedies belonging to such parties under the Contract and /or law and the same shall be deemed to be cumulative and not alternative to such legal rights and remedies aforesaid. For the sake of brevity, both the Parties agree that this Integrity Pact will have precedence over the Tender /Contact documents with regard any of the provisions covered under this Integrity Pact.

IN WITNESS WHEREOF the parties have signed and executed this Integrity Pact at the place and date first above mentioned in the presence of following witnesses:

.....
(For and on behalf of Principal/owner)

.....
(For and on behalf of Bidder/Contractor)

WITNESSES:

1.
(Signature, Name & address)

2.
(Signature, Name & address)

Place:

Date:

ANNEXURE 4
EMD BANK GUARANTEE

ANNEXURE - 4

BANK GUARANTEE FORM FOR EMD

Whereas _____ (hereinafter called the "Tenderer") has submitted its quotation dated _____ for the supply of _____ (hereinafter called the "tender") against the HLL's tender enquiry No. _____. Know all persons by these presents that we _____ of _____ (Hereinafter called the "Bank") having our registered office at _____ are bound unto HLL Lifecare Limited (hereinafter called the "HLL) in the sum of _____ for which payment will and truly to be made to HLL, the Bank binds itself, its successors and assigns by these presents. Sealed with the Common Seal of the said Bank this _____ day of _____ 20____. The conditions of this obligation are:

- (1) If the Tenderer withdraws or amends, impairs or derogates from the tender in any respect within the period of validity of this tender.
- (2) If the Tenderer having been notified of the acceptance of his tender by HLL during the period of its validity:-
 - a) fails or refuses to furnish the performance security for the due performance of the contract.
or
 - b) fails or refuses to accept/execute the contract.
or
 - c) if it comes to notice that the information/documents furnished in its tender is incorrect, false, misleading or forged

We undertake to pay HLL up to the above amount upon receipt of its first written demand, without HLL having to substantiate its demand, provided that in its demand HLL will note that the amount claimed by it is due to it owing to the occurrence of one or both the two conditions, specifying the occurred condition(s).

This guarantee will remain in force for a period of forty-five days after the period of tender validity and any demand in respect thereof should reach the Bank not later than the above date.

(Signature of the authorised officer of the Bank)

Name and designation of the officer
Seal, name & address of the Bank and address of the Branch

ANNEXURE 5
BANK GUARANTEE FOR ADVANCE

ANNEXURE - 5

**PROFORMA OF BANK GUARANTEE FOR ADVANCE
(ON NON-JUDICIAL PAPER OF APPROPRIATE VALUE)**

Ref.....

Date.....

Bank Guarantee No....

To

HLL Lifecare Limited,
C/o HLL Biotech Limited,
Ticel Biopark Campus (Module no. 013-015),
CSIR Road, Taramani, Chennai- 600 113

Dear Sirs,

In consideration of the HLL Lifecare Ltd., hereinafter referred to as 'HLL', which expression shall unless repugnant to the context or meaning thereof include its successors, executors, administrators and assigns, having awarded to M/s. _____ having its registered office at _____ hereinafter referred as the 'Contractor', which expression shall unless repugnant to the context or meaning thereof, include its successors, Administrators, executors and assigns, a contract hereinafter referred to as the 'purchase order' for related works referred to as the 'WORKS' on terms and conditions set out, inter-alia in the HLL's Purchase order No. _____ dated _____ valued _____ at _____ (in words & figures) and as the HLL having agreed to make an advance payment towards mobilization for the performance of the above PURCHASE ORDER, to the Contractor amounting to Rs. _____ (in words & figures) as an advance against Bank Guarantee to be furnished by the contractor, the said advance to be adjusted against the work to be performed by the contractor, we _____ hereinafter referred to as the 'Bank' which expressions shall, unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns **having our office at _____ do hereby undertake to give the irrevocable and unconditional guarantee and** do hereby undertake to pay the HLL on first demand without any demur, **reservation, contest recourse and protest and without reference to the contractor** any and all monies payable by the contractor by reason of any breach by the said Contractor of any of the terms and conditions of the said purchase order to the extent of Rs. _____ (in words & figures) till the said advance is adjusted as aforesaid at any time up to _____ We agree that the guarantee herein contained shall continue to be enforceable till the sum due to the HLL on account of the said advance is adjusted/recovered in full as aforesaid or till the HLL discharges this guarantee.

The HLL shall have the fullest liberty without affecting in any way the liability of the Bank under this guarantee, from time to time vary the advance or to extend the time for performance of the works by the Contractor. The Bank shall not be released from its liability under these presents by any exercise of the HLL of the liberty with reference to the matter aforesaid.

The HLL shall have the fullest liberty, **without reference to contractor and** without

affecting this guarantee to postpone **for any time or** from time to time the exercise of any powers vested in them or of any right which they might have against the Contractor, and to exercise the same at any time in any manner, and either to enforce or to forebear to enforce any **power**, covenants contained or implied in the purchase order between the HLL and the contractor or any other course or remedy or security available to the HLL and the Bank shall not be released of its obligations under these presents by any exercise by the HLL of its liberty with reference to matters aforesaid or any of them or by reason of any other act or forbearance or other acts of omission or commission on the part of the HLL or any other indulgence shown by the HLL or by any other matter or thing whatsoever which under law would, but for this provision, have the effect of relieving the Bank Guarantee.

The right of HLL to recover the outstanding sum of advance with applicable costs up to Rs. _____ from the bank in the manner aforesaid will not be affected or suspended by reason of the fact that any dispute or disputes is or are pending before any officer, tribunal or court and any demand made by HLL on the Bank shall be conclusive and binding.

The Bank further undertakes not to revoke this guarantee during its currency without prior and written consent of the **HLL and further agrees that the guarantee contained shall continue to be enforceable till the HLL discharges this guarantee.**

The Bank also agrees that the HLL shall at its option is entitled to enforce this guarantee against the bank as principal debtors, in first instance, notwithstanding any other security or guarantee that **HLL** may have in relation to the contractor's liabilities of the said advance.

Notwithstanding anything contained herein above, our liability under this guarantee is restricted to as Rs. _____ (in words & figures) and it will remain in force up to and including _____ (date of completion of work) and shall be extended from time to time for such periods as may be advised by M/s..... on whose behalf this guarantee has been given.

Therefore, we hereby affirm that we are guarantors and responsible to you on behalf of the contractor up to a total amount of _____ (amount of guarantees in words and figures) and we undertake to pay you, upon your first written demand declaring the contractor to be in default under the purchase order and without caveat or argument, any sum or sums within the limits of (amount of guarantee) as aforesaid, without your needing to prove or show grounds or reasons for your demand or the sum specified therein.

This Guarantee is valid until _____ day _____.

We have power to issue this guarantee in your favour under Memorandum and Articles of Association and the undersigned has full power to do under the Power of Attorney / Resolution of Board of Directors dated.....granted to him by the

Bank.

Dated.....this.....day of.....2012

Place:

Signed by

(Person duly authorised by
Bank)

Witness :