

शालवनी प्रेस :
पो. : आर.बि.एन.एम.एल, शालवनी : ७२११३२
पश्चिम मेदिनीपुर, पश्चिम बंगाल, भारत
Salboni Press :
P.O. : R.B.N.M.L., Salboni : 721 132
Paschim Medinipur, West Bengal, INDIA
Phone No. : 91-03227-280212, 280213
Fax No. : 91-03227-280744, 280222
E-mail : salbonipress@brbnmpl.co.in



ISO 9001 : 2008
ISO 14001 : 2004
COMPANY

CIN. U05110KA1905PTC017100

भारतीय रिज़र्व बैंक
नोटमुद्रण (प्रा.) लिमिटेड
(भारतीय रिज़र्व बैंक की संपूर्ण स्वामित्वयुक्त सहायक कंपनी)

BHARATIYA RESERVE BANK
NOTE MUDRAN (P) LIMITED
(wholly owned subsidiary of Reserve Bank of India)

Bidding Document for National Competitive Bidding (NCB)

Website : www.brbnmpl.co.in

Email: salbonipress@brbnmpl.co.in

TENDER ENQUIRY No. 07/SAL/CIVIL/2016-17

(NOT TRANSFERABLE) - Security Classification: Non Security Items

By Speed post / Courier service/Downloaded from website

BNM No. / (S) 16.19.11 / 2016-17

Date: 05/10/2016

Last Date & Time for submission of tender:	08/11/2016 up to 11.30 AM
Tender opening Date & Time:	08/11/2016 at 11.30 AM
Cost of Tender form:	Rs. 500/- (if directly downloaded from website), Rs. 750/- (if obtained from the address given below)
Earnest Money Deposit	Rs. 5,00,000/-

Sub: TENDER for Construction of New Staff Recreation Club at BRBNMPL, Salboni WB.

This tender document contains: 182 Pages

M/s. _____
Address _____

The tender document is sold to/downloaded by [Name of bidder]:

Details of Contact person in BRBNMPL regarding this tender:

Name: - Shri S. K. Chaurasia
Designation: - Asst. General Manager

Address:

**The General Manager,
Bharatiya Reserve Bank
Note Mudran Private Limited
Salboni, Dist.- Midnapore (West)
Pin- 721 132, West Bengal
Phone No. 03227-280212/213, Extn- 4044/4057/4083; Fax: 03227-280744 & 280222
Email: skchaurasia@brbnmpl.co.in**

CONTENTS OF THIS TENDER ENQUIRY: (In SBD Format)

Tender Clause / Section Reference	Tender Clause Description	Remarks
Section I	Notice Inviting Tender (NIT)	Enclosed
Section II	General Instructions for Tenderer (GIT)	Enclosed and Please refer from website: www.BRBNMPL.co.in under 'Downloads' Section.
Section III	Special Instructions to Tenderers (SIT)	Enclosed
Section IV	General Conditions of Contract (GCC)	Enclosed and Please refer from website: www.BRBNMPL.co.in under 'Downloads' Section.
Section V	Special Conditions of Contract (SCC)	Enclosed
Section VI	List of Requirements	Enclosed
Section VII	Technical Specification	Enclosed
Section VIII	Quality Control Requirements / Compliance Statement by Tenderer	Enclosed
Section IX	Qualification/Eligibility Criteria	Enclosed
Section X	Tender form	Enclosed
Section XI	Price Schedule (Price Bid)	Enclosed
Section XII	Questionnaire / Checklist	Enclosed
Section XIII	Bank Guarantee Form for EMD	<i>Not Applicable to this tender.</i>
Section XIV	Manufacturer's Authorization Form	Not applicable
Section XV	Bank Guarantee Form for Performance Security / SD	Enclosed
Section XVI	Contract Form	Enclosed
Section XVII	Letter of Authority for attending a Bid Opening	Enclosed
Section XVIII	Shipping arrangement for liner cargo-	<i><u>Not applicable to this tender</u></i>
Section XIX	Proforma of Bills for Payments	Enclosed
Section XX	Proforma for Pre contract integrity Pact-	Enclosed
Annexure-A	Performa of Financial Turnover Certificate	Enclosed
Annexure-B	Details of Work Experience	Enclosed
Annexure-C	Details of Technical Personnel proposed to be deployed	Enclosed

Annexure-D	General Particulars And Requirements	Enclosed
Annexure-E	Technical Specification	Enclosed
Annexure-F	Plastering and Pointing	Enclosed
Annexure-G	Painting Specification	Enclosed
Annexure-H	Electrical Technical Specification	Enclosed
Annexure-I	Safety Management System	Enclosed
Annexure-J	Specification For Plumbing & Building Drainage	Enclosed
Annexure-K	<p><u>Tender Drawing</u></p> <p>1). Layout Marking Plan And RCC Details of Foundations, Columns, Tie Beam</p> <p>2). Front Elevation, Left Side Elevation Section A-A Section B-B</p> <p>3). Ground Floor Plan, Site Plan</p> <p>4). Electrical Layout Plan</p> <p>5). Roof Plan</p> <p>6). G.A. Plan & Section Of Steel Roofing And Details Over Badminton Court</p> <p>7). Layout Marking Plan And RCC Details Of Beam And Slab</p>	Enclosed

शालबनी प्रेस :

पो. : आर.बि.एन.एम.एल, शालबनी : ७२११३२

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ISO 9001 : 2008
ISO 14001 : 2004
COMPANY

CIN: U65100KA1985PTC017100

भारतीय रिज़र्व बैंक

नोटमुद्रण (प्रा.) लिमिटेड

(भारतीय रिज़र्व बैंक की संपूर्ण स्वामित्वधीन सहायक कंपनी)

BHARATIYA RESERVE BANK

NOTE MUDRAN (P) LIMITED

(wholly owned subsidiary of Reserve Bank of India)

Section I: Notice for Inviting Tender (NIT)

Tender No.: 07/SAL/CIVIL/2016-17, Dated: 05/10/2016.

Subject: Tender document for “Construction of New Staff Recreation Club at BRBNMPL, Salboni (WB)”

Dear Sirs,

The General Manager, BRBNMPL, Salboni invite sealed tenders in the enclosed formats under two bid system (Part-1: Techno- commercial bid and Part-2: Price bid) for the “Construction of New Staff Recreation Club at BRBNMPL, Salboni”.

Schedule No.	Brief Description of Goods / Services	Quantity (with unit)	Earnest Money Deposit	Estimated Value	Time completion Period
1	Tender for “Construction of New Staff Recreation Club at BRBNMPL, Salboni (WB). As per Bill of quantities and scope of work mentioned at List of Requirement Section- VI, VII & X.	As per Price Schedule	Rs.5,00,000/- (Rupees Five Lakhs only)	Estimate Value: Rs.2,65,00,000/- (Rupees Two Crore Sixty Five Lakhs only)	Eighteen (18) Months from the date of issue of work order excluding Monsoon period (June-September).

SALIENT FEATURES OF TENDER FORM

Sl. No.	Description	Details
1	Tender No.	07/SAL/CIVIL/2016-17
2	Tender Date	05/10/2016
3	Name of the Work	Construction of New Staff Recreation Club at BRBNMPL, Salboni.
4	Type of Tender	Open - Two Bid Tender
5	Cost of Tender Paper	Rs.750/- (Rupees Seven hundred and Fifty only) incase tender documents being taken from Civil Section, else Rs.500/- (Rupees Five hundred only) in case downloaded from website. <i>(Non-Refundable)</i>
6	Source of Tender Paper	Civil Section or to be downloaded from our website www.brbnmpl.co.in
7	Closing date and time for Sale of Tender Document from Civil Section (one day before the last date of submission of the tender)	upto 11:30 hrs. on 07/11/2016.
8	Closing date and time for receipt of tenders	upto 11:30 hrs. on 08/11/2016
9	Place of receipt of tenders	Receive & Dispatch Section at First Floor of Administrative Building at BRBNMPL, Salboni.
10	Nominated Person / Designation to Receive Bulky Tender (Clause 21.21.1 of GIT)	DGM (Civil)
11	Pre-bid conference and Clarification of Tender Documents:	11.30 Hrs. 20/10/2016
11	Time and date of opening of Technical Bid (Part-I)	11:30 hrs. on 08/11/2016
12	Time and date of opening of Price Bid (Part-II)	To be intimated afterwards to Technically qualified bidders only.
13	Place of opening of tenders	Tender Opening Room at Conference Room of Administrative Building at BRBNMPL, Salboni.
14	Validity of tender	120 days from the date of opening of the tender, this can be further extended for another 30 days.
15	Date of Commencement	Within Four weeks from the date of issue of Work Order
16	Period of completion	Eighteen (18) Months from the date of issue of Work order excluding Monsoon period (June-September).
17	EMD in favor of BRBNMPL, Salboni. Rs. 5,00,000.00	In any one of the following forms: i) A/c Payee DD or ii) Fixed Deposit Receipt or iii) Bankers' Cheque. In case of FD the following should be followed: a) Fixed Deposit should be in the name of "Bharatiya Reserve Bank Note Mudran Pvt. Ltd., Salboni, A/c (Bidder's Name). b) The fixed deposit should be endorsed by the bidder in the name of Company, at the back side stating that "I / We are endorsing this FD in favour of Bharatiya Reserve Bank Note Mudran Pvt. Ltd., Salboni" (the endorsement should be duly signed by the depositor /s) . c) The FD should be accompanied with authority letter from the bidder addressed to Branch Manager of the FD issuing bank, authorizing BRBNMPL, Salboni for

		unconditional encashment of FD as per the prescribed format which can be obtained from Civil Section on demand.
18	EMD for DGS&D / NSIC, registered firms	<i>Please note that DGS&D / NSIC, registered firms are exempted from submission of requisite EMD. If the tenderer is registered under DGS&D/ NSIC, they have to clearly mention and submit a copy of supporting documents including Stores list. In absence of any such declaration, tenderer shall be considered as not registered under DGS&D/ NSIC, New Delhi.</i>
19	Minimum value of work for each R/A bill	Minimum work done value Rs.40 (Forty) Lakhs on submission of detailed measurements in LBD format.
20	Liability compensation for delay	At the rate of 0.5% (half percent) of the Total contract value per week of delay or up to maximum of 10% (Ten percent) of the incomplete contract value after which the contract stands rescinded.
21	Defects Liability period	12 (twelve) Months from the date of virtual completion of work.
22	Performance Security deposit /Bond to be deposited within 21 days after the issue of notification of award of contract by BRBNMPL.	Successful Bidders has to submit DD or B.G. as performance security deposit for 10% (Ten percent) of the work order value less Earnest Money Deposit (EMD) in the prescribed format mentioned at Section-XV or DD/FD should be in favor of BRBNMPL, Salboni, SBI Branch, Salboni in the similar lines as incase of EMD as mentioned above.
23	Release of performance security deposit	After expiry of defects liability Period and Completion of all contractual obligations including defects rectification works intimated during DLP including warranty obligations if any.
24	Period of submitting the final bill by contractor	Maximum period of 02 (two) Months from the date of completion.
25	Terms of contract and specifications	As per schedule.

- Interested tenderers may obtain further information about this requirement from the above office. They may also visit our website **www.brbnmpl.co.in** for further details.
- Tenderers shall ensure that their tenders, duly sealed and signed, complete in all respects as per instructions given at Section-II on or before the closing date and time indicated above, failing which the tenders will be treated as late and rejected.
- In the event of any of the above mentioned dates being declared as a holiday/ closed day for the BRBNMPL, SALBONI, tender will be received / opened on the next working day at the appointed time.
- The tender documents are not transferable.

Thanking you,

For and on behalf of
Bharatiya Reserve Bank Note Mudran (P) Limited

(S. K. Chaurasia)
Asst. General Manager
Bharatiya Reserve Bank Note Mudran Private Limited
Salboni, Dist. - Midnapore (West); Pin- 721 132, West Bengal
Telephone: 03227-280212/214 Extn. 4083/4044/4057; Fax: 03227- 280222/280744

Section II: General Instructions to Tenderer (GIT)

(Complete details refer our website

www.brbnmpl.co.in)

Part I: General Instructions Applicable to all Types of Tenders

A PREAMBLE

1. Introduction

1.1 Definitions and abbreviations, which have been used in these documents, shall have the meanings as indicated in GCC.

1.2 For sake of convenience, whole of this Standard Bidding Document (including all sections) is written in reference to Procurement of Goods Tenders. However this SBD would be utilized for all types of Tenders e.g. EOI, PQB, Rate Contract, Tenders involving Samples, Sale / Disposal of Scrap Material and Development / indigenization etc, Procurement of Services etc. Therefore the construction of all clauses are to be interpreted in the context of particular type of tender beyond the letter of the clause, read with the additional clauses for the specific type of tenders in Part II GIT/ GCC.

1.3 These tender documents have been issued for the requirements mentioned in Section - VI - "List of Requirements", which also indicates, inter-alia, the required delivery schedule and terms & place (i.e. destination) of delivery.

1.4 This section (Section II - "General Instruction to Tenderers" - GIT) 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 for receipt and opening as well as scrutiny and evaluation of tenders and subsequent placement of contract. With this limited objective, GIT is not intended to be complete by itself and the rest of this document - SIT, GCC and SCC in particular may also be thoroughly studied before filling up the Tender Document. There would be certain topics covered in GIT/SIT as well as in GCC/ SCC from different perspectives. In case of any conflict between these, provisions of GCC/ SCC would prevail.

1.5 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. Language of Tender

The tender submitted by the tenderer and all subsequent correspondence and documents relating to the tender exchanged between the tenderer and BRBNMPL, shall be written in English or Hindi language, unless otherwise specified in the Tender. 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 Hindi or English translation. For purposes of interpretation of the tender, the English translation shall prevail.

3. Eligible Tenderers

This invitation for tenders is open to all suppliers who fulfill the eligibility criteria specified in these documents. Please refer to Section IX: Qualification/ Eligibility Criteria

4. Eligible Goods and Services

All goods and related services to be supplied under the contract shall have their origin in India or other countries, subject to any restriction imposed in this regard in Section III (SIT). 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.

5. Tendering Expense

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. BRBNMPL 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 DOCUMENTS

6. Content of Tender Documents

6.1 The tender documents includes: as per list mentioned at page 02 above.

6.2 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 before formulating the tender and submitting the same to BRBNMPL, should read and examine all the terms, conditions, instructions etc. contained in the tender documents. Failure to provide and/ or comply with the required information, instructions etc. incorporated in these tender documents may result in rejection of its tender.

7. Amendments to Tender Documents

7.1 At any time prior to the deadline for submission of tenders, BRBNMPL may, for any reason deemed fit by it, modify the tender documents by issuing suitable amendments) to it.

7.2 Such an amendment will be notified in writing by registered/ speed post or by fax / telex / e-mail, followed by copy of the same by suitable recorded post to all prospective tenderers, which have received the tender documents and will be binding on them.

7.3 In order to provide reasonable time to the prospective tenderers to take necessary action in preparing their tenders as per the amendment, BRBNMPL may, at its discretion extend the deadline for the submission of tenders and other allied time frames, which are linked with that deadline.

8. Pre-Bid conference

If found necessary, a pre-bid conference may be stipulated in the SIT, for clarification/ amendment to Technical specifications/techno-commercial conditions in two bid tender.

9. Clarification of Tender Documents

A Tenderer requiring any clarification or elucidation on any issue of the tender documents may take up the same with BRBNMPL in writing or by fax ! e-mail! telex. BRBNMPL will respond in writing to such request provided the same is received by BRBNMPL not later than twenty one days (unless otherwise specified in the SIT) prior to the prescribed date of submission of tender. Copies of the query and clarification shall be sent to all prospective bidders who have received the bidding documents.

C PREPARATION OF TENDERS

10. Documents Comprising the Tender

10.1 The tender to be submitted by Tenderer shall contain the following documents, duly filled in, as required:

a) Tender Form and Price Schedule along with list of deviations (ref Clause 19.19.4) from the clauses of this SBD, if any.

b) Documentary evidence, as necessary in terms of GIT clauses 3 and 16 establishing that the tenderer is eligible to submit the tender and, also, qualified to perform the contract if its tender is accepted.

c) Documents and relevant details to establish in accordance with GIT clause 17 that the goods and the allied services to be supplied by the tenderer conform to the requirement of the tender documents along with list of deviations if any (ref clause 17.17.3 of GIT).

d) Earnest money furnished in accordance with GIT clause 18.18.1 alternatively, documentary evidence as per GIT clause 18.18.2 for claiming exemption from payment of earnest money, and

e) Questionnaire as per Section XII.

f) Manufacturer's Authorization Form (ref Section XIV, if applicable)

NB: The tenderers may also enclose in their tenders, technical literature and other documents as and if considered necessary by them.

10.2 A tender, that does not fulfill any of the above requirements and / or gives evasive information / reply against any such requirement, shall be liable to be ignored and rejected.

10.3 Tender sent by fax/email/ telex/ cable shall be ignored.

11. Tender currencies

11.1 Unless otherwise specified, the tenderer shall quote only in Indian rupees.

11.2 Where the tender condition specifies acceptance of quotations in different currencies, then, for domestic goods, prices shall be quoted in Indian rupees only and for imported goods, prices shall be quoted either in Indian rupees or in the currency stipulated in the SIT, mentioning, inter-alia, the exchange rate adopted for converting foreign currency into Indian Rupees. As regards price(s) for allied services, if any required with the goods, the same shall be quoted in Indian Rupees if such services are to be performed / undertaken in India. Commission for Indian Agent, if any and if payable shall be indicated in the space provided for in the price schedule and quoted in Indian Rupees only,

11.3 Tenders, where prices are quoted in any other way shall be treated as unresponsive and rejected.

12. Tender Prices

12.1 The Tenderer shall indicate on the Price Schedule provided under Section XI all the specified components of prices shown therein including the unit prices and total tender prices of the goods and services it 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 accordingly by the tenderer.

12.2 If there is more than one schedule in the List of Requirements, the tenderer has the option to submit its quotation for any one or more schedules and, also, to offer special discount for combined schedules. However, while quoting for a schedule, the tenderer shall quote for the complete requirement of goods and services as specified in that particular schedule.

12.3 The quoted prices for goods offered from within India and that for goods offered from abroad are to be indicated separately in the applicable Price Schedules attached under Section XI.

12.4 While filling up the columns of the price schedule, the following aspects should be noted for compliance:

12.5 For goods offered from within India, the prices in the corresponding price schedule shall be entered separately in the following manner:

a) The price of the goods, quoted ex-factory, ex-showroom, ex-warehouse or off-the-shelf, as applicable, including all taxes and duties like sales tax, VAT, 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 inland transportation, insurance and other local costs incidental to delivery of the goods to

their final destination as specified in the List of Requirements and

d) The price of incidental services, as and if mentioned in List of Requirements.

12.6 For goods offered from abroad, the prices in the corresponding price schedule shall be entered separately in the following manner:

a) The price of goods quoted FAS / FOB port of shipment, CIF port of entry in India or CIF specified place of destination in India as indicated in the List of Requirements,

b) Wherever applicable, the amount of custom duty and import duty on the goods to be imported.

c) The charges for inland transportation, insurance and other local costs incidental to delivery of the goods from the port of entry in India to their final destination, as specified in the List of Requirements. and

d) The charges for incidental services, as and if mentioned in the List of Requirements.

12.7 Additional information and instruction on Duties and Taxes:

If the Tenderer desires to ask for excise duty, sales tax, custom duty etc. to be paid extra, the same must be specifically stated. In the absence of any such stipulation the price will be taken inclusive of such duties and taxes and no claim for the same will be entertained later.

12.8 Excise Duty:

a) If reimbursement of excise duty is intended as extra over the quoted prices, the supplier must specifically say so also indicating the rate, quantum and nature of the duty applicable. In the absence of any such stipulation it will be presumed that the prices quoted are firm and final and no claim on account of excise duty will be entertained after the opening of tenders.

b) If a Tenderer chooses to quote a price inclusive of excise duty and also desires to be reimbursed for variation, if any, in the excise duty during the time of supply, the tenderer must clearly mention the same and also indicate the rate and quantum of excise duty included in its price. Failure to indicate all such details in clear terms may result in statutory variations being denied to the tenderer.

c) Subject to sub clauses 12.8 {a} & {b} above, any change in excise duty upward/ downward as a result of any statutory variation in excise duty taking place within original Delivery Period shall be allowed to the extent of actual quantum of excise duty paid by the supplier. In case of downward revision in excise duty, the actual quantum of reduction of excise duty shall be reimbursed to BRBNMPL by the supplier. All such adjustments shall include all reliefs, exemptions, rebates, concession etc. if any obtained by the supplier.

12.9 Sales Tax/ VAT/ CST/ GST:

If a tenderer asks for sales tax/ VAT/ CST/ GST to be paid extra, the rate and nature of such taxes applicable should be shown separately. Such taxes will be paid as per the rate at which it is liable to be assessed or has actually been assessed provided the transaction of sale is legally liable to such taxes and is payable as per the terms of the contract.

12.10 Wherever Value Added Tax is applicable, the following may be noted :

i) The tenderer should quote the exact percentage of VAT that they will be charging extra.

ii) While quoting the rates, tenderer should pass on (by way of reduction in prices) the set off/input tax credit that would become available to them by switching over to the system of VAT from the existing system of sales tax, duly stating the quantum of such credit per unit of the item quoted for.

iii) The tenderer while quoting for tenders should give the following declaration:

"We agree to pass on such additional set off/input tax credit as may become available in future in respect of all the

inputs used in the manufacture of the final product on the date of supply under the VAT scheme by way of reduction in price and advise the purchaser accordingly."

iv) The supplier while claiming the payment shall furnish the following certificate to the paying authorities: We hereby declare that additional set offs / input tax credit to the tune of Rs..... has accrued and accordingly the same is being passed on to the purchaser and to that effect the payable amount may be adjusted .

12.11 Octroi and Local Taxes:

Unless otherwise stated in the SIT, the goods supplied against contracts placed by BRBNMPL are not exempted from levy of Town Duty, Octroi Duty, Terminal Tax and other Levies of local bodies. In such cases, the supplier should make the payment to avoid delay in supplies and forward the receipt of the same to the purchasing department for reimbursement and, also, for further necessary action.

In cases where exemption is available, suppliers should obtain the exemption certificate from the purchasing department to avoid payment of such levies and taxes.

12.12 Duties/ Taxes on Raw Materials

BRBNMPL is not liable for any claim from the supplier on account of fresh imposition and / or increase (including statutory increase) of excise duty, custom duty, sales tax etc. on raw materials and/or components used directly in the manufacture of the contracted goods taking place during the pendency of the contract, unless such liability is specifically agreed to in terms of the contract.

12.13 Imported Stores not liable to Above-mentioned Taxes and Duties:

Above mentioned Taxes and Duties are not leviable on imported Goods and hence would not be reimbursed.

12.14 Customs Duty:

In respect of imported stores offered from abroad, the tenderer shall specify the rate as well as the total amount of customs duty payable. The tenderer shall also indicate the corresponding Indian Customs Tariff Number applicable for the goods in question.

12.14.1. For transportation of imported goods offered from abroad, relevant instructions as incorporated under GCC Clause 11 shall be followed.

12.14.2. For insurance of goods to be supplied, relevant instructions as provided under GCC Clause 12 shall be followed.

12.14.3. Unless otherwise specifically indicated in this tender document, the terms FOB, FAS, CIF etc. for imported goods offered from abroad, shall be governed by the rules & regulations prescribed in the current edition of INCOTERMS, published by the International Chamber of Commerce, Paris

12.14.4. The need for indication of all such price components by the tenderers, as required in this clause (viz., GIT clause 12) is for the purpose of comparison of the tenders by BRBNMPL and will no way restrict BRBNMPL's right to award the contract on the selected tenderer on any of the terms offered.

13. Indian Agent

If a foreign tenderer has engaged an agent in India in connection with its tender, the foreign tenderer, in addition to indicating Indian agent's commission, if any, in a manner described under GIT sub clause 11.2 above, shall also furnish the following information:

a) The complete name and address of the Indian Agent and its permanent income tax account number as allotted by the Indian Income Tax authority.

b) The details of the services to be rendered by the agent for the subject requirement
One manufacturer can authorize only one agent/ dealer. Also one agent cannot represent more than one supplier or quote on their behalf in a particular tender enquiry. Such quote is likely to be rejected. There can be only one bid from

a) The principal manufacturer directly or one Indian agent on his behalf

b) The foreign principal or any of its branch/ division

c) Indian/ Foreign Agent on behalf of only one Principal.

14. Firm Price / Variable Price

14.1 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.

14.2 In case the tender documents require offers on variable price basis, the price quoted by the tenderers will be subject to adjustment during original Delivery Period to take care of the changes in the cost of labour and material components in accordance with the price variation formula to be specified in the SIT. If a tenderer submits firm price quotation against the requirement of variable price quotation, that tender will be prima-facie acceptable and considered further, taking price variation asked for by the tenderer as zero.

14.3 However, as regards taxes and duties, if any, chargeable on the goods and payable, the conditions stipulated in GIT clause 12 will apply for both firm price tender and variable price tender.

14.4 Subject to provisions of Clause 11 above, where prices are quoted in foreign currencies, involving imports - Foreign Exchange Rate Variation (ERV) would be borne by the Purchaser within the original Delivery Period. The offer of the Tenderer should indicate import content and the currency used for calculating import content.

14.5 Base Exchange rate of each major currency used for calculating FE content of the contract should be indicated. The base date of ERV would be contract date and variation on the base date can be given up to the midpoint manufacture, unless firm has already indicated the time schedule within which material will be imported by the firm.

14.6 In case delivery period is refixed/ extended, ERV will not be admissible, if this is due to default of the supplier.

14.7 Documents for claiming ERV:

- i. A bill of ERV claim enclosing working sheet
- ii. Banker's Certificate/debit advice detailing F.E. paid and exchange rate
- iii. Copies of import order placed on supplier
- iv. Invoice of supplier for the relevant import order

15. Alternative Tenders

Unless otherwise specified in the Schedule of Requirements, alternative tenders shall not be considered.

16. Documents Establishing Tenderer's Eligibility and Qualifications

16.1 Pursuant to GIT clause 10, 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.

16.2 The documentary evidence needed to establish the tenderer's qualifications shall fulfill the following requirements:

a) In case the tenderer offers to supply goods, which are manufactured by some other firm, the tenderer has been duly authorized by the goods manufacturer to quote for and supply the goods to BRBNMPL. 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) In case the tenderer is not doing business in India, it is/ will be duly represented by an agent stationed in India fully equipped and able to carry out the required contractual functions and duties of the supplier including

after sale service, maintenance & repair etc. of the goods in question, stocking of spare parts and fast moving components and other obligations, if any, specified in the conditions of contract and/ or technical specifications.

d) In case the tenderer is an Indian agent quoting on behalf of a foreign manufacturer, the Indian agent is already enlisted under the Compulsory Enlistment Scheme of Ministry of Finance, Govt. of India, operated through Directorate General of Supplies & Disposals (DGS&D), New Delhi.

17. Documents establishing Good's Conformity to Tender document

17.1 The tenderer 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 BRBNMPL in the tender documents. For this purpose the tenderer shall also provide a clause-by-clause commentary on the technical specifications and other technical details incorporated by BRBNMPL in the tender documents to establish technical responsiveness of the goods and services offered in its tender.

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

17.3 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 BRBNMPL in this regard.

18. Earnest Money Deposit (EMD)

18.1 Pursuant to GIT clause 10.1(d) the tenderer shall furnish along with its tender, earnest money for amount as shown in the List of Requirements. The earnest money is required to protect BRBNMPL against the risk of the Tenderers unwarranted conduct as amplified under sub-clause 23.23.2 below.

18.2 The tenderers who are currently registered and, also, will continue to remain registered during the tender validity period with DGS&D or with National Small Industries Corporation, New Delhi are exempted from payment of earnest money. In case the tenderer falls in these categories, it should furnish certified copy of its valid registration details (with DGS&D or NSIC as the case may be).

18.3 The earnest money shall be denominated in Indian Rupees.

18.4 The earnest money shall be furnished in one of the following forms:

- a) Account Payee Demand Draft or
- b) Fixed Deposit Receipt or
- c) Banker's cheque or
- d) Bank Guarantee, only in the case of Global Tender

The demand draft, fixed deposit receipt or banker's cheque shall be drawn on any scheduled commercial bank in India, in favour of Account specified in the Clause 3 of NIT. in case of bank guarantee, the same is to be provided from/confirmed by any scheduled commercial bank in India as per the format specified under Section XIII in these documents.

18.5 The earnest money shall be valid for a period of forty five days beyond the validity period of the tender.

18.6 Unsuccessful tenderers' earnest monies 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.

18.7 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. The successful tenderer's earnest money will be forfeited if it fails to furnish the required performance security within the specified period.

19. Tender Validity

19.1 If not mentioned otherwise in the SIT, the tenders shall remain valid for acceptance for a period of 90 days (Ninety days) in case of single bid tender system and 120 days in case of two-bid system after the date of tender opening prescribed in the tender document. Any tender valid for a shorter period shall be treated as unresponsive and rejected.

19.2 In exceptional cases, the tenderers may be requested by BRBNMPL to extend the validity of their tenders upto a specified period. Such request(s) and responses thereto shall be conveyed by surface mail or by fax /email /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.

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

19.4 Compliance with the Clauses of this Tender Document: Tenderer must comply with all the clauses of this Tender Document. In case there are any deviations, these should be listed in a chart form without any ambiguity along with justification.

20. Signing and Sealing of Tender

20.1 An authenticated copy of the document which authorizes the signatory to commit on behalf of the firm shall accompany the offer. The individual signing the tender or any other documents connected therewith should clearly indicate his full name and designation and also specify whether he is signing,

- (a) As Sole Proprietor of the concern or as attorney of the Sole Proprietor;
- (b) As Partner (s) of the firm;
- (c) as Director, Manager or Secretary in case the of Limited Company duly authorized by a resolution passed by the Board of Directors or in pursuance of the Authority conferred by Memorandum of Association.

20.2 The authorized signatory of the tenderer must sign the tender at appropriate places and initial the remaining pages of the tender.

20.3 The tenderers shall submit their tenders as per the instructions contained in GIT Clause

20.4 Unless otherwise mentioned in the SIT, a tenderer shall submit two copies of its tender marking them as "Original" and "Duplicate".

20.5 The original and other copies of 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.

20.6 All the copies of the tender shall be duly signed at the appropriate places as indicated in the tender documents and all other pages of the tender including printed literature, if any shall be initialed 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 initialed by the person(s) signing the tender.

20.7 The tenderer is to seal the original and each copy of the tender in separate envelopes, duly marking the same as "Original", "Duplicate" and so on and writing the address of BRBNMPL and the tender reference number on the envelopes. 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, BRBNMPL will not assume any responsibility for its misplacement, premature opening, late opening etc.

20.8 For purchasing capital equipment, high value plant, machinery etc. of complex and technical nature, tender document will seek quotation in two parts (Two Bid System)- first part containing the relevant technical details of the equipment / machinery etc., and in the second part, price quotation along with other allied issues. First part will be known as 'Technical Bid', and the second part 'Financial bid'. Tenderer shall seal separately 'Technical Bid' and 'Financial bid' and covers will be suitably super scribed. Both these sealed covers shall be put in a bigger cover and sealed and evaluation would be done as described in clause 25.24.4 below. Further details would be given in SIT, if considered necessary.

20.9 If permitted in the SIT, the tenderer may submit its tender through e-tendering procedure.

D SUBMISSION OF TENDERS

21. Submission of Tenders

21.1 Unless otherwise specified, the tenderers are to deposit the tenders in the tender box kept for this purpose at a place as indicated in para 1 of NIT. In case of bulky tender, which cannot be put into tender box, the same shall be submitted by the tenderer by hand to the designated officers of BRBNMPL, as indicated in clause 1 of NIT. The officer receiving the tender will give the tenderer an official receipt duly signed with date and time.

21.2 The tenderers must ensure that they deposit their tenders not later than the closing time and date specified for submission of tenders. In the event of the specified date for submission of tender falls on / is subsequently declared a holiday or closed day for BRBNMPL, the tenders will be received upto the appointed time on the next working day.

22. Late Tender

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.

23. Alteration and Withdrawal of Tender

23.1 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.

23.2 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 besides other sanctions by BRBNMPL.

E TENDER OPENING

24. Opening of Tenders

24.1 BRBNMPL will open the tenders at the specified date and time and at the specified place as indicated in clause 1 of NIT. In case the specified date of tender opening falls on / is subsequently declared a holiday or closed day for BRBNMPL, the tenders will be opened at the appointed time and place on the next working day.

24.2 Authorized representatives of the tenderers, who have submitted tenders on time may attend the tender opening, provided they bring with them letters of authority as per the format in SBD XVII 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.

24.3 During the tender opening, the tender opening official(s) will read the salient features of the tenders like description of the goods offered, price, special discount if any, delivery period, whether earnest money furnished or not and any other special features of the tenders, as deemed fit by the tender opening official(s).

24.4 In the case of two bid system mentioned in clause 20.8 above, the technical bids are to be opened in the first instance, at the prescribed time and date. These bids shall be scrutinized and evaluated by the competent committee / authority with reference to parameters prescribed in the tender document. Thereafter, in the second stage, the financial bids of only the technically acceptable offers (as decided in the first stage) shall be opened for further scrutiny and evaluation. Other financial bids would be returned unopened to the respective bidders under Registered AD/ Reliable Courier or any other mode with proof of delivery.

F SCRUTINY AND EVALUATION OF TENDERS

25. Basic Principle

Tenders will be evaluated on the basis of the terms & conditions already incorporated in the tender 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.

26. Preliminary Scrutiny of Tenders

26.1 The tenders will first be scrutinized to determine whether they are complete and meet the essential and important requirements, conditions etc. as prescribed in the tender document. The tenders, that do not meet the basic requirements, are liable to be treated as unresponsive and ignored.

26.2 The following are some of the important aspects, for which a tender may be declared unresponsive and ignored;

- | | |
|----|---|
| a) | Tender is unsigned. |
| b) | Tenderer is not eligible. |
| c) | Tender validity is shorter than the required period. |
| d) | Required EMD has not been provided. |
| e) | Tenderer has quoted for goods manufactured by a different firm without the required authority letter from that manufacturer. |
| f) | Tenderer has not agreed to give the required performance security. |
| g) | Goods offered are sub-standard, not meeting the required specification etc. |
| h) | Tenderer has not agreed to essential condition(s) specially incorporated in the tender enquiry. |
| i) | Against a schedule in the List of Requirement (incorporated in the tender enquiry), the Tenderer has not quoted for the entire requirement as specified in that schedule. (Example: In a schedule, it has been stipulated that the Tenderer will supply the equipment, install and commission it and also train BRBNMPL 's operators for operating the equipment. The Tenderer has however, quoted only for supply of the equipment). |

27. Minor Infirmary / Irregularity / Non-Conformity

If during the preliminary examination, BRBNMPL find any minor infirmity and/ or irregularity and/ or non-conformity in a tender, BRBNMPL may waive the same provided it does not constitute any material deviation and financial impact and, also, does not prejudice or affect the ranking order of the tenderers. Wherever necessary, BRBNMPL will convey its observation on such 'minor' issues to the tenderer by registered/ speed post etc. 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.

28. Discrepancy in Prices

28.1 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 BRBNMPL 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.

28.2 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

28.3 If there is a discrepancy between the amount expressed in words and figures, the amount in words shall prevail, subject to sub clause 28.1 and 28.2 above.

28.4 If, as per the judgment of BRBNMPL, there is any such arithmetical discrepancy in a tender, the same will be suitably conveyed to the tenderer by registered / speed post. If the tenderer does not agree to the observation of BRBNMPL, the tender is liable to be ignored.

29. Discrepancy between original and copies of Tender

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, BRBNMPL will convey its observation suitably to the tenderer by register! Speed post and, if the tenderer does not accept BRBNMPL's observation, that tender will be liable to be ignored.

30. Clarification of Bids

During evaluation and comparison of bids, purchaser may, at its discretion ask the bidder or clarification of its bid. The clarification should be received within 7 days from the bidder from date of receipt of such request. The request for clarification shall be in writing and no change in prices or substance of the bid shall be sought, offered or permitted. No post bid clarification at the initiative of the bidder shall be entertained.

31. Qualification / Eligibility Criteria

Tenders of the tenderers, who do not meet the required qualification/ eligibility criteria prescribed in Section IX, will be treated as unresponsive and will not be considered further.

32. Conversion of tender currencies to Indian Rupees

In case the tender document permits the tenderers to quote their prices in different currencies, all such quoted prices of the responsive tenderers will be converted to a single currency viz., Indian Rupees for the purpose of equitable comparison and evaluation, as per the B.C. selling exchange rates established by the State Bank of India for similar transactions, as on the date of tender opening.

33. Schedule-wise Evaluation

In case the List of Requirements contains more than one schedule, the responsive tenders will be evaluated and compared separately for each schedule. The tender for a schedule will not be considered if the complete requirements prescribed in that schedule are not included in the tender. However, as already mentioned in GIT sub clause 12.2, tenderers have the option to quote for any one or more schedules and offer discounts for combined schedules. Such discounts, wherever applicable, will be taken into account to determine the tender or combination of tenders offering the lowest evaluated cost for BRBNMPL in deciding the successful tenderer for each schedule, subject to that tenderer(s) being responsive.

34. Comparison on CIF Destination Basis

Unless mentioned otherwise in Section-III – Special Instructions to Tenderers and Section-VI – List of Requirements, the comparison of the responsive tenders shall be on CIF destination basis, duly delivered, commissioned, etc. as the case may be.

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

35.1 Further to GIT Clause 33 above, BRBNMPL 's evaluation of a tender will include and take into account the following:

a) in the case of goods manufactured in India or goods of foreign origin already located in India, sales tax & other similar taxes and excise duty & other similar duties, which will be contractually payable (to the tenderer), on the goods if a contract is awarded on the tenderer; and

b) In the case of goods of foreign origin offered from abroad, customs duty and other similar import duties/ taxes, which will be contractually payable (to the tenderer) on the goods if the contract is awarded on the tenderer.

35.2 BRBNMPL'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 As per policies of the Government from time to time, the purchaser reserves its option to give price preference to Small Scale Industries in comparison to the large scale Industries. This price preference cannot however be taken for granted and every endeavor need to be made by such firms to bring down cost and achieve competitiveness.

35.4 If the tenders have been invited on variable price basis, the tenders will be evaluated, compared and ranked on the basis of the position as prevailing on the day of tender opening and not on the basis of any future date.

36. Tenderer's capability to perform the contract

36.1 BRBNMPL, 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 in the List of Requirements, then, such determination will be made separately for each schedule.

36.2 The above mentioned determination will, inter-alia, take into account the tenderer's financial, technical and production capabilities for satisfying all the requirements of BRBNMPL as incorporated in the tender 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 BRBNMPL.

37. Cartel Formation / Pool Rates

Cartel formation or quotation of Pool/ Co-ordinated rates, leading to 'Appreciable Adverse Effect on Competition' (AAEC) as identified in Competition Act, 2002, as amended by Competition (Amendment) Act, 2007, would be considered as a serious misdemeanor and would be dealt accordingly as per Clause 44 below.

38. Negotiations

Normally there would be no price negotiations. But BRBNMPL reserves its right to negotiate with the lowest acceptable bidder (L1), who is technically cleared/ approved for supply of bulk quantity and on whom the contract would have been placed but for the decision to negotiate, under special circumstances in accordance with CVC guidelines. i.e. Normally there should be no negotiation. Selection of contractors by negotiations should be a rare exception rather than the rule and may be resorted to only in the exceptional circumstances under the following circumstances:-

- i. Where the procurement is done on proprietary basis
- ii. Items to be procured are supplied by only a limited sources of supply

iii. Items where there is suspicion of cartel formation.

39. Contacting BRBNMPL

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

39.2. It will be treated as a serious misdemeanor in case a tenderer attempts to influence BRBNMPL's decision on scrutiny, comparison, evaluation and award of the contracts. In such a case 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 BRBNMPL, in terms of clause 44 of GIT.

G AWARD OF CONTRACT

40. BRBNMPL's Right to Accept any Tender and to Reject any or All Tenders BRBNMPL reserves the right to accept in part or in full any tender or reject any tender 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.

41. Award Criteria

Subject to GIT clause 36 above, the contract will be awarded to the lowest evaluated responsive tenderer decided by BRBNMPL in terms of GIT Clause 34.

42. Variation of Quantities at the Time of Award

No variation of quantities at the time of awarding the contract.

43. Parallel Contracts

BRBNMPL reserves its right to conclude Parallel contracts, with more than one bidder (for the same tender). If this is foreseen at the time of Tendering, a clause would be included in SIT giving further details.

44. Serious Misdemeanors

44.1. Following would be considered serious misdemeanors:

- i. Submission of misleading / false/ fraudulent information/ documents by the bidder in their bid
- ii. Submission of fraudulent / unencashable Financial Instruments stipulated under Tender or Contract Condition.
- iii. Violation of Code of Ethics laid down in Clause 32 of the GCC.
- iv. Cartel formation or quotation of Pool / coordinated rates leading to "Appreciable Adverse Effect on Competition" (AAEC) as identified under the Competition Act, 2002.
- v. Deliberate attempts to pass off inferior goods or short quantities.
- vi. Violation of Fall Clause by Rate Contract holding Firms.
- vii. Attempts to influence BRBNMPL's Decisions on scrutiny, comparison, evaluation and award of Tender.

44.2. Besides, suitable administrative actions, like rejecting the offers or delisting of registered firms, BRBNMPL would ban/ blacklist Tenderers committing such misdemeanor, including declaring them ineligible to be awarded BRBNMPL contracts for indefinite or for a stated period.

45. Notification of Award

45.1 Before expiry of the tender validity period, BRBNMPL will notify the successful tenderer(s) in writing, by registered / speed post or by fax/email / telex/ cable (to be confirmed by registered / speed post) that its tender for goods & services, which have been selected by BRBNMPL, 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 BRBNMPL the

required performance security within twenty one days from the date of this notification. Relevant details about the performance security have been provided under GCC Clause 6 under Section IV.

45.2 The notification of award shall constitute the conclusion of the contract.

46. Issue of Contract

46.1 Within seven working days of receipt of performance security, BRBNMPL will send the contract form (as per Section XVI) duly completed and signed, in duplicate, to the successful tenderer by registered / speed post.

46.2 Within seven days from the date of issue of the contract, the successful tenderer will return the original copy of the contract, duly signed and dated, to BRBNMPL by registered / speed post.

47. Non-receipt of Performance Security and Contract by BRBNMPL

Failure of the successful tenderer in providing performance security within 21 days of receipt of notification of award and / or returning contract copy duly signed in terms of GIT clauses 45 and 46 above shall make the tenderer liable for forfeiture of its EMD and, also, for further sanctions by BRBNMPL against it.

48. Return of EMD

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 18.6.

49. Publication of Tender Result

The name and address of the successful tenderer(s) receiving the contract(s) will be mentioned in the notice board/ bulletin/ web site of BRBNMPL.

Part II: Additional General Instructions Applicable to Specific Types of Tenders:

50. Rate Contract Tenders

50.1 In addition to GIT in Part I above, following GIT will be applicable to rate contract Tenders:

- i. Earnest Money Deposit (EMD) is not applicable.
- ii. In the Schedule of Requirement, no commitment of quantity is mentioned; only the anticipated requirement is mentioned without any commitment.
- iii. BRBNMPL reserves the right to conclude more than one rate contract for the same item.
- iv. Unless otherwise specified in SIT, the currency of a Rate Contract would normally be for one year.
- v. During the currency of the Rate Contract, BRBNMPL may withdraw the rate contract by serving suitable notice. The prescribed notice period is generally thirty days.
- vi. During the currency of the Rate Contract, BRBNMPL would have the option to renegotiate the price with the rate contract holders.
- vii. During the currency of the Rate Contract, in case of emergency, BRBNMPL may purchase the same item through ad hoc contract with a new supplier.
- viii. Usually, the terms of delivery in rate contracts are FOR dispatching station.
- ix. Supply orders, incorporating definite quantity of goods to be supplied along with all other required conditions following the rate contract terms, will be issued by nominated Direct Demanding Officers (DDO) for obtaining supplies through the rate contract.
- x. BRBNMPL is entitled to place supply orders up to the last day of the validity of the rate contract and, though supplies against such supply orders will be affected beyond the validity period of the rate contract, all such supply will be guided by the terms &

conditions of the rate contract.

xi. The rate contract will be guided by "Fall Clause" as described below.

50.2 Fall Clause

If the rate contract holder reduces its price or sells or even offers to sell the rate contracted goods, following conditions of sale similar to those of the rate contract, at a price lower than the rate contract price, to any person or organization during the currency of the rate contract, the rate contract price will be automatically reduced with effect from that date for all the subsequent supplies under the rate contract and the rate contract amended accordingly. Any violation of the fall clause would be considered a serious misdemeanor under clause 44 of the GIT and action, as appropriate, would be taken as per provision of that clause.

50.3 Performance Security

Value of Performance Security would be stipulated in the SIT. Performance Security shall, however, not be demanded again in the individual supply orders issued subsequently against rate contracts.

50.4 Renewal of Rate Contracts

In case it is not possible to conclude new rate contracts before the expiry of existing ones, due to some special reasons, the existing rate contracts would be extended with same terms, conditions etc for a suitable period, with the consent of the rate contract holders. Rate contracts of the firms, who do not agree to such extension, will be left out. Period of such extension would generally not be more than three months.

51. Prequalification Bidding

51.1 Prequalification Bidding is for short listing of qualified Bidders who fulfill the Prequalification criteria as laid down in SIT or in Section IX of SBD – "Qualification Criteria" for procurement of Goods or Services as listed in Section VI of SBD – "List of Requirements". Short listed Bidders would be informed of their qualification and short listing in accordance with the stipulations laid down in the SIT. Unless otherwise stipulated in the SIT the PQB short listing would be valid only till the next procurement tender. Further conditions will be elaborated in the SIT.

51.2 If stipulated in the SIT, only these short listed qualified bidders would be invited to participate in the Procurement of the requirements. Otherwise SIT may also indicate that instead of floating a separate PQB tender, it may be combined with the Procurement Tender, as a three bid tender. Initially the first Packet containing PQB would be opened and evaluation would be done. Thereafter the rest of tender would be handled as a two bid system for only those bidders who succeed in PQB.

52. Tenders involving Samples

52.1 Normally no sample would be called along with the offer for evaluation.

52.2 Purchaser's Samples: If indicated in the SIT, A Purchaser's sample may be displayed to indicate required characteristics over and above the Specifications for perusal of the bidders. Name and Designation of the Custodian, Place, Dates and Time of inspection of Purchaser's sample will be indicated in the SIT. The supplies in the contract will have to meet the indicated required characteristics for which the Purchaser's sample was displayed, besides meeting the specification listed in Section VII – "Technical Specifications" of the SBD. He would be issued a sealed Purchaser's sample for the purpose at the time of award of the contract.

52.3 Pre-Production Samples: If stipulated in SIT, successful contractor would be required to submit a Pre-Production sample(s) to the Inspecting Officer/ or the nominated authority mentioned in the contract within the time specified therein. If the Contractor is unable to do so, he must apply immediately to the Office issuing the acceptance of tender for extension of time stating the reasons for the delay. If the Purchaser is satisfied that a reasonable ground for an extension of time exists, he may allow such additional time as he considers to be justified (and his decision shall be final) with or without alteration in

the delivery period stipulated in the contract and on such conditions as he deems fit. In the event of the failure of the Contractor to deliver the pre-production sample by the date specified in the acceptance of tender or any other date to which the time may be extended as aforesaid by the Purchaser or of the rejection of the sample, the Purchaser shall be entitled to cancel the contract and, if so desired, purchase or authorize the purchase of the stores at the risk and cost of the Contractor (unless specified otherwise in the SIT). In such an event, in case of Security Items where urgency develops due to such delays, BRBNMPL reserves its right to procure not more than one year's requirement against this "Risk & Cost" tender from existing pre-qualified and security cleared firms. Bulk production and supply will only be allowed if this sample(s) pass the Tests laid down in the Section VIII "Quality Control Requirements" in the SBD.

52.4 Testing of Samples: Tests, procedures and testing laboratories for testing samples would be detailed in the Section VIII – "Quality Control Requirements" in the SBD.

52.5 Validation/ Prolonged Trials: If specified in SIT or in the Section VIII – "Quality Control Requirements" in the SBD, pre-production samples may have to undergo validation or extended trial before their performance can be declared satisfactory.

52.6 Parameters Settings and duration of Validation Tests would be indicated in the Section VIII – "Quality Control Requirements" in the SBD. It would also stipulate the period or event marking end of validation trials. It would also be indicated therein whether the Permission to start bulk production will have to wait full validation or it can go on in parallel.

53. Expression of Interest (EOI) Tenders:

53.1 EOI tenders are floated for short listing firms who are willing and qualified for: -

i. Registration of Vendors for Supply of particular Stores or certain categories of Stores.

ii. Development of new items or Indigenization of Imported stores

53.2 The qualification / eligibility criteria required and the format of submission of such Data would be indicated in the Section IX - "Qualification Criteria" in the SBD.

53.3 Objectives and scope of requirement would be indicated in the Section VI - "List of Requirements" in the SBD. Indicative quantity required yearly and its future requirements would also be indicated.

53.4 In case of EOI for Development of new Items or for Indigenization, prospective firms would be given opportunity to inspect the Machine/ Item at the place of installation at the place, dates and Time mentioned in SIT.

53.5 In case EOI is for registration of vendors, Registration Fees and validity period of registration would be detailed in the SIT.

53.6 Short List of Suppliers: The suppliers shall be evaluated for short listing, inter-alia, based on their past experience of supplying goods in similar context, financial strength, technical capabilities etc. Each supplier will be assigned scores based on weightages assigned to each of the criteria mentioned in the Section IX – "Qualification Criteria" in the SBD.

53.7 If stipulated in the SIT, the Firm's capacity and Capability may be assessed by a nominated Committee or by a third party nominated by BRBNMPL.

53.8 All suppliers who secure the minimum required marks (normally 50% unless otherwise specified in the Section IX) would be short listed. Section IX may alternatively specify minimum qualifying requirement for each of the criteria i.e. minimum years of experience, minimum number of assignments executed, minimum turnover etc. Under such circumstances, all suppliers who meet the minimum requirement, as specified, will be short listed_

53.9 In case of EOI for registration of vendors, registration letters would be issued to the short listed tenderers.

53.10 In case of EOI for development/ indigenization, these shortlisted tenderers would only be allowed to participate in the subsequent development/ indigenization tenders.

54. Tenders for Disposal of Scrap

54.1 Introduction: The tender is for Sale of Scrap material lying at various locations. Details of scrap for sale including Description, Present Condition, Lot Size and its Location would be given in the Section VI – "List of Requirements".

54.2 "As Is; Where Is; Whatever Is" Basis of This Sale:

54.2.1 This sale of Scrap is strictly on "As Is; Where Is; Whatever Is" basis. Tenderer must satisfy himself on all matters with regard to quality, quantity; nature of stores etc., before tendering as no complaint or representation of any kind shall be entertained after the sale contract is concluded.

54.2.2 The description of lot in the particulars of sale has been given for the purpose of identification thereof only and the use of such description shall not constitute the sale thereof to be sale by description and no sale shall be invalid by reason of any defect or deviation or variation in any lot or on account of any lot not being exactly described and the purchaser shall not be entitled to claim any damage or compensation whatsoever on account of such fault, error in description, weight or the like.

54.2.3 All quantities of scrap whether by weight or measurement mentioned in the Tender notice are only approximate and should the quantity, on actual weight or measurement basis as the case may be and whenever delivered on such basis, works out less than the advertised and for projected quantity, the BRBNMPL shall not under any circumstances be liable to make good any such deficiency

54.2.4 BRBNMPL reserves right to increase or decrease the quantity of any item or items or terminate the contract at any stage by giving one week's notice. No claim whatsoever shall lie against the BRBNMPL on account of such termination of the contract or variation in the quantity.

54.2.5 BRBNMPL shall have the right to remove certain items which it feels were not intended for sale but were inadvertently made a part of the scrap material or of the lot offered for sale lying at the premises or were joined or attached to the material offered for sale.

54.2.6 Tenderers desirous of purchasing and participating in the tender must visit the site before submitting the offer, after taking due permission from the concerned Stock Holders. The Tenderers submitting the offers shall be deemed to have visited the site and acquainted themselves thoroughly with materials intended for sale in all respect.

54.2.7 Any person giving offer shall be deemed to have made himself fully conversant with the Terms and Conditions of the Tender Sale, as well as the location and condition of the materials being sold and shall be deemed to have agreed to all the stated terms and conditions herein under.

54.3 Submission of Offer:

54.3.1 Unless specified otherwise in the SIT, tenders shall hold good for acceptance for a minimum period of 90 days (ninety days) from the date of opening of the tenders. The offers of the tenderers shall be irrevocable.

54.3.2 The BRBNMPL reserves right to reject any offer without assigning any reason there for.

54.3.3 Unless otherwise stated in the SIT, the amount of EMD in such tenders would be 5% of the value of the tender. The Earnest Money shall be forfeited if the tenderer unilaterally withdraws amends, impairs or derogates from his offer in any respect within the period of validity of his offer.

54.3.4 If the offer of the tenderer is not accepted by the BRBNMPL, the Earnest Money deposit made by the

tenderer shall be refunded to him. No interest shall be payable on such refunds. The EMD deposited by the successful tenderer shall remain with the BRBNMPL till payment of the security deposit (SD) money, as stipulated in relevant Clause, has been made. It may be adjusted as part of the total SD money at the discretion of the BRBNMPL.

54.3.5 Commercial tax / terminal tax, Octroi, municipal tax or any other taxes / duties etc. whatever in force shall be payable extra by the purchaser as per rules applicable to BRBNMPL. Current and valid PAN and sales / commercial tax registration number wherever applicable must be provided in the Bid of the Tenderer.

54.3.6 All arrangement for lifting and transportation of scrap material, including manpower, crane, transport vehicle and trolley etc, if required shall be made by the purchaser concerned only and the BRBNMPL shall not provide or help in providing any such arrangements and the rate quoted by the purchaser must include such and all incidental charges.

54.3.7 Registered dealers who are exempted from payment of Sales Tax must submit copies of their Registration certificate of concerned authority and shall be required to submit necessary form duly completed in all respect to BRBNMPL or its representatives before obtaining delivery order, duly signed by the partner of the firm or the person authorized to do so.

54.3.8 Evaluation of tenders for Disposal of scrap will be done on similar basis as Tenders for Procurement of Goods, except that the selection of the bidders shall be on the basis of the highest responsive Bidder (Hi). In case full quantity is not offered to be taken by the Highest Bidder, parallel contracts would be placed.

54.4 Notification of Acceptance and Award of Contract:

54.4.1 The successful tenderer, herein after referred to as purchasers, shall have to submit security deposit (SD) @ 10% of the total sale value of the contract within 5 working days of issue of the sale contract (excluding the date of issue of sale contract). The SD shall be deposited in the form of bank draft/pay order, drawn on any nationalized or recognized bank in favour of same officer as mentioned in clause 3 of NIT in connection with EMD.

54.4.2 The purchaser has to pay balance payment within 20 days from the date of notification of acceptance, which is to be issued by BRBNMPL or his authorized representative, in form of Bank draft drawn on any nationalized or recognized bank in favor of same authority as mentioned above. In case of any, default to deposit balance payment, BRBNMPL reserves right to terminate the contract and forfeit the security deposit.

54.5 Disposal Tenders for Security and Sensitive Machinery and Items:

54.5.1 Non-Misuse Declaration: The bidder is required to give an undertaking that he or his employees or legal heirs will ensure that such items purchased from BRBNMPL, will be utilized only for scrap recovery and will not be misused for any other purpose. He will also ensure that this undertaking is honoured and it got underwritten from further down the line scrap processors/ re-purchasers, if any. In case his firm changes hands, it will be his responsibility to ensure that the new owners honour and underwrite this undertaking.

54.5.2 If stipulated in SIT delivery would be given only in dismantled / cut-up condition.

55. Development and Indigenization Tenders:

55.1 Already developed firms or firms who have already received development orders for the item (with whatever results) would not be considered in such tenders.

55.2 If specified in SIT the contract documents may be issued free of cost, and submission of earnest money deposit and security deposit may be relaxed.

55.3 If specified in SIT, The Tenderers may quote separately for

- i. Price / rate for bulk supply of item in development / indigenization supplies and
- ii. Separately, cost of development including cost of pre-production samples. Firms would be paid only for the number of samples specified in the Tender. If he has to manufacture more samples due to failure of earlier one, he would not be paid for it.

55.4 L1 would be determined on the basis of rate of item quoted including reference to total cost of the development cost (including the cost of prototype) plus the notional total cost of quantities that will be required over next three years, wherever applicable.

55.5 Development contracts may, as far as feasible, be concluded with two or more contractors in parallel.

55.6 The ratio of splitting of the supply order between various development agencies / firms in cases of parallel development, including criteria thereof, would be specified in the SIT.

55.7 However, in case the requirement is meager and complex technology is involved, or quantity of the equipment/ spares is limited/small/ uneconomic if distributed between two vendors, the entire order could be placed upon the L1 vendor only.

55.8 If specified in SIT, Advance and Intermediate Payment to Suppliers may be allowed.

55.9 Quantity for Development Commitment

In Next three years, after the newly developed firm is able to successfully complete Development orders with $\pm 5\%$ tolerances, 20% of annual quantity requirement may be reserved for Newly Developed firms.

55.10 Period of Development Commitment

A newly developed firm would be granted this facility till only three years after completing the initial Development order. However this facility is not a bar to the firm from competing with already established firms for quantities larger than 20% provided their prices and performance so warrant. Thereafter they would have to compete on equal terms with other already developed firms.

56. Tenure of Contract:

The total work should be completed within the time as mentioned in Part-I (NIT). Since time is the essence of the contract, contractor should mobilise all the resources to complete the work in time. On placement of Work Order in case the contractor fails to start the job within ten days from date of issue of order, BRBNMPL reserves the right to cancel the contract and EMD / Security Deposit amount will be forfeited.

Request for extension of completion period on valid reason, shall be submitted at least two weeks before scheduled date of completion.

57. Before execution of above work the contractor has to see the site condition, take measurement, submit Design, Drawing, lay out & work schedule etc. for approval of BRBNMPL

58. Compliance Of Security Norms:

- a) Bharatiya Reserve Bank Note Mudran Pvt. Limited, Salboni is a security organization and its premises have been declared as 'PROTECTED AREA' by the Govt. of West Bengal. Hence the bidder shall have to abide by the prevailing security Norms. Any of the bidder's employee/works man/labour deployed at site found by the Company as having doubtful integrity, shall be removed from the premises at the risk and cost.
- b) The bidder shall provide security provisions to check infiltration, and safeguard of the works till

the complete work is handed over. Nothing, extra shall be paid to the bidder by the BRBNMPL on this account.

59. Safety & Security Measures:

- a) The contractor should scrupulously conform to the safety and security norms and stipulations while working in the security area. The contractor should maintain site clearance during the progress of the work and also after the completion of the work.
- b) It shall be the sole responsibility of the contractor to ensure safety to all his workers. The contractor shall take all the precaution during the execution of assigned works against any type of personnel injury or any damage to the property, which can arise during working. Adequate safety gadgets shall be provided by the contractor to the workmen as per norms
- c) Contractor has to issue two sets of uniform (Pant and shirts for Gents or ladies uniform as per requirement) and one pair of good quality shoes to all their employees as approved by the BRBNMPL on yearly basis.
- d) In respect of all labour, directly or indirectly employed on the works for the performance and execution of the contractor's work under the contract, the contractor shall at his own expense arrange for all the safety provisions as listed in (i) safety code forming part of the contract documents (ii) Indian Standards Regulations, Rules and orders made there under and such other acts as applicable.
- e) Precautions as stated in the safety clause are the minimum necessary and shall not preclude the Contractor taking additional safety precautions as may be warranted for the particular type of work or situations. Also mere observance of these precautions shall not absolve the contractor of his liability in case of loss or damage to property or injury to any person including the contractor's labour, the BRBNMPL representatives or any member of the public or resulting in the death of any of these.
- f) Protective gear such as safety helmets, boots, belts etc. shall be provided by the contractor at his own cost to all his manpower at site. The Contractor shall impose such requirements on all sub-contractors also. It shall be the responsibility of the contractor to ensure that such protective gear is worn at all times by all personnel working at site. BRBNMPL shall have the right to stop any person not wearing such protective gear from working on the site.
- g) In case the contractor fails to make arrangements and provide necessary facilities as aforesaid, the BRBNMPL shall be entitled to do so and recover the costs thereof from the contractor. The decision of the BRBNMPL in this regard shall be final and binding on the contractor.
- h) Any untoward incident arising out of improper supervision or inadequate safety measures will be the sole responsibility of the contractor. The Contractor shall conform to all the Labour Laws and shall remain solely responsible for the obligation to be carried out under the relevant statutory provisions.
- i) BRBNMPL is a security organization and the Govt. of west Bengal declares the premise as Prohibited Area. Hence the contractor has to abide by the security rules of the Company. The contractor has to ensure the character and antecedent of the persons deployed. The

contractor should be in a position to produce such documents whenever he is asked to do so. Details shall be furnished as per format when called for. The contractor has to issue printed photo identity card to its workers duly authenticated by the designated security officer of the Company. Contractor should apply for Gate Pass for labours, welding permission and material entry pass etc. as per approved format only, well in advance to avoid any delay in issue of Gate passes.

- j) Contractor should ensure that the number of labours/masons or any other type of workers engaged for carrying out the work and requested for issue of gate pass are coming for the job awarded. In case any of the workers is not coming for which gate pass was requested/issued, the name of such persons should be brought to the notice of the concerned officer as well as to the Security section and surrender the pass issued immediately.
- k) Gate passes for all the workers shall be applied in the prescribed Gate pass Format, contractor should enclose copy of address proof (Voters ID card or ration card or driving license or passport etc., for all the workers for which gate pass has been requested. The details shall be submitted in the prescribed format.
- l) The contractor shall submit police verification certificate for good character / antecedents for all the workers/supervisor for complying Security formalities. This certificate or receipt of submission shall be submitted by the contractor. The same shall be submitted for workers/supervisors, who may be a replacement / addition, as the case may be. The cost of verification will be borne by the contractor.
- m) On award of the contract the contractor shall sign the Non-disclosure format and abide with that.
- n) Any worker of the contractor, if found by the Company as unsuitable or having doubtful integrity, shall be removed from the premises at the risk and cost of the contractor. The contractor shall vouch guarantee for the integrity of its workers.

60. Accommodation: On specific request from the successful tenderer, the Company, as per availability and allotment norms/rules in force for allotment as per Estate Section procedure, may provide space for Site Office purpose on a separate agreement, at a prescribed rent & other charges like Electricity etc., fixed by the Company. In this event, the successful tenderer should always be in a position that whenever any directive for vacating the said premise is issued, he shall, without raising any objection, peacefully vacate the same.

The lease agreement should be renewed before expiry of the existing tenure of contract. Non-compliance may lead to cancellation of allotment.

On completion of contract period the allotted quarter should be vacated within 02 (two) Months & keys should be handed over to Estate section, failing which

we may deduct double the normal charges from the contractor bill. Also, in case the quarter is not handed within the specified time, then BRBNMPL reserves the right to take possession of the quarter without any intimation. Contractor shall not have any claim whatsoever.

61. WATER SUPPLY & ELECTRICITY

- a. The Contractor is expected to make his own arrangements for construction water as well as supply of drinking water for deployed labour. **BRBNMPL may permit the Contractor to dig a borewell the at the contractor's cost at the work site for arranging the water. After completion of the work the borewell may be handed over to BRBNMPL in running condition..**
- b. Depending upon the requirement of Electric Power, Contractor may be allowed to draw power from a prescribed point. However necessary arrangement for drawing the same to work site including Energy Meter, shall be made by the Contractor at his own cost. Electricity will be charged at prevailing commercial rate of BRBNMPL.

62. TOOLS AND TACKLES: All the Plants, Machineries, Tools and Tackles required for execution of the work, has to be supplied and arranged by the contractor.

63. Responsibility of the Contractor:

- a) **Storage and security of materials:** Contractor is responsible for storage and security of their material brought to the site. Any temporary structure, if required will be constructed by the contractor at his own cost. The temporary structure will be demolished after completion of Contract or when asked for and the contractor will dispose of all debris at their own cost.
- b) **Execution of the work:** The contractor shall arrange competent persons for execution, supervision and measurement of the work.
- c) **Progress Report:** Contractor should submit monthly Progress Report regarding a Progress of the work, in addition to Hindrance Register & Field Book.

Section III: Special Instructions to Tenderers (SIT)

The following Special Instructions to Tenderers will apply for this purchase. These special instructions will modify/ substitute/ supplement the corresponding General Instructions to Tenderers (GIT) incorporated in Section-II. The corresponding GIT clause numbers have also been indicated in the text below:

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

(Clauses of GIT listed below include a possibility for variation in their provisions through SIT. There could be other clauses in SIT as deemed fit.)

Sl. No.	GIT Clause No.	Topic	SIT Provision
1	4	Eligible Goods and Services (Origin of Goods)	No provision
2	8	Pre-bid Conference	Applicable
3	9	Time Limit for receiving request for clarification of Tender Documents	As per GIT
4	11.2	Tender Currency	No Special provision (INR Only)
5	12.1	Applicability of Octroi and Local taxes	No provision
6	14	PVC Clause & Formula	Not applicable
7	19	Tender Validity	120 days
8	20.4	Number of Copies of Tenders to be submitted	One (01)
9	20.9	E-Procurement	Not applicable
10	35.2	Additional Factors for Evaluation of Offers	Prospective bidders should meet our tender conditions and items being supplied should be strictly as per given specification without counter conditions.
11	43	Parallel Contracts	Not applicable
12	50.1, 50.3	Tender for Rate Contracts	Applicable
13	51.1, 51.2	PQB Tenders	Not applicable
14	52.1, 52.3, 52.5	Tenders involving Purchaser's and Pre-Production Samples	Not applicable
15	53.4, 53.5, 53.7	EOI Tenders	Not applicable
16	54.3.1, 54.5.2	Tenders for Disposal of Scrap	Not applicable
17	55.2, 55.3, 55.7, 55.8	Development / Indigenization Tenders	Not applicable

Section IV: General Conditions of Contract (GCC)

(For complete details please refer our website
www.brbnmpl.co.in)

1. Performance Bond / Security

- 1.1 To be submitted within twenty-one days after the issue of notification of award by BRBNMPL, the Contractor shall furnish performance security to BRBNMPL for an amount equal to ten percent (10%) of the total value of the contract, valid up to sixty days after the date of completion of all contractual obligations by the Contractor, including the warranty obligations.
- 1.2 The Performance security shall be denominated in Indian Rupees or in the currency of the contract and shall be in one of the following forms:
 - a) Account Payee Demand Draft or Fixed Deposit Receipt drawn on any commercial bank in India, in favour of the same official of BRBNMPL as indicated in the clause NIT in reference to EMD.
 - OR**
 - b) Bank Guarantee issued by a commercial bank in India, in the prescribed form as provided in Section-XV of this document.
- 1.3 In the event of any loss due to Contractor's failure to fulfill its obligations in terms of the contract, the amount of the performance security shall be payable to BRBNMPL to compensate BRBNMPL for the same.
- 1.4 BRBNMPL will release the performance security without any interest to the Contractor on completion of the Contractor's all contractual obligations including the warranty obligations.

2. Inspection and Quality Control

- 2.1 BRBNMPL and / or its nominated representative(s) will, without any extra cost to BRBNMPL, inspect and/ or test the ordered goods and the related services to confirm their conformity to the contract specifications and other quality control details incorporated in the contract. BRBNMPL shall inform the Contractor in advance, in writing, BRBNMPL's programme for such inspection and, also the identity of the officials to be deputed for this purpose.
- 2.2 The Technical Specification and Quality Control Requirements incorporated in the contract 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 Contractor or its sub-contractor(s), all reasonable facilities and assistance, including access to relevant drawings, design details and production data, shall be furnished by the Contractor to BRBNMPL's inspector at no charge to BRBNMPL.
- 2.3 If during such inspections and tests the contracted service fail to conform to the required specifications and standards, BRBNMPL's inspector may reject them and the Contractor shall either replace the rejected

services or make all alterations necessary to meet the specifications and standards, as required, free of cost to BRBNMPL and resubmit the same to BRBNMPL's inspector for conducting the inspections and tests again.

3. Performance Warranty

- 3.1 The Contractor warrants that the services under the contract is new, unused and incorporate all recent improvements in design and materials unless prescribed otherwise by BRBNMPL in the contract. The Contractor further warrants that the services 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 BRBNMPL's specifications) or workmanship or from any act or omission of the Contractor, that may develop under normal use of the supplied goods under the conditions prevailing in India.
- 3.2 This warranty shall remain valid for One year after the services or any portion thereof as the case may be, have been installed and commissioned at the final destination and accepted by BRBNMPL in terms of the contract.
- 3.3 In case of any claim arising out of this warranty, BRBNMPL shall promptly notify the same in writing to the Contractor.
- 3.4 Upon receipt of such notice, the Contractor shall, with all reasonable speed (or within the period, if specified in the SCC), repair or replace the defective goods or services thereof, free of cost, at the ultimate destination. The Contractor shall take over the replaced parts/ goods after providing their replacements and no claim, whatsoever shall lie on BRBNMPL for such replaced parts/ goods thereafter.
- 3.5 If the Contractor, having been notified, fails to rectify / replace the defect(s) within a reasonable period, BRBNMPL may proceed to take such remedial action(s) as deemed fit by BRBNMPL, at the risk and expense of the Contractor and without prejudice to other contractual rights and remedies, which BRBNMPL may have against the Contractor.

4. Modification of contract

- 4.1 Once a contract has been concluded, the terms and conditions thereof will generally not be varied. However if necessary, BRBNMPL 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:
 - (a) Specifications, drawings, designs etc. where goods or services to be supplied under the contract are to be specially manufactured for BRBNMPL,
 - (b) Incidental services to be provided by the supplier

- (c) Any other area(s) of the contract, as felt necessary by BRBNMPL depending on the merits of the case.
- 4.2 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 BRBNMPL, the supplier shall convey its views to BRBNMPL within twenty one days from the date of the supplier's receipt of BRBNMPL's amendment / modification of the contract.
- 4.3 **Option Clause/ Repeat Order Work:** BRBNMPL reserves the right to place the work order for increased quantity by 25% during execution of the contract. Also repeat order may be placed if required at a later date as per requirement. The optional quantity/ repeat orders may be placed at the same rates and terms of contract.
5. **Extra items/ Items not covered in BOQ:** During execution of job, if any additional item of work/ variation, deviation/ non-availability of item etc., is considered to be necessary, it shall have to be carried out by the contractor. The bill shall be settled as an extra work and shall be analysed as per actual cost of materials, manpower engaged, taxes/levies etc. plus 10% contractors profit and overhead. In case the item is available in the prevailing PWD/CPWD SR rates, the rate for the particular item shall be applicable for that item.
6. **Taxes and Duties**
- 6.1 Contractor shall be entirely responsible for all taxes, duties, fees, levies etc., incurred until delivery of the contracted goods to BRBNMPL.
- 6.2 Further instruction, if any, shall be as provided in the SCC.
7. **Terms and Mode of Payment:** Unless specified otherwise in SCC, the terms of payments would be as follows:
- The contractor shall not be paid any Mobilisation Advance or any Secured Advance.
 - Bill raised should have PAN, VAT (if any), Service Tax number printed over the bill.
 - Payment will be done as per actual work carried out. No payment shall be released against the extra materials brought to the site.
 - Service Tax as applicable shall be paid extra over gross bill value on claim and proof of payment shall be produced/ submitted to BRBNMPL, when asked for.
 - Undertaking for statutory compliance shall be submitted along with the Final bill.
 - Statutory Deduction of taxes including ITDS, VAT and WCT shall be made at source as per rule and provisions.
- g) Suitable deduction as deemed fit will be made for non-compliance in executing works as per schedule.
8. **Running Account (R.A.) Bill & Final Bill**
- Contractor may submit Running Account Bill for a minimum completed work value **as mentioned in the NIT.**
 - Bill shall be accompanied with detailed measurement sheet & Abstract of Cost. Measurement shall be given in the standard measurement sheet only with abstract for each Bill and final bill in the Soft copy as well as in the hard copy.
 - Final Bill:** Final Bill should be submitted after completion of Work. And complying the following:
 - No Claim Certificate including no claim from the vendors/suppliers and compensation to the labour engaged for the works,
 - Indemnity Bond is to be submitted along with the Final bill. Cost of Bond Paper is to be borne by the contractor,
 - Deviation Statement vis-à-vis BOQ.
 - Test Certificates for materials, if required, any other document required by BRBNMPL,
 - Site clearance,
 - Undertaking for statutory compliance shall be submitted along with the Final bill.
9. **Measurement of work:** Measurement for the work done shall be taken jointly with BRBNMPL in the prescribed format.
10. **Materials:**
- All materials are subject to inspection and approval of BRBNMPL. BRBNMPL shall reserve the right to reject any material when found not in conformity with specifications and terms and conditions of the Work Order in all respect.
 - Contractor has to submit copy of challan, invoice as a proof of purchase of items, as & when asked for.
 - Test certificate of items if asked should be submitted by the contractor. The cost for the same will be borne by the contractor.
11. **Liquidated damages**
- If the Contractor fails to deliver any or all of the goods or fails to perform the services within the time frame(s) incorporated in the contract, BRBNMPL shall, without prejudice to other rights and remedies available to BRBNMPL under the contract, deduct from the contract price, as liquidated damages, a sum equivalent to the 0.5% percent (or any other percentage if prescribed in the SCC) of the delivered price of the delayed goods and/ or services for each week of delay or part thereof until actual delivery or performance, subject to a maximum deduction of the 10% (or any other percentage if prescribed in the SCC) of the delayed goods' or services' contract price(s). During the above mentioned delayed period of supply and / or performance, the conditions incorporated under GCC above shall also apply.

12. Delay and Extension of time

If in the opinion of the BRBNMPL, the works be delayed (a) by force majeure or (b) by reason of any exceptionally inclement weather or (c) by reason of proceedings taken or threatened by or dispute with adjoining or neighbouring or public authorities arising otherwise than through the Contractor's own default or (d) by the works or delays of other Contractors or Tradesmen engaged or nominated by the Owner and not referred to in the schedule of quantities and/or specification or (e) by reason of Owner's instructions as per relevant clause hereof or (f) by reason of civil commotion (g) by reason beyond control of the Contractor in the opinion of the owner.

If the Contractor needs an extension of time for completion of the work, the contractor shall apply at least 02 (Two) weeks before the expiry of schedule date of completion furnishing the reasons in detail with complete justification. The contract shall remain in force even for the period beyond due date of completion irrespective of whether the contractor has applied for extension of time for completion unless the owner decides to terminate the contract. The delay for completion of work for any reason will not entitle the contractor to claim any compensation.

13. Termination for insolvency

If the Contractor becomes bankrupt or otherwise insolvent, BRBNMPL reserves the right to terminate the contract at any time, by serving written notice to the Contractor without any compensation, whatsoever, to the Contractor, 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 BRBNMPL.

14. Force Majeure

In the event of any unforeseen event directly interfering with the services/work arising during the currency of the contract, such as war, hostilities, acts of the public enemy, civil commotion, sabotage, fires, floods, explosions, epidemics, quarantine restrictions, strikes, lockouts, or acts of God, the Contractor shall, within a week from the commencement thereof, notify the same in writing to the Purchaser with reasonable evidence thereof. Unless otherwise directed by BRBNMPL in writing, the contractor 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. If the force majeure condition(s) mentioned above be in force for a period of 90 days or more at any time, either party shall have the option to terminate the contract on expiry of 90 days of commencement of such force majeure by giving 14 days' notice to the other party in writing. In case of such termination, no damages shall be claimed by either party against the other, save and except those which had occurred under any other clause of this contract prior to such termination.

In case due to a Force Majeure event BRBNMPL is unable to fulfill its contractual commitment and responsibility, BRBNMPL will notify the contractor accordingly and subsequent actions taken on similar lines.

15. Termination for convenience

BRBNMPL reserves the right to terminate the contract, in whole or In part for its (BRBNMPL's) convenience, by serving written notice on the

Contractor at any time during the currency of the contract. The notice shall specify that the termination is for the convenience of BRBNMPL. The notice shall also indicate inter-alia, the extent to which the Contractor's performance under the contract is terminated, and the date with effect from which such termination will become effective.

The goods and services which are complete and ready in terms of the contract for delivery and performance within thirty days after the Contractor's receipt of the notice of termination shall be accepted by BRBNMPL following the contract terms, conditions and prices. For the remaining goods and services, BRBNMPL may decide to get any portion of the balance completed and delivered at the contract terms, conditions and prices; and / or to cancel the remaining portion of the goods and services and compensate the Contractor by paying an agreed amount for the cost incurred by the Contractor towards the remaining portion of the goods and services.

16. Code of Ethics

BRBNMPL as well as Bidders, Contractors, Contractors, and Consultants under BRBNMPL contracts shall observe the highest standard of ethics during the procurement or execution of such contracts. In pursuit of this policy, for the purposes of this provision, the terms set forth below are defined as follows:

- a) "Corrupt practice" means the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the action of a public official in the procurement process or in contract execution;
- b) "Fraudulent practice" means a misrepresentation or omission of facts in order to influence a procurement process or the execution of a contract;
- c) "Collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of the Purchaser, designed to establish bid prices at artificial, non-competitive levels; and
- d) "Coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the procurement process or affect the execution of a contract.
- e) A particular violation of ethics may span more than one of above mentioned unethical practices.

17. Resolution of disputes

If dispute or difference of any kind shall arise between BRBNMPL and the Contractor in connection with or relating to the contract, the parties shall make every effort to resolve the same amicably by mutual consultations. If the parties fail to resolve their dispute or difference by such mutual consultation within twenty one days of its occurrence, then, unless otherwise provided in the SCC, either BRBNMPL or the Contractor may seek recourse to settlement of disputes through arbitration as per The **Arbitration and conciliation Act 1996** as per following clause.

Arbitration

If both parties fail to reach such amicable settlement, then either party may within 21 days of such failure give a written notice to the other party requiring that all matters in dispute or difference be arbitrated upon. Such written notice shall specify the matters which are in difference or of difference of which such written notice has been given and no other matter shall be referred to the arbitration. The arbitration proceeding shall be held in Kolkata and shall be conducted in English language. All documentation to be reviewed by the arbitrators and/ or submitted by the parties shall be written or translated into English. Venue of arbitration shall be Kolkata. The arbitrator or arbitrators appointed under this article shall have the power to extend time to make the award with the consent of the parties. Pending reference to arbitration the parties shall make all endeavors to complete the contract/work in all respects and all disputes, if any, will finally be settled in the arbitration. The dispute shall be settled as per the Indian arbitration and conciliation act 1996. The appointment of arbitrator shall be from the panel submitted by the owner to the contractor.

18. Statutory Requirements/ Applicable Law and Insurance:

Contractor shall be responsible to fulfil all the obligations under various labour laws, such as Contract Labour (Regulation & Abolition) Act, 1970; Minimum Wages Act 1948; Payment of Wages Act 1936; Payment of Bonus Act 1965; Payment of Gratuity Act 1972; ESI Act 1948; Employees Provident Funds & Miscellaneous Act 1952; Workmen's Compensation Act 1923 etc.

The contractor has to obtain insurance coverage to all his employees under 1) **Workmen Compensation Policy during the full tenure of the contract to address the liability under Workmen's Compensation Act 1923** and 2) **Contractors all risk (CAR) policy**. The same has to be submitted before commencement of work.

The contractor shall, throughout the contract period has to comply with relevant Central and State statutes, Ordinance or Laws and the regulations or byelaws of any local or duly constituted authority having jurisdiction over the contract work.

The contractor shall also bring to our notice and pay all fees, taxes, dues and contributions required to be given or paid under any Central or State Statutes, Ordinance or other laws or any regulations or bye laws of any local or duly constituted authority in relation to the contract.

The contractor shall be registered and / or obtain License (s) from the concerned authority as provided under various applicable acts and shall be directly responsible to such authorities for compliance with the provisions thereof. The company, as a principal employer, shall enforce the provisions of these acts, if found necessary. Any failure on the part of the Contractor in this regard will be at his risk and consequences. The contractor shall indemnify the

company from any claims, which may arise for any breach of the statutory requirements.

19. Secrecy

The Contractor shall take all reasonable steps necessary to ensure that all persons employed in any work in connection with the contract, have full knowledge of the Official Secrets Act and any regulations framed thereunder.

Any information obtained in the course of the execution of the contract by the Contractor, his servants or agents or any person so employed, as to any matter whatsoever, which would or might be directly or indirectly, of use to any enemy of India, must be treated secret and shall not at any time be communicated to any person.

Any breach of the aforesaid conditions shall entitle the owner to cancel the contract and to purchase or authorize the purchase of the services at the risk and cost of the Contractor. In the event of such cancellation, the services or parts manufactured in the execution of the contract shall be taken by the Purchaser at such price as he considers fair and reasonable and the decision of the Purchaser as to such price shall be final and binding on the Contractor.

The Contractor will have to comply with the provisions of the Contract Labour (Regulations and Abolition Act 1970 and Central Rules 1971 and obtain license from the licensing authority/ Labour Commissioner or the competent authorities empowered to issue such license. Any failure on the part of the Contractor in this regard will be at his risk and consequences. He shall comply with Workman's Compensation Act 1923, Payment of Wages Act 1936, and Minimum Wages Act 1948 and all the other related statutory and legal provisions and obligations. The Contractor shall also indemnify the BRBNMPL against any claim / liabilities that may occur to the contractor's labors and workmen due to any reasons whatsoever.

20. Site Clearance:

Proper site clearance including cleaning of the site, removal of debris on day to day basis, & disposal of unwanted materials at site shall be made by the contractor during execution of the work up to the satisfaction of the Engineer - in - Charge. Without proper site clearance up to the satisfaction of Engineer - in - Charge, payment cannot be released.

21. Refusal of works:

If the bidder fails or refuses to take up the job after opening the quotation and becoming successful bidder, due to any reason whatsoever or left the work in incomplete condition after starting the work, Security Deposit / E.M.D. will be forfeited and the party is liable for not being allowed for any tendering for a period as decided by the company/ any other action as deemed fit.

22. Responsibility against Damage Caused:

The contractor shall be responsible for any damage caused to the existing system/ property due to (i) Negligent Act (ii) Wrong Operation (iii) Mishandling by contractor's employees and contractor has to pay entire amount / charges for repair / replacement.

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.

(Clauses of GCC listed below include a possibility for variation in their provisions through SCC. There could be other clauses in SCC as deemed fit).

Sl. No.	Topic	SCC Provision
1	Packing and Marking	No Change
2	Transportation of Domestic Goods	No Change
3	Insurance	No Change
4	Incidental Services	No Change
5	Distribution of Dispatch Documents for clearance / Receipt of Goods	Not applicable
6	Warrantee Clause	No change
7	Option Clause	No change
8	Price Adjustment Clause	No change
9	Taxes and Duties	No change
10	Terms and Mode of Payments	No change
11	Quantum of LD	No change
12	Bank Guarantee and Insurance for Material loaned to Contractor	No change
13	Resolution of Disputes	No change
14	Disposal / Sale of Scrap by Tender	Not applicable

Section VI: List of Requirements

Schedule No.	Brief Description of Goods / Services	Quantity (with unit)	Earnest Money Deposit EMD (In Rs.)
1	“Construction of New Staff Recreation Club at BRBNMPL, Salboni (WB). As per Bill of quantities and scope of work mentioned at List of Requirement Section-VI, VII & X.	As per Price Schedule	5,00,000/- (Rupees Five lakhs)

Period of completion: Eighteen (18) Months from the date of issue of Work order excluding Monsoon period (June-September).

Section VII: Technical Specifications

Scope of Work:

1. The scope of work includes supply of materials and **Construction of New Staff Recreation Club at BRBNMPL Salboni** complete in all respect according to the intent and meaning of specification and description referred to the Price Schedule given at Section XI.
2. The schedule of items carried out is an indicative one. Any /all item(s) may/may not be operated. Contractor shall not have any claim for the same.
3. Works with item(s) not covered in the above schedule/ BOQ will be carried out as per the rates available in prevailing West Bengal PWD/CPWD, Schedule of Rates/ Derived from such rates.
4. To execute the works mentioned in the BOQ as per the IS, CPWD and WB-PWD specifications (whichever applicable) and to the satisfaction of BRBNMPL.
5. Electrical works for all the rooms as per item description. The design, manufacture, construction & testing shall be as per the norms of the code of practice/standards & shall also meet the regulations & requirements of Electricity Supply Authorities & Electrical Inspectorate.

6. Technical Specification / Approved Brand of Materials:

- a) **Type of Cement Recommended:** OPC or Higher Grade Cement shall only be used. Preferred brand are Konark, L & T, ACC, **Lafarge**, Grasim or equivalent.

b) **PLAIN CEMENT CONCRETE (P.C.C.)**

Plain Cement concrete of nominal mix 1:2:4 shall be provided using 20 mm downgraded stone chips, using minimum grading zone –III sand as per IS : 383 and 43 grade Ordinary Portland Cement (OPC) or Portland Slag Cement. P.C.C. shall be Machine mixed and compacted properly using mechanical vibrator while laying and shall be covered with gunny bags for at least 10 days for curing.

c) **REINFORCED CEMENT CONCRETE (R.C.C.)**

The Controlled Concrete Mix shall be used for R.C.C. works. **Contractor should submit the mix design for approval before start of the RCC works. Mix design shall be carried out at any reputed University like Jadavpur University, Kolkata/ IIT Kharagpur/ Government Laboratory.**

- d) **Reinforcement Work:** Reinforcing bars for concrete shall be round high yield deformed steel bars conforming to IS: 1786 preferably Tata / Tiscon or equivalent make. Sample bars of all diameters should be tested for physical properties analysis before start of the job from any

reputed University like Jadavpur University, Kolkata/ IIT Kharagpur/ Government Laboratory.

- e) **Bricks:** Only 1st Class approved quality bricks having minimum crushing strength 7.5 N/mm² and of IS 1077 standard bricks shall be used.
- f) **Sand:** Medium Sand minimum grading zone –III
- g) **Stone aggregate:** 20 mm. downgraded stone aggregate
- h) **Shuttering elements:** Steel shutter or 12mm ply board.
- i) **MS Items:** The MS Items and fittings should confirm to the IS Standards as mentioned in the BOQ. MS items should be of Approved make.
- j) **Paint:** Approved brand preferably Berger / J & N / Asian Paint / ICI paint etc.

In addition to above all standard specifications for relevant civil works of building construction will be applicable as per CPWD Specification / latest WB PWD Specifications under the instruction and direction of BRBNMPL officer I/CS.

- 7. **One qualified and experienced Civil Engineer for the execution of job having minimum Degree in Civil Engineering with 7 Years' Experience or Diploma in Civil with 10 year's Experienced in related field should be deployed during the tenure of the work, at work site as per Annexure-C. In case of non-compliance suitable deductions will be made from the bill.**

8. **GENERAL**

- a. Contractor must deploy Good running condition Mini Batching Machine not older more than five years of standard make like Universal or equivalent of suitable Batch capacity 450 Liters -750 Liters. Having inbuilt atomized Digital Water feeding system with inbuilt Load cell based Digital Weighing System for the bins.
- b. The competent and willing agencies may quote rates for above list of items of works.
- c. The entire work should be completed in all respect as per the schedule of items and to the satisfaction of the BRBNMPL Officers.
- d. Quoted rates shall be firm and binding and inclusive of all taxes & charges.
- e. Statutory deduction of taxes shall be made at the source.
- f. Contractor has to arrange all the required materials, labors, transportation etc., at his own cost.
- g. The contractor has to strictly follow the safety norms during his work & also take care for BRBNMPL property.
- h. The contractor should understand the scope of work before quoting and inspect the site accordingly.
- i. In case of any differences between item description and specifications attached, the item description shall be considered. The specification attached are for general guidance.
- j. Contractor shall furnish all tools, plants, instruments, qualified supervisory personnel, labour, materials, temporary works, consumables and everything necessary, whether or not such items are specifically stated herein for completion of the job in accordance with the requirements of the contract.
- k. Contractor shall maintain adequate drainage facilities at site at all times during execution of work. Additional ditches, drain and such other temporary means to achieve this, shall be provided and maintained by Contractor at this own cost.
- l. Contractor shall make all necessary, arrangement to locate borrow pits, getting local authorities approval, including royalty payments and labour licenses.
- m. Contractor shall make all necessary arrangements for bringing material. The source borrow pits shall be subject to prior approval of Project Manager. The approved borrow pits area shall be cleared of all bushes, roots of trees, plants, rubbish, etc. Top soil containing salts, sulphates and other foreign material shall be removed. The material so removed shall be burnt or disposed-off as directed by Project Manager at Contractor's own cost.

9. Material For Filling:

- a. Only materials considered suitable by the BRBNMPL shall be used for the construction and that considered unsuitable shall be disposed-off, as directed by officer in charge of BRBNMPL at the contractor's own cost and no claim for compensation shall be entertained.
- b. Material (soil) used for filling shall be free from boulders, lumps, tree roots, rubbish or any organic deleterious matter.
- c. Care shall be taken to see that unsuitable waste material is disposal off in such a manner that there is no likelihood of it getting mixed with the material proposed to be used for filling.
- d. The work shall be so planned and executed that the best available material (soil) is reserved for the top portion of embankments.

10. Construction safety:

Safety code should be followed as per IS 3696 (Parts I & II) Safety Code for scaffolds and ladders.(refer Annexure - I)

11. Testing of Materials: The contractor shall arrange for testing of materials at his cost as required from time to time. Testing shall be carried out at any reputed institute like Jadavpur University, Kolkata/ IIT Kharagpur/ Government Laboratory.

Further all records as per CPWD/WBPWD formats shall be maintained.

12. Supervision:

Constant and strict supervision at all items of the construction is necessary during the progress of the work, including the proportioning and mixing of the concrete. Supervision is also of extreme importance to check the reinforcement and its placing before being covered. Before any important operation, such as concreting or striking off the formwork is started, adequate notice shall be given to the BRBNMPL.

13. List of Preferred Brands or Equivalent make

1	Waterproofing compound	CICO/SIKA/Pidilite/ FOSROC
2	Interior Acrylic emulsion/ Primer	Berger / Asian/ ICI/ Jenson & Nicholson
3	Exterior Weather proof exterior Emulsion/ primers/ Synthetic Enamel Paint	Berger / Asian/ ICI/ Jenson & Nicholson
4	Commercial Board Ply, Teak Ply, Flush Door, Commercial Ply	KITPLY / ANCHOR / KUTTY
5	Anodized Aluminium hardware fittings	ECIE / EVERITE / Sigma / Essel
6	Plain (Indian) Glass	Hindustan / Pilkington / Modi
7	Aluminium Door fittings	ECIE / JINDAL / ALKARMA / AJIT INDIA ECA Section
9	Locks	Godrej / AMCE / or approved equivalent
10	Cement	Conforming to IS -269-53 Grade of L&T, ACC, Coromandel, Rajashree for structural work
11	TMT Steel	Tata, Sail, Jindal, Rathi or equivalent of approved make.
12	Membrane water proofing	Sika/Pidilite/Texsa/ equivalent
13	Aluminium Paint	Pidilite or equivalent

14. LIST OF PREFERRED ELECTRICAL MANUFACTURERS / MAKES OR Equivalent

1.0	MCCB	LEGRAND / HAVELLS / GE
2.0	L.T. CABLES	UNIVERSAL / POLYCAB /GLOSTER
3.0	SOLDERLESS CRIMPING LUGS	DOWELLS / JOHNSON
4.0	CABLE GLANDS	DOWELLS / JOHNSON
5.0	LIGHT FIXTURES	THORN / PHILIPS / WIPRO / GE
6.0	EXHAUST FANS	USHA / KHAITHAN / BAJAJ
7.0	MINIATURE CIRCUIT BREAKERS 10kA	LEGRAND / HAVELLS / GE
8.0	ELCB / ELMCB	LEGRAND / HAVELLS / GE
9.0	MCB DISTRIBUTION BOARDS	LEGRAND / HAVELLS / GE
10.0	PVC INSULATED FRLS COPPER WIRES (MSCC)	ANCHOR / FINOLEX / POLYCAB
	1100 VOLTS GRADE ONLY	
11.0	PVC INSULATED COPPER CONTROL CABLE	UNIVERSAL / POLYCAB /GLOSTER
	1100 VOLTS GRADE ONLY	
12.0	PVC RIGID CONDUIT & ACCESSORIES - 2MM THICK	NATIONAL / VIP / UNIVERSAL
13.0	SWITCHES & SOCKETS	ANCHOR ROMA / CRAB TREE
14.0	CEILING ROSES AND ACCESSORIES	SAME SWITCH MAKE
15.0	DEEP JUNCTION BOX	SAME SWITCH MAKE
16.0	GI / MS BOXES	SAME SWITCH MAKE
17.0	VOLTMETER / AMETER	AE / MECO / RISHAB
18.0	CTS/PTS	KAPPA / KALPA
19.0	ELR WITH CBCT	PROK'DEV
20.0	DIGITAL LOAD MANAGER / MDM	HPL SOCOMEC
21.0	INDICATING LAMPS, PUSH BUTTONS	TECHNIC
22.0	PANEL MANUFACTURER	CONTRACTOR CHOICE

Section VIII: Quality Control Requirements / Declaration by the tenderer

Tender No.: --/SAL/CIVIL/2016-17

Tender for “Construction of New Staff Recreation Club at BRBNMPL, Salboni (WB)”

[Supplier/Bidders shall fill the following format and submit along with bid]

1. It is confirmed that I/We shall carry out the works as per Technical specification and tender conditions. Necessary warranty and test certificates for desired materials shall be submitted along with bills.
2. I /we, also confirm that No material without conforming to the Specifications in the Contract will be used for the Works without prior written approval and instruction of the BRBNMPL Officers in charge.
3. Price Bid (Part-II) has been submitted as per given format (*Section-XI: Price Schedule*) in separate sealed envelope.
4. Payment terms are accepted as per tender conditions.
5. It is also confirmed that our firm is not black listed /debarred from tendering process from BRBNMPL or any PSU/ Govt. departments.

Date: / / 2016

Place:

For and on behalf of

[Signature with Name & date]

Duly authorized to sign tender for and on behalf of



Section IX: Qualification/ Eligibility Criteria

For Part-I: Technical Bid Criteria:

1. **Minimum qualification:** The contractor should have experience in **Building construction & civil works of Educational / Institutional / Residential / Industrial / Commercial Buildings**. Accumulated small value works of various Repair and maintenance works carried out during the year shall not be considered as a project for Building construction. Also the bidder should be currently in business and in sound financial condition.
2. **Eligibility Criteria:** The prospective bidders should have the following eligibility criteria and should submit the documents as mentioned below (in Part-I):
 - i) DD/FD/Bankers Cheque for Earnest Money Deposit and DD for cost of Tender document.
 - ii) Status of the Firm with copy of Registration / deed (Proprietorship / Partnership / Limited etc.).
 - iii) Copy of EPF Registration.
 - iv) Proof of VAT Registration No. (If not registered WC Tax (STDC) will be deducted from total contract value)
 - v) Copy of Service Tax Registration.
 - vi) Copy of Income Tax PAN.
 - vii) Financial Turnover Certified by Chartered Accountant for the last 03 Financial Years as per format enclosed at Annexure-A as well as Balance Sheet and Profit & Loss account Certified by CA for last 03 Financial Years i.e. for the FY:2013-14, 2014-15 & 2015-16.
 - viii) Work experience details to be filled in the form of Annexure-B enclosed.
 - ix) **Submission of list of technically qualified and experienced personnel for the execution of job. Minimum One Engineer Degree in Civil Engineering with 7 Years' Experience or Diploma in Civil with 10 year's Experienced in related field should be deployed during the tenure of the work, at work site as per Annexure-C.**
 - x) **Contractor must deploy Good running condition Mini Batching Machine not older more than five years of standard make like Universal or equivalent of suitable Batch capacity 450 Liters - 750 Liters. Having inbuilt atomized Digital Water feeding system with inbuilt Load cell based Digital Weighing System for the bins.**
 - xi) The Average annual financial turnover of the tenderer during the last 03 Financial Years ending **31st March 2016** should be 30 % of estimated value i.e. **Rs.79,50,000/-** or more. However, bidder should not have suffered any financial loss for more than one year during the last three years. The net worth of the firm should not have eroded by more than 30% in the last three years.
3. Copy of Credentials for compliance as proof of having successfully completed similar works and including Civil works along with the work orders / performance Certificate / Completion Certificate indicating a) Name of Work, b) Name of Client, c) Value of work, d) Scheduled date of completion, e) Actual Value of works on completion f) Actual date of completion g) Any other information. This should be of last 07 years ending last day of the Month previous to the one in which tenders are invited as per either of the following:-

Three similarly completed works each costing not less than the amount of value of 40% of estimated value i.e. **Rs.1,06,00,000/-** in the last 07 years up to **30/09/2016**.

OR

Two similarly completed works each costing not less than the amount of value of 50% of estimated value i.e. **Rs.1,32,50,000/-** in the last 07 years up to **30/09/2016**.

OR

One similarly completed works costing not less than the amount of value of 80% of estimated value i.e. **Rs.2,12,000/-** in the last 07 years up to **30/09/2016**.
4. a) All the copies of above certificates / documents shall be duly signed with seal by the Authorized person of the firm.

- b) Power of Attorney / Authorization with the seal of the company in the name of the person signing the Tender Documents.
 - c) Details of the contact person/ (s) with mobile number, email address, fax numbers etc.
 - d) A set of Complete Tender document duly signed by authorised bidder.
5. The bidder should submit credentials in compliance with the above eligibility criteria. These are the essential qualifying criteria for evaluation. The bidders are also advised to produce all the original documents as mentioned above, if requested, for our verification. The originals of all the above-mentioned documents will be returned back after verification
6. **(Part-II) Price Bid:**
The Price bid of the contractors who have qualified in Technical Bid (Part-I) only will be opened. Date shall be communicated to the qualified bidders.
- The Price Bid should contain the following:
- a) Price Bid schedule form: Section -XI only.
7. **Submission of Tenders shall be as under:**
- a) **Envelope - 1 : containing Part-I (Technical Bid)**
 - b) **Envelope - 2 : containing Part-II (Price Bid)**

Above two sealed envelope should be put in a **third** sealed cover super scribed with the name of the work and Tender No. with due date of opening as mentioned in the tender form.

Important:

- 1. Please note that the contractors who have worked earlier with BRBNMPL, Salboni and their performance was not found satisfactory for any of the jobs awarded to them, their tenders shall not be opened during technical bid stage and their offers shall be considered as invalid and shall be rejected.
 - 2. Tenders received after the below mentioned time and date, whether sent by post or delivered in person are liable to be rejected.
 - 3. In case of any clarifications, **bidders may contact Civil Maintenance Section at 03327-280730/ 324/ 212/ 214 Extn.: 4083/4057/4090 on any working days between 08:15hrs to 17:15 hrs.**
4. **Dates:**
- a) Last Date of submission of Tender : **08/11/2016 at 11:30 hrs.**
 - b) Date of opening of Tender (Technical Bid) : **08/11/2016 at 11:30 hrs.**
 - c) Opening of Price bid: Shall be intimated to technically qualified bidders in due course.

Section X: Tender Form –Technical Bid: Part-I

Proforma of Technical Bid (Part-I)

Tender Notice for Construction of New Staff Recreation Club at BRBNMPL Salboni (WB)

Company Name,.....
.....

To
The General Manager,
BRBNMPL,
Salboni - 721132.

Dear Sir,

Subject: Proforma of Technical bid (Part-I) for Construction of New Staff Recreation Club at BRBNMPL, Salboni (WB).

Reference: Your Tender No.: 07/SAL/CIVIL/2016-17, Dated: 05/10/2016.

With reference to your Tender enquiry cited above, we are pleased to enclose the following as our technical bid for your kind consideration.

1. Our company's profile
 - a. Earnest Money Deposit,
 - b. Status of the Firm with copy of Registration as proof,
 - c. Proof of EPF Account Number,
 - d. Proof of VAT Registration No.,
 - e. Proof of Service Tax Registration No.
 - f. Proof of PAN No.
2. We confirm that we have fulfilled eligibility criteria required by BRBNMPL and supported documents are enclosed herewith.
 - a. Proof of Eligibility criteria & Experience.
 - b. List of customers where similar kind of work has been done. Contact person name, designation & telephone no. work completion certificates etc.
 - c. Audited balance sheet for previous 03 (three) Financial Years i.e. FY: 2013-14, 2014-15 & 2015-16.
 - d. Certificate for turnover (Annexure- A)
 - e. Experience in the field of Similar Nature of Works (Annexure- B).
 - f. Details of Manpower proposed to be deployed as per Annexure-C.
 - g. Details on Deployment of Good running condition Mini Batching Machine not older more than five years of standard make like Universal or equivalent of suitable Batch capacity 400 Liters -750 Liters. Having inbuilt atomized Digital Water feeding system with inbuilt Load cell based Digital Weighing System for the bins.
3. We have enclosed a) in a separate envelope DD No.....Datedof amount as mentioned in the tender form Payable at Salboni towards the payment of EMD amount
4. Cost of Tender form, shall be Rs.750/- (Rupees Seven hundred & Fifty only) incase tender documents being taken from Civil Section, else Rs.500/- (Rupees Five hundred only) incase downloaded from website (Non-Refundable) is also enclosed as per details DD No.Dated
5. We confirm that the Price bid is quoted exactly as per your format and is inclusive of material, labour and all statutory levies, duties, service tax & all other charges as per Scope of work. Price break up is given as per the format of BOQ (Bill of Quantities). It is separately sealed in envelop-2 and attached herewith.
6. We confirm that we will abide by all the tender terms & conditions and we do not have any counter conditions. In case any counter condition is put the tender is liable to be rejected. As required, we enclose herewith the complete set of copy of tender documents (including terms & conditions) duly signed by us as a token of our acceptance along with EMD and tender form cost.
7. We also confirm that the undersigned is duly authorized and have the competence to sign the contract for and on behalf of the firm.
8. 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.
9. 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 tender document.

10. We agree to keep our tender valid for acceptance for a period up to **120 days** extendable up to another 30 days as per tender conditions.

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

Dated this _____ day of _____

For & on behalf of

(Signature with date)

(Name and designation)

Duly authorized to sign tender for and on behalf of

Thanking you,

Yours faithfully,

Signature with date

Name:



Note: Tender document without signature & essential document is liable for rejection at any stage.

Section XI: Price Schedule (Part-II)

From

.....
.....
.....
.....
.....

To
The General Manager,
BRBNMPL,
P.O.RBNML,
Salboni – 721132.

Dear Sir,

Subject: Submission of Price Bid (Part-II)

Reference: Your **Tender No.: 07/SAL/CIVIL/2016-17**

With reference to your Tender enquiry cited above, we are pleased to enclose the following as our Price Bid (Part-II) in separate sealed cover for your kind consideration.

Price Schedule for Construction of New Staff Recreation Club at BRBNMPL, Salboni (WB).

(A.) CIVIL WORKS

SL	DESCRIPTION	UNIT	QTY	RATE (Rs.)	AMOUNT (Rs.)
	EARTH WORKS				
1	Earth work in excavation of foundation trenches or drains, in all sorts of soil (including mixed soil but excluding laterite or sandstone) including removing, spreading or stacking the spoils within a lead of 75 m. as directed. The item includes necessary trimming the sides of trenches, levelling, dressing and ramming the bottom, bailing out water as required complete.				
a)	Depth of excavation not exceeding 1,500 mm.	Cum	1100.00		
b)	Depth of excavation for additional depth beyond 1,500 mm. and upto 3,000 mm. but not requiring shoring	Cum	200.00		
2	Earth work in filling in foundation trenches or plinth with good earth, in layers not exceeding 150 mm. including watering and ramming etc. layer by layer complete. (Payment to be made on the basis of measurement of finished quantity of work)				
a)	With earth obtained from excavation of foundation.	Cum	1200.00		
3	Filling in foundation or plinth by fine sand in layers not exceeding 150 mm as directed and consolidating the same by thorough saturation with water, ramming complete including the cost of supply of sand. (payment to be made on measurement of finished quantity)	Cum	500.00		

	Pre-Constructional Anti-termite measures:				
4	Anti termite treatment to the top surface of the consolidated earth within plinth walls with chemical emulsion by admixing chloropyrofos emulsifiable concentrates (1% concentration) with water by weight at the rate of 5 Litres per sq. m. of the surface before sand bed or sub-grade is laid. Holes upto 50 mm. to 75 mm. deep at 150 mm. centre to centre both ways shall be made with 12 mm, diameter mild steel rod on the surface to facilitate saturation of the soil with the chemical emulsion. The work shall be carried out as per specification described in para 6.4 of code IS-6313 (part -II) 1981. (Mode of measurment will be per Sq.m of plan area of plinth treated.)	Sqm	1500.00		
	BRICK WORKS, CONCRETE WORKS etc.				
5	Cement concrete with graded stone ballast (40 mm size excluding shuttering) In ground floor				
	(a) Pakur Variety				
(a)	1:3:6 proportion	Cum	145.00		
(b)	1:4:8 proportion	Cum	60.00		
6	Ordinary Cement concrete (mix 1:2:4) with graded stone chips (20 mm nominal size) excluding shuttering and reinforcement,if any, in gound floor as per relevant IS codes.				
	a)Pakur Variety	Cum	12.00		
7	Controlled Cement concrete with well graded stone chips (20 mm nominal size) excluding shuttering and reinforcement with complete design of concrete as per IS : 456 and relevant special publications, submission of job mix formula after preliminary mix design after testing of concrete cubes as per direction of Engineer-in charge. Consumption of cement will not be less than 300 Kg of cement with Super plasticiser per cubic meter of controlled concrete but actual consumption will be determined on the basis of preliminary test and job mix founmula. In ground floor and foundation. [using concrete mixture] M 25 Grade				
a)	Pakur Variety in GF	Cum	425.00		
b)	1st Floor	Cum	62.00		
c)	Roof	Cum	11.00		
08	Hire and labour charges for shuttering with centering and necessary staging upto 4 m using approved stout props and thick hard wood planks of approved thickness with required bracing for concrete slabs, beams and columns, lintels curved or straight including fitting, fixing and striking out after completion of works (upto roof of ground floor)				
a)	25 mm to 30 mm thick wooden shuttering as per decision & direction of Engineer-in-Charge.	Sqm	2421.00		

b)	Steel shuttering or 9 to 12 mm thick approved quality ply board shuttering in any concrete work (GF)	Sqm	2255.00		
c)	1st Floor	Sqm.	700.00		
d)	Roof	Sqm.	120.00		
e)	Extra for staging beyond 4 m in any floor (Mode of measurement: area in plan x mean height of staging upto soffit of shuttering above initial 4 m)	Cum	335.00		
09	Steel Reinforcement Bars Thermo mechanically Treated bars of Grade Fe 500 for reinforced concrete work in all sorts of structures including distribution bars, stirrups, binders etc initial straightening and removal of loose rust (if necessary), cutting to requisite length, hooking and bending to correct shape, placing in proper position and binding with 16 gauge black annealed wire at every intersection, complete as per drawing and direction.				
I	For works in foundation, basement and upto roof of ground floor	MT	53.00		
Ii	For 1st Floor	MT	7.5		
iii	For Roof	MT	1.5		
10	Precast pierced concrete jally work as per design and manufacturer's specification including moulding etc. with stone chips and necessary reinforcement shuttering complete including fitting, fixing in position in all floors				
a)	50 mm thick panels	Sqm	10.00		
11	Brick work with 1st class bricks with common burnt clay F.P.S (non modular) bricks of class designation 7.5 in cement mortar (1:6)				
a)	In foundation and plinth	Cum	43.00		
b)	In Super structure, ground floor.	Cum	164.00		
c)	1st Floor	Cu.M.	32.00		
d)	Roof	Cu.M.	17.00		
12 (i)	125 mm. thick brick work with 1st class bricks in cement mortar (1:4) in ground floor.	Sqm	817.00		
	125 thick Brick Work upto 4th floor				
ii	1st Floor	Sq. M	168.00		
iii	Roof	Sq. M	16.00		
13	Extra for using approved H.B netting in every third layer in 29 & 30 above in any floor	Sqm	184.00		
14 (i)	R.C. shelves (1:1.5:3) either precast or cast in situ with stone chips and necessary reinforcement upto 1% (0.8% main and 0.2% distribution bars), shuttering etc and 10 mm thick cement plaster (1:4) including neat cement finishing and cutting chase fitting and fixing in position, mending good damages as necessary complete.	Sqm	10.00		
	a)50 mm thick panels.				
ii	1st Floor	Sq. M	10.00		
iii	Roof	Sq. M	10.00		

15	Applying 2 coats of bonding agent with synthetic multi-functional rubber emulsion having adhesive and water proofing properties by mixing with water in proportion (1 bonding agent : 4 water : 6 cement) as per Manufacturer's specification [Cement to be supplied by the Department]	Sq. M	70.00		
16	Extra rate for using water proofing and plasticizing admixture @ 0.2% by weight of cement (or at manufacturer's specified rate) for concrete of various grades.	Kg	98.00		
	FLOORING				
17	Artificial stone in floor, dado, staircase etc with cement concrete (1:2:4) with stone chips, laid in panels as directed with topping made with ordinary or white cement (as necessary) and marble dust in proportion (1:2) including smooth finishing and rounding off corners including raking out joints or roughening of concrete surface and application of cement slurry before flooring works using cement @ 1.75 kg/sq.m all complete including all materials and labour.				
	In ground floor.				
	3 mm. thick topping (High polishing grinding on this item is not permitted with ordinary cement). Using grey cement				
	35 mm. thick	Sq. M	688.00		
18	Supplying dividing strip fitted and fixed with cement mortar (1:3) in mosaic or patent stone floor, dado etc. complete as per direction of the Engineer-in-charge.				
	Glass - 3 mm thick				
	25 mm. wide strip.	Mtr.	550.00		
19	40 mm. thick damp proof course with cement concrete (1:1.5:3) (with graded stone chips 20 mm nominal size) with water proofing compound of approved brand @ 0.2% weight of cement including cost of materials over two coats of non toxic acrylic polymer modified cementitious waterproofing slurry coat complete [cost of water proofing compound and non toxic paint to be paid seperately) for underground water retaining structures. [water proofing as per item no 60 and non toxic paint as per item NO 59 (b) of Section 'C']	Sq. M	64.00		
20 (i)	18 mm. to 22 mm. thick, kota stone slab set in 20 mm thick (avg) cement mortar (1:4) in floor, stair & lobby including pointing in cement slurry with admixture of pigment matching the stone shade, including grinding & polishing as per direction of Engineer - in - charge to match with the existing work. [Slurry for bedding @ 4.4 kg/Sq.m and pointing @2.0 kg/Sq.m]	Sq. M	554.00		
ii	Ist Floor	Sq. M	60.00		
iii	Roof	Sq. M	10.00		
21	Extra cost of labour for prefinished and premoulded Nosing to treads of steps, railing, window sill etc. of Kota Stone.	m	430.00		
22	Extra cost of labour for grinding Kota Stone Floor in treads and riser of Steps.	Sq. M	12.00		

23 (i)	Supplying, fitting and fixing 18 mm. to 22 mm. thick kota stone slab in wall, dado in 15 mm thick [avg] cement mortar (1:3) including making suitable arrangement to hold the stone properly by brass / copper hooks including pointing in cement mortar (1:2) (1 cement : 2 marble dust) with admixture of pigments matching the stone shade, including grinding and polishing all complete as per direction of Engineer-in-charge including cost of materials, labour, scaffolding, staging, curing complete. [Using cement slurry for bedding @4.4 kg/Sq.m and for jointing @1.8 kg/Sq.m]	Sq. M	67.00		
ii	1st Floor	Sq. M	10.00		
24	Supplying, fitting & fixing 1st quality Ceramic tiles in walls and floors to match with the existing work & 4 nos. of key stones (10mm) fixed with araldite at the back of each tile & finishing the joints with white cement mixed with colouring oxide if required to match the colour of tiles including roughening of concrete surface, if necessary or by synthetic adhesive & grout materials etc.				
(A)	Floor				
	With Sand Cement Mortar (1:4) 20 mm thick & 2 mm thick cement slurry at back side of tiles using cement @ 2.91 Kg/Sq.m & joint filling using white cement slurry @ 0.20kg/Sq.m.				
	Area of each tile above 0.09 Sq.m				
i	Other than Coloured decorative including white (GF)	Sq. M	50.00		
ii	Add extra for each additional floor over the rate item 16 & 30				
	1st Floor	Sq. M	10.00		
(B)	Wall : With sand cement mortar (1:3) 15 mm thick & 2 mm thick cement slurry at back sides of tiles using cement @ 2.91 Kg / per sqmt and joint filling using white cement slurry @ 0.2 kg per sqmt				
	Area of each tile upto 0.09 Sq.m				
i	Coloured decorative (GF)	Sq. M	174.00		
ii	1st Floor	Sq. M	10.00		
	ROOFING				
25	Providing & fixing precoated galvalume profile sheets (size, shape and pitch of corrugation as approved by Eng. In charge) 0.50mm +/-5% total coated thickness (TCT) zinc coating 120gsm as per IS:277 in 550 mpa steel grade, 5-7 microns epoxy primer on both side of the sheet and polyester top 15-18 microns. sheet should have protective guard film of 25 microns min.to avoidscratches while transportation and should be supplied in single length upto 12 mtr or as desired by Eng. in charge. The sheet shall be fixed using self-drilling/ self-tapping screws of size (5.5 x55mm) with EPDM seal complete upto any pitch in horizontal / vertical or curved surfaces e/c the cost of purlin, rafter and trusses and i/c cutting to size and shape wherever required.	Sq. M	750.00		

26	Providing & fixing pre-coated galvalume sheet roofing accessories 0.50 mm (+0.05%) total coated thickness, Zinc coating 120 grams per sqm as per IS:277, in 550 mpa steel grade 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15-18 microns using self drilling / self tapping screws complete.				
a	Ridges Plain (500-600mm)	Meter	53.00		
b	Gutter (600 mm over all Girth)	Meter	46.00		
27	Aluminium Sheet ridging fitted with self tapping screws, EPDM Washers etc complete (Minimum 225 mm end lapping) (A) 300 mm lapping each way				
a	With 0.91 mm sheet	Meter	23.00		
28	Providing of 40 mm average thickness cement concrete of 1:1.5:3 M20, nominal Mix concrete, added with Integral water proofing admixture conforming to IS:2645 – 1975 & IS:9103 – 1999 @ 200 ml / per 50 Kg. Bag of cement and Recron polypropylene fibers after through surface preparation and one coat of bond coat by using cement slurry admixed with Acrylic Emulsion latex as per the manufacturer's specification and finishing the top surface with cement sand plaster to give a smooth finish with correct slope as per direction of the Engineer-in-charge for Roof treatment work.	sqm	1360.00		
29	Providing and laying in situ five course water proofing treatment with APP (Atactic Polypropylene) modified Polymeric memberane over roof consisting of first coat of bitumen primer @ 0.40Kg per sqm, 2nd & 4th courses of bonding material @ 1.20 kg/sqm, which shall consist of blown type bitumen of grade 85/25 conforming to IS : 702, 3rd layer of roofing membrane APP modified Polymeric membrane 2.0 mm thick of 3.00 Kg/ sqm weight consisting of five layers prefabricated with centre core as 100 micron HMHDPE film sandwiched on both sides with polymeric mix and the polymeric mix is protected on both side with 20 micron HMHDPE film. 5th, the top most layer shall be finished with brick tiles of class designation 10 grouted with cement mortar 1:3 (1 cement : 3 fine sand) mixed with 2% integral water proofing compound by weight of cement over a 12 mm layer of cement mortar 1:3 (1 cement : 3 fine sand) and finished neat (item of laying brick tiles shall be paid for separately).	Sq.M	1500.00		
30	Providing and laying brick tiles over roofs, grouted with cement mortar 1:3 (1 cement : 3 fine sand) mixed with 2% of integral water proofing compound by weight of cement, over 12 mm layer of cement mortar 1:3 (1 cement : 3 fine sand) and finished neat : With common burnt clay F.P.S. (non modular) brick tiles of class designation 10	Sqm	1360.00		
31	Providing and fixing on wall face unplasticised Rigid PVC rain water pipes conforming to IS: 13592 Type A, including jointing with seal ring conforming to IS: 5382				

	, leaving 10 mm gap for thermal expansion.				
	(i) Single socketed pipes-110 mm diameter	meter	140.00		
32	Providing and fixing on wall face unplasticised PVC moulded fittings/accessories for unplasticised Rigid PVC rain water pipes conforming to IS: 13592 Type A, including jointing with seal ring conforming to IS: 5382 , leaving 10 mm gap for thermal expansion.				
	Single socketed pipes				
i	Bend 87.5"				
	110mm bend	each	14.00		
ii	Shoe (Plain)				
	110mm Shoe	each	14.00		
	STRUCTURAL STEEL WORK				
33	M.S. structural works with hollow sections (square or rectangular shape) conforming to IS: 806-1957 & IS:1161-1958) connected to one another with bracket, gusset, cleat as per design, drawing & direction of Engineer-in-Charge complete including cutting to requisite shape & size, fabrication including metal arc welding conforming to IS: 816-1956 & IS: 9595 using electrodes of approved make and brand conforming to IS:814- 1957, haulage, hoisting and erection all complete. The rate includes the cost of all M.S. Hollow section, all consumables such as electrodes, gas and hire charges of all tools and plants and labour required for execution and all incidental charges (such as electricity, labour insurance) etc. complete.				
	Payment to be made on the basis of calculated weight of structural members of MS Hollow Section as specified in relevant IS code in finished work. Payment for gusset, bracket, cleat may be made by adding the actual weight of such items with weight of finished structural members. The rates are considered for a height of erection 8 m. / 2nd floor level from the ground. Add 1.5 % extra over the rate for each additional floor or 4m. beyond the initial 8 m. or part thereof.				
	i) For Roof Truss works				
	a) Span beyond 12 Mtr and up to 20.00 Mtr	MT	15.40		
34	STRUCTURAL STEEL : Structural steel work welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete.	MT	1.50		
35	Providing and fixing hand rail of approved size by Welding etc. to steel ladder railing , balcony railing , Staircase railing and similar works , including applying priming coat of approved steel primer - M.S. Tube	MT	0.53		

36	M.S.or W.I. Ornamental grill of approved design joints continuously welded with M.S, W.I. Flats and bars of windows, railing etc. fitted and fixed with necessary screws and lugs in ground floor.				
i	Grill weighing above 16 Kg./sq.mtr and above	MT	1.40		
ii	For upper floor upto 4th floor M.S.or W.I. Ornamental grill				
	1st Floor	MT	0.20		
37	Collapsible gate with 40mm x 40mm x 6mm Tee as top and bottom guide rail, 20mm x 10mm x 2mm vertical channels 100mm apart in fully stretched position 20mm x 5mm M.S. flats as collapsible bracings properly rivetted and washered including 38mm steel rollers including locking arrangements, fitted and fixed in position with lugs set in cement concrete and including cutting necessary holes, chasing etc. in walls, floors etc. and making good damages complete. In ground floor.	Sqm	23.00		
38	Providing and fixing pressed steel door frames conforming to IS: 4351, manufactured from commercial mild steel sheet of 1.60 mm thickness, including hinges, jamb, lock jamb, bead and if required angle threshold of mild steel angle of section 50x25 mm, or base ties of 1.60 mm, pressed mild steel welded or rigidly fixed together by mechanical means, including M.S. pressed butt hinges 2.5 mm thick with mortar guards, lock strikeplate and shock absorbers as specified and applying a coat of approved steel primer after pre-treatment of the surface as directed by Engineer-in-charge:				
	Profile B				
	Fixing with adjustable lugs with split end tail to each jamb	Mtrs	68.00		
39	Supplying fitting and fixing in position approved P.V.C. door frame (Matt finish) made of extruded P.V.C. multichamber hollow section having dimensions 60mm x 50mm x 2mm (+/-0.2mm), horizontal section will be joined with vertical section by galvanised steel screws after inserting two number steel brackets as reinforcement making suitable space for placing hinges, one steel tube 40mm x 20mm x 1.20 mm will be inserted on one full vertical side of the frame (hinge side) as reinforcement, the frame will then be fixed in the opening with the help of P.V.C. expandable fastner/wooden gutties and galvanised steel screws including cost of all materials and labour, hire charges of tools and appliances, carriage of all materials, taxes and all other incidental charges complete.	Mtr	60.00		
40	PVC Door Shutter-37 mm thick:				

	Supplying fitting and fixing P.V.C. door shutter of approved quality & shade in position, the style & rail of the P.V.C. door shutter will be made of rigid P.V.C. multicavity hollow chamber of suitable size and section with 2.0 mm (+/-0.2 mm) wall thickness, the section will have 2nos. built in beads, horizontal & vertical section shall be fixed to each other by self tapping screws and 2 nos. of solid plastic or M.S. tubular galvanised brackets of length 200mm x 80mm and other 100mm x 100mm both 1.20mm in each corner of the shutter frame for placing hinges. Polymer based multicavity hollow section of 105 mm x37mm with 2.0 mm (+/- 0.2 mm) wall thickness will be fitted in the middle as lock rail reinforced by solid polymer bar of 200 mm long at both ends and screws from both sides. The section frame will then be fitted in by PVC panels of size 100 mmx20 mm with wall thickness of 1.2 mm (+/- 0.2 mm) and 2 nos. of 6 mm dia and screws from both sides 6mm dia bright rod will be inserted horizontally with both side check and nut system and stretches where fixing of hinges / hasp bolt / tower bolt / door ring are required to be strong enough to withstand wear and tear. The rate is inclusive of all Materials .	Sqm	25.00		
41	Iron butt hinges of approved quality fitted and fixed with steel screws, with ISI mark.				
	100mm. X 58mm. X 1.90mm.	Each	36.00		
42	Supplying solid flush type doors of commercial quality, the timber frame consisting of top and bottom rails and side styles of well seasoned timber 65mm wide each and the entire frame fitted with 37.5mm wide battens places both ways in order to make the door of solid core and internal lipping with Garjan or similar wood veneers using phenol formaldehyde as glue etc. complete, including fitting, fixing shutters in position but excluding the cost of hinges and other fittings.				
	35 mm thick shutters (single leaf) Ground Floor	Sqm	37.20		
43	Iron butt hinges of approved quality fitted and fixed with steel screws, with ISI mark.				
	100mm. X 58mm. X 1.90mm.	Each	70.00		
44	Wood work in door and window frame fitted and fixed in position complete including a protective coat of painting at the contact surface of the frame excluding cost of concrete, Iron Butt Hinges and M.S clamps. (The quantum should be corrected upto three decimals)				

	SAL : Local	Cum	1.00		
45	Supplying, fitting and fixing M.S. clamps for door and window frame made of flat bent bar, end bifurcated with necessary screws etc. by cement concrete(1:2:4) as per direction. (Cost of concrete will be paid separately)				
	40mm X 6mm, 200mm Length	Each	60.00		
46	PLINTH PROTECTION WITH CEMENT CONCRETE				
	Making plinth protection 50 mm thick of cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) over 75 mm bed of dry brick ballast 40 mm nominal size well rammed and consolidated and grouted with fine sand including finishing the top smooth.	sqm	33.00		
47	Anodised aluminium barrel / tower / socket bolt (full covered) of approved manufactured from extruded section conforming to I.S. 204/74 fitted and fixed with cadmium plated screws:				
i	200mm long x 10mm dia. bolt.	Each	18.00		
ii	300mm long x 12mm dia. bolt.	Each	10.00		
48	Anodised aluminium Aldrop / Sliding bolts of approved quality manufactured from extruded section conforming to I.S. specification (I.S. 2681/66) fitted and fixed complete.				
	300mm x 16mm dia bolt.	Each	10.00		
49	Anodised aluminium D-type handle of approved quality manufactured from extruded section conforming to I.S. specification (I.S. 230/72) fitted and fixed complete:				
	With continuous plate base (Hexagonal / Round rod)				
	150 mm grip x 12 mm dia rod.	Each	24.00		
50	Renewing 125 mm long wooden buffer block (with Sal: Malaysian)	Each	50.00		
51	Supplying solid flush type doors of commercial quality, the timber frame consisting of top and bottom rails and side styles of well seasoned timber 65mm wide each and the entire frame fitted with 37.5mm wide battens places both ways in order to make the door of solid core and internal lipping with Garjan or similar wood veneers using phenol formaldehyde as glue etc. complete, including fitting, fixing shutters in position but excluding the cost of hinges and other fittings.				
i	35 mm thick shutters (single leaf) Ground Floor	Sqm	38.00		
ii	35 mm thick shutters (1st Floor)	Sqm	6.00		
	PLASTERING, POINTING ETC.				
52	Labour for Chipping of concrete surface before taking up Plastering work.	Sqm	3500.00		

53	Plaster (to wall, floor, ceiling etc.) with sand and cement mortar including rounding off or chamfering corners as directed and raking out joints including throating, nosing and drip course, scaffolding/staging where necessary (Ground floor).[Excluding cost of chipping over concrete surface]				
i	With 1:6 cement mortar				
	20 mm thick plaster (GF)	Sqm	1200.00		
ii	External plaster				
	1st Floor	Sqm	613.00		
54	Plaster (to wall, floor, ceiling etc.) with sand and cement mortar including rounding off or chamfering corners as directed and raking out joints including throating, nosing and drip course, scaffolding/staging where necessary (Ground floor).[Excluding cost of chipping over concrete surface]				
i	With 1:6 cement mortar				
	15 mm thick plaster (GF)	Sqm	2300.00		
ii	Internal plaster				
	1st Floor	Sqm	200.00		
55	Plaster (to wall, floor, ceiling etc.) with sand and cement mortar including rounding off or chamfering corners as directed and raking out joints including throating, nosing and drip course, scaffolding/staging where necessary (Ground floor).[Excluding cost of chipping over concrete surface]				
i	With 1:4 cement mortar				
	10 mm thick plaster (GF)	Sqm	1000.00		
ii	1st Floor	Sqm	150.00		
	WHITE WASH, COLOUR WASH, DISTEMPER				
56	Applying Acrylic Emulsion paint of approved make and brand including smoothening surface by sand papering in intermediate coats including putty (to be done under specific instruction of Speringtending Engineer) (Two Coats) of Standard Quality	Sqm	3500.00		
57	Rendering the surface of walls and ceiling with white cement based wall putty of approved make and brand (1.5 mm thick)	Sqm	1500.00		
58	Protective and Decorative Textured exterior high class matt finish paint of approved quality, composed of special Tharmoplastic Resin containing fine crystalline additives derive from Granite as per manufacturer's specification and as per direction of EIC to be applied over acrylic primer as required. The rate includes cost of material, labour, scaffolding and all incidental charges but excluding the cost of primer. - In Ground Floor	Sqm	250.00		
59	Protective and Decorative Acrylic exterior emulsion paint of approved quality, as per manufacturer's specification and as per direction of EIC to be applied over acrylic primer as required. The rate includes cost of				

	material, labour, scaffolding and all incidental charges but excluding the cost of primer.				
	In Ground floor (Two Coat) Weather coat all guard / weather shield max / Appex Ultima				
i	Premium 100% Acrylic Emulsion	Sqm	1200.00		
ii	External surface				
	1st Floor	Sq.M	600.00		
	PAINTING, VARNISHING ETC.				
60	Rendering the surface of walls and ceiling with white cement based wall putty of approved make and brand (1.5mm thick)	Sq.M	3400.00		
61	Priming one coat on timber or plastered surface with synthetic oil bound primer of approved quality including smoothening surfaces by sand papering etc.	Sq.M	150.00		
62	Priming one coat on steel or other metal surface with synthetic oil bound primer of approved quality including smoothening surfaces by sand papering etc.	Sq.M	250.00		
63	Painting with best quality synthetic enamel paint of approved make and brand including smoothening surface by sand papering etc. including using of approved putty etc. on the surface, if necessary :				
	On timber or plastered surface :				
	With super gloss (hi-gloss) -				
i	Two coats (with any shade except white)	Sq.M	150.00		
	On steel or other metal surface :				
	With super gloss (hi-gloss) -				
ii	Two coats (with any shade except white)	Sq.M	250.00		
64	Making plinth protection 50 mm thick of cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) over 75 mm bed by dry brick ballast 40 mm nominal size well rammed and consolidated and grouted with fine sand including finishing the top smooth.	Sqm.	110.00		
65	Supplying fitting fixing fan hook for ceiling with 1 metre long 16 mm. dia rod complete including mending damages.(Payment for damage and repair to be made separately.)	Each	25.00		
	ALUMINIUM WORKS				
66	Providing, Supplying and installing at site fully glazed Three Track with 02 Shutter glass and 01 shutter with Mosquito proof net shutter of stain less steel Aluminium Sliding windows with clear float glass made out of approved extruded hollow rectangular/ square/ tubular Aluminium sections with powder coated Aluminium sections to a minimum of 60-70 microns made out of {Hindalco Sections 6215,6219,6968,6222 and 6221 and with 5.0 mm thick transparent float glass of Saint Gobain/ Modiguard etc. with complete with all fittings and fixtures, Hnadles locking system etc. fixed by means of clips, gaskets, screws, polysulphide sealant in between frame-wall gap, wherever necessary etc. complete as direction of BRBNMPL Officers.	Sq M	120.00		

67	Providing, Supplying and installing at site fully glazed Aluminium Door shutter with natural colour anodized Aluminium sections made out of approved extruded hollow rectangular/ square/ tubular Aluminium sections with powder coated Aluminium sections to a minimum of 60-70 microns made out of {Indal Sections 9240 (100 mmx 44.5mm 2.00mm thick @1.594 Kg/m), 9241 (85 mmx 44.45mm 2.00mm thick @1.418 Kg/m) & 9473 (100 mm x 44.5mm 2.5 mm thick @2.098 Kg/m)} and with 5.50 mm thick transparent float glass of Saint Gobain/ Modiguard etc. fixed by means of clips, gaskets, screws, hinges, locking arrangement, door closer of Garnish make, door stoppers (Heavy duty), 200 mm Aluminium handles, locking system and other necessary fittings and fixtures along with wherever necessary etc. complete as direction of BRBNMPL Officers.	Sq M	10.00		
68	Providing, Supplying and installing at site partly glazed fixed Aluminium partitions with natural colour anodized Aluminium sections made out of approved extruded hollow rectangular/ square/ tubular Aluminium sections with powder coated Aluminium sections to a minimum of 60-70 microns made out of {Indal Sections 9219 (50 mm x 45mm 2.5 mm thick @1.292 Kg/m) & 9218 (47.5 mm x 45mm 2.5 mm thick @1.22 Kg/m), glazing clip: 0.167 kg/m } and with 5.00 mm thick transparent float glass of Saint Gobain/ Modiguard etc. of best quality fixed by means of clips, gaskets, screws, polysulphide sealant in between frame-wall gap, wherever necessary etc. complete as direction of BRBNMPL Officers.	Sq M	119.00		
69	Supplying and laying true to line and level double charged vitrified tiles of approved brand (size not less than 600 mm X 600 mm X 10 mm thick) in floor, skirting etc. set in 20 mm sand cement mortar (1:4) and 2 mm thick cement slurry back side of tiles using cement @ 2.91Kg./Sq.M or using polymerised adhesive (6 mm thick layer applied directly over finished artificial stone floor/Mosaic etc without any backing course) laid after application slurry using 1.75 Kg of cement per Sq.M below mortar only, joints grouted with admixture of white cement and colouring pigment to match with colour of tiles / epoxy grout materials of approved make as directed and removal of wax coating of top surface of tiles with warm water and polishing the tiles using soft and dry cloth upto mirror finish complete including the cost of materials, labour and all other incidental charges complete true to the manufacturer's specification and direction of Engineer-in-Charge. (white cement, synthetic adhesive and grout material to be supplied by agency)				

	With application slurry @1.75 kg/ Sq.M, 20 mm sand cement mortar (1:4) & 2 mm thick cement slurry at back side of tiles, 0.2 kg/ Sq.M white cement for joint filling with pigment. (White cement and Pigment to be supplied by agency)				
	Light Colour at Ground Floor	Sq. M	202.00		
			TOTAL CIVIL COST - A (Rs.)		

(B) SANITARY, PLUMBING & DRAINAGE WORKS

SL	DESCRIPTION	UNIT	QTY	RATE (Rs.)	AMOUNT (Rs.)
	C.P.V.C. PIPES				
1	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge.				
	Internal work - Exposed on wall				
i	25 mm nominal outer dia Pipes	Mtr	12.00		
ii	32 mm nominal outer dia Pipes	Mtr	20.00		
2	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of brass threaded fittings, i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer in Charge				
	Concealed work, including cutting chases and making good the walls etc.				
i	15 mm nominal outer dia Pipes	Mtr	110.00		
ii	20 mm nominal outer dia Pipes	Mtr	50.00		
iii	32 mm nominal outer dia Pipes	Mtr	10.00		
3	Supplying, fitting and fixing gunmetal wheel valve of approved brand and make tested to 21 kg per sq. cm. (for water lines only).				
i	(iv) 50 mm	each	1		
ii	(v) 40 mm	each	2		
iii	(vi) 32 mm	each	2		
iv	(vii) 25 mm	each	2		
v	(viii) 20 mm	each	11		
	CISTERN, GI / PVC TANKS WITH PARTS				
4	Supplying, fitting and fixing 10 litre P.V.C. low-down cistern conforming to I.S. specification with P.V.C. fittings complete, C.I. brackets including two coats of painting to bracket etc.	each	5		

	BASIN AND SINKS WITH PARTS				
5	Supplying, fitting and fixing white vitreous china best quality approved make wash basin with C.I. brackets on 75 mm X 75 mm wooden blocks, C.P. waste fittings of 32 mm dia., one approved quality brass C.P. pillar cock of 15 mm dia., C.P. chain with rubber plug of 30 mm dia., approved quality P.V.C. waste pipe with C.P. nut 32 mm dia., 900 mm long approved quality P.V.C. connection pipe with heavy brass C.P. nut including mending good all damages and painting the brackets with two coats of approved paint.				
	(ii) 550 mm X 400 mm size	each	11		
6	Supplying,fitting and fixing stainless steel sink complete with waste fittings and two coats of painting of C.I. brackets.				
	(ii) 630 mm. x 550 mm. x 180 mm.	each	2		
7	Supplying, fitting and fixing approved brand P.V.C. CONNECTOR white flexible, with both ends coupling with heavy brass C.P. nut, 15 mm dia.				
	(iii) 600 mm long	each	8		
8	Supplying,fitting and fixing approved brand 32 mm dia.P.V.C. waste pipe, with PVC coupling at one end fitted with necessary clamps.				
	(iv) 1050 mm long	each	2		
9	Supplying, fitting and fixing 15 mm swan neck tap with left & right hand operating nob with aerator (Equivalent to Code No. 510, 510(A) and Model - TROPICAL / SUMTHING SPECIAL of ESSCO or similar brand).	Each	2		
10	Supplying, fitting and fixing pillar cock of approved make.				
11	Supplying, fitting and fixing C.P. Extension Pipe	Each	20		
12	Supplying, fitting and fixing brass ferrule including connection with P.V.C. pipe of approved make upto 450 mm long with plumbing joint,brass over C.P. coupling at both ends, with cap and lining complete in all respect, including cutting trenches in all sorts of soil and filling up trenches as per direction of the Engineer-in-charge.				
	25 mm dia	each	1		
13	Supplying, fitting and fixing C.I. round grating.				
	(i) 100 mm	each	21		
14	Supplying, fitting and fixing yard gully with approved H.C.I. grating complete.				
i	(i) 225 mm X 150 mm with 230 mm gratings	each	6		
ii	(ii) 150 mm X 100 mm with 150 mm gratings	each	6		
15	Supplying, fitting and fixing S.W. master trap.				
i	(ii) 225 mm X 225 mm	each	1		
	(B) Fittings				

ii	(ii) Plain Tee				
	110 mm	Each	6.00		
iii	(iii) Door Tee				
	160 mm	Each	6		
iv	v) Plain Y				
	110 mm	Each	6		
v	(xi) Door Bend (T.S.)				
	110 mm	Each	6.00		
vi	(xv) (b) Vent Cowl				
	110 mm	Each	3.00		
vii	(xvi) (b) Pipe Clip				
	110 mm	Each	45.00		
16	Supply of UPVC (B Type) pipes & fittings conforming to IS-13592-1992				
	(A) (i) Single Socketed 3 Meter Length				
i	110 mm	metre	175.00		
17	Labour for fitting and fixing U.P.V.C. pipes for above ground work including cost of jointing materials etc. fitting and fixing all necessary specials, cutting pipes, cutting holes in walls or R.C. floor where necessary and mending good all damages excluding the cost of masonry or concrete work, if necessary, but including the cost and fitting and fixing holder bat clamps (any floor) or for underground work including cutting trenches upto 1.5 metre and refilling the same complete as per direction of the Engineer-in-charge. (Payment will be made on centre line measurement of the total pipeline including specials.				
	(A)Above ground				
i	(ii) 110 mm dia.	metre	135		
	(B)Under ground				
ii	(ii) 110 mm dia.	metre	40		
18	Supplying, fitting and fixing E.W.C. in white glazed vitreous chinaware of approved make complete in position with necessary bolts, nuts etc.				
i	(a) With 'P' trap	each	3		
ii	(b) With 'S' trap	each	2		
19	Supplying, fitting and fixing Closet seat of approved make with lid and C.P. hinges, rubber buffer and brass screws complete.				
	(iii) Bestolite (solid type) black	each	5		
20	Supplying,fitting and fixing 32 mm dia. Flush Pipe of approved make with necessary fixing materials and clamps complete.				
	i) Polythene Flush Pipe	each	5		
21	Supplying, fitting and fixing bevelled edged mirror 5.5 mm thick silver red as per I.S. 3438 / 1965 together with brass C.P. hinges.				
	(ii) 600 mm X 450 mm	each	11		
22	Supplying, fitting and fixing glass shelf with aluminium guard rails.				

	(a) Ordinary type with 5.5 mm sheet glass				
	(ii) 600 mm X 125 mm	each	11		
23	Supplying, fitting and fixing porcelain soap tray of approved make.				
	(i) Recessed soap tray of size 150 mm x 150 mm	each	11		
24	Supplying, fitting and fixing towel rail with two brackets.				
	(a) C.P. over brass				
	(ii) 25 mm dia. and 600 mm long	each	11.00		
25	Supplying, fitting and fixing bib cock or stop cock.				
i	(a) (i) Chromium plated Bib Cock short body (Equivalent to Code No. 511 & Model - Tropical / Sumthing Special of ESSCO or similar).	each	5		
ii	(a) (ii) Chromium plated Bib Cock long body with wall flange with aerator (Equivalent to Code No. 512 & Model - Tropical / Sumthing Special of ESSCO or similar).	each	5		
iii	(d) (i) Chromium plated angular Stop Cock with wall flange (Equivalent to Code No. 5053 & Model - Florentine of Jaquar or similar).	each	21		
26	Supplying, fitting and fixing Flat back urinal (Half stall urinal) in white vitreous chainware of approved make in position with brass screw on 75 mm x 75mm x 75 mm wooden blocks complete.				
	590 mm x 390 mm x 380 mm	each	5		
27	Supplying, fitting and fixing Renewing 15 mm C.P. over brass spreader.	each	6		
28	Supplying, fitting and fixing 18 mm thick marble partition slab with hawk doongri marbel square cut, both sides polished with two front corners rounded and edges polished	Sqm	3		

29	Constructing Inspection pit of inside measurement 600mm X 600mm X upto 600mm (depth) with 250 mm thick 1st. class brick work in cement mortar (1:4) on all sides, bottom of the pit consisting of 100 mm thick cement concrete (1:3:6) with stone chips over a layer of jhama brick flat soling, 15 mm thick (1:4) cement plaster to inside walls and outside walls upto G.L. and 20 mm. thick (1:4) plaster to bottom of the pit, providing necessary invert with cement concrete (1:3:6) with stone chips as per direction, neat cement finishing to entire internal surfaces, top of the pit covered with 100 mm thick R.C.C. slab (1:1.5:3) with stone chips and necessary reinforcements upto 1% and shuttering including 6 mm thick cement plaster (1:4) in all external surfaces of the slab and one 560 mm dia. R.C.C. manhole cover of approved make supplied, fitted and fixed in the slab with necessary fittings, necessary earthwork in excavation in all sorts of soil, filling sides of the pit with earth and removing spoils after work complete in all respect with all costs of labour and materials.				
i	i) With Pakur variety.	Each	14		
ii	Extra for additional depth of 150 mm or part thereof beyond initial 600 mm depth	Each	5		
30	Open jointed stone ware pipe 100 mm dia. supplied, laid and fitted in position duly encircled all round by 150 mm thick layer jhama metal (38 mm to 50 mm size) including excavation of earth in any soil upto required depth including refilling trench, watering and ramming complete. (Cost of Jhama Metal to be paid seperately).	meter	120		
	TOTAL SANITARY, PLUMBING & DRAINAGE COST				

(C) Electrical Items

Sl. No.	Description	Unit	QTY	Rate (Rs.)	Amount (Rs.)
1	DISTRIBUTION BOARDS				
a)	Supplying and fixing double door Vertical TPN MCB Distribution board for MCCB incomer with IP-42/43 protection, on angle iron frame on wall & mending good the damages to original finish incl. Inter connection with suitable size of copper wire and neutral link & provision for earthing attachment.				
i	4 WAY TPN DB (Upto 100A) - Enclosure (NBKRENEZVDD04)	No	4		
b)	Supplying and fixing double door Horizontal TPN MCB Distribution board with IP-42/43 protection, concealed in wall after cutting the wall & mending good the damages to original finish incl. Inter connection with suitable size of copper wire and neutral link & provision for earthing attachment.				
i	4 WAY TPN MCB DB- Enclosure (607715)	No	2		
ii	6 WAY TPN MCB DB- Enclosure (607716)	No	1		
c)	Supplying and fixing 240/415V MCB of Breaking capacity 10kA & C characteristics on din rail of existing DBs and necessary connection.				
i	6-32A SP MCB	No	18		
ii	63A TPN MCB	No	1		
2	Earthing and Accessories				
a)	Earthing with 50 mm dia GI pipe 3.64 mm thick x 3.04 mtrs long and 1 x 4 SWG GI (Hot Dip) wire (4 mtrs long), 13 mm dia x 80 mm long GI bolts, double nuts, double washers including supply and fixing of 15 mm dia GI pipe protection (1 mtrs long) to be filled with bitumen partly under the ground level and partly above ground level driven to an average depth of 3.65 mtrs below the ground level and restoring surface duly rammed as below.				
i)	For Soft Soil	Sets	1		
b)	Treatment of soil by using salt and charcoal or coke for plate electrode (for soft soil/morrum soil).	Sets	1		
c)	Providing masonry enclosure on the top of the earth electrode of overall size 86.36 cm x 86.36 cm x 46 cm deep (below ground level) complete with cemented brick work (1:6) of 25 cm width duly plastered with cement mortar (inside) CI hinged inspection cover of size 36.56 cm x 35.56 cm with locking arrangement, GI reducer including drilling of 46 Nos 12 mm dia holes on the GI pipe.	Sets	1		

d)	Connecting the equipments to earth bus bar including supply and fixing of GI (Hot Dip) wire of size as below on wall/floor with staples buried inside wall/floor as required and making connection to equipments with bolts, nuts, washers, cable lugs etc, as required and mending good the damages.				
i)	6 SWG	Mtrs	15		
ii)	8 SWG	Mtrs	20		
e)	Supplying and fixing of earth bus bar of galvanized (Hot Dip) M S flat 40 mm x 6 mm on wall having clearance of 6 mm from wall including providing drilled holes on the bus bar complete with GI bolts, nuts, washers, spacing insulators etc, as required.	Mtrs	4		
3	<u>LT Cable and Accessories</u>				
a)	Supply of 1.1KV Grade XLPE/PVC insulated, Armoured/Unarmoured/Flexible, Aluminium conductor(all rates are excluding of vat).				
	Aluminium Power Cables				
i)	4C x 16 Sq.mm / A2XFY	Mtrs	20		
ii)	4C x 10 Sq.mm / A2XFY	Mtrs	15		
b)	Laying on Wall / surface with Saddles / clamps				
i	Laying of cable upto 3/4 core 25 sqmm on wall/surface incl. S & F MS saddles with earthing attachment in 10 SWG GI (Hot Dip) Wire, making holes etc. as necy. mending good damages and painting.	Mtrs	20		
ii	Laying of cable from 3/3.5 core 35 sqmm to 50 sqmm on wall/surface incl. S & F MS saddles with earthing attachment in 2x10 SWG GI (Hot Dip) Wire, making holes etc. as necy. mending good damages and painting.	Mtrs	20		
d)	Compression Glands				
	Supplying and fixing compression type gland complete with brass gland, brass ring & rubber ring for dust & moisture-proof entry of XLPE/PVC armoured cables as below :				
i	For 4 core 10 to 16 sqmm	Nos	2		
ii	For 3.5 core upto 35 sqmm	Nos	2		

e)	Finishing cable ends :				
	Finishing the end of following XLPE/PVC armoured cables by crimping method incl. supplying and fixing solderless socket (Dowels make), tapes, anticorrosive paste & jointing materials :				
i	4 core 10 sqmm cable	Set	4		
ii	4 core 16 sqmm cable	Set	2		
iii	3.5 core 35 sqmm cable	Set	4		
4	SWITCH BOARD & SOCKET OUTLETS:				
i	Supplying & Fixing GI Modular Switch Board of the following sizes complete with three no. suitable size Copper bar with holes (for Ph, N & E) fixed on bakelite/Hard Rubber insulator over the MS welded chairs incl. top cover flushed in wall for housing the board after cutting the brick wall incl. making earthing attachment, painting and mending good damages to building works.				
a	4 Module	Nos	4		
b	5 Module	Nos	4		
c	8 Module	Nos	20		
d	12 Module(2 Row)	Nos	10		
ii.a)	Supply & Fixing 240 V 6 A Modular type switch (Brand approved by EIC) on existing GI Modular type switch board having top cover plate and making necessary connections as required	Nos	220		
b)	Supply & Fixing 240 V, 10 A, 2(Two) way Modular type switch (approved make) on existing GI Modular switch board having top cover plate and making necessary connections as required	Nos	2		
iii	Supply & Fixing 240 V, 6A, 5 pin Modular type plug socket (Brand approved by EIC), without switch & plug top, on existing GI Modular type switch board with top cover plate and making necy. connections with PVC Cu wire and earth continuity wire etc	Nos	35		
iv	Supply & Fixing 240 V, 16 A, 3 pin Modular type plug socket (Brand approved by EIC) with 16A Modular type switch, without plug top on 4 Module GI Modular type switch board with top cover plate flushed in wall incl. S&F switch board and cover plate and making necy. connections with PVC Cu wire and earth continuity wire etc.	Nos	10		
iv	Supply & Fixing 240 V, 25 A, 3 pin Modular type plug socket (Brand approved by EIC), without plug top and switch with 2 Module GI Modular type switch board with top cover plate flushed in wall and making necy. connections with PVC Cu wire and earth continuity wire etc.	Nos	10		
v	Supply & Fixing 240 V, 25 A, 3 pin Modular type plug top with indicator (Brand approved by EIC) & necy. Connections.	Nos	10		

vi	Supply & Fixing 240 V, 25A Modular type socket, 25 A, Modular type starter (Brand approved by EIC) with 25A Modular switch type DP MCB (C-Curve) and 6 Module GI Modular type switch board with 6 Module top cover plate flushed in wall incl. S&F switch board and cover plate and making necy. connections with PVC Cu wire and earth continuity wire etc.	Nos	7		
vii	Supplying & Drawing 2-pair Telephone cables with high density polyethylene insulated solid annealed high conductivity bare copper of dia 0.5mm in prelaidd PVC rigid conduit/ in polythene pipe embeded in wall.	Mtr	50		
viii	Supply & Fixing Telephone socket Modular type (Brand approved by EIC) with PVC board and top cover plate on wall and making necessary connections & testing as required.	Nos	4		
ix.a)	Supplying and drawing co-axial TV cable RG-6 grade, 0.7 mm solid copper conductor PE insulated, shielded with fine tinned copper braid and protected with PVC sheath in the existing recessed PVC/Polythene conduit, as required	Mtr	20		
ix.b)	Supplying and fixing of following modular T V Antenna socket outlet on the existing modular plate and switch box including connections but excluding modular plate etc, as required.	Nos	2		
x	Supplying & Fixing 240 V AC/DC superior type Multitune (min 10 nos. tune) Call Bell (Anchor) with selector switch for single/Multi Tunes mode, Battery operated on HW board incl. S&F HW board	Nos	2		
5	SUBMAIN, CIRCUIT & POINT WIRING:				
a)	Distribution wiring in 1.1 KV single core stranded 'FR' PVC insulated & unsheathed copper wire (Brand approved by EIC) in 20mm size PVC rigid conduit 'FR' (Precision make) incl. necy. fittings as required				
i	2 x 22/0.3 (1.5 sqmm) + 1 x 22/0.3 (1.5 sqmm) ECC	Mtr	60		
ii	2 x 36/0.3 (2.5 sqmm) + 1 x 22/0.3 (1.5 sqmm) ECC	Mtr	50		
iii	2 x 56/0.3 (4 sqmm) + 1 x 36/0.3 (2.5 sqmm) ECC	Mtr	50		
b)	Distribution wiring in 2 x 22/0.3 (1.5 sqmm) single core stranded 'FR' PVC insulated & unsheathed copper wire (Brand approved by EIC) in 20mm size PVC rigid conduit 'FR' (Precision make), with 1x22/0.3 (1.5 sqmm) single core stranded 'FR' PVC insulated & unsheathed copper wire for ECC, to light/fan/call bell points with Modular type switch (Brand approved by EIC) fixed on Modular GI switch board with top cover plate and 2 no. suitable size "Ph & N" copper bar & earthing attachment fixed on wall incl. mending good damages to original finish.				
i	Average run 5 mtr	Point	180		
ii	Average run 6 mtr	Point	20		
iii	Average run 8 mtr	Point	20		
iv	Average run 12 mtr	Point	10		

c)	Distribution wiring in 1.1 KV grade 22/0.3 (1.5 sqmm) single core stranded 'FR' PVC insulated & unsheathed copper wire (Brand approved by EIC) in 20mm size PVC rigid conduit 'FR' (Precision make), with 1.1 KV grade 1 x 22/0.3 (1.5 sqmm) single core stranded 'FR' PVC insulated & unsheathed copper wire as ECC, to 6A 3 pin Modular type plug socket & switch (Brand approved by EIC) on 4 Module GI switch board with 3/4 Module top cover plate on wall incl. necy. connection making earthing attachment, painting and mending good damages to building works.				
i	On Board	Point	30		
ii	Average run 1.5 mtr	Point	5		
iii	Average run 4.5 mtr	Point	5		
6	PVC conduit				
	Supplying and fixing PVC Rigid Conduit 'FR' [Precision Make] on wall, ceiling and recessed with saddles and other accessories as required and mending good damages to building works.				
i	20 mm size	RM	200		
ii	25 mm size	RM	100		
7	SUPPLY & FIXING OF LIGHTING FIXTURES AND FAN: (Non-Schedule Item)				
	Supply, installation, assembling, testing and commissioning of the following Light Fixtures with complete accessories, control gears, civil works complete in all respect as per technical specifications and drawings. The quoted rate shall be inclusive of fixtures and accessories including all necessary supports, brackets, down rods and painting etc. as required.				
i	Supplying & Fixing of 1 x 36 W Fluorescent Light Fittings complete with chokes, starters, capacitor etc all complete and 1 Nos 36 W tube and duly interconnection wire.	No	70		
ii	Supply of 2 x 28 W Fluorescent Light Fittings complete with chokes, starters, capacitor etc all complete and 2 Nos 28 W tube and duly interconnection wire. [Philips Cat No. TMS 122M 2xTL5 28 W EBE or equivalent].	No	10		
iii	Supplying & Fixing bulk head light fitting (Havells make) with die cast aluminium housing & frosted glass on wall/ceiling incl. S&F 8watt CFL / 100 watts GLS lamp complete set.	No	2		
iv	Supply, installation, testing & commissioning of 1 x 14 W wall / ceiling mounted fluorescent light fixture with all required accessories complete in all respect as per technical specification, drawings & as required at site (For Toilet). [Bajaj make: BJEXL 111 or Equivalent.]	No	2		
v	Supply, installation, testing & commissioning of 1 x 18 W Bollard light fixture with all required accessories complete in all respect as per technical specification, drawings & as required at site. (Philips make: HCS 360 1xPLC/2P18W GR or equivalent)	No	8		
vi	Supply, installation, testing & commissioning of 1 x 70 W Post Top light fixture with all required accessories complete in all respect as per technical specification, drawings & as required at site. (Philips make: CDS530 SONT70C or equivalent)	No	4		

vii	Supply & fixing of 1200mm dia sweep 3 blade ceiling fan complete with all required accessories as per technical specification & drawings.	No	40		
viii	Supply & Fixing 240V, Modular Socket (2 Module) type fan regulator (Step type) (Brand approved by EIC) on existing Modular GI switch board with top cover plate incl. making necy. connections etc.	No	40		
ix	Fixing only fan clamp for RC ceiling as per specification after cutting the ceiling & binding with reinforcement and mending good the damages.	No	40		
x	Supply, installation, testing & commissioning of heavy duty exhaust fan with gravity louvers and gaurds etc. complete in all respect as per technical specification, drawings & as required at site.				
a	300 mm dia , 1400 rpm 1 phase.	No	5		
xi	Supply, installation, testing & commissioning of 12W 6.5K LED Ceiling down Light fixture with all required accessories complete in all respect as per technical specification, drawings & as required at site . [Make:Syska ,model no:SSK-SDL-212 or equivalent]	No	51		
xii	Supply, installation, testing & commissioning of 9W 6K surface mounted light fixture with all required accessories complete in all respect as per technical specification, drawings & as required at site . [Make:Syska, Model:SSK-081101 or Equivalent.]	No	13		
xiii	Supply, installation, testing & commissioning of 20W (8"x8" Sauare) Panel light fixture with all required accessories complete in all respect as per technical specification, drawings & as required at site . [Make:Syska, Model:SSK-PL-20W or Equivalent.]	No	3		
xiv	Supply, installation, testing & commissioning of 90W 6.5K Flood light fixture with all required accessories complete in all respect as per technical specification, drawings & as required at site . [Make:Syska, Model:SSK-BLS-90W or Equivalent.]	No	24		
8	Supply and fixing of Metal Boxes				
	Supplying & Fixing sheet metal inspection box (16 SWG) of the following sizes flushed in wall by housing the same after cutting brick wall incl. making earthing attachment, painting and mending good damages to building works.				
a)	100 mm x 100 mm x 65 mm deep	Nos	2		
b)	150 mm x 100 mm x 65 mm deep	Nos	4		
9	Supply and fixing of Bakelite				
	Supply & Fixing bakelite / perspex top cover on existing switch board by Brass screws after making housing for switch by cutting bakelite / perspex cover and making necessary connections as required.				
a)	100 mm x 100 mm x 65 mm deep	Nos	10		
b)	150 mm x 100 mm x 65 mm deep	Nos	20		

10	Supply and fixing of Modular Type Blanking Plate				
	Supplying and fixing single pole blanking plate in the existing MCB DB complete etc as required.	Nos	2		
11	GI Pipe Protection:				
	Supplying & fixing medium gauge GI Pipe (ISI-Medium) Protection with necessary fittings and jointing materials as required.				
i	50 mm dia	Mtr	20		
	Total Electrical Items - C (Rs.)				

GRAND TOTAL SUMMARY

SL.NO.	DESCRIPTION	TOTAL COST (Rs)
A	Cost of Civil Works:	
B	Cost of Internal Sanitary & Plumbing:	
C	Cost of Internal Electrical installation works:	
	TOTAL COST (A+B+C) = (D)	
	Rs.	
	Add. Service Tax @ 15% on 40% Total Cost (D) = (E)	
	Gross Value (D+E)	

(In Words : Rs.)

Note:

1. The quoted rates are inclusive of all the materials, labour, transportation, insurance, loading/ unloading, all applicable taxes like VAT / WCT (including the service tax as per prevailing rules), Contractors profit or any other inputs.
2. No escalation shall be entertained over the quoted rates during the tenure of the contract.
3. The rates are quoted with all awareness of the site conditions and after going through the tender documents in details.
4. **The contract will be awarded to the overall lowest evaluated responsive tenderer decided by BRBNMPL.**
5. In addition to above in case any additional statutory tax liability arises on contractor side during the currency of contract, the same will be accepted by the contractor.

We confirm that we will abide by all the tender terms & conditions of tender, above scope of work and we do not have any counter conditions

Thanking you

Yours faithfully,
For & on behalf of

(Signature with date)
(Name and designation)
Duly authorized to sign tender for and on behalf of

Signature with date
Name:

Note: Tender document without signature & essential document is liable for rejection at any stage.



Section XII: Questionnaire / Checklist

The Tenderer should furnish specific answers to all the questions/ issues mentioned below. In case a question / issue do not apply to a tenderer, the same should be answered with the remark "not applicable". Wherever necessary and applicable, the tenderer shall enclose certified copy as documentary proof/ evidence to substantiate the corresponding statement.

In case a tenderer furnishes a wrong or evasive answer against any of the under mentioned question / issues, its tender will be liable to be ignored.

Sl. No.	Particulars	Information to be furnished by the bidder
01	Name of the Firm	
02	Name of Contact person	
03	Mobile No.	
04	Email ID	
05	Address for all correspondence with Telephone / Fax. No.	
06	DD for cost of Tender document to <i>be enclosed</i> with Technical bid (Part-I)	Rs. DD No.: Date:
07	DD/FD/Bankers Cheque for Earnest Money Deposit (EMD) <i>to be enclosed</i> with Technical bid (Part-I)	Rs. DD/FD/BC No.: Date:
08	Type of Organization (Partnership / Sole Proprietorship / Private Limited / Limited)	
09	Copy of Registration / Affidavit <i>to be enclosed</i> .	
10	Income Tax PAN Card Number (Copy of PAN Card <i>to be enclosed</i>)	
11	Service Tax Registration No. (Copy of Registration & last Challan <i>to be enclosed</i>)	
12	VAT Registration Number (Copy of Registration & last Challan <i>to be enclosed</i>)	
13	Provident Fund Registration Number (Copy of Registration & last Challan <i>to be enclosed</i>)	
14	Turn over for last three Financial Years (Copy of CA certified Profit & Loss Account, Balance Sheet <i>to be enclosed</i>)	FY: 2013-14 FY: 2014-15 FY: 2015-16
15	Experience in the field of Similar Nature of Works (<i>Annexure- B</i>). (Copy of Work Order with PRICE SCHEDULE & Completion Certificate / Payment Certificate <i>to be enclosed</i>).	

Sl. No.	Particulars	Information to be furnished by the bidder
16	Details on Deployment of Good running condition Mini Batching Machine not older more than five years of standard make like Universal or equivalent of suitable Batch capacity 400 Liters -750 Liters. Having inbuilt atomized Digital Water feeding system with inbuilt Load cell based Digital Weighing System for the bins.	
17	Submission of list of Technically qualified and experienced personnel for the execution of job (Annexure-C).	
18	Undertaking for submission of CAR (Contractors' All Risk Policy) and Workman's Compensation Insurance Policy on award of work	
19	Any Civil Suit / Litigation arisen/ pending in any contract undertaken. (if yes, please furnish the details)	
20	Whether the Company / Firm was banned or de-listed by any Department of Govt. or quasi Govt. Agencies or PSUs in last 05(five) years (declaration on your <i>letter head to be enclosed</i>)	
21	Any other relevant information, the bidder would like to furnish in connection with its credentials. (Details in separate sheet)	
22	Are you currently registered with the (DGS&D), and/ or (NSIC), New Delhi & whether submitted undertaking along with part-I Bid <i>for submission of SD which is mandatory before placing of work order in case of your firm becomes L1 bidder/status</i>	
23	Pre-contract Integrity Pact (Section-XX) duly filled, signed and stamped along with signatures of two witnesses <i>to be enclosed</i> .	
24	Complete set of tender document with all supporting documents duly filled, signed and stamped <i>attached</i> .	

It is certified that the information furnished in the above are true. I / We undertake that in the event of any information found to be false and / or inadequate, our tender shall summarily be rejected and the Security deposit amount shall be forfeited without any reference to us.

Date:

Signature of the Bidder with Date

Place:

Seal of the firm

.....

(Signature with date)

(Full name, designation & address of the person duly authorized sign on behalf of the tenderer)

For and on behalf of.....

(Name, address and stamp of the tendering firm)



SECTION XV: Bank Guarantee Form for Performance /Security Deposit.
(To be submitted on award of Work Order in this BG form or DD in place of B.G.)

_____ [Insert Bank's Name, and Address of Issuing Branch or Office]
Beneficiary _____ [Insert Name and Address of BRBNMPL]

Date: -----

Performance Guarantee No. _____

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 scheduled commercial bank recognized 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 me 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 thereunder 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.

We undertake to pay BRBNMPL up to the above amount upon receipt of its first written demand, without BRBNMPL having to substantiate its demand.

This guarantee will remain in force for a period of sixty days after the date of completion of all contractual obligation of the contractor, including the warranty obligations and any demand in respect thereof should reach the Bank not later than the above date.

(Signature of the authorized officer of the Bank)

Name and designation of the officer

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

Name and designation of the officer

Seal, Name & Address of the Bank.

Section XVI: Contract Form

(Address of BRBNMPL's office issuing the contract)

Contract No dated

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

1. Name & address of the Supplier:
2. BRBNMPL's Tender document No. dated and subsequent Amendment No. dated (if any), issued by BRBNMPL
3. Supplier's Tender No. dated and subsequent communication(s) No. dated (If any), exchanged between the supplier and BRBNMPL 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 part of this contract:
 - a) General Conditions of Contract;
 - b) Special Conditions of Contract;
 - c) List of Requirements;
 - d) Technical Specifications;
 - e) Quality Control Requirements;
 - f) Tender Form furnished by the supplier;
 - g) Price Schedule(s) furnished by the supplier in its tender;
 - h) Manufacturers' Authorization Form (if applicable for this tender);
 - i) BRBNMPL'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 Section - V - 'General Conditions of Contract' of BRBNMPL's Tender 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:
 - i) Brief particulars of the goods and services which shall be supplied / provided by the supplier are as under:

Schedule No.	Brief description of goods / services	Accounting unit	Quantity to be supplied	Unit Price (in Rs.)	Total price (in Rs.)
--------------	---------------------------------------	-----------------	-------------------------	---------------------	----------------------

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

Total value (in figure) (In words)

- ii) Delivery schedule
- iii) Details of Performance Security
- iv) Quality Control
 - (a) Mode(s), stage(s) and place(s) of conducting inspections and tests
- v) Consignee, including port consignee, if any
- vi) Warranty clause
- vii) Payment terms
- viii) Paying authority

.....
(Signature, name and address of BRBNMPL's authorized official)

For and on behalf of

Received and accepted this contract

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

For and on behalf of

(Name and address of the supplier)

.....
(Seal of the supplier)

Date:

Place:



Section XVII: Letter of Authority for attending a Bid Opening

(Refer to clause 24.2 of GIT)

The General Manager,
BRBNMPL,
Salboni Press, RBNML P.O.,
Salboni -721132
Paschim Midnapore (Dist.),
(West Bengal)

Subject: Authorization for attending bid opening on _____ (date) in the Tender of _____.

Following persons are hereby authorized to attend the bid opening for the tender mentioned above on behalf of _____ (Bidder) in order of preference given below:

Order of Preference	Name	Specimen Signatures
I.		
II.		
Alternate Representative		
Signature of Bidder or Officer authorized to sign the bid Documents on behalf of the bidder		

Note:

1. Maximum of two representatives will be permitted to attend bid opening. In cases where it is restricted to one, first preference will be allowed. Alternate representative will be permitted when regular representatives are not able to attend.
2. Permission for entry to the hall where bids are opened may be refused in case authorization as prescribed above is not produced.

For and on behalf of

(Name and address of the supplier)

.....
(Seal of the supplier)



Date:

Place:

Section XIX: Proforma of Bills for Payment
(To be submitted by contractor's on their letter Head)

Name and Address of the Firm:

Bill No: Dated:.....

To
The General Manager,
B.R.B.N.M. (P) Limited,
Salboni - 721132.

Invoice / Bill No. & Date	
PAN No.	
TIN No.	
VAT No.	
Service Tax Registration No.	

Subject: Submission of Bill for payment.

1.	Work Order No & Date :				
2.	Work order amount: Rs.				
3.	Type of bill:(R/A / Final) Bill:				
4.	Area of work:				
5.	Starting date of work :				
6.	Schedule date of completion:				
7.	Actual date of completion :				
8.	Reasons for delay :				
9.	Liquidated damage (if any) : (For any delay beyond specified schedule time period)				
10.	DLP Period:				
11.	EMD :				
12.	Security Deposit: Rs				
13.	Any other details/Remarks:				
14.	Abstract of Cost				
Sl. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)

	Total amount: (A)				
	Service Tax @ 14.5% on 40% of (A): (B)				
	Total Bill Value (A+B)= (C)				
(In words.....)					

Note: Separate Detailed measurement sheet in LBD format to be attached along with this bill.

(Strike off not applicable items)

I hereby certify 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.

Signature with name and Stamp of Contractor / Agency



SECTION XX: PRE-CONTRACT INTEGRITY PACT

Tender No.: **07/SAL/CIVIL/2016-17**

(To be executed on plain paper and applicable for all tenders of value above Rs.1 Crore)

(Revised as on 7th November 2013)

General

This pre-bid pre-contract Agreement (hereinafter called the Integrity Pact) is made on _____ (date of tender submission) day of the month of _____ between on one hand, BRBNMPL through **Sri. R. Natarajan, Deputy General Manager**, Site Office, **Salboni** on behalf of the Managing Director hereinafter called the “BUYER” which expression shall mean and include unless the context otherwise requires his successors in office and assigns of the First Part and **M/s _____** (Vendors’ Name) represented by **_____** (Authorized Signatory Name) hereinafter called the BIDDER / SELLER which expression shall mean and include unless the context otherwise requires his successors and permitted assigns of the Second Part.

WHEREAS the BUYER propose to carryout Construction of New Staff Recreation Club at BRBNMPL, Salboni and the BIDDER / SELLER is willing to offer / has offered to carryout Construction of New Staff Recreation Club at BRBNMPL, Salboni

and

WHEREAS the BIDDER is a private company / public company / Government undertaking partnership / registered export agency constituted in accordance with the relevant law in the matter and the BUYER is a Company wholly owned by Reserve Bank of India on behalf of its Managing Director.

NOW THEREFORE

To avoid all forms of corruption by following a system that is fair, transparent free from any influence / prejudiced dealings prior to, during and subsequent to currency of the contract to be entered into with a view to enabling the BUYER to obtain the desired said stores / equipment at a competitive price in conformity with the defined specifications by avoiding the high cost and the distortionary impact of corruption on public procurement and Enabling BIDDERS to abstain from bribing or indulging in any corrupt practice in order to secure the contract by providing assurance to them that their competitors will also abstain from bribing and other corrupt practices and the BUYER will commit to prevent corruption in any form by its officials by following transparent procedures.

The parties hereto hereby agree to enter into this Integrity Pact and agree as follows:

Definitions:

In pursuance of the above Pact, for the purpose of this provision, the Buyer defines the relevant terms set forth therein as under:

- 1) “Contract” means the contract entered into between the Buyer and Bidder (or Tenderer) Contractor for the execution of work mentioned in the preamble above.
- 2) “Contractor” means the bidder or tenderer whose tender (bid) has been accepted by the Buyer or Company whose tender (bid) has been accepted and shall be deemed to include his/its/their successors, representatives, heirs, executors and administrators unless excluded by the Contract.
- 3) “Coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the procurement process or affect the execution of a contract; In order to achieve these goals, the Buyer proposes to appoint one or more External Independent Monitor/s who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

- 4) “Collusive practice” means a scheme or arrangement between two or more bidders, with or without the knowledge of the Buyer designed to establish bid prices at artificial, noncompetitive levels; and
- 5) “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;
- 6) “External Independent Monitor” means a person, hereinafter referred to as EIM, appointed, in accordance with Section 9 below, to verify compliance with this agreement.
- 7) “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 Buyer and includes collusive practices among Bidders (Prior to or after bid submission) designed to establish bid prices at artificial, non- competitive levels and to deprive the Buyer of the benefits of free and open competition;
- 8) “Party” means a signatory to this agreement.
- 9) “Purchaser or Buyer” means Bharatiya Reserve Bank Note Mudran Private Limited, incorporated under the Companies Act 1956, having their registered Office at Bangalore 560029 and includes their successors.
- 10) “Bidder or Tenderer” means the person, firm or company submitting a tender (bid) against the invitation to Tender (bid) and includes his/its/their staff, consultants, parent and associate and subsidiary companies, agents, consortium and joint venture partners, sub-contractors and suppliers, heirs, executors, administrators, representatives, successors.

1. Commitments of the Buyer

1. The BUYER commits itself to take all measures necessary to prevent corruption and to observe the following principles:
 - 1.1 The BUYER undertakes that no official of the BUYER connected directly or indirectly with the contract will demand, take a promise for or accept, directly or through intermediaries, any bribe, consideration, gift, reward, favour or any material or immaterial benefit or any other advantage from the BIDDER either for themselves or for any person, organization or third party related to the contract in exchange for an advantage in the bidding process bid evaluation, contracting or implementation process related to the contract.
 - 1.2 The BUYER will during the pre-contract stage treat all BIDDERS alike and will provide to all BIDDERS the same information and will not provide any such information to any particular BIDDER which could afford an advantage to that particular BIDDER in comparison to other BIDDERS.
 - 1.3 All the officials of the BUYERS will report to the Director (Technical)/Director (Operations) / General Manager of any attempted or completed breaches of the above commitments as well as any substantial suspicion of such a breach.
2. In case any such preceding misconduct on the part of such official(s) is reported by the BIDDER to the BUYER with full and verifiable facts and the same is prima facie found to be correct by the BUYER, necessary disciplinary proceedings or any other action as deemed fit including criminal proceedings may be initiated by the BUYER and such a person shall be debarred from further dealings related to the contract process. In such a case while an enquiry is being conducted by the BUYER, the proceedings under the contract would not be stalled.

2. Commitments of BIDDERS

- 2.1 **The BIDDER commits itself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of its bid or during any pre-contract**

or post-contract stage in order to secure the contract or in furtherance to secure it and in particular, commit itself to the following:

- 2.1.1 The BIDDER will not offer directly or through intermediaries any bribe, gift consideration, reward, favour, any material or immaterial benefit, other advantage, commission, fees brokerage or inducement to any official of the BUYER connected directly or indirectly with the bidding process or to any person, organization or third party related to a contract in exchange for any advantage in the bidding, evaluation, contracting and implementation of the contract.
- 2.1.2 The BIDDER further undertakes that it has not given, offered, promised to give directly or indirectly any bribe, gift, consideration, reward, favor any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the BUYER or otherwise in procuring the Contract or forbearing to do or having done any act in relation to the obtaining or execution of the contract or any other contract with the Government for showing or forbearing to show favour or disfavor to any person in relation to the contract or any other contract with buyer.
- 2.1.3 BIDDERS of foreign origin shall disclose the name and address of the Agents / representatives in India, if any. Similarly, the bidders of Indian nationality shall furnish the name and address of the foreign principals, if any.
- 2.1.4 BIDDERS shall disclose the payments to be made by them to agents / brokers or any other intermediary in connection with this bid / contract.
- 2.1.5 The BIDDER further confirms and declares to the BUYER that the BIDDER is the original manufacturer / integrator / authorized Government sponsored export entity of the stores and has not engaged any individual or firm or company whether Indian or foreign to intercede facilitate or in any way to recommend to the BUYER or any of its functionaries, whether official or unofficially to the award of the contract to the BIDDER, nor has any amount been paid, promised or intended to be paid to any such individual firm or company in respect of any such intercession, facilitation or recommendation.
- 2.1.6 The BIDDER, either while presenting the bid or during pre-contract negotiations or before signing the contract shall disclose any payment he has made is commented to or intends to make to officials of the BUYER or their family members agents brokers or any other intermediaries in connection with the contract and the details of services agreed upon for such payments.
- 2.1.7 The BIDDER will not collude with other parties interested in the contract to impair the transparency fairness and progress of the bidding process, bid evaluation contracting and implementation of the contract.
- 2.1.8 The BIDDER will not accept any advantage in exchange for any corrupt practice unfair means and illegal activities.
- 2.1.9 The BIDDER shall not use improperly for purposes of competition or personal gain, or pass on to others any information provided by the BUYER as part of the business relationship regarding plans, technical proposals and business details including information contained in any electronic data carrier. The BIDDER also undertakes to exercise due and adequate care lest any such information is divulged.
- 2.1.10 The BIDDER commits to refrain from giving any complaint directly or through any other manner without supporting it with full and verifiable facts.
- 2.1.11 The BIDDER shall not instigate or cause to instigate any third person to commit any of the actions mentioned above.
- 2.1.12 If the BIDDER or any employee of the BIDDER or any person acting on behalf of the BIDDER either directly or indirectly is a relative of any serving / ex-employees of the officers of the

BUYER or alternatively if any relative of any serving / ex-employees of the officers of the BUYER has financial interest / stake in the BIDDER's firm, the same shall be disclosed by the BIDDER at the time of filing of tender. The term relative for this purpose would be as defined in Section 6 of the Companies Act, 1956.

- 2.1.13 The BIDDER shall not lend to or borrow any money from or enter into any monetary dealings of transaction directly or indirectly with any employee of the BUYER.

3. Disqualification from tender process and exclusion from future contracts.

- 3.1 If the Bidder, before contract award has committed a transgression through a violation of Section 2 or in any other form such as to put his reliability or credibility as Bidder into question, the Buyer is entitled to disqualify the Bidder from the tender process or to terminate the contract, if already signed, for such reason.
- 3.2 If the Bidder / Contractor has committed a transgression through a violation of Section 2 such as to put his reliability or credibility into question, the Buyer is entitled also to exclude the Bidder / Contractor from future contract award processes. The imposition and duration of the exclusion will be determined by the severity of the transgression. The severity will be determined by the circumstances of the case, in particular the number of transgressions, the position of the transgressors within the company hierarchy of the Bidder and the amount of the damage. The exclusion will be imposed for a minimum of 1 year and maximum of 3 years.
- 3.3 A transgression is considered to have occurred if the Buyer after due consideration of the available evidence, concludes that no reasonable doubt is possible.
- 3.4 The Bidder/ Contractor accepts and undertakes to respect and uphold the Buyer's absolute right to resort to and impose such exclusion after giving opportunity of hearing to the bidder. This undertaking is given freely and after obtaining independent legal advice.
- 3.5 If the Bidder / Contractor can prove that he has restored / recouped the damage caused by him and has installed a suitable corruption prevention system, the Buyer may revoke the exclusion prematurely, provided such systems has been audited by an independent agency.

4. Compensation for Damages

- 4.1 If the Buyer has disqualified the Bidder from the tender process prior to the award according to Section 3, the Buyer is entitled to demand and recover from the Bidder liquidated damages equivalent to Earnest Money Deposit / Bid Security.
- 4.2 If the Buyer has terminated the contract according to Section 3 or if the Buyer is entitled to terminate the contract according to Section 3, the Buyer shall be entitled to demand and recover from the Contractor liquidated damages equivalent to Security Deposit I Performance Bank Guarantee.

5. Previous Transgression

- 5.1 The BIDDER declares that no previous transgression occurred in the last three years immediately before signing of this Integrity Pact, with any other company in any country confirming to anti-corruption approach in respect of any corrupt practices envisaged hereunder or with any Public Sector Enterprise in India or any Government Department in India that could justify BIDDER's exclusion from the tender process.**
- 5.2 The BIDDER agrees that if it makes incorrect statement on this subject BIDDER can be disqualified from the tender process or the contract already awarded, can be terminated for such reason.**

6. Earnest Money (Security Deposit)

6.1 While submitting commercial bid, the BIDDER shall deposit the Stipulated Earnest Money / Security Deposit, with the BUYER through any of the following instruments:

Bank Draft or a Pay Order in favour of Bharatiya Reserve Bank Note Mudran Private Limited. A confirmed guarantee by an Indian Nationalised Bank promising payment of the guaranteed sum to the BUYER or demand within three working days without any demur whatsoever and without seeking any reasons whatsoever. The demand for payment by the BUYER shall be treated as conclusive proof of payment.

Any other mode or through any other instrument (as specified in the tender document).

6.2 The Earnest Money shall be valid for 45 days beyond the final tender validity period. Security Deposit shall be valid for 60 days after complete conclusion of the contractual obligations to the complete satisfaction of both the BIDDER and the BUYER and after completion of warranty period.

6.3 In case of successful BIDDER a clause would also be incorporated in the Article pertaining to Performance Bond in the Purchase Contract that the provisions of Sanctions for Violation shall be applicable for forfeiture of Performance Bond in case of a decision by the BUYER to forfeit the same by assigning reason for imposing sanction to violation of this Pact.

6.4 No interest shall be payable by the BUYER to the BIDDER on Earnest Money / Security Deposit for the period of its currency.

7. Sanctions for Violations

7.1 Any breach of the aforesaid provisions by the BIDDER or any one employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER) shall entitle the BUYER to take all or any one of the following actions wherever recurred.

- i) To immediately call off the pre-contract negotiations after assigning any reason. However, the proceedings with the other BIDDER(s) would continue.
- ii) The Earnest Money Deposit (in pre-contract stage) and / or Security Deposit / Performance Bond (after the contract is signed) shall stand forfeited either fully or partially as decided by the BUYER and the BUYER shall assign reason therefore.
- iii) To immediately cancel the contract if already signed, without giving any compensation to the BIDDER.
- iv) To recover all sums already paid by the BUYER and in case an Indian BIDDER with interest thereon at 2% higher than the prevailing Prime Lending Rate of State Bank of India, while in case of BIDDER from a country other than India with interest thereon at 2% higher than the LIBOR. If any outstanding payment is due to the BIDDER from the BUYER in connection with any other contract for other stores, such outstanding payment could also be utilized to recover the aforesaid sum and interest.
- v) To encash the advance bank guarantee and performance bond / warranty bond if furnished by the BIDDER in order to recover payments already made by the BUYER along with interest.
- vi) To cancel all or any other contracts with the BIDDER. The BIDDER shall be liable to pay compensation for any loss or damage to the BUYER resulting from such cancellation / rescission and the BUYER shall be entitled to deduct the amount so payable from the money due to the BIDDER.
- vii) To debar the BIDDER from participating in future bidding processes of the buyer for a minimum period of 5 years, which may be further extended at the discretion of the BUYER.

viii) To recover all sums paid in violation of this Pact by BIDDER(s) any middlemen or agent or broker with a view to securing the contract.

ix) Any letter of credit, including revolving Letter of Credit, opened by buyer, shall be rendered infructuous from the date of advice of violation by buyer.

x) Forfeiture of Performance Bond in case of a decision by the BUYER to seek for the forfeiture for imposing sanction for violation of this Pact.

7.2 The BUYER will be entitled to take all or any of the actions mentioned at para 7.1 (i) to (x) of this Pact also on the Commission by the BIDDER or any one employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER) of an offence as defined in Chapter IX of the Indian Penal Code, 1860 or Prevention of Corruption Act, 1988 or any other statute enacted for prevention of corruption.

7.3 The decision of the BUYER to the effect that a breach of the provisions of this Pact has been committed by the BIDDER shall be final and conclusive on the BIDDER. However, the BIDDER can approach the independent Monitor (s) appointed for the purposes of this Pact.

8. Fall Clause

8.1 The bidder undertakes that it has not supplied/is not supplying similar product /systems or sub-systems at a lower price than that offered in the present bid in respect of any other customer in India, Ministry / Department of the Government of India or PSU and if it is found at any stage that similar products/systems or such systems was supplied by the Bidder to any of these entities at a lower price then that very price with due allowance for elapsed time would be applicable to the present case and the difference in the cost would be refunded by the Bidder to the Buyer if the contract has already been concluded.

9. External Independent Monitor-

Name: V.SANTHANA RAMAN, E-mail: v.santhanaraman@gmail.com

9.1 The BUYER appoints competent and credible external independent Monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.

9.2 The Monitor is not subject to instructions by the representatives of the parties and performs his functions, neutrally and independently. He reports to the Chairperson of the Board of the Buyer.

9.3 The Contractor accepts that the Monitor has the right to access without restriction to all Tender/Contract documentation of the Buyer including that provided by the Contractor. The Contractor will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to tender/contract documentation. The same is applicable to Subcontractors. The Monitor is under contractual obligation to treat the information and documents of the Bidder / Contractor / Subcontractor with confidentiality, provided that this clause is subject to the general confidentiality clause.

9.4 The Buyer will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the Buyer and the Contractor. The parties offer to the Monitor the option to participate in such meetings.

9.5 As soon as the Monitor notices, or believes to notice, a violation of this agreement, he will so inform the Management of the Buyer and request the Management to discontinue or heal the violation, or to take other relevant action. The monitor can in this regard submit nonbonding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action. However, Independent External Monitor shall give an opportunity to the

bidder/contractor to present its case before making its recommendations to the management of the buyer.

9.6 The Monitor will submit a written report to the Chairperson of the Board of the Buyer within 8 to 10 weeks from the date of reference or intimation to him by the 'Buyer' and, should the occasion arise, submit proposals for correcting problematic situations.

9.7 Monitor shall be entitled to compensation on the same terms as being extended to / provided to Outside Expert Committee members / Chairman as prevailing with Buyer.

9.8 If the Monitor has reported to the Chairperson of the Board a substantiated suspicion of an offence under relevant Anti-Corruption Laws of India, IPC/PC Act and the Chairperson has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the Monitor may also transmit this information directly to the Central Vigilance Commissioner, Government of India.

9.9 The word 'Monitor' would include both singular and plural.

10. Facilitation of Investigation

In case of any allegation of violation of any provisions of this Pact or payment of commission, the BUYER or its agencies shall be entitled to examine all the documents including the Book of Accounts of the BIDDER and the BIDDER shall provide necessary information and documents in English and shall extend all possible help for the purpose of such examination.

11. Law and Place of Jurisdiction

This Pact is subject to Indian Law. The place of performance and jurisdiction is the seat of the BUYER.

12. Other Legal Actions

12.1 The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of the extant law in force relating to any civil or criminal proceedings.

12.2 Changes and supplements as well as termination notices need to be made in writing.

12.3 If the Contractor is a partnership or a consortium this agreement must be signed by all partners or consortium members.

13. Validity

13.1 The validity of this Integrity Pact shall be from the date of its signing and valid for 60 days after complete conclusion of the contractual obligations to the complete satisfaction of both the BUYER and the BIDDER and after completion of warranty period. In case the BIDDER is unsuccessful this Integrity Pact shall expire after conclusion of the tender. If any claim is made/lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged/determined by Chairman of the buyer.

13.2 Should one or several provisions of this Pact turn out to be invalid, the remainder of this Pact shall remain valid. In this case the parties will strive to come to an agreement to their original intentions.

14. The parties hereby sign this integrity pact at Salboni on _____ (date of tender submission).

BUYER (**BRBNMPL, Salboni**)

Name of the Officer: **Sri. R. Natarajan,**

Designation: **Deputy General Manager,**

BIDDER ()

“Authorised signatory of the Bidder”

Witness (Name & Sign)

1. _____

2. _____

Witness (Name & Sign)

1. _____

2. _____

Performa of Financial Turnover Certificate

Certificate

(To be issued by practicing Chartered Accountant with membership No. on the letter head)

To whomsoever concern

Dear Sir,

Subject: **Certificate for turnover and others as per tender conditions.**

This is to certify that M/s. _____ (Agency Name & Address) are in the business of contracts execution for last 03 completed years (considered upto 31st March 2015 of last financial year). Their performance report as required under tender conditions for the last 03 years is as follows.

Financial Years	Annual Turnover	Profit / (-loss) for the year	Net worth as on year end
2013-14			
2014-15			
2015-16			
Total			

The above information is based on the audited accounts.

Place:

Date:

Signature of CA with membership No.



Tender No.: 07/SAL/CIVIL/2016-17
DETAIL OF WORK EXPERIENCE
(Use separate sheet if space is found inadequate)

NOTE: To substantiate the following contents and for consideration of same as eligibility criteria, authenticated copy of Work Order and Completion Certificate or Payment Certificate to be furnished.

Sl. No.	Name of the Principal Employer / Owner	Name of the work	Work order/ LOI No. & date and value of work	Schedule d date of completi on	Actual value of work on completion	Actual date of completion	Any other information
01							
02							
03							
04							

It is certified that the information furnished in the above are true. We undertake that in the event of any information found to be false and/or inadequate, our tender shall summarily be rejected and the EMD shall be forfeited without any reference to us.



Signature of the Bidder with Date

Tender No.:07/SAL/CIVIL/2016-17
Details of Technical Personnel proposed to be deployed
(Use separate sheet if space is found inadequate)

NOTE: To substantiate the following contents and for consideration of same as eligibility criteria.

Sl. No.	Name of Employee	Qualification with year of passing	Percentage of marks obtained	Details of Employers where worked	Number of years of experience	Nature of experience	Remarks
01							
02							
03							
04							

It is certified that the information furnished in the above are true. We undertake that in the event of any information found to be false and/or inadequate, our tender shall summarily be rejected and the EMD shall be forfeited without any reference to us.

Signature of the Bidder with Date



GENERAL PARTICULARS AND REQUIREMENTS

1.0 General

- 1.1 The Conditions of Contract, schedule of quantities and the drawings shall be read in conjunctions with this specification and matters referred to shown or described in any of the former are not necessarily repeated in the latter.

The work under this contract shall be carried out in accordance with general conditions of contract, special conditions of contract, specifications drawings, schedule of quantities forming part of this contract and the latest Indian standard specifications and codes of practice referred to in this specifications.

- 1.2 Discrepancy between drawings & specifications and schedule of quantities.

- 1.1.1 In the event of any discrepancy between this specification and the latest Indian standard specifications/codes of practice the provisions in this specifications shall take precedence over the other specifications.

- 1.1.2 In case of any discrepancy between specifications, schedule of quantities and contract drawings or such other drawings as may be issued during progress of works, the matter shall be referred to the engineer in charge for clarification and decision. The contractor shall execute the work in accordance with the decision the Engineer in charge. And under no circumstance whatsoever, the contractor shall carry out the works on the basis of his own interpretation and understanding of the apparent discrepancy. It will however be deemed that the contractor has quoted on the basis of the description of the B.O.Q including preamble.

- 1.1.3 Protection to work from weather

The contractor shall cover up and protect all the works from weather and shall suspend all the wet operations during a weather which, in the opinion of the engineer in charge will be to the work.

- 1.1.4 Dimension in drawings

Figured dimensions are to be follows in all cases and in no case shall they be sealed , large scale details take precedence over shall scale drawings . In general , drawings shall indicate dimensions, positions and type of constructions, the specifications shall indicate the

quality , standard and methodology of work and the schedule of quantities shall indicate the estimated approximate quantities and brief description of item.

1.1.5 Method of Measurement

Unless otherwise described in the preamble to the schedule of quantities, the method of measurement shall be as described in Method of measurement " of building and civil engineering works IS 1200 (part - I to XVV) latest edition of bureau of Indian standards.

1.2 Materials

All materials/fitting/equipments supplied and incorporated in the work shall comply with the requirements for relevant Indian standards (latest applicable standards) and also shall meet approval of Engineer in charge.

- 1.2.1 The Contractor shall produce samples of all materials / fittings of sizes/number as required by the engineer in charge before incorporation of these materials/ fittings in the work prior approval of the engineer in charge. The approved sample shall remain in custody of engineer in charge till expire of defect liability period and returned thereafter. Samples of consumables, tiles, sand aggregate will however, not be returned. Bulk procurement of materials shall not be commenced until the samples are duly approved in writing. The materials/fittings to be provided by the contractor shall conform to or shall be superior to the samples approved.

1.3 Contract price

The contract price quoted by the contractor shall be deemed to include for any details of construction which are obviously and fairly intended and which are incidental to the item but may not have been clearly shown and or specified.

1.4 Notice of operation

No important operation shall be commenced nor shall work outside the usual working hours be carried out without the consent in writing of the engineer in charge or without full and complete notice.

1.5 Sequence of works

The sequence in which the works are to be carried out shall be to the approval of the engineer in charge and shall be such as to suit the detailed method of construction adopted by the contractor. The works shall also be carried out so as to enable the other contractors to work concurrently for early completion of the works.

1.6 Setting out the work

- 1.6.1 The contractor shall set out and measure up all the

works in accordance with the contract documents and for this purpose he shall appoint technical and other category staff and also provide for all necessary assistants needed.

The Contractor shall be entirely responsible for the accurate and perfect setting out of all works, whether such setting out be executed by his own staff or not, and notwithstanding that the engineer in charge may furnish bench marks and set out or give the necessary directions for setting out the work, the contractor must satisfy himself as to the accuracy of these and shall, at his own cost rectify and make good any and all defects which may arise from errors in the lines and levels, and no inaccuracy in the setting out and in the construction of the works shall be founded on by the contractor as a reason for any claim against the owner by the corporation.

1.7 Responsibility for carrying out works

1.8.1 The responsibility for carrying out the works and the methods to be adopted under this contract shall rest solely with the contractor subject always to the approval by the engineer in charge of the contractor's proposals. Such approvals shall not, however relieve the contractor in any way of his responsibility for the proper execution of works in accordance with the contract.

1.9 Construction equipment, works, building materials etc.

1.9.1 The Contractor's attention is specially directed to the fact that the requirements of the specification are general and applicable to all the works.

1.9.2 In addition, the following general requirements given in sub pars 1.9.2 (i) to 1.9.2 (iii) shall also be held to apply to every part of works where applicable

(i) Use of plant, materials etc for safe construction

All the labour, constructional plant, machinery, tools, instruments, tackle and equipment temporary offices, workmen's sanitary and welfare arrangement and other buildings, temporary structures, works, services and operations materials, stores and things of whatever description necessary to construct, complete and maintain the whole of the works, temporary or permanent, or to fulfill the requirements specified in the contract shall be provided and used by the contractor, and the constructional plant, equipment, materials, temporary building, works, services etc. shall be of a type, capacity power or quantity, strength, design and construction and erected in such position or used or executed at such times and in such manner as are specified in the contract and as re most efficient and

suitable for the proper and safe execution of the work to be under taken under this contract.

(ii) Utilities to be provided by contractor

The contractor shall make his own arrangements and except where otherwise indicated shall at all points where they are required such supplies of water, fuel, light and power as he may require for all the operations under the contract, and shall also provide and use all the necessary appliances, works, services and other things necessary to distribute the supplies to the various parts of the works.

(iii) Furnishing information to engineer in charge

The Contractor shall when required by the Engineer in charge furnish all information as to quality, weight, constituent substances, dimensions, levels, strength and description of the materials and works and give the Engineer -in charge such other particulars as may be required.

1.10 Names of manufacturers and copies of orders

Before ordering any material of any description of the permanent works the contractor shall submit for the approval of the Engineer in charge, the names of the makers and suppliers proposed and any other detail required by the engineer in charge and shall afterwards send to the Engineer in charge, copies in quadruplicate, of the orders given by the contractor for the materials. All materials shall be suitable for local climatic conditions.

1.11 Manufacturers' name sizes catalogue numbers and / or samples of all materials shall be submitted for approval.

1.12. Proprietary Materials

1.12.1 Proprietary materials to be used in the works and shall when brought to site be not inspected by the engineer in charge.

The contractor shall, on demand, produce to the Engineer in charge original Receipts/vouchers /invoices in respect of the Supplies.

1.13 Test Certificates

1.13.1 All manufacturer's certificates of test proof, sheets, mill sheets, etc. showing that the materials have been tested in accordance with the requirements of the appropriate Indian standard, other relevant standard specification or this specification, are to be supplied free of charges, on request to the engineer in charge.

1.14 Storage of Materials

1.14.1 All materials used in the permanent works shall be stored on racks supports, in bins under cover etc. as appropriate to prevent deterioration or damage from any cause whatsoever to the entire satisfaction of the engineer in charge and as amplified in the succeeding clauses.

1.15 Records and usage of materials

1.15.1 The contractor shall maintain a detailed record of all materials received on the site or in his stores or storage and working areas in the vicinity of the site and shall make such records available to the engineer in charge. At such times as the latter may reasonably require.

1.16 Forming holes & making good

1.16.1 All holes shall be left or provided in concrete including reinforced cement concrete, brick work and in any other situations as required for or directed by the engineer in charge and shall be made good, in the same mortar mix as specified for that portion of the work .No extra payment on this account will be made to the contractor.

1.17 Keeping site clean

1.17.1 The contractor shall at all time keep the site free from all surplus materials, rubbish and offensive matter which shall be disposed of in a manner to be approved by the Engineer in charge.

1.18 Safety precautions

The contractor shall take all necessary safety precautions to prevent the possibility of accidents which may be caused mechanically electrically or otherwise during the course of the works. The works shall include the provision and fixing of detachable guards of approved design to cover all moving machine parts wherever they may be located and whether they are intended to be permanent or temporary and in such manner as to comply

with the appropriate statutory requirements it shall also include such step down transformers as at be used for potable electrical tools.

1.19 Maintenance of Finishes

The contractor shall cover up and protect the various works and portions thereof from all damage due to unconsidered or rough treatment, dust grit or damage in other ways. All bright parts of fittings shall be covered with transparent polyethylene sheeting and shall be cleaned and polished before being handed over wherever is required.

GENERAL SCOPE

1. These specifications establish and define the material and constructional requirements for CIVIL and STRUCTURAL WORKS.
2. Method of measurements are indicated in these specifications, where not so specified, latest revision of IS:1200 shall be applicable.
3. Providing and operating necessary measuring and testing devices and materials including all consumables are included in the scope of work. No separate measurement or payment for testing the work shall be made but rates quoted for various items shall be deemed to include the cost of such tests which are required to ensure achievement of specified quality.
4. All materials shall be of standard quality, manufactured by renowned concerns conforming to Indian Standards or equivalent and shall have IS mark as far as possible unless otherwise approved by the Engineer-in-Charge. The contractor shall get all materials approved by the Engineer-in-Charge prior to procurement and use. The contractor shall furnish manufacturer's certificates for the materials supplied by him when asked for. Further to that he shall get the materials tested from an approved test house if asked for by the Engineer-in-Charge. The cost for all the tests and test certificates shall be borne by the Contractor. No separate payment shall be made for the testing. The Engineer-in-Charge shall have the right to determine whether all or any of the materials are suitable. Any materials procured or brought to site and not conforming to specifications and satisfaction of the Engineer-in-Charge shall be rejected and the contractor shall have to remove the same immediately from site at his own expense and without any claim for compensation due to such rejection.
5. Wherever referred to in this tender document, only the latest revision which shall be in force till the completion work, of specifications, codes of practice and other publications of Bureau of Indian Standards shall be applicable.
- 6.0 Wherever the Contractor executes civil and structural works involving buildings, equipment foundations, supporting structures pipe racks, etc., the following works are deemed to have been included in the quoted rates for various works.
- 6.1 Marking of centre lines of foundations.
- 6.2 Marking of top levels of foundations, floors etc. and

establishment of reference lines, bench marks on various floors, platforms etc.

- 6.3 Preparations of "as built" scheme of structural foundations, equipment foundations etc. indicating designed and achieved levels, centre lines and dimensions of pockets, position and level of anchor bolt etc.
- 7.0 The provisions of schedule of rates, specifications and drawings shall be read in conjunction with each other and in case of conflict amongst them, the clarification shall be obtained from the Engineer-in-Charge whose decision shall be final and binding. However, the following procedure may generally be followed.
- 7.1 Description of items in schedule of rates shall be followed when provisions therein are different from those in specifications.
- 7.2 Where the description of item does not call for some specific requirement but the same is given in specifications, the specifications shall be followed in addition to the requirement given in description of item.
- 7.3 Where drawings call for requirements different from or additional to those given in item description and specifications, the decision of the Engineer-in-Charge shall be obtained as to what shall be followed.

EARTH WORK

- 1.0 SCOPE
This specification deals with earthwork in excavation and filling.
- 2.0 CLASSIFICATION_OF_SOIL
- 2.1 Soft/Loose Soil
Generally any soil which yields to the ordinary application of pick and shovel or to pharaoh, rake or other ordinary digging implement; such as vegetable or organic soil, turf, gravel, sand, silt, loam, clay, peat etc.
- 2.2 Hard/Dense Soil
Generally any soil which requires the close application of pick, or jumper or scarified to loosen such as stiff clay, gravel and cobble stone.
- 2.3 Soft/Disintegrated rock
Rock or boulder which may be quarried or split with crowbar. This will also include literate and hard conglomerate.
- 2.4 Hard_Rock(Requiring_Blasting)
Any rock or boulder for the excavation of which blasting is required.

- 2.5 Hard_rock(Requiring Controlled Blasting)
Due to any reason, if general blasting is prohibited, then for excavating these rocks, controlled blasting as approved by the Engineer-in-Charge shall be used.
- 2.6 Hard Rock(Blasting Prohibited)
Hard rock requiring blasting as described under 2.4 but where blasting is prohibited for any reason and excavation has to be carried out by chiseling, wedging or any other agreed method.
- 3.0 BACKFILLING MATERIAL
- 3.1 Backfilling material shall be as approved by the Engineer-in-Charge.
- 3.2 Back filling of excavations in trenches, foundations and elsewhere shall consists of one of the following materials as the Engineer-in-Charge may direct in each location.
- (i) Soil
 - (ii) Selected earth from heaps or brought from borrow areas.
 - (iii) Stone/gravel
 - (iv) Sand
 - (v)Leanconcrete
- 3.3 The material shall be free from rubbish, roots, hard lumps and any other foreign organic material.
4. SETTING OUT
- 4.1 The Contractor shall be responsible for the true and proper setting out of the work in relation to original points, Lines and levels of reference and for the correctness of the levels, dimensions and alignment of all parts of the work and for the provision of all necessary instruments, appliances and labour in connection therewith. If at any time during progress of the work any error appears or arises in the position of level, dimension, or alignment of part of the work, the Contractor at his own expense shall rectify such errors to the satisfaction of the Engineer-in-Charge. The checking of any line or level by the Engineer-in-Charge shall not in any way relieve the Contractor of his responsibilities.
- 4.2 The Contractor shall lay out one or more permanent bench marks in some central place before the start of the work, from which all important levels for the excavations will be set. The Contractor shall provide all labour and materials for setting at his own cost.

These permanent bench marks shall consist of masonry pillars with top neatly plastered and leveled as per the directions

of the Engineer-in-Charge. Bench marks shall be well connected with triangular grid system or any other bench mark approved by the Engineer-in-Charge.

5.0 EARTHWORK_IN_EXCAVATION

5.1 Excavation shall be carried out in any material met on the site to the lines, levels and contours shown on the detailed drawings and the Contractor shall remove all excavated materials to soil heaps on site or transport for use in filling on the site or stack them for reuse as directed.

5.2 Excavated material shall not be deposited within 1.5M from the top edge of the excavation.

5.3 The sides of the excavation may be cut sloping or shored and strutted to hold the face of earth as per site requirements and as directed by the Engineer-in-Charge.

The Contractor shall remove all vegetation, shrubs etc. encountered during excavation.

5.4 Foundation pits/trenches shall not be excavated to the full depth unless construction is imminent. The last fifteen(15)cm depth of the excavation shall not be removed until concreting work is imminent. The full depth may at the discretion of the Engineer-in-Charge be excavated and the bed covered with a seventy five(75)mm(minimum) thick (or as indicated on drawing) layer of lean concrete 1:5:10 mix (1 cement:5 Coarse sand:10 Crushed Stone Aggregates) or as specified in schedule of rates, after watering if required, and consolidating the bed.

5.5 The Contractor shall provide suitable drainage arrangement to prevent surface water from any source entering the foundation pits at his own cost.

5.6 If the bottom of any excavation has been left exposed by the Contractor and in the opinion of the Engineer-in-Charge, that has become badly affected by the atmosphere or by water, then the Contractor shall remove such portions of the deteriorated material as the Engineer-in-Charge may direct and shall make good with lean concrete 1:4:8 mix (1 Cement: 4 Coarse Sand : 8 Crushed Stone Aggregate). All expenses for such additional concrete and excavation shall be borne by the Contractor. The cement used for making good the above shall be taken into account for reconciliation purposes only.

5.7 Where excavation is made in excess of the depth required, the

Contractor shall, at his own expenses, fill up to required level with lean concrete 1:5:10 mix (1 Cement: 5 Coarse Sand: 10 Crushed Stone Aggregates) or as decided by Engineer-in-Charge.

- 5.8 The Contractor shall make all arrangements for dewatering the accumulated water from any source including subsoil water in the excavated pits/trenches and keeping the surface dry for subsequent works at his own cost.
- 5.9 Lowering of water table by well point pumping shall be paid separately.
- 5.10 The Contractor shall make necessary arrangements for lighting, fencing and other suitable measures for protection against risk of accidents due to open excavation at his own expense.
- 5.11 Where the excavation is to be carried out below the foundation level of an adjacent structure, the precaution to be taken such as under pinning, shoring and strutting etc. shall be determined by the Engineer in Charge. No excavation shall be done unless such precautionary measures are carried out as per directions of the Engineer in Charge. The payment for such precautionary measures shall, however, be made separately unless the rate for such measures are specifically included in the rates for items of excavation.
- 5.12 Loose or soft bed ground encountered in excavation at the required depth shall on the Engineer' in Charge instructions be excavated to a firm bed and difference made up to the required level with lean concrete 1:5:10 mix (1 Cement :5 Coarse Sand : 10 Crushed Stone Aggregates) or as decided by the Engineer in Charge.
- 5.13 In those cases where during excavation side slips occur for reasons not attributable to the Contractor(e.g. side slips which take place on their own but not due to surcharge of earth kept near the edge of excavation and cracking of excavation top strata due to clay drying out leading to collapse of excavation sides),the Engineer in Charge shall admit payment at his discretion.
- 5.14 Any obstacle encountered during excavation shall be reported immediately to the Engineer in Charge and shall be dealt with as instructed by him. Removal of buried pipes or cables shall not be done without prior permission of the Engineer in Charge and the Contractor shall provide all measures to protect the same. Cost of such protective

measures are deemed to be included in the rates for various items of excavation.

5.15 The Contractor shall not undertake any concreting in foundation until the excavation pit/trench is approved by the Engineer in Charge.

5.16 The specification for earth work shall also apply to excavation in rock in general. The excavation in rock shall be done such that extra excavation beyond the required width and depths as shown in drawing is not made. If any extra excavation particularly in depth is made by the contractor during the excavation operation, the Contractor shall make up such extra excavations with concrete 1:5:10 mix (1 Cement :5 Coarse Sand : 10 Crushed Stones Aggregates) to the required levels and shape at no extra cost to the Owner.

5.17 Payment:

5.17.1 Payment for earth work in excavation shall be made on cubic meter (M3) basis on the measurement of volume of pit / trench of excavation with working space as per IS:1200 and slopes/stepping as permitted by the Engineer in Charge. The rate shall include cost of all the operations of blasting with explosives & accessories, making of all arrangements for dewatering the accumulated water from any source in the excavated pit or trench, removal and disposal of surplus excavated soil within a lead of 100M from construction areas . The rate shall also include setting out and line out work Required for the excavation.

6.0 BACK_FILLING_AROUND_FOUNDATIONS_AND_PLINTH

6.1 Back filling around completed foundations, structures, trenches and in plinth shall be done to the lines and levels shown on the drawings including any trimming of the surfaces, as may be necessary. This shall be done with selected and approved earth from excavation or otherwise with materials described under clause 3.2 as directed by the Engineer in Charge. Where sufficient suitable material is not available from the excavation, the Engineer in Charge may direct to import suitable earth from other sources. The filling shall be done in layers of thickness not exceeding 15 cm with watering, rolling and ramming by manual methods / mechanical compactors to specified grade and level to obtain 90% laboratory maximum dry density or as specified in schedule of rates.

6.2 The Contractor shall not commence filling in and around any work until it has been permitted by the Engineer in Charge.

6.3 Payment

Payment for backfilling with earth shall be based on volume in cubic meters (M3) of consolidated fill. This volume shall be derived from the difference between the volume of excavation and structure or trenches as the case may be. The rate shall include cost of extracting suitable approved earth from available excavated soil from spoil heaps within a lead of 100M, placing, watering, rolling, ramming compacting in layers, trimming and dressing finished surface and disposal of surplus materials up to a lead of 100m. However backfilling done with materials other than earth shall be paid separately under relevant items.

7.0 TRANSPORTATION OF SURPLUS EARTH

7.1 Surplus earth and soil from excavation shall be removed from construction area to the area demarcated by the Engineer in Charge.

7.2 Payment

7.2.1 Payment shall be made only for the lead beyond initial 100 M from construction area. Rate shall include re-excavation, loading, transportation, dumping, stacking or spreading (as per directions of the Engineer in Charge) the surplus earth and the soil in the area demarcated by the Engineer in Charge. Payment shall be made on cubic meter (M3) basis on the difference of measurements of the volumes of the excavated pits and the measurement of the back filling. Quantity generated due to voids in back filled volume of earth shall also be removed by the Contractor at no extra cost and this disposal of earth shall not be measured and paid under any item.

7.2.2 In exceptional circumstances the Engineer in Charge may direct the Contractor to remove surplus earth, concrete debris or any other waste material from site to the areas disposal on the basis of truck measurement. In such cases volume of material shall be calculated on the basis of truck volume reduced by 30% for voids in case of soft/hand soils and 50% for soft/hand rock. All other provisions of disposal such as spreading, leveling, grading shall apply in this case also.

8.0 SAND_FILLING_IN_PLINTH/FOUNDATIONS

8.1 Sand supplied by the Contractor for filling shall be medium hard, strong, clean, free from dust, organic and deleterious matter and approved by the Engineer in Charge.

8.2 Filling shall be carried out in layers not exceeding 15 cms and shall be compacted mechanically or by saturation to specified grade and level and to obtain 90% laboratory maximum dry density or as specified in schedule of rates.

8.3 Compaction by flooding may be accepted at the discretion of the Engineer in Charge provided the required compaction

is achieved.

8.4 The Contractor shall not commence filling and around any work until it has been permitted by the Engineer in Charge.

8.5 Payment

Payments shall be made on cubic meter (M3) basis of the finished compact volume. The rate shall include cost of sand for any compacted thickness, wastage if any, all handling, transport for all leads, tamping, watering, flooding, dressing etc. Any brick work required for pending shall be paid separately under relevant item.

1.1 BRICK WORK

1.1.1 QUALITY

1.1.2 Bricks

Bricks shall be of 1st class quality and conform to the latest Indian standard specification no. 1077-57. Bricks shall be whole, sound well burnt, free from cracks to ring when struck and not to crack or break when soaked in water, regular in shape and uniform in size. They shall be of the best of description. class designation obtainable in the market , and of the best quality and colour, and in every respect to be approved by the Engineer - in-charge unless otherwise specified. They shall be of F.P.S bricks of sizes 22.5 x 11.1 x 7.0 cm No. bricks to absorb water more than one fifth of their own weight when dry for use in load bearing walls, for bricks used in panel walls, the water absorption shall not exceed one fourth of their dry weight . Bricks to be thoroughly cleaned, well wetted or soaked in fresh water before being used on the work and no broken bricks to be used except as closures. Specified brick quality shall be sampled as per IS: 5454-1978 and tested as per IS: 3495-1976. The bricks shall meet the criteria as per IS: 1077 -1976 when tested as mentioned herein.

1.1.1.3 Brick bats

Brick bats shall be obtained from well burnt bricks.

1.1.1.4 Classification

The common burnt clay bricks shall be classified on the basis of their minimum comprehensive strength as given in the table below:

CLASSIFICATION OF BRICKS

Class designation Average compressive strength Not more than
Kg/square cm) Not less than

75	75	100
50	50	75
45	45	60

1.1.1.5 Sampling:

For carrying out compressive strength, water absorption efflorescence and dimensional tests, the samples of the bricks shall be taken at random according to the size of the lot as specified in this document and samples thus taken shall be stored in a dry place until the tests are made.

1.4.2 SOAKING OF BRICKS:

Bricks required for masonry in cement mortar shall be thoroughly soaked in clean water before use for at least six hours and until air bubbles cease to come out. The soaked bricks shall be kept on wooden planks or bricks platform to avoid earth being smeared on them. Bricks required for masonry with mud or flat lime mortars shall not be soaked.

1.4.3 MORTAR:

All brickwork shall be laid with specified mortar to be prepared in specified proportion described in the relevant items of schedule of Quantities. It shall

Be of cement and coarse sand and shall be made in small quantities so as to be used up within 30 minutes. Then it shall be mixed to a sufficiently thick consistency as required by the Engineer-in-Charge. No left over mortar shall be used. The proportion to be used shall be as specified in the relevant items.

1.4.4 LAYING

1.4.4.1 General

Brickwork shall be carried out as per IS 2212. Brick work shall be laid in English Bond unless otherwise specified . Half or cut bricks shall not be used except when needed to complete the bond . Each course shall be perfectly straight horizontally and transverse . The walls be taken up truly plumb. If battered , the batter is to be truly maintained . The plumb of the brick work in vertical walls shall be checked up at every one meter interval.

Bricks shall be laid with frogs upward. While laying , bricks shall be the roughly bedded and flushed in mortar and tapped into position with a wooden wallet and the superfluous mortar removed.

1.4.4.2 Raking back of walls at angle:

Walls of all structures shall be carried up regularly in all cases, leveling no part , one meter lower than another. If this cannot be adhered to, the brick work shall be raked back at an angle not more than 45 degree so as to maintain a uniform and effectual bond but raking back should not start within 60 centimeter of a corner.

1.4.4.3 Buttresses, counter forts, etc.

In all cases returns, buttresses, counterfeits etc. are to be built up course-by-course carefully bound into the main walls.

1.4.4.4 Junction of walls

At all angles forming the junction of any two walls, the brick shall, at each alternate course, be carried into each of the respective walls so as to thoroughly unit the work. The brickwork shall not be raised more than courses per day.

1.4.5 JOINTS:

Joints shall be restricted to 1.0 cm for brickwork with bricks of any class designation (unless any wider vertical joints upto 10 mm is necessary to give the required thickness of the wall). All bed joints shall be normal to that pressure upon them i.e horizontal in vertical walls, radial in arches and at right angles to the face in battered retaining walls. The vertically joints in alternate course shall come directly one over the other and shall be truly vertical. Care shall be taken that all joints are fully filled with mortar (proportion as specified in bill of Quantities) well flushed up and in case where struck as the work proceeds. The joints in faces, which are to be plastered or pointed, shall be squarely raked out to a depth of 12mm while the mortar is still green. The raked joint shall be well brushed to remove loose particles. After the work, the faces of the brickwork shall be cleaned with wire brush so as to remove any splash of mortar during the course of raising the brickwork. Before jointing the brick work with new brick work , old brick surface shall be raked brushed , cleaned and soaked with water.

1.4.6 FIXTURES TO BE PROVIDED:

All iron fixtures, pipes, conduits, drains, sleeve, bolts, holdfasts of doors and windows and other inserts of services and all other trades of works etc. which are required to be built in walls, shall be embedded in cement mortar 1:3 (1 cement : 3 sand or in cement concrete 1:3:6 (1 cement : 3 sand :6 coarse aggregate) as per requirement to suit site conditions in their correct position as the work proceeds.

1.4.7 BRICK COPING AND CUT CORNERS:

The top courses of all plinth , parapet, steps and top wall below RCC shall be laid with brick on edge , unless specified otherwise . care shall be taken than the bricks forming the top courses and ends of walls are properly radiated and keyed in to position.

1.4.8 PROTECTION AND CURING:

Green work shall be protected from rain by suitable covering. The work shall also be suitably protected from damage, mortar dropping. Brick work as it progresses shall be kept thoroughly well watered on all faces for at least 10 days after completion. Proper watering cans with nozzles must be used for this purpose. The top of brickwork shall be left flooded at the close of the day by forming

fillet of mortar 40 mm high round the edges of top courses and filled with water.

1.4.9 SCAFFOLDING:

Double scaffolding sufficiently safe and strong so as to withstand all loads likely to come upon it and having two sets of vertical supports shall be provided. Where two sets of supports are not possible the inner end of the horizontal scaffolding pole shall rest in hole provided in the header course only. only one header for each pole shall be left out. Such holes however shall be filled up immediately after removal of scaffolding properly.

PLAIN AND REINFORCED CEMENT CONCRETE

1.0 SCOPE

This specification establishes the materials, mixing, placing, curing etc. of all types of cast in situ and precast concrete used in foundations, underground and over ground structures, floors etc. Any special requirements as shown or noted the drawings shall govern over the provisions of this specification.

1.1 Apart from this specification, construction of plain and reinforced concrete works shall be in accordance with the Indian Standard Code practice for "Plain and Reinforced Concrete" IS:456 and other relevant codes mentioned therein.

1.2 In case of conflict between the clauses mentioned in this specification and those in the Indian Standards, this specification shall govern.

2.0 GRADES OF CONCRETE

Unless otherwise specified on drawings or called for in the schedule of rates, the grades of concrete shall generally be as per Table 1.

TABLE - 1

Grade Designation	Specified Characteristic Compressive Strength of 15cm. cube at 28 days [N/mm ²]
M15	15
M20	20
M25	25
M30	30
M35	35
M40	40

The characteristic strength is defined as the strength of material below not more than five (5) percent of the test results are expected to fall.

3.0 TYPE OF CONCRETE MIX

3.1 The concrete shall be either nominal mix concrete or design mix concrete as defined in IS:456. Unless otherwise specified or given in schedule of rates, all lean and structural concrete shall be nominal mix and design mix types respectively.

3.2 Nominal Mix Concrete

This concrete shall be made (without preliminary tests) by adopting nominal concrete mix with proportions of materials as specified in Table 1A. All the relevant requirements for this type of concrete as given in IS:456 shall apply.

TABLE - 1A

PROPORTIONS FOR NOMINAL MIX CONCRETE

Grade of concrete	Total quantity of dry aggregates by mass per 50 kg of cement, to be taken as the sum of the individual masses of fine and coarse aggregates (max)	Proportion of fine aggregate to coarse aggregate (by weight)	Quantity of water per 50 kg of cement (max.)
			Liters
M 5	800	Generally 1:2 but	60
M 7.5	625	subject to an upper	45
M 10	480	limit of 1:1 1/2	34
M 15	350	and lower limit of	32
M 20	250	1:2 1/2	30

Note: The proportions of the fine to coarse aggregates should be adjusted from upper limit to lower limit progressively as the grading of the fine aggregates becomes finer and the maximum size of coarse aggregate becomes larger. Graded coarse aggregates shall be used.

3.3 Design Mix Concrete

The mix shall be designed to produce the grade of concrete having the required workability and characteristic strength not less than appropriate values given in Table-1.

4.0 PROPORTIONING

Proportioning, as used in this specification, shall mean the process of determining the proportions of the various ingredients to be used to produce concrete of the required strength, workability, durability and other properties.

The Engineer-in-Charge shall verify the strength of the concrete mix, before giving his sanction of its use. However, this does not absolve the Contractor of his responsibility as regards achieving the prescribed strength of the mix. If during the execution of the work, cube tests show lower strengths than required, the Engineer-in-Charge shall order fresh trial mixes to be made by the Contractor. No claim to alter the rates of concrete work shall be entertained due to such changes in mix variations. Any variation in cement consumption shall be taken into consideration for material reconciliation. Preliminary mix designs shall be established well ahead of start of work.

4.1 Maximum Density

Suitable proportions of sand and the different sizes of coarse aggregates for each grade of concrete shall be selected to give as nearly as practicable the maximum density. This shall be determined by mathematical means, laboratory tests, field trials and suitable changes in aggregate gradation.

4.2 Water Cement Ratio

Once a mix, including its water cement ratio, has been determined and specified for use by the Engineer in Charge, that water-cement ratio shall be maintained. The Contractor shall determine the water content of the aggregates frequently as the work progresses, and the amount of mixing water shall be adjusted so as to maintain the specified water cement ratio.

4.3 Consistency

The concrete shall have a consistency such that it shall be workable in the required position and when properly vibrated it flows around reinforcing steel, all embedded fixtures etc.

4.4 Workability

- 4.4.1 The concrete mix proportion so should be such that the concrete is of adequate workability for the placing condition and can be properly compacted with the means

available.

- 4.4.2 The suggested ranges of values of workability of concrete measured in accordance with IS:1199 are indicated in Table-2.

<u>TABLE-2</u>		
Placing Conditions	Degree of Workability	Values of Workability
Concreting of shallow sections with vibration	Very low	20-10 seconds, vee-bee time
		or 0.75-0.80, compacting factor
Concreting of lightly reinforced sections with vibration	Low	10-5 seconds, vee-bee time
		or 0.80-0.85, compacting factor
Concreting of lightly reinforced sections without vibration, or heavily reinforced sections with vibration	Medium	5-2 seconds, vee-bee time
		or 0.85-0.92, compacting factor
		or 25-75 mm, slump for 20 mm* aggregate
Concreting of heavily reinforced sections without vibration	High	Above 0.92, compacting factor
		or 75-125 mm, slump for 20 mm* aggregate.

*For smaller aggregate the values will be lower.

- 5.0 BATCHING
- In proportioning concrete, the quantity of both cement and aggregate should be determined by weight. Where the weight of cement is determined on the basis of weight of cement per bag, a reasonable number of bags should be weighed periodically to check the net weight. Where the cement is weighed on the site and not in bags it should be weighed separately from the aggregates. Water should be either measured by volume in calibrated tanks or weighed. Any solid admixtures that may be added, may be measured by weight; liquid and paste admixtures by volume or weight. Batching plant, where used, shall conform to IS:4925. All

measuring equipment shall be maintained in a clean serviceable condition, and their accuracy periodically checked.

- 5.1 Except where it can be shown to the satisfaction of the Engineer in Charge that supply of properly graded aggregate of uniform quality can be maintained over the period of work, the grading of aggregate should be controlled by obtaining the coarse aggregate in different sizes and blending them in the right proportions when required, different sizes being stacked in separate stock piles. The grading of coarse and fine aggregate shall be checked frequently, the frequency for a given job being determined by the Engineer in Charge to ensure that the specified grading is maintained.
- 5.2 Under special circumstances, change from weight batching to volume batching may be permitted by Engineer in Charge on specific request from the Contractor.
- 5.3 The amount of the added water shall be adjusted to compensate for any observed variations in the moisture contents in both fine and coarse aggregates. For the determination of moisture content in the aggregates IS:2386 (part-III) may be referred to. To allow for the variation in weight of aggregates due to variation in their moisture content, suitable adjustments in the weights of aggregate shall also be made. In the absence of exact data, only in the case of nominal mixes, the amount of surface water may be estimated from the values given in Table 3 below:-

TABLE-3

SURFACE WATER CARRIED BY AGGREGATE

Aggregate	Approximate quantity of surface water	
	Percentage by Weight	Liter/M ³
Very Wet Sand	7.5	120
Moderately Wet Sand	5.0	80
Moist Sand	2.5	40
Moist Gravel or Crushed Rock	1.25 - 2.5	20 - 40

- 5.4 No substitutions in materials used on the work or alterations in the established proportions, except as permitted in 5.3 shall be made without additional tests to show that the quality and strength of concrete are satisfactory.

6.0 CONCRETE MIXING

6.1 The mixing of concrete shall be strictly carried out in an approved type of mechanical concrete mixer. The mixing shall be continued until there is a uniform distribution of the material and the mass is uniform in colour and consistency. If there is segregation, after unloading from the mixer, the concrete shall be remixed.

6.2 Mixer

6.2.1 Mixers shall comply with IS:1791 and shall be maintained in satisfactory operating condition. Mixer drum shall be kept free of hardened concrete and blades shall be replaced when worn down more than ten percent (10%) of their depth. Should any mixer at any time produce unsatisfactory results, leak mortar or cause waste of materials, its use shall be promptly discontinued until it is repaired.

6.2.2 Mixing Time

Mixing time shall be as indicated in the following table. Excessive mixing requiring additions of water shall not be permitted. Time shall start when all solid materials are poured in the revolving mixer drum, provided that all of the mixing water shall be introduced before one fourth of the mixing time has elapsed. The Engineer-in-Charge may, however, direct a change in the mixing time, if he considers such a change necessary.

Capacity of Mixer	Minimum Mixing Time
2 Cu.M or less	1-1/2 Minutes.
3 Cu.M	2-1/2 Minutes.
5 Cu.M	3 Minutes.

All records and charts for the batching and mixing operations shall be prepared as specified and as per the instructions of the Engineer in Charge.

6.3 Hand Mixing

Normally, hand mixing of concrete shall not be permitted. However this may be allowed by the Engineer in Charge in special cases (such as far away isolated places). Ten percent (10%) extra cement shall have to be added to the normal mix when mixed by hand. It shall be carried out on a water tight platform and care shall be taken to ensure that mixing is continued until the mass is uniform in colour and consistency. No extra payment shall be made to the Contractor for mixing by hand or for using extra cement due to hand mixing. However, extra cement consumed shall be considered for reconciliation purpose.

6.4 Admixtures

Admixtures shall be used in concrete only with the approval of the Engineer in Charge.

7.0 TRANSPORTATION, PLACING AND COMPACTION

7.1 General

Before any concrete is placed the entire placing programmed and transporting arrangement showing deployment of equipment, layout, proposed procedures and methods shall be submitted in writing to the Engineer in Charge 24 hrs. Prior to concreting for approval. No concrete shall be placed until his approval has been received. The Engineer's-in-Charge approval for pouring concrete shall be taken as conveyed when concrete pour card is signed.

7.1.1 Chuting

The use of long troughs, chutes and pipes for conveying the concrete from the mixer to the forms shall be permitted only on written authorization from the Engineer-in-Charge. In case an inferior quality of concrete is produced by the use of such conveyors, the Engineer-in-Charge may order discontinuance of their use and the substitution of a satisfactory method of placing. Open troughs and chutes shall be equipped with baffles and be in short lengths to avoid segregations. Chutes shall be designed so that the concrete is to some extent remixed at the lower end by passing down through a funnel shaped pipe or drop chute. Alternatively they should discharge into a storage hopper from which the concrete should be transported to the point of placing by wheel barrows or other means. Where drop chutes are used, a sufficient number must be provided so that the concrete discharged from the chute is not required to flow laterally more than 1.0M. Where a drop chute is swung from the vertical, the bottom two sections must be maintained in a vertical position to avoid segregation. The addition of water at any point in the system of transportation, to facilitate the movement of concrete shall not be permitted. All chutes, troughs and pipes, shall be kept clean and free from coatings of hardened concrete by thoroughly flushing them with water after each run; water used for fishing shall be discharged clear of the structure. Concrete shall not be permitted to fall freely from a height of more than 1.5M nor to strike the forms at an angle.

7.1.2 Vibrators

Concrete shall be compacted with mechanical vibrating

equipment supplemented, if necessary to obtain consolidation by hand spading, ridding and tamping. The vibrators shall be immersion type with operational frequency ranging between 8000 to 12,000 vibrations per minute. Vibrators shall be used in sufficient number of units and power to properly consolidate all concrete.

Immersion type vibrators shall be inserted in a vertical position at intervals of about 600mm, depending upon the mix, the equipment used, and continued experience on work. The vibrators shall be withdrawn slowly. The spacing shall provide some overlapping of the area vibrated at each insertion. In no case shall vibrators be used to transport concrete inside the forms. Over vibration shall not be permitted. Hand tamping in some cases may be allowed subject to be approval of the Engineer-in-Charge.

In placing concrete in layers which are advancing horizontally as the work progresses, great care shall be exercised to ensure adequate vibration, bonding and molding of the concrete between the succeeding batches.

The vibrators shall penetrate the layer being placed and also penetrate the layer below while the under layer is still plastic to ensure good bond and homogeneity between the two layers and prevent the formation of cold joints.

Care shall be taken to prevent contact of vibrators against reinforcement steel. Vibrators shall not be allowed to come in contact with forms.

The use of form work vibrators shall not be permitted for compaction of in-situ concrete without specific authorization of the Engineer-in-Charge.

The use of surface vibrators of screed board type shall not be permitted for consolidation of concrete under ordinary conditions. However for thin slabs (of thickness less than 200mm) surface vibration by such vibrators may be permitted, upon approval of the Engineer-in-Charge.

7.2 Transportation

All concrete shall be conveyed from the mixer to the place of final deposit as rapidly as possible in suitable buckets, dumpers, containers or conveyors which shall be mortar leak tight. Care shall be taken to prevent the segregation or loss of the ingredients and maintaining the required work ability.

During hot or cold weather shall be transported in deep containers. Other suitable methods to reduce the loss of water by evaporation in hot weather and heat loss in cold weather may also be adopted. All equipment used for transporting and placing of concrete shall be maintained in clean condition. All buckets, hoppers, chutes, dumpers and other equipment shall be thoroughly cleaned after each period of placement.

7.3 Placing and compaction

- 7.3.1 Before placing concrete all soil surface upon which or against which concrete is to be placed shall be well compacted and free from standing water, mud or debris. Soft or yielding soil shall be removed and replaced, with lean concrete or with selected soils and compacted to the density as directed by Engineer-in-Charge. The surface of absorption soil (against which concrete is to be placed) shall be moistened thoroughly so that moisture is not drawn from the freshly placed concrete. Concrete shall not be solaced until the formwork, the placement of reinforcing steel, embedded parts etc. have been inspected and approved by the Engineer-in-Charge. Any accumulated water on the surface of the bedding layer shall be removed by suitable means before start of placement. No concrete shall be placed on a water covered surface.
- 7.3.2 Concrete shall be discharged by vertical drop only and the drop height shall be not exceed 1.5M thorough out all stages of delivery until the concrete comes to rest in forms.
- 7.3.3 Concrete shall be deposited as near as practicable in its final position to avoid remanding. Concrete shall be placed in successive horizontal layers. The bucket loads, or other units of deposit, shall be spotted progressively along the face of the layer with such over-lap as will facilitate spreading the layer of uniform depth and texture with a minimum of hand shoveling. Any tendency to segregation shall be corrected by shoveling stones into mortar rather than mortar on the stones. Such a tendency for segregation shall be corrected by redesign of mix, change in process or other means, as directed by the Engineer-in-Charge.

All struts, stays and braces (serving temporarily to hold the forms in correct shape and alignment pending the placing of concrete at their locations) shall be removed when the concrete placing has reached an elevations rendering their service unnecessary. These shall not be buried in the concrete. Concrete shall be thoroughly

compacted with vibrators and fully worked around the reinforcement, embedded fixtures and into corners of formwork before setting commences. In no case this shall be subsequently disturbed. Methods of placing shall be such as to preclude segregation. The formation of stone pockets or mortar bondage in corners and against face forms shall not be permitted. Should these occur, they shall be dug out, performed and refilled to sufficient depth and shape for thorough bonding as directed by the Engineer-in-Charge. Care shall be taken to avoid displacement of reinforcement or movement of formwork.

- 7.3.4 Unless otherwise approved, concrete shall be placed in single operation to the full thickness of slabs, beams and

similar members. Concrete shall be placed continuously until completion of the part of the work between construction joints or as directed by the Engineer-in-Charge.

7.3.5 The method of placing and compaction employed in any particular section of the work shall be to the entire satisfaction of the Engineer-in-Charge.

7.3.6 During hot weather (atmospheric temperature above 40oC) or cold weather (atmospheric temperature below 5oC), the concreting shall be done as per the procedure set out in IS:7861.

7.3.7 Concrete that has been left standing and become stiffened shall not be deposited in the work.

7.4 Items Embedded in Concrete

7.4.1 Concreting shall not be started unless the electrical conduits, pipes, fixtures etc., wherever required, are laid by the concerned agency. The Contractor shall afford all the facilities and maintain co-ordination of work with other agencies engaged in electrical and such other work as directed by the Engineer-in-Charge.

7.4.2 Before concreting, the Contractor shall provide, fabricate and lay in proper position all metal inserts, anchor bolts, pipes etc. (which are required to be embedded in concrete members) as per relevant drawings and directions of Engineer in Charge.

8.0 CONSTRUCTION JOINTS

8.1 Construction joints shall be provided in position as shown or described on the drawings or as directed by the Engineer-in-Charge. Such joints shall be kept to the minimum. These shall be straight and at right angles to the direction of main reinforcement.

8.2 In a column, the joint shall be formed about 100mm to 150mm below the lowest soffit of the beams framing into it. Concrete in a beam and slab shall be placed throughout without a joint but if the provision of a joint is unavoidable, the joint shall be vertical and located within 1/3 to 1/4 of the span.

8.3 When stopping the concrete on a vertical plane in slabs and beams, an approved stop board shall be placed with necessary slots for reinforcement bars. The construction joints shall be keyed by providing a triangular or trapezoidal fillet nailed on the stop board. Inclined joints shall not be permitted. Any concrete flowing through the joints of stop board shall be removed soon after the initial set. When concrete is stopped on a horizontal plane, the surface shall be roughened and cleaned after the

initial set.

8.4 When the work has to be resumed on a surface which has hardened, such surface shall be roughened to expose the tips of the coarse aggregate. It shall then be swept clean and thoroughly wetted. For vertical joints neat cement slurry shall be applied on the surface before it is dry. For horizontal joints the surface shall be covered with a layer of mortar about 10 to 15mm thick composed of cement and sand in the same ratio as the cement and sand in concrete mix. This layer of cement slurry or mortar shall be freshly mixed and applied immediately before placing the concrete.

8.5 Where the concrete has not fully hardened, all laitance shall be removed by scrubbing the wet surface with wire or bristle brushes, care being taken to avoid dislodgement of particles of aggregate. The surface shall be thoroughly wetted and all free water removed. The surface shall then be coated with neat cement slurry. On this surface, a layer of concrete not exceeding 150mm in thickness shall first be placed and shall be well rammed against old work, particular attention being paid to corners and close spots; work thereafter shall proceed in normal way.

9.0 SEPARATION JOINT

Separation joint shall be obtained by using an approved alkathene sheet struck on the surface against which concrete shall be placed. Adequate care should be taken to cause to no damage to the sheet.

10.0 EXPANSION JOINTS

Expansion joints in structures shall be formed in the positions and to the shapes shown in the relevant drawings. Joints shall be filled with joint filling material as stipulated in the drawings/schedule of rates.

11.0 WATER STOPS

The water stops shall be of G.I./PVC/Rubber as specified in the relevant drawings. G.I. water stops shall be fabricated from "22" gauge sheets of specified width and bent, folded to shape, soldered and fixed as per the drawings. The G.I. sheets shall have medium coating of zinc as per IS:277. The PVC and rubber water stops shall be of ribbed/serrated type with central bulb and of minimum thickness 6 mm.

Water stops shall be accurately cut, fitted and integrally joined as per manufacturer's specifications to provide a continuous, watertight diaphragm at all points.

The water stops shall be located and embedded at expansion/construction joints as indicated in the drawings.

Adequate provision shall be made for the support and

protection of water stops during the progress of the work. Damaged water stops shall be replaced and / or repaired as directed.

12.0 PROTECTION OF FRESHLY LAID CONCRETE

Newly placed concrete shall be protected by approved means from rain, sun and wind. Concrete placed below the ground level shall be protected from falling earth during and after placing. Surface shall be kept free from contact with such ground or with water draining from such ground during placing of concrete for a period of at least 3 days unless otherwise directed by the Engineer in Charge. The ground water around newly poured concrete shall be kept to an approved level by pumping or other approved means of drainage and adequate steps shall be taken to prevent floatation and flooding. Steps shall be taken to protect immature concrete from damage by debris, Loading, vibration, abrasion, mixing with deleterious materials that may in the opinion of the Engineer in Charge impair the strength and / or durability of the concrete.

13.0 CURING

- 13.1 Curing of concrete shall be in accordance with IS:456. Concrete shall be cured by keeping it continuously moist wet for the specified prior of time to ensure complete hydration and hardening. Curing shall be started after 8 hours of placement of concrete and hot weather after 4 hours.

Curing shall be assured by use of an ample water supply under pressure in pipes, with all necessary appliances

such as hose, sprinklers etc. A layer of sacking, canvass, hessian, or other approved material which will hold moisture for long periods and prevent loss of moisture from the concrete shall be used as covering. Type of covering which would stain, disfigure, or damage the concrete during and after the curing period shall not be used. Only approved covering shall used for curing.

Exposed surfaces of concrete shall be maintained continuously in a damp or wet condition for at least for at least the first 7 days after placing except that high early strength concrete shall be so maintained for at least the first 3 days. For other types of concrete using low heat or supersulphated or high alumina cement etc., curing period shall be as directed by the Engineer in Charge.

The Contractor shall have all equipment and materials required for curing on hand and ready to use before concrete is placed.

For curing the concrete in pavements, floors, flat roofs or other level surfaces the pending method of curing is preferred after the expiry of first 24 hours during which (i.e. first 24 hours) the concrete shall be cured by use of wet sacking, canvass, Hessian etc. The minimum water depth of 25 mm for pending shall be maintained. The method of containing the pounded water shall be approved by the Engineer-in-Charge. The pounded areas shall be kept continuously filled with water and leaks, if any, shall be promptly repaired.

Approved curing compounds may be used in lieu of moist curing with the permission of Engineer-in-Charge. Such compounds shall be applied to shall exposed surfaces of the concrete as soon as possible after the concrete has set.

14.0 DAMP PROOF COURSE (DPC)

The 40 mm thick Damp proof course shall consist of plain cement concrete of nominal mix 1:1-1/2:3 by volume (1 Cement : 1-1/2 Coarse Sand : 3 Crushed Stone Aggregates) with 10 mm and sown size graded aggregate, unless otherwise specified.

The Damp proof Course shall be laid at plinth level of brick walls, flush with the floor surface and shall not be carried across doorways.

Before laying, the top surface of wall shall be thoroughly cleaned and watered. The D.P.C. shall be laid in layers of 20 mm thickness retaining the edges by necessary formwork and shall be well tamped and trowel led to smooth finish.

The layer shall be cured by keeping the surface wet for 40 hours and after it has dried, two coats of hot bitumen of grade A90/S90 conforming to IS:73 shall be applied over it at the rate of 1.7Kg/M2. Over this, the second layer of 20 mm thick concrete shall be laid and cured as described in case of the first layer and two coats of hot bitumen at the rate of 1.7 Kg / M2" shall be applied again in a similar manner. Over this, dry sharp sand shall be sprinkled evenly.

15.0 FIELD_TESTS

15.1 Grading Test

Gradaing test on coarse and fine aggregates shall be carried out as per IS:2386 at intervals specified by Engineer-in-Charge.

15.2 Vee-Bee Test/Slump Test of Concrete

At least one Vee-Bee Test/Slump Test shall be made for every compressive strength test carried out. More frequent

tests shall be made if there is a distinct charge in working conditions or if required by the Engineer-in-Charge.

15.3 Strength Test of Concrete

- 15.3.1 Samples from fresh concrete shall be taken as per IS:1199 and cubes shall be made, cured and tested at 28 days in accordance with IS:516.

In order to get a relatively quicker idea of the quality of concrete, optional tests on beams for modulus of rupture at 72" +2 hours or at 7 days, or compressive strength tests at 7 days may be carried out in addition to 28 days compressive strength tests. For this purpose, the values given in Table - 4 may be taken for general guidance in the case of concrete made with ordinary portland cement. In all cases, the 28 days compressive strength specified in Table -I shall be the criterion for acceptance or rejection of the concrete. If, however, from tests carried out in a particular work over a reasonably long period, it has been established to the satisfaction of Engineer-in-Charge that a suitable ratio between 28 days compressive strength and the modulus of rupture at 72 +2 hours or compressive strength at 7days may be accepted, the Engineer-in-Charge may suitable relax the frequency of 28 days compressive strength specified in Cl.16.3.4 provided the expected strength value at the specified early age are consistently met.

TABLE - 4

OPTIONAL TESTS REQUIREMENT OF CONCRETE

Grade of Concrete	Compressive strength on 15cm. cubes, min. at 7 days	Modulus of rupture by beam test, min. at 72+2 hrs. at 7 days	
	(N/mm ²)	(N/mm ²)	(N/mm ²)
M 15	10.0	1.5	2.1

M 20	13.5	1.7	2.4
M 25	17.0	1.9	2.7
M 30	20.0	2.1	3.0
M 35	23.5	2.3	3.2
M 40	27.0	2.5	3.4

15.3.2 Procedure: A random sampling procedure shall be adopted to ensure that each concrete batch shall have a reasonable chance of being tested, that is the sampling should be spread over the entire period of concreting and cover all mixing units.

15.3.3 Frequency_of_sampling: The minimum frequency of sampling of concrete for each grade shall be in accordance with the following :

Quantity of concrete in Number of samples the work 3

1 - 5	1
6 - 15	2
16 - 30	3
31 - 50	4
51 and above	4 Plus one additional sample for each additional 50 M3 or part thereof.

NOTE: At least one sample shall be taken frame each shift.

15.3.4 Test Specimen: Three test specimens shall be made from

each sample for testing at 28 days. Additional cubes may be required for various purpose such as to determine the strength of concrete at 7 days or at the time of sticking the formwork, or to determine the duration of curing, or to check the testing error. Additional cubes may also be required for testing cubes by accelerated methods as described in IS:9013. The specimen shall be tested as described in IS:516.

15.3.5 Test Strength of Sample: The test strength of the sample shall be the average of the strength of three specimens. The individual variation should not be more than +15 percent of the average.

15.3.6 Standard Deviation

i) Standard deviation based on test results:

a) Number of test results: The total number of test results required to constitute an acceptable record for calculation of standard deviation shall be not less than 30. Attempts should be made to obtain the 30 test results, as early as possible, when a mix is used for the first time.

b) Standard deviation to be brought up to date: The calculation of the standard deviation shall be brought up to date after every change of mix design and least once a month.

ii) Determination of Standard Deviation :

a) Concrete of each grade shall be analyzed separately to determine its standard deviation.

b) The standard deviation of concrete of a given grade shall be calculated using the following formula from the results of individual tests of concrete of that grade obtained as specified in 15.3.5.

Estimated standard deviation(s) = Where
= deviation of the individual test strength from
the average strength of n samples

n = number of sample test results.

c) When significant changes are made in the production of concrete batches (for example changes in the materials used, mix design, equipment of technical control), the standard deviation value shall be separately for such batches of concrete.

iii) Assumed Standard Deviation: Where sufficient test results for a particular grade of concrete are not available, the value of standard deviation given in Table - 5 may be assumed.

TABLE - 5

ASSUMED STANDARD DEVIATION

Grade of concrete	Assumed standard deviation (N/mm ²)
M 15	3.5
M 20	4.6
M 25	5.3
M 30	6.0
M 35	6.3
M 40	6.6

However, when adequate past records for a similar grade exist and justify to the designer a value of standard deviation different from that shown in Table - 5, it shall be permissible to use that value.

15.3.7 Acceptance Criteri

15.3.7.1 The concrete shall be deemed to comply with the strength requirements if :

- a) every sample has a test strength not less than the characteristic value; or
- b) the strength of one or more samples though less than the characteristic value, is in each case not less than the greater of :
 - (i) the characteristic strength minus 1.35 times the standard deviation; and
 - (ii) 0.80 times the characteristic strength; and the average strength of all the samples is not less than the characteristic strength plus

$$\left\{ \frac{1.65}{\sqrt{n}} \right\}$$

$$\left\{ 1.65 - \frac{1.65}{\sqrt{n}} \right\} \text{times the}$$

 { Number of Samples } standard deviation.

15.3.7.2 The concrete shall be deemed not to comply with the strength requirements if:

- a) the strength of any sample is less than the greater of:
- b)
 - i) the characteristic strength minus 1.35 times the Standard deviation; and

ii) 0.80 times the characteristic strength; or

b) the average strength of all the samples is less than the characteristic strength plus

($\frac{3}{\text{Number of samples}}$)

(1.65 - $\frac{1.65}{\text{Number of samples}}$) times the standard

deviation)

15.3.7.3 Concrete which does not meet the strength requirements as specified in 15.3.7.1 but has a strength greater than that required by 15.3.7.2 may, at the discretion of the Engineer-in-Charge be accepted as being structurally adequate without further testing.

15.3.7.4 If the concrete is deemed not to comply pursuant to

15.3.7.5 the structural adequacy of the parts affected shall be investigated as stipulated in Clause 16.0.

15.3.7.5 Concrete of each grade shall be assessed separately.

15.3.7.6 Concrete shall be assessed daily for compliance.

15.3.7.7 Concrete is liable to be rejected if it is porous or honey-combed; its placing has been interrupted without providing a proper construction joint; the reinforcement has been displaced beyond the tolerances specified; or construction tolerances have not been met. However, the hardened concrete may be accepted after carrying out suitable remedial measures to the satisfaction of the Engineer-in-Charge.

16.0 INSPECTION_OF_STRUCTURES

Immediately after stripping the formwork, all concrete shall be carefully inspected and any defective work of small defects either removed or made good before concrete has thoroughly hardened.

16.2 Testing of structures or parts of structures

16.2.1 In case the results of work test cubes do not comply with the specified strength requirements of there is reasonable doubt regarding the strength of concrete used either due to poor workmanship or materials, the Engineer-in-Charge may instruct the Contractor to perform additional tests based on EIL Guideline 8-68-4008 (Quality Assessment Test of Hardened Concrete) and/or load test (as per the method and manner specified in Clause 16.2.2) to ascertain the quality of concrete. These tests shall also be required to be

carried out in the event the Engineer-in-Charge is doubtful regarding the adequacy of strength of the structure due to suspected overloading during construction, premature removal and non conformance to specification of formwork, improper curing or any other reason.

The number and type of tests to be carried out shall be determined by the Engineer-in-Charge whose decision shall be final and binding on the Contractor.

16.2.2 Load_Test

Load test shall be carried out as soon as possible after expiry of 28 days from the time of placing of concrete. The structure shall be subjected to a load equal to full dead load of the structure plus 1.25 times the imposed load for a period of 24 hours and then the imposed load shall be removed. The deflection due to imposed load only shall be recorded. If within 24 hours of removal of the imposed load the structure does not recover at least 75 percent of the deflection under superimposed load, the test shall be repeated after a lapse of 72 hours. If the recovery is less than 80 percent, the structure shall be deemed to be unacceptable. If the maximum deflection in mm, shown during 24 hours underload is less than $40 L^2/D$, where L is the effective span in meters and D the overall depth of the section in mm, it is not necessary for the recovery to be measured and the recovery provision as given above shall not apply.

17.0 FINISHING_OF_CONCRETE

17.1 On striking the formwork, all surface defects such as bulges, ridges and honey-combing etc. observed shall be brought to the notice of the Engineer-in-Charge. The Engineer-in-Charge may, at his discretion allow rectification by necessary chipping and packing or grouting with concrete or cement mortar. However, if honey-combing or sagging are of such extent as being undesirable, the Engineer-in-Charge may reject the work totally and his decision shall be binding. No extra payment shall be made for rectifying these defects, demolishing and reconstructing the structure. All burrs and uneven faces shall be rubbed smooth with the help of carborandum stone.

The surface of non-shuttered faces shall be smoothed with a wooden float to give a finish similar to that of the rubbed down shuttered faces. Concealed concrete faces shall be left as from the formwork except that honey-combed surface shall be made good as specified above. The top faces of slabs not intended to be covered shall be levelled and floated to a smooth finish to the levels or falls shown on the drawings or as directed. The floating shall not be executed to the extent of bringing excess fine materials to the surface. The top faces of slabs intended to be covered with screed, granolithic or

similar finishes, shall be left with a rough finish.

17.2 Repair _and_ Replacement of Unsatisfactory Concrete

Repairs shall be made as soon as possible after the forms are removed and before the concrete becomes too hard. Stone pockets, segregation patches and damaged areas shall be chipped out and the edges undercut slightly to form a key. All loose material shall be washed out before patching. No excess water shall be left in the cavity, but the concrete shall be damp while retaining some of its natural suction.

A good bond between the patch and parent concrete shall be obtained by sprinkling dry cement on the wet surface or by throwing mortar with force on to the wetted concrete, or by brush in a coat of thick cement grout of about 1:1 (1 Cement :1 Sand) just before applying the patching material. Before this has dried, the remainder of the patch shall be filled with mortar or concrete, depending on the extent of the repair.

Cement concrete/mortar used in repair of exposed surface shall be made with cement from the same source as that used in concrete and blended with sufficient amount of white portland cement to produce the same colour as in the adjoining concrete. The proportions of ingredients shall be same as those used in parent concrete. The mortar shall be as dry as possible and well compacted into the cavity. All filling shall be tightly bonded to the concrete and shall be sound, free from shrinkage cracks after the filling has been cured and dried.

For larger repairs to hardened concrete, necessary formwork bearing tightly at the edges of the cavity shall be provided. Concrete shall be chipped out to a depth of atleast 100 mm and preferably 150 mm. Mortar shall be scrubbed into all surfaces with a wire brush before placing the concrete. Damaged reinforcement shall be adequately spliced with new steel so as to maintain the original strength. Additional reinforcement, if required in the patch, shall be provided as per the instructions of Engineer-in-Charge.

17.3 Curing of Patched Work

Immediately after patching is completed, the patched area shall be covered with an approved non-staining water saturated material which shall be kept wet and protected against sun and wind for a period of 12 hours. Thereafter, the patched area shall be kept continuously wet by a fine spray or sprinkling for not less than 10 days.

17.4 The use of an epoxy, for bonding fresh concrete used for repairs shall be permitted at the discretion of the Engineer-in-Charge. Epoxy shall be applied in strict accordance with the instructions of the manufacturer.

18.0 CEMENT_WASH

If instructed by the Engineer-in-Charge, the Contractor shall provide one coat of cement wash over the concrete surfaces of foundation, pipe racks, column, walls etc. which are not plastered. Cement used by the Contractor for providing the cement wash shall be taken into account for material reconciliation purposes.

19.0 FORM_WORK

19.1 Forms for concrete shall be of plywood or steel or as directed by the Engineer-in-Charge and shall give smooth and even surface after removal thereof.

If it is desired by the Engineer-in-Charge, the Contractor shall prepare, before commencement of actual work, design and drawings for formwork and get them approved by the Engineer-in-Charge. The form work shall conform to the shapes, lines and dimensions as shown on the drawings within the tolerances given below:

a) Deviation from specified dimensions of cross - 6 mm
section of columns and beams. +12 mm

b) Deviation from dimensions of footings (see note).

(1) Dimensions in plan - 12 mm
+ 50 mm

(2) Eccentricity 0.02 times the width of
the footing in the direction of deviation but
not more than 50 mm.

(3) Thickness +0.05 times the specified thickness.

NOTE : Tolerances apply to concrete dimensions only, not to positioning of vertical reinforcing steel or dowels.

19.2 Form Requirement

The formwork shall be true, rigid and adequately braced both horizontally as well as diagonally. The forms shall have smooth and even surface and be sufficiently strong to carry without deformation the dead weight of the green concrete, working load, wind load and also the side pressure exerted by the green concrete. As far as practicable, clamps shall be used to hold the forms together. Where use of nails is unavoidable minimum number of nails shall be used and these shall be left projecting so that they can be easily withdrawn.

Where the rods are used to hold the forms, provision shall be made for removal of a part of each rod at the surface of concrete for a depth of approximately 50mm. The cavities so caused shall be filled and finished with cement mortar in the manner specified in clause 17.

Tie wires shall be permitted only upon approval of the Engineer-in-Charge and shall be cut off flush with the face of the concrete or counter sunk, filled and finished in the manner specified in clause 17.

From joints shall not permit any leakage. The formwork shall be strong enough to withstand the effect of vibrations practically without any deflection, buiging, distortion or loosening of its components. Forms for beams and slabs (span more than 6.0 m) shall have camber of 1 in 500 so as to offset the deflection and assume correct shape and line after desposition of concrete. For cantilevers, the camber at free end shall be 1/100 th of the projected length. Where architectural considerations and adjunctive work are critical, smaller form cambers

shall be adopted as decided by the Engineer-in-Charge.

All vertical wall forms may be designed and constructed for the following minimum pressure. The pressure listed in Table - 6 are intended as guide only and the Contractor shall ensure that the formwork is adequately strong and sturdy.

TABLE - 6

Rate of pour	Pressure Kg/Sq.M	
in Meter/hour	100"	240C

0.6	3600	2900
0.9	4000	3200
1.2	4400	3500
1.5	4600	3700

19.3 Inspection of Forms

Temporary openings shall be provided at the base of column and wall forms and other places necessary to facilitate cleaning and inspection. Before concrete is placed, all forms shall be carefully inspected to ensure that they are properly placed, sufficiently rigid and tight, thoroughly cleaned, properly treated and free from foreign material. The complete form work shall be inspected and approved by the Engineer-in-Charge before the reinforcement bars are placed in position. When forms appear to be unsatisfactory in any way, either before or during the placing of concrete as per the instructions of the Engineer-in-Charge.

19.4 Treatment of_ forms

The surfaces of forms that would come in contact with concrete shall be treated with approved non-staining release agents such as soft soap, oil, emulsions etc. Care shall be taken that such release agents are kept out contact with the reinforcement.

19.5 Chamfers and_ fillets

All corner and angles shall be formed with 450" moldings to form chamfers or fillets on the finished concrete. The standard dimensions of chamfers and fillets, unless otherwise detailed or specified shall be 25 x 25 mm. For

heavier work chamfers or fillets shall be 50 x 50 mm. Care shall be exercised to ensure accurate mouldings. The diagonal face of the moulding shall be planed or surfaced to the same texture as the forms to which it is attached.

19.6 Reuse of forms

Before reuse, all forms shall be thoroughly scrapped, cleaned, examined and when necessary repaired and retreated before resetting. Formwork shall not be reused, if declared unfit or un-serviceable by the Engineer-in-Charge.

19.7 Removal of Forms/Stripping Time

In the determination of time for removal of forms, consideration shall be given to the location and character of the structures, the weather and other conditions including the setting and curing of the concrete and material used in the mix.

Forms and their supports shall not be removed without the approval of the Engineer-in-Charge. Methods of form removal likely to cause overstressing or damage to the concrete, shall not be adopted. Supports shall be removed in such a manner as to permit the concrete to uniformly and gradually take the stresses due to its own weight.

In normal circumstances and where ordinary portland cement is used, forms may generally be removed after expiry of following peroids.

- | | |
|---|--|
| (a) Walls, columns and vertical faces of all structural members | 24 to 48 hrs as may be decided by the Engineer-in-Charge. |
| (b) Slabs (props left under) | 3 days. |
| (c) Beam Soffits (props left under) | 7 days. |
| (d) Removal of props under slabs: | |
| 1. Spanning up to 4.5 M | 7 days. |
| 2. Spanning over 4.5 M | 14 days. |
| (e) Removal of props under beams and arches: | |
| 1. Spanning upto 6 M | 14 days. |
| 2. Spanning over 6 M and upto 9 M | 21 days. |
| 3. Spanning over 9 M | 28 days. |
| (f) Cantilever Construction | Formwork shall remain till structures for counter acting or bearing down have been erected and have attained sufficient strength (minimum 14 days) . |

Notes :

1. For rapid hardening cement, 3/7 days of the above mentioned period shall be considered subject to a minimum of 24 hours.
2. For other cement, the stripping time recommended for ordinary Portland cement shall be suitably modified as per the instructions of the Engineer-in-Charge.
3. The number of props left under, their sizes and disposition shall be such as to be safely carry the full dead load of the slab, beam or arch as the case may be together with any live load likely to occur during curing or further construction.
4. Where the shape of the element is such that the formwork has re-entrant angles, the form work shall removed as soon as possible after the concrete has set, to avoid shrinkage cracking occurring due to the restraint imposed.

19.8 Staging/Scaffolding

Staging/scaffolding shall be properly planned and designed by the Contractor. The Contractor shall get it reviewed by Engineer-in-Charge before commencement of work. Double scaffolding sufficiently strong so as to withstand all loads likely to come upon it and having two sets of vertical supports, shall be provided. Where two sets of supports are not possible, the inner end of the horizontal scaffolding member shall rest in a hole provided in the header course only. Only one header for each member shall be left out. Such holes however shall not be allowed in pillars under one metre in which or immediately near the skew backs of arches. Such holes shall be filled up immediately after removal of scaffolding/staging. The following measures shall be considered while designing and erecting of scaffolding/staging.

- a) Sufficient sills or under pinnings in addition to base plates shall be provided particularly where scaffoldings are erected on soft grounds.
- b) Adjustable bases to compensate for uneven ground shall be used.
- c) Proper anchoring of the scaffolding/staging at

reasonable intervals shall be provided in each case with the main structure wherever available.

- d) Horizontal braces shall be provided to prevent the scaffolding/staging from rocking.
- e) Diagonal braces shall be provided continuously from bottom to top between two adjacent rows of uprights.
- f) The scaffolding/staging shall be checked at every stage for plumb line.
- g) Wherever the scaffolding/staging is found to be out of plumb line it shall be dismantled and reerected afresh and effort shall not be made to bring it in line with a physical force.
- h) All nuts and bolts shall be properly tightened.
- i) Proper and effective supervision of the erection work shall be ensured by the Contractor.
- j) Erection work of a scaffolding/staging under no circumstances shall be left totally to semi-skilled or skilled workmen and shall rather be carried out in the presence of a technically qualified civil engineer of the Contractor.
- k) Wherever steel tubes are used care shall be taken that all the clamps/couplings are firmly tightened so as to avoid any slippage.

20.0 REINFORCEMENT

20.1 Reinforcement shall be cut, bent to shape and dimensions as shown in the bar bending schedules/drawings. In normal course the bar bending schedule shall be supplied to the Contractor, however, in case, bar bending schedule is not provided, the Contractor shall develop the same at no extra cost to the Owner and get it reviewed by the Engineer-in-Charge. The Contractor shall check the bar bending schedule (issued by the Owner) prior to fabrication and satisfy himself about the correctness of the same.

20.2 Straightening, Cutting and Bending

Procedure for cutting and bending shall be as given in IS:2502.

Cold twisted deformed bars shall be bent cold. Bars larger than 25 mm in size (except cold twisted deformed bars) may be bent hot at cherry red heat to a temperature not exceeding 850°C as per the instructions of the Engineer-in-Charge. The bars shall be allowed to cool gradually

without quenching.

Bars shall be bent in slow and regular movement to avoid fractures. Bars which develop cracks or splits after bending shall be rejected. A second bending of reinforcement bars shall be avoided but when reinforcement bars are bent aside at construction joints and afterwards bent back into their original position, care should be taken to ensure that at no time is radius of the bend less than 4 x bar diameter for plain mild steel or 6 x bar diameter for deformed bars. Care shall be also be taken when bending back bars to ensure that concrete around the bars is not damaged. All bars shall be properly tagged for easy identification.

20.3 Placing and Fixing

All reinforcement shall be cleaned to ensure freedom from loose mill scale, loose rust, oil, grease or any other harmful material before placing then in position.

All reinforcement shall be fixed in the correct position and shall be properly supported to ensure that displacement will be not occur when the concrete is placed.

The reinforcement bars shall be tied at every intersections by two strands of 16 SWG black sqft annealed binding wire. Crossing bars shall not be tack welded for assembly of reinforcement. The reinforcement bars shall be kept in position by using the following methods.

- a) In case of beam and slab construction, precast cover blocks (having the same cement sand contents as the concrete which shall be placed) of size 40 x 40 mm and thickness equal to the specified covers shall be placed firmly in between the bars and forms so as to secure and maintain the specified covers over the reinforcement.

When reinforcement bars are placed in two or more layers in beams, the vertical distance between the horizontal bars shall be maintained by introduction spacer bars at 1 to 1.2m centre to centre.

- b) In case of thick rafts & pile caps having two or multi layers of reinforcement, the vertical distance between the horizontal bars shall be maintained by introducing suitable chairs, spacers, etc.
- c) In case of columns and walls, the vertical bars shall be kept in position by means of timber templates with slots accurately cut in them. The templates shall be removed after the concreting has been done it.
- d) Exposed portions of reinforcement bars shall not be subjected to impact or rough handling and workman will not be permitted to climb on extending bars until the

concrete has attained sufficient strength so that no movement of the bars in the concrete is possible.

20.4 Splicing/Overlapping

Only bars of full length shall be used as shown in the drawings. But where this can not be done, overlapping of bars shall be done as directed by the Engineer-in-Charge. Where practicable, the overlapping bars shall not touch each other, but these shall be kept apart by 25 mm or 1.25 times the maximum size of the coarse aggregate whichever is greater. But where this is not possible, the overlapping bars shall be tied with two strands of 16 SWG black soft annealed binding wire. The overlaps shall be staggered for different bars and located at points along the span where neither shear nor bending moment is maximum.

20.5 Welded_Joints

Welding of reinforcing bars shall not be permitted without the written permission of the Engineer-in-Charge. Where welding is permitted, it shall be in accordance with the recommendations of IS:2751 and IS:9417. Welded joints shall be located at suitable staggered positions. Tests shall be made to prove that the joints are of the full strength of the bars.

20.6 Mechanical Connections

The mechanical splices in reinforcement by means of couplers, clamps etc. shall be used (as per manufacturer's specifications) with the written approval of the Engineer-in-Charge. However, tests shall be made to prove that the connections are of the full strength of the bars.

20.7 Tolerances

Unless otherwise specified by the Engineer-in-Charge, reinforcement shall be placed within the following tolerances :

(a) For effective depth 200mm or less +10 mm

(b) For effective depth more than 200 mm +15 mm

The cover shall in no case be reduced by more than one third of specified cover or 5 mm whichever is less.

20.8 Substitution

When specified diameter of reinforcement bars is not

available, the Contractor shall be use other diameter of reinforcement bars on written approval of the Engineer-in-Charge.

20.9 Cover

Cover to reinforcement shall be as indicated on the drawings and in their absence as directed by the Engineer-in-Charge.

21.0 PRECAST_CONCRETE

21.1 Specifications contained in clauses above regarding concrete, formwork and reinforcement shall apply in addition to the clauses given as under. The Contractor shall be get the precasting bed approved by the Engineer-in-Charge prior to the start of work.

21.2 Necessary lifting hooks of 12 mm diameter M.S. rounds shall be provided for handling as indicated in drawings or as directed by the Engineers-in-Charge.

21.3 Unless otherwise specified, the exposed surface of precast members shall be finished smooth with 1:3 (1 Cement : 3 sand) cement mortar. Surface used as walkways shall be given a non-skid finish.

21.4 The precast concrete units shall be marked clearly on top surface with the letter "T" for identification of surfaces at the time of erection and shall be stored until required for erection. The precast units shall be handled and

erected by methods approved by Engineer-in-Charge to protect them from damage.

21.5 The Contractor shall take all necessary precautions for safe handling during the course of erection. The Contractor shall replace at his own expense all such units which are damaged during the course of erection. Cement used for a damaged/rejected precast elements shall not be taken into account for material reconciliation.

22.0 PAYMENT

22.1 Plain and Reinforced Concrete

22.1.1 Payment for plain and reinforced cement concrete (cast in-situ) shall be made on cubic meter [M3] basis of the volume of the actual finished work done or as per approved construction drawings, whichever is less and shall be inclusive of providing pockets, openings, recesses of all sizes, chamfers, fillets construction joints, cement wash, curing etc. The rates shall be deemed to include complete cost of taking and testing

concrete cubes and carrying out other tests as per specifications and as directed by Engineer-in-Charge.

- 22.1.2 The rate shall however be exclusive of reinforcement metal inserts, pipe sleeves, formwork and bars. Where the strength of concrete mix (nominal or design) as indicated by tests, lies in between the strengths of any two grades given in clause 2.0 and it is accepted by the Owner/Engineer-in-Charge, such concrete shall be classified as a grade belonging to the lower of the two grades between which it lies. In case the cube strength shows higher results than those specified for the particular grade of the concrete, it shall not be placed in the higher grade nor shall the Contractor be entitled for any extra payment on such account. The concrete giving lower strength than specified may be accepted at reduced rates after satisfying the safety of the structure by checking it with devices such as impact hammer, load test etc: or rejected entirely at the discretion of the Engineer-in-Charge. The rejected concrete shall be dismantled at no extra cost to the owner and no payment shall be made for the concrete so rejected and the formwork and reinforcement used for the same. In case the concrete of lower strength can be improved by carrying out some strengthening measures entirely at the discretion of the Engineer-in-Charge, then the said measures shall be carried out by Contractor at his own cost. If the Contractor is able to make up the strength to the required grade by such improvement measures, payment shall be made for the grade achieved.

However, if the strength of concrete is not made up to the strength of required grade, then no payment whatsoever shall be made for any improvement measures undertaken by the Contractor and payment shall be made only for the lower strength if accepted by the Engineer-in-Charge.

- 22.1.3 Deductions for openings, pockets etc. shall be as specified in relevant Indian Standard Codes.

22.2 Form Work

Unless otherwise specified, payment for form work shall be on square meter [M3] basis of the actual area in contact with the concrete cast. The rates shall be inclusive of keeping the formwork for the full period as specified in the above clauses and removing the same after the period is over. No extra payment shall be made for providing scaffolding/staging.

Superior quality form work for exposed/architectural concrete work shall be measured and paid separately under the relevant item in the schedule of rates.

22.3 Reinforcement

22.3.1 Payment for plain round mild steel reinforcement bars and high yield deformed bars shall be on the basis of weight in metric tons. The weight shall be derived from the sizes and corresponding unit weights given in handbook of Bureau of Indian Standards. Standards hook lengths, chairs, spacer bars and authorized laps only shall be included in the weight calculated. Binding wire shall not be weighed nor otherwise measured. Measurements for weight shall not include cutting allowance, etc.

22.3.2 Rate quoted for reinforcement should include cost of supplying decoying, straightening, cleaning, cutting, bending, placing, binding, welding if required and Providing necessary cover blocks of concrete.

22.3.3 Payment for mechanical threaded couplers shall be made on number basis (each). The rate shall include supply of complete assembly, fixing, testing etc

22.4 Damp proof Course (D.P.C)

22.4.1 Payment shall be made on square meter basis of the area laid inclusive of form work, curing, providing and applying bitumen, supplying and spreading sand over bitumen etc.

TECHNICAL SPECIFICATIONS

FOR INTERIOR WORKS

CARPENTRY AND JOINERY

1. GENERAL:

1.1. General Requirement.

This section of the specifications shall be read in conjunction with the drawings and other contract documents and other sections of this specification which shall be deemed complimentary with one another. The contractor shall be responsible for providing all plant, tools, materials and all things necessary for the proper storage of materials, execution, completion and maintenance of the works.

1.2. Delivery and Storage.

All timber delivered to the site shall be carefully stored above ground in such a manner as to provide proper drainage, ventilation and protection from the weather and shall be stored in a proper manner according to each material type.

1.3. Definition of carpentry.

The definition of carpentry work shall be deemed to include fixing clips, blocking grounds, fittings, sub-frames, rough frames and wood framing members, as per relevant IS Codes.

1.4. Moisture content of timber.

Timber shall be well seasoned and clean dried with a moisture content of 12% nominal+2% for teak wood. The contractor should get it tested for moisture content of wood at their own cost as per the direction of the Architects/Engineer in charge and produce the certificate to Indian Oil Corporation Ltd for approval.

1.5. Protection, Delivery & Storage.

All timber shall be treated with preservatives before delivery to site.

All joinery and joinery timber shall be wrapped in polythene before and during transport and delivery to site.

While remaining in polythene wrappers the timber shall be protected from extremes of temperature and direct sunlight. Internal joinery and joinery timber shall be kept in its original polythene wrappers before working fixing and installing on site. Polythene wrapping to external joinery and timber shall be removed on delivery to site or as previously specified.

1.6. Timber.

Timber shall be of the species stipulated in the schedules of rates. It shall be thoroughly seasoned, free of defects which would affect strength and shall be flat, straight, non splitting and dressed on all sides. The timber shall be free from decay, fungal growth, bored heart, pitch pockets or streaks on the exposed edges, splits and cracks. Knots should be avoided. Seasoning of timber shall be approved as per IS: 1141 (specification for code practice for seasoning of timber) and code of practice for prevention of timbers as per IS: 401.

1.7. Timber Fixing.

The carpentry timber shall be fixed with nails, spikes, bolts, screws, hangers, stirrups, anchors, ties or any other accessories which are suitable to develop the full strength of the member.

1.8.Fixing.

Carpentry timber fixed to solid masonry or concrete shall be secured with expansion bolts or other positive method of mechanical fastening. Carpentry timber where fixed into hollow masonry shall be secured with toggle bolts and steel with bolts, nuts & washers as per instruction of Engineer.

1.9.Fiber plugs.

Fixing by means of well seasoned and preservative treated wooden plugs will be permitted only where it is required.

1.10.Fastening.

Power driven fasteners may be used for fastening to steel, concrete and brick masonry as approved by Engineer.

2. PROTECTION AND RETARDANTS:

2.1.Organic protection-timber generally.

The contractor shall make his own investigation to guard against local sources of attack and damage and take all necessary precautions for protection.

All timber shall be protected with an organic solvent water repellent wood preservative to give a highly efficient protection against termite, spider, worm, all insect and insect and fungus and attack and shall where exposed, enhance the appearance of the timber, colour of the product shall be such as to bring out the natural colour of the respective timber.

The preservative shall penetrate deeply into the timber, shall protect against blue stain, rot, fungus & termite, spider, work & all insects attack and shall contain a resin which fixes the preserving agent and protects them against leaching and evaporation. The protection shall also be water repellent, weather proof and proof against peel, crack or blister of approved quality. Preservative treatment of timber shall be done as per IS: 401.

2.2.Fire Retardant.

Fire retardant treatment of timber shall be applied by vacuum/pressure impregnation or manually and shall comply with the requirement of ISI code of practice and local fire requirements. The fire retardant effect shall be produced by the generation of water vapour and inert gases and the production of hard crystalline charcoal which acts as a heat barrier.

3. JOINERY.

3.1.Timber veneers.

- a) Timber veneers shall be of the timber species shown on drawings. Veneers are to be kept in sequence as it is being cut from wood and supplied as such to the site for accurate matching of figuring.
- b) Adhesives for using fixing veneers shall be in accordance with the manufacturer's recommendations and as approved by engineer-in-charge.
- c) If adhesives other than contract type are required then bonding shall be in presses.
- d) The veneer shall be finished as specified and shall be equal or superior quality to the laid down in IS: 1659-1960 or as approved.
- e) The contractor shall submit a one square meter sample of each finished veneer type for approval. The size of such sample shall be one square meter unless otherwise specified.
- f) Adhesive used for bonding BWP grade of plywood Boards shall be BWP type synthetic resins conforming IS: 848 respectively.

3.2.Plywood.

- a) Plywood shall be a product of a balanced construction made of plies assembled by gluing, the chief characteristics being the crossing of alternate plies improve the strength properties and minimize movement the plan of board.
- b) Plywood shall be of best quality close grained plywood suitable for veneering, painting or bonding plastic laminate. It shall be a resin bonded, water proof board. Exposed edges shall be finished with an edge strip of solid teak wood tongued and grooved & glued or as detailed.
- c) The manufacturer and reference for plywood suitable shall be subject to approval. The thickness shall be in accordance with the drawings.
- d) Plywood shall be of BWP grade or BWP type synthetic resin conforming IS: 848.

3.3. Particle board.

- a) Wood based particle board shall be a board made from wood particles bonded with a synthetic resin and/or other organic binder. Thickness shall vary as shown on drawings. Particle board shall comply with IS 12823.
- b) Interior grade particle board shall be used externally or internally with damp surroundings.
- c) Manufacturer and reference for particle board shall be subject to approval.
- d) Adhesive used for bonding shall be conforming IS: 848.

3.4. Block board / Lamine board(solid).

- a) Block boards have a solid core made up of uniform strips of wood each not exceeding 25mm in length, laid separately, or spot glued, or otherwise joined to form a slab which is glued. Between two or more outer veneers. In any one block Board, the core strips shall be of one species of timber only. Face veneers may be decorative or commercial on both faces or decorative on one face only and or commercial on the other. Block Boards shall be grade I (Exterior grade) as per IS: Code 1659.
- b) Manufacturer and reference of block board/shall be subject to approval.
- c) Adhesive used for bonding shall be conforming IS: 848.

3.5. Storage of sheet materials.

Sheet materials shall be transported and stored flat, with sufficient support to prevent bowing and wrapping and to prevent damage to edges and corners. Sheet materials shall be protected from weather and kept off the ground and in dry, well ventilated condition.

3.6. Sample:

The contractor shall submit sample of all materials including large samples of veneer assemblies for approval. All materials pre-fabricated, delivered and assembled shall be in accordance with the approved sample as per instruction of Engineer.

3.7. Shop drawings-Cabinet joinery:

The contractor shall submit for approval shop drawings for all cabinet joinery. Shop drawing shall relate to site measurement and show in detail the construction of the various parts of the work, the method of jointing, the thickness and type of material, the finishes to be applied to the various exposed surfaces, details of anchoring, joints, welds, fastening and all other relevant information.

4. JOINERY—GENERAL:

4.1. General.

Joinery shall be carried out strictly in accordance with the drawings where joints are not specifically indicated recognized forms of joints shall be used.

Where no dimensions are specified or shown on drawings, the contractor shall space fixing battens, fillets, ground studs and the like, in accordance with the recommendation of the manufacturer.

5. TIMBER VENEERED AND LAMINATED PLASTIC PANEL:

5.1. General.

Reference should be made to section of this specification which relate to timber and plastic laminate veneer.

- a) The panels shall be factory made and shall be selected timber veneer or plastic laminate veneer glued to water proof plywood (as per IS Code) the edge of which shall be finished with hardwood lipping. The size and finishes of the panels shall be in accordance with the drawing and schedules instruction of Engineer.

5.2. Fire Rating.

Panels shall be rendered fire retardant and to conform to local fire regulations of concerned Authorities.

5.3. Protection and Storage.

- a) Panels shall be delivered to site in perfect condition and in their original protective coverings.
- b) Panels shall be stored flat and stacked evenly in such a manner as to allow air to circulate around them freely and shall be protected from damp, direct sunlight and all other damage.

5.4. Installation .

- a) Panels shall not be installed until all plastering work is dry.
- b) Panels shall be installed according to the drawing & schedules and to the manufacturer's recommendations.
- c) Panels are to be securely fixed to wall with screws on painted mild steel Z clips at 600 mm centers horizontally and 1200 mm centers vertically and shall be installed true and plumb on hardwood packing pieces as necessary.
- d) Panel edges cut on site shall be scaled and made good with a veneer edging strip to match the factory finish.
- e) On completion of installation the panels shall be left in perfect condition and properly protected against damage, damp, excessive heat, dirt and direct sunlight.

5.5. Samples.

The contractor shall submit a sample of each type of veneer/laminate panel for approval before general fabrication is put in hand.

6. Great care must be exercised in cutting the RCC slabs/beams to locate suitable reinforcement for welding the MS flats to be provided for suspension of false ceiling system. The damage to the RCC member shall be made good with cement mortar 1:3 (1 cement: 3 coarse sand). The projecting portion of the MS flat below the RCC member and any other steel member in the false ceiling system shall be painted with one coat of red oxide paint.

2. ALUMINIUM GLAZED PARTITION / DOORS / WINDOWS:

2.1. General specification, materials & erection.

Anodised tubular aluminium sections for doors, windows partition frames shall be of INDAL/JINDAL or approved equivalent make and shall be of size and design as per relevant drawings.

All moving and fixing frames shall be manufactured from Aluminium alloy conforming to IS 1199 WP. The alternate vertical frames shall be taken up beyond false ceiling upto main RCC ceiling/beam and shall be properly screwed with main RCC ceiling/beam by way of raw/plugs/flats/deads etc completed.

The door shutter section shall be 5.5 mm thick plain glass fixed with necessary gasket and snap fit aluminium beading strip. The glazing for shutters shall be 5.5 mm thick laminated safety glass or as specified.

The door shall be provided with one security 6 lever lock. The shutters shall be provided with anodized aluminium butterfly door handles inside and outside.

The average thickness of anodized coating shall not be less than 15 microns (IS:1968) or as specified. The glazed partition frames shall be provided with approved anchors @ 90 cm c/c maximum for fixing. The bottom rail shall be fixed by way of bolts/screws to the false flooring.

2.2. Payment.

Payment including cost of labour, materials, taxes, carriages etc. shall be made on square meter basis of finished work. Fixed glazed partition shall be measured deducting the shutter within it and upto false ceiling only. Nothing extra shall be paid for taking vertical frame members upto main ceiling/RCC slab or beam. Door shutter shall be paid extra on square meter basis. Only clear opening or area for openable shutter left within the glazed partition shall be measured for payment.

STANDARD TECHNICAL SPECIFICATIONS FOR PAINTING JOB

1. PAINTING.

1.1. Materials

Paint, oils varnishes etc of approved brand and manufacturer shall be used synthetic enamel paint as received from the manufacturer without any admixture shall be used. (Conforming to IS: 2932)

Approved paints, oil or varnishes shall be brought to the site of work by the contractor in their original containers in sealed condition. The empty tins shall not be removed from the site of work till the relevant item of work has been completed and obtained from the Engineer-in-charge.

1.2. Commencing Work

1.3. Painting shall not be started until the Engineer-in-charge has inspected the items of work to be painted, satisfied himself about their proper quality can give his approval to commence the painting work.

1.4. Preparation Of Surface

The surface shall be thoroughly cleaned and dusted. All rust, dirt scales, smoke and grease shall be thoroughly removed before painting is started. The prepared surface shall have received the approval of the Engineer-in-charge after inspection.

1.5. Application

Before pouring into smaller containers for use, the paint shall be continuously stirred in the small containers so that its consistency is kept uniform.

The painting shall be laid on evenly and smoothly by means of crossing and laying off, the later in the direction of the grain of wood. The crossing and lying off consists of covering the area over with paint, brushing the surface hard for the first time over and then brushing alternately in opposite direction, two or three times and then finally brushing alternately in opposite direction, two or three times and then finally brushing lightly in a direction at right angles to the same. In this process no brush marks shall be left after laying off is finished. The full process of crossing and laying off will constitute one coat.

Where so stipulated, the painting shall be done with spray, spray machine used may be high pressure type of or a low pressure type, depending on the nature and location of work to be carried out. Skilled and experienced workmen shall be employed for this class of work. Paint used shall be brought to the requisite consistency by adding a suitable thinner as recommended by the paint manufacturers.

Spraying shall be done only when dry condition prevails.

Each coat shall be allowed to dry out thoroughly and rubbed smooth before the next coat is applied.

Each coat except the last coat, shall be lightly rubbed down with sand paper or fine pumice stone and cleaned off dust before the next coat is laid.

No left over paint shall be put back into the stock tins.

No hair marks from the brush or ejection of paint particle in the concern of panels, angles of molding etc shall be left on the work.

In painting steel work, special care shall be taken while painting over bolts, nuts, rivets, overlaps etc.

The additional specification for primer and other coats of paints shall be as according to the detailed specifications under the respective headings.

1.6. Brush And Containers

1.7 After work, the brushes shall be completely cleaned from paint and linseed oil by rising with turpentine. The containers, when not in use, shall be kept closed.

1.8. Measurement

The units of measurement for painting except where otherwise stated shall be given in "Sq meter" painting of rain water, soil, waste, vent pipes, etc shall also be measured in "Sq meter".

1.9 Precautions

All furniture, fixtures, glazing, floors etc shall be protected by covering and stains, smear, splashing if any shall be removed and damage done shall made good by the contractor at his cost.

1.10 Rate

Rate shall include cost of all labour and materials, taxes, carrying, cleaning of surface after painting involved in all the operation described above and in the particular specifications given under the several items. It shall also include cost of scaffolding.

2 PAINTING PRIMING COAT ON WOOD, IRON SURFACE

2.1 Materials

The priming coat for woodwork or iron work shall be as specified in the description of the item. It shall be ready made primer of approved brand and manufacture. IT shall be brought to site in their original packings in sealed condition.

2.2 Preparation Of Surface

2.2.1. Wood work

The woodwork to be painted shall be dry and free from moisture.

The surface shall be thoroughly deaned. All unevenness shall be rubbed down smooth with sand paper and shall be well dusted. Knots, if any, shall cover with preparation of red lead made by grinding red lead in water and mixing with strong glue size and used hot.

The surface treated for knotted shall be dry before painting is applied. After the priming coat is applied, the holes and identifications on the surface shall be stopped with glazier's putty or wood putty. Stopping shall be done before the priming coat is applied.

2.2.2 Iron and steel work

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

2.2.3 Application

The shall be applied with brushes, worked well into the surface and spread even and smooth. The painting shall be done by crossing and laying off described.

3 PAINTING WITH SUPERIOR QUALITY SYTHETIC ENAMEL PAINT

3.1 MATERIAL

a)Wood Work

The superior synthetic enamel paint of the following brand and manufacture shall only be used.

a)"Luxol High gloss Synthetic Enamel" of Berger Paints.

b)"Apolite" of Asian Paints (India) Limited.

3.2 PREPARATION OF SURFACE

a)Wood Work

The surface shall be cleaned and all unevenness removed as in para 2.2.1. Knots if visible, shall be covered with a preparation of red lead as in para 3.2..1. Holes and indentation on the surface shall be filled in and surface prepared as in 2.2.1.

b) Iron and Steel work

The priming coats shall have dried up completely before painting is started. Dust and scaling shall be carefully removed by scrapping or by brushing with steel wire thoroughly wiped.

3.3. APPLICATION

The number of coats shall be as stipulated in the item. One coat of the specified paint shall be applied and allow to dry overnight. It shall be rubbed next day with the finest grade of wet adhesive paper to ensure a loose particles dusted off.

Next coats shall be applied after the first coat is thoroughly dry. Additional coats shall be applied if found necessary to ensure properly uniform glossy surface, free from streaks, blistered etc in all the cases paint manufacturer's instruction shall be followed meticulously.

4 PAINTING WITH WALL PAINT

4.1 The wall paint shall be of following brand and manufacturer:

a) "LUXOL" Silk Acrylic Emulsion paints of Berger paints or approved equivalent. The paint shall be of approved shade.

4.2 "Preparation of Surfaces"

The surface shall be thoroughly cleaned of dust, old white or colour wash or other wall finish by washing with water and scrubbing such removal of white wash, colour washing etc will be paid for separately. The surface shall then be sand papered to give a smooth and even surface.

Scratches, holes etc shall be made good by applying putty, made of plaster of paris mixed with water on the surface and then sand papering the same after it is dry.

The wall surface which will be painted with wall paint shall be made smooth by applying a putty made of plaster of paris mixed with water on the entire surface including filling up the undulations and then sand papering the same after it is dry such application of plaster of paris will not be paid separately.

4.3 Material.

Cement primer of approved brand and manufacture shall be used.

4.4 Application

On properly prepared and primer surface, wall paint shall be applied in the usual manner with brush or roller.

The number of coat shall be as stipulated in the item.

When painting inside a wall ventilated room, the second coat can be applied one hour after the first.

The thinning of paint is to be done with water. The quantity of thinner to be added for first and second coat shall be as per manufacture's instructions.

The surface on finishing shall present a flat velvety smooth finish and uniform appearance. If necessary more coats will be applied till the surface present, uniform appearance. In all cases the manufacturer's instructions shall be followed meticulously.

4.5 Other details these shall be as per specification for painting (general) as for they are applicable.

5 French Spirit Polishing.

5.1 Pure shellac varying from pale orange to lemon yellow colour, free from resin or dirt shall be dissolved in methylated spirit. Suitable pigment shall be added to get the required shade.

5.2 The surface shall be cleaned. All unevenness shall be rubbed down smooth with sand paper well dusted. Knots of visible shall be covered with a preparation of red lead and glue size laid on while hot. Holes and indentations on the surface shall be stopped with glazier's putty. The surface shall then be given coat of wood filler made by mixing whiting in methylated spirit at the rate of 1:5 kg of whiting per liter of spirit. The surface shall again be rubbed down perfectly smooth with glass paper and wiped clean.

5.3 The number of coats of polish to be applied shall be as described in the item a pad of woollen cloth covered by a fine cloth shall be used to apply the polish. The pad shall be moistened with the polish and rubbed hard

on the wood, in a series of overlapping circles applying the mixture sparingly but uniformly over the entire area to give an level surface. A trace of linseed oil on the face of the pad facilitates this operation. The surface shall be allowed to dry and the remaining coats applied in the same way. To finish off, the pad shall be covered with a fresh piece of clean fine cloth, slightly and quickly with methylated spirit and rubbed lightly and quickly with circular motions. The finished surface shall have a uniform texture of high gloss.

5.4 Other details shall be as per the specification for painting (general) as far as they are practicable.

6.0 VITRIFIED FLOOR TILES

6.1 Work included The tenderer shall furnish materials, labour. Plant, equipment and tools to complete the work as specified and or as shown in the drawing.

6.2 Materials

- a) Vitrified tiles shall be flat and unglazed on the top surface. They shall be generally 600 X 600 mm in size with a thickness as approved by the Engineer. They shall conform to IS: 15622 of approved make and colour. The tenderer shall submit to the Engineer for his approval samples of tiles which he proposes to use in the work and all tiles used shall be similar to the approved samples. Water absorption's less than 0.08% of above quality of tiles.
- b) Ordinary or White Portland Cement:
 - 1) Cement: Ordinary Portland Cement shall conform to IS: 8112
 - 2) White Portland Cement: White Portland Cement shall conform to IS: 8042
 - 3) Sand: The sand used shall be of approved river or pit sand, conforming to IS: 383-1970
 - 4) Water: Water used shall be clean and potable quality as per clause 4.3 of IS: 456-2000

6.3 Workmanship

Tiles shall be laid on 20 mm thick cement mortar 1 : 4 (1 Cement : 4 Coarse sand) including grouting the points with white cement and matching pigments as approved by Engineer. The fixing shall be done from bottom upwards. Each tile shall be fixed as close as possible to the one adjoining and any thickness of the tiles shall be evened out in the cushioning mortar so that all the tiles faces are set in conformity with one another. After finishing above job surface shall be cleaned and cured.

PLASTERING & POINTING

5.1 Materials

5.1.1 Cement:

Cement shall conform to "Specification no. 6-68-02 'Material' Clause No. 5.0" of "Technical Specification for Civil and Structural Works" unless otherwise specified.

5.1.2 Sand:

Sand for plastering and pointing shall conform to IS 1542. Sand shall be hard, durable, clean and free from adherent coatings and organic matter and shall not contain any appreciable amount of silt, clay balls or pellets. Sand shall not contain harmful impurities such as iron pyrites, coal particles, lignite, mica shale etc.

Sand whose grading falls outside the limits of IS 460 due to excess or deficiency of coarse or fine particles shall be processed to comply with the standards.

Fine sand shall be obtained from river beds not affected by tidal water of the sea and shall be clean, sharp and free from excessive deleterious matter. The sand shall not contain more than 8 percent of mud and slit as determined by field test with a measuring cylinder.

5.1.3 Water:

Water for plastering and pointing shall conform to 'Specification No. 6068-02 'Material', clause No. 2.0 of "Technical Specification for Civil and Structure Works".

5.1.4 Cement Mortar

Preparation of cement mortar shall conform to "Specification No. 6-68-09 'Brick Masonry', clause no. 3.0" of 'Technical Specification of Civil and Structural Work' unless otherwise mentioned.

5.2 Workmanship

5.2.1 Preparation of background surface

The surface shall be cleaned off all dust, loose mortar droppings, traces of algae, efflorescence and other foreign matter by water or by brushing. Smooth surface

shall be roughened by wire brushing or hacking for non-hard and hard surfaces respectively. Projections on surfaces shall be trimmed wherever necessary to get even surfaces. In case of brick/stone masonry, raking of joints shall be carried out wherever necessary. The masonry shall be allowed to dry out for sufficient period before carrying out the plaster work. The masonry shall not be soaked but only damped evenly thereafter before applying the plaster.

In case of concrete work, projecting burrs of mortar formed due to the gaps of joints in shuttering shall be removed. Such surface shall be scrubbed clean with wire brushes. The surface shall be pock marked with a pointed tool at spacing of not more than 50mm. centers, the pocks being made not less than 3 mm. deep to ensure a proper key for the plaster. The surface shall be washed off and cleaned of all oil, grease etc. and well wetted before the plaster is applied.

5.3.2 Sequence of Operations:

For external plaster, the plastering operations shall be started from the top floor and carried downwards. For internal plaster, the plastering may be started wherever the building frame, roofing, and brick work are ready.

The surfaces to be plastered, shall first be prepared as described in 'Preparation of background surface' in clause 5.3.1.

The first underlay shall then be applied to ceilings. After the ceiling plaster is complete and scaffolding for the same removed, plastering on wall shall be started.

After a suitable time interval as detailed under various types of plaster in subsequent paras, depending upon the type of mortar, the secondary layers if required shall be applied. After a further suitable time interval as detailed under various type of plaster in subsequent paras, the finishing coat shall be applied first to the ceiling and then to the walls.

Plastering of corners, decorative features, etc. shall be completed before the finishing coat is applied. Unless otherwise specified corners and edges shall be rounded off to a radius of 25mm. such rounding off shall be completed along with the finishing coat to prevent any joint marks showing out later.

5.3.3 Scaffolding/Staging:

Scaffolding/staging for plastering/pointing shall be as 'Specification No. 6-68-09. Brick Masonry, clause no. 5.0' of 'Technical Specification for Civil and Structural

Works'.

5.3.4 Damage Rectification:

Any cracks, damages, any part of work which sound hollow when tapped or found damaged or defective otherwise shall be cut in rectangular shape and redone as directed by Engineer-in-Charge.

5.4 Plain Cement Plaster

5.4.1 Preparation of Mortars:

The mortars of specified mix. shall be used as per the Specifications of 'Cement Mortar' in Clause No. 5.1.4.

5.4.2 Application of Plaster

5.4.2.1 One layer plaster work

To ensure even, specified thickness, plaster of 150mm x150mm shall be first applied horizontally and vertically at not more than 2 meter interval over the entire surface to serve as gauges. The surface of these gauged areas shall be truly in the plane of the finished plaster surface. The mortar shall be brought to true surface by working with a wooden straight edge reaching across the gauges with small upward and sideways movements at a time. Finally the surface shall be finished off true with a trowel or wooden float to obtain a smooth texture. Excessive toweling or overworking the float shall be avoided. All corners, arises, angles and junctions shall be truly vertical/ horizontal and shall be carefully finished. Rounding or chamfering of corners, arises, junction etc. shall be carried out with proper templates to the size required.

In suspending the work, the plaster shall be left, cut clean to line, both horizontally and vertically. When recommencing the plastering, the edge of the old work shall be scrapped clean and wetted before plastering the adjoining area. Plastering work shall be closed on the border of the wall and nearer than 150mm. to any corners or arises and shall not be closed on the body of the features such as plaster bands, cornices nor at the corners or arises.

§5.4.3 Curing

Curing shall be started 24 hours after finishing the plaster. The plaster shall be kept wet for a period of 7 days. During this period the plaster shall be suitably protected from all damages at the contractor's expense by such means as approved by the Engineer-in-Charge. The

date of execution of plastering shall be marked on the plastering to ensure the proper duration of curing.

5.8 Measurement and Rate

5.8.1 The description of each item, unless otherwise mentioned includes wherever necessary all material, conveyance and delivery, handling, loading/unloading, storing, fabrication, all labour for finishing the work, preparation of background surface, staging/scaffolding, application, finishing, removal of staging/scaffolding, curing and other incidental charges. The rate shall be for all heights and all heights of work.

5.8.2 Plastering

Thickness of the plaster shall be the minimum thickness at any point on a surface and shall be exclusive of the key i.e. grooves or open joints in masonry. No extra payment shall be allowed for extra thickness of plaster done by contractor, drip moulds, rounding of edges etc.

All plastering/pointing shall be measured in square meters unless otherwise specified. Length breadth and height shall be measured correct to 0.1 meters. Soffits of stairs shall be measured as plastering on ceiling. Ceiling with projected beams shall be measured over beams and plastered side of beam shall be measured and added on ceiling.

Deductions and additions shall be made in the following manner:

- a) No deductions shall be made for end of joists, beams, posts, openings not exceeding 0.5sqm. area and no addition shall be made for reveals, jambs, soffits etc. of these openings not for finish to plaster around ends of joints, beams, posts etc.
- b) Deductions for openings exceeding 0.5sqm. but not exceeding 3sqm. each shall be made as follows and no addition shall be made for reveals, jambs, soffits etc. of these openings.
 - i) When both faces of wall are plastered with same type of plaster, deduction shall be made for one face only.
 - ii) When two faces of wall are plastered with different types of plasters or if one face is plastered and the other pointed, deduction shall be made from the plaster or pointing on the side of frame for door, windows etc. on which width of reveals is lesser, but no deduction shall be made on the other side. Where widths of reveals on both faces of wall are equal, deduction of 50% of area of opening on each

face shall be made.

- iii) When only one face is plastered, full deduction shall be made from plaster if width of reveal on plastered side is lesser. But if widths of reveal on both sides are equal or more on plastered side, no deduction shall be made.
- c) In case of openings of area above 3 sqm. each, deduction shall be made for openings but jambs, sophists, and sills shall be measured.

WHITE WASHING, COLOUR WASHING, DISTEMPERING, PAINTING AND POLISHING.

7.6 Waterproof cement paint

7.6.1 Workmanship

7.6.1.1 Scaffolding

Same as in Clause No. 1.4.9

7.6.1.2 Preparation of surface

Preparation of surface shall be thoroughly brushed free from mortar droppings and foreign matters and prepared satisfaction of Engineer in charge. The surface shall be wetted with clean water before the paint is applied.

7.6.1.3 Preparation of paint

Waterproof cement paint of approved make shall be mixed with water and stirred to obtain a thick paste which shall then be diluted to brushable consistency. the proportion of mixture shall be as manufacturer's recommendation. The paint shall be mixed in such quantity which can be used up within an hour of mixing to avoid setting and thickening of the paint.

7.6.1.4 Application of paint

The surface shall be treated with minimum two coats of waterproof cement paint. No less than 24 hours shall be applied only after the preceding coat become hard to resist marking by subsequent brushing.

The finished surface shall be even and uniform in shade without patches brush marks paint drops etc. Cement paints shall be applied with a brush with relatively short stiff hog or fibre bristles.

7.6.1.5 Curing

Curing shall be started after the paint has hardened. Curing shall be done by sprinkling with water two or three times a day. This shall be done between coats and for atleast two days following the final coat.

7.6.1.6 Protective measure

7.7 Acrylic emulsion painting

7.7.1 Workmanship

7.7.1.1 Scaffolding

7.7.1.2 Preparation of surface

plastic emulsion paint shall conform to IS 5411 (Part-1) and shall be of approved shade. preparation of mix shall be as per manufacturer's instructions.

7.7.1.4 Application of paint

The paint mix. shall be continuously stirred while applying for maintaining uniform consistency. Number of coats shall be as per item description. The painting shall be laid evenly and smoothly by means of crossing and laying off. The crossing and laying off consists of covering the area with paint, brushing the surface hard at first, then brushing alternately in opposite direction 2/3 times and then finally brushing lightly in a direction at right angles to the same. In this process, no brush marks, no hair marks, no clogging of paint puddles shall be permitted. the full process of crossing and laying off will constitute one coat.

The paint shall be applied by means of brush or roller.

Before starting painting with plastic emulsion paint, the prepared surface shall be treated with two coats of primer consisting of cement, primer, whiting and plastic emulsion paint shall start only after the preceding coat has become sufficiently hard to resist brush marking. Subsequent coats of plastic emulsion paint shall also be started after the preceding coat is dried by evaporation of water content.

The surface on finishing shall present a flat, velvety smooth finish, even and uniform shade without patches, marks, paint drops etc.

7.7.1.5 Precautions

- i) Brushes shall be quickly washed in water immediately after use and kept immersed in water during break periods to prevent the paint from hardening on the brush. Old brushes, if used shall be completely dried of turpentine/oil paints by washing in warm soap water.

- ii) No oil base putties shall be used in filling cracks/holes.
- iii) Washing of painted surface shall not be done within 3-4 weeks of application. Work shall be dry and free from any foreign matter. Nails shall be punched well below the surface. The surface shall be smoothened off with abrasive paper used across the grain prior to painting, with the grain prior to the staining. Any knots, resinous, or blush sap wood, cutting out of which is not justified shall be covered with red lead conforming to IS 103.

Plywood and block board shall be treated in the same manner as for wood work.

Particle boards surface shall be filled with a thin brushable filler and finished as for solid wood.

7.9.1.2 Priming

Priming shall be in accordance with IS 2338 (Part I and II). Dirt or any other extraneous material on the surface shall be removed and the priming shall be applied by brushing.

Priming shall be done on all exposed and unexposed surfaces. Unless specified otherwise, all joinery work intended to be painted shall receive at least 2 coats of primer.

Type of primer shall be in accordance with Table-1 and Table-2 of IS 2338 (Part-II).

7.9.1.3 Stopping and filling

Stopping and filling shall be done after priming. Stopping shall be made to the consistency of stiff paste and shall be used to fill holes and cracks. Filler shall be used to level up slight irregularities of the surface. Filler shall be applied with a putty knife and subsequently rubbed down to a level surface with abrasive paper.

The filler coat shall be allowed to fully flatten and harden before subsequent coat is applied.

7.9.1.4 Application of Under coat

Under coat shall be applied after the surface has been primed, stopped and filled and rubbed down to a smooth surface. Under coat may be brushed or sprayed. After drying the coat shall be carefully rubbed down and wiped clean before the next coat is applied.

The type of under coat shall be depending upon the finishing and in accordance with Table-1 and Table-2 of IS 2338 (Part II).

7.9.1.5 Finishing

The finishing paint shall be as specified in the item description and shall be applied either by the brush or by spraying.

Reference shall be made the Table - 1 and Table - 2 of IS 2338 (Part-II).

7.9.2 Application of clear finishes

For the application of clear finishes, the following procedures shall generally be adopted in accordance with IS 2338 (Part-I)

- i) Filling
- ii) Staining
- iii) Sealing
- iv) Finishing

7.9.2.1 Filling

Fillers shall be applied to prevent the excessive penetration of the finish to the surface a smooth finish. Fillers shall be conforming to IS 345.

Fillers shall be heavily applied to the wood surface by hand, using hessain or jute rag across the grain. It shall be rubbed when still wet to get better penetration. After 5-10 minutes it shall be wiped off by hand across the grain followed by a light wipe with the grain. The filled surface shall be dried preferably over night and smoothened with abrasive paper.

7.9.2.2 Staining

7.9.2.2.1 Spirit Stains

Spirit stains are solutions of spirit soluble dyes in industrial methylated sprit.

7.9.2.2.2 Oil stains

Oil stains are solutions of oil soluble dyes in linsed oil, usually consist of insoluble, semi-transparent pigments ground in linseed oil and thinned with turpentine or other solvent.

7.9.2.2.3 Preparation of wood for staining

Surface intended for staining shall be kept

scrupulously clean and free from greasy finger marks. It shall be prepared by careful smoothing with fine abrasive paper used in the direction of the grain.

Small cracks/nail holes shall be stopped with plastic of paris. The stopping shall be rubbed down with fine abrasive paper when hard and touched with a thinned knotting before staining. In case of oil staining stopping shall be done after staining using tinted putty or wood filler.

7.9.2.2.4 Application of stains

Stains shall be applied by brushing, and wiping or by spraying. The stain shall be so thinned that it can be applied fairly, liberally without over staining and over lapping.

7.8.2.3 Sealing

A suitable sealer shall be applied on the filled and sanded surface to prevent absorption by the wood of the succeeding coats of finish and to seal stain and filler and thus preclude their bleeding into the finish coat.

Sealer may be sprayed on taking care not to flood the surface and it shall be allowed to dry hard.

When fully dry the surface shall be sanded taking care not to cut through at corners and edges. Dust shall be blown off and surface wiped with a clean rag.

7.9.2.4 Finishing

The stained surface shall be varnished, wax-polished or french polished as required after it is dried.

7.9.2.4.1 Varnishing

Varnishing of wood and based material shall be in accordance with IS 2338 (Part-I).

Surfaces to be Varnished shall be prepared to produce a smooth, dry and matt surface and all dust and dirt shall be removed from the surface.

The Varnish shall be applied liberally with a brush and spread every over a portion of the surface with short light strokes to avoid frothing. It shall be allowed to flow out while the next section is being laid in. Excess Varnish shall be scraped out of the brush and then the first section be crossed, re-crossed and laid off lightly. The Varnish, once it has begun to set, shall not be retouched. In case of any mistake, the Varnish shall be removed and the work shall be started afresh.

Where two coats of varnish are applied, the first coat shall be a hard drying under coating or flattening varnish which shall be allowed to dry hard then be flattened down before applying the finishing coat. Sufficient time shall be allowed in between two coats.

When flat varnishing is used for finishing, a preparatory coat of hard drying undercoating or flattening varnish shall first be applied and shall be allowed to harden thoroughly. It shall be lightly rubbed down before the flat varnish is applied. On larger areas, the flat varnish shall be applied rapidly, and the edges of each patch applied shall not be allowed to set, but shall be followed up whilst in free working conditions.

7.9.2.4.2 French Polish

French polish shall conform to IS 348. Suitable pigments shall be added to get the required colour.

The surface to be French polished shall be rubbed down to smoothness with sand paper be well dusted. Pores in the surface shall be filled up with fillers.

A pad of woolen cloth covered by a fine cloth shall be used to apply the finish. The pad shall be moistened with polish and rubbed hard on the surface in a series of overlapping circles applying the polish sparingly but Uniformly over the entire area to give an even surface. A trace of linseed oil may be used on the face of the pad for the purpose. The surface shall be allowed to dry and the remaining coats applied in the same way. To finish off, the pad shall be covered with a fresh piece of clean fine cloth, slightly dampened with methylated spirit and rubbed lightly and quickly with circular motions. The finished surface shall have a uniform texture and high gloss.

7.10 Painting of steel and other metal surface

7.10.1 General

Reference shall be made to the following Indian Standards:
IS 2524, IS 1447.

7.10.2 Preparation of surface

The surface, before painting, shall be cleaned of all rust, scale, dirt and other foreign matter with wire brushes, steel wool, scrapers, sand paper etc. The surface shall then be wiped finally with mineral

turpentine which shall then be removed of grease etc. The surface then shall be allowed to dry.

In case of GI surface, surface so prepared shall be treated with Mordant solution (5 litres for about 100 Sq. m.) by rubbing the solution generously

with brush. After about half an hour, the surface if required shall be retouched and washed down thoroughly with clean cold water and allowed to dry.

7.10.3 Application of priming paints

Approved quality primer and paint in specified no. of coats shall be applied as per manufacturer's recommendations either by brushing or spraying. Each subsequent coat shall be applied only after the preceding coat is dried.

7.11 Measurement and rate

All work shall be measured in areas. Areas shall be worked out to the nearest 0.01 sq. m. and all dimensions to the nearest 0.01 metre.

Deductions shall be made in accordance with Specification no. 6-75-05.

The rate shall include the cost of all materials, labour, scaffolding, protective measures etc. and all works involved in specification. The rate shall also include, if not mentioned otherwise, conveyance, delivery, handling, unloading, storing etc.

ELECTRICAL TECHNICAL SPECIFICATIONS

1.0 SPECIFICATION OF WORK, MATERIALS, TOOLS AND EQUIPMENT:

The Contractor shall supply all materials, tools, plants and instruments necessary for the efficient execution of the work to complete within the stipulated time.

The materials specified in the schedule of Rates will only be used, other than the specified make written approval from Engineer-in-Charge is to be taken for issuing these materials. And a copy of the approval is to be furnished to Technical Services Department before using these materials.

All materials brought to site shall be approved by Engineer-in-Charge. Materials which are sub-standard shall be rejected. The substandard materials brought to site or used in the work shall be removed by the Contractor within 24 hours on receipt of the notice to that effect from the Site Engineer. Decision of the Engineer-in-Charge in regard to quality of materials will be final & binding.

- i) Indian Electrical Act. 1910.
- ii) Indian Electricity Rules 1956 and regulations framed there under.
- iii) The rules and bye laws of the local Electric supply Authorities.
- iv) Standards & Practices maintain by Indian Oil.

Good and skilled workmanship is as essential as the good quality of materials. Where the workmanship is not considered to be approved standard, the work should be dismantled and redone as directed by the Engineer-in-Charge or by the Site Engineer. This will, however, be decided during the progress of work or within one month from the date of completion of the work. The of the Engineer-in-Charge will be final.

1.1 GENERAL

Work under this contract shall be executed as given in this tender document and as required at site whether specifically shown or not. The contractor shall carry out and complete the work under this contract in every respect in conformity with the contract documents and as per directions of and to the satisfaction of the engineer –in –charge / owners.

1.2 SYSTEM

All equipment to be supplied as a part of contract and the installation works shall be suitable for 415V, 3 ph, 4 wire system, as specified.

1.3 SITE CONDITIONS

All equipment shall be suitable for satisfactory operation at the following site conditions Ambient Conditions

Max 46 deg C 92% relative Humidity.
Min 05 deg C 92% relative Humidity

2.0 POINT WIRING

2.1 General

Technical specifications in this section cover the internal wiring installation comprising of:

- Point wiring for lights,
- Point wiring socket outlets etc. including circuit wiring in concealed / surface conduit as mentioned in drawings.
- Point wiring for telephone outlets
- Sub-main wiring in concealed / surface conduits
- Supply, installation of the light fixtures
- Supply, installation of the distribution boards and the final sub distribution board for the entire building.
- Marking earth stations.

2.2 Standards and Codes

All equipment, components, materials and entire work shall be carried out in conformity with applicable and relevant Bureau of Indian Standards and codes of practice, as amended up to date and as below. In addition, relevant clauses of the Indian Electricity Act 1910 and Indian Electricity Rules 1956 as amended up to date shall also apply. Wherever appropriate Indian Standards are not available, relevant British and / or IEC Standards shall be applicable.

Equipments certified by Bureau of Indian standards shall be submitted, as required.

It is to be noted that updates and current standards shall be applicable irrespective of dates mentioned along with ISS's in the tender documents.

2.3 CONDUITING

2.3.1 PVC Conduits

All conduits used in the contract shall be ISI embossed. The conduits shall have perfectly circular and smooth tubing.

2.3.2 Sheet metal outlet / draw / inspection / junction boxes

Outlet boxes shall be of required sizes and shall be fabricated from 1.6mm thick MS sheets excepting ceiling fan outlet boxes which shall be fabricated from minimum 2 mm thick sheets. Outlet boxes shall be provided with minimum 16 mm projected threaded collars. The outlet boxes shall be of approved quality, finish and manufacture. All outlet boxes shall be provided with an earth stud. The boxes shall be protected from rust by zinc phosphate primer process. For concealed conduiting work, boxes with primer only could be embedded. For surface conduiting work, the boxes shall be finished with minimum one coat of enamel paint of approved colour. Alternatively these boxes could be galvanized and painted if so stipulated. The outlet boxes shall be so protected at the time of fixing that no mortar finds its way inside during concrete filling or plastering. For concealed conduiting work, outlet boxes shall be completely embedded in walls / ceilings leaving edges flush with finished wall / ceiling surface.

2.3.4.1 Outlet boxes for light fittings

This shall be minimum 75mm X 75mm deep and provided with one or two threaded collars of conduit entry as required. For ceiling mounted florescent fittings, the boxes shall be provided 300 mm off center for a 1200 mm fitting and 150 mm off center for a 600mm fitting so that the wiring is taken directly to the down rod. 3mm thick Perspex / hylem sheet cover of matching colour shall be provided.

2.3.4.2 Ceiling fan outlet boxes

Outlet boxes for ceiling fans shall be fabricated from min. 2mm thick ms sheet steel. The boxes shall be hexagonal in shape of min. 100mm depth and 60mm sides. Each box shall be provided with one U shaped 15mm dia rod tied to the top reinforcement of the concrete slab for a length of min. 150mm on either side. 3mm thick hylem sheet cover of matching colour shall be provided.

2.3.4.3 Switch boxes

Switch boxes suitable to house plate type switches of required rating and fan regulator as required shall be provided. In case of no. of switches in one box is not tallying with that available in standard manufacturer, the box accommodating the next higher no. of switches shall be provided without any extra cost. In case fan regulator / regulators is / are to be provided at a later date, suitable provision for accommodating such regulator shall be made in the switch boxes and are blank off covers shall be provided without any extra cost..

Switch boxes shall be so designed that accessories are mounted on a grid plate with tapped holes for brass machine screws leaving ample space at the back and on the sides for accommodating conductors, check nuts and brass brushes at conduit entries. The grid plate and ms boxes shall be fitted with a brass earth terminal. Boxes shall be attached to conduits by means of check nuts on either side of their walls. No timber shall be used for any supports. Switch boxes shall be located with bottom at 1200 mm above floor level unless otherwise indicated.

2.3.4.4 Socket outlet boxes

Outlet boxes shall be suitable for housing switch socket outlets, telephone outlets and any other outlet as required. These shall be so designed that accessories are mounted on a grid plate with tapped holes for brass machine screws leaving ample space at the back and on the side for accommodating conductor, check nuts and brass bushes at conduit entries. The grid plate and ms boxes shall be fitted with brass earth terminal. These shall be attached to conduits by means of check nuts on either side of their walls. No timber shall be used for any supports. Boxes shall be located with bottom at 1200 mm above floor level unless otherwise indicated.

2.3.4.5 Draw boxes

Draw boxes of minimum 75mm X 75mm X 50mm Deep of larger as required shall be provided at convenient location to facilitate drawing of long runs of conductors / wires. These shall have screwed covers of 3mm thick hylem sheet.

2.3.4.6 Inspection boxes / junction boxes

Inspection boxes of minimum 75mm X 75mm X 50mm of larger as required shall be provide at suitable location in conduit runs to permit inspection and maintenance. These shall have screwed covers of 3mm thick hylem sheet

2.3.5 Cross Section

The conduit shall be of ample sectional area to facilitate simultaneous drawing of wires. In no case shall the total cross section of wires measured overall be more than half the area of conduit. Max. no. of wires permissible in various sizes of conduits shall be as below.

As per IS

Size of Wire Cu. Conductor	Diameter of conduits	
	19	25
1.5 sq.mm	5	10
2.5 sq.mm	5	8
4.0 sq.mm	4	6
6.0 sq.mm	3	5
10.0sq.mm	2	3

2.3.6 Laying of conduits

Conduits shall be laid either concealed in walls and ceiling or on surface on walls and ceiling or partly concealed and partly on surface as required. The surface of the wall must be finished and painted to match the other part of the room in case of conceal wiring, PATCH MARKS MUST NOT BE VISIBLE. For surface Conduiting the works to performed in highly professional manner with high quality of workmanship to maintain the aesthetic look of the conduit with sufficient no.s of 16 SWG GI saddles with bases. No Flexible conduits will be acceptable in Conduiting works. In case it becomes necessary to use flexible conduits then only flexible GI conduits or Wire Centered PVC conduits are acceptable that too with prior approval of Site Engineer. All the conduits must be threaded at the end and tightly fixed with boxes, conduits, bends, nipples etc. with proper check nuts/ coupler.

Same rate shall apply for concealed and surface conduiting in this contract.

2.3.6.1 Concealed Conduiting

Concealed conduits in concrete members shall be laid before casting in the upper portion of slab or otherwise as may be instructed so as to embed the entire run of conduits and ceiling outlet boxes with a

cover of min. 12 mm concrete. Conduit shall be adequately tied to the reinforcement to prevent displacement during casting at interval of max. 1 min. No reinforcement shall be cut to fix the conduits. Suitable flexible joints shall be provided at all locations where conduits cross expansion joints in the building.

2.3.6.2 Surface Conduiting

Wherever so desired, conduit shall be laid in surface over finished concrete and / or plaster brick works suitable cast aluminum spacer saddles of approved make and finish shall be fixed to the finished structural surface along the conduit route at interval not exceeding 600 mm. Holes in the concrete or brick works the saddles shall be made neatly by electric drills. Conduit shall be fixed on the saddles by means of good quality heavy duty ms clamps screwed to the saddles.

2.3.6.3 Painting of conduits and boxes

All draw/switch/junction/fan hook boxes shall be galvanized/CD plated/painted with red oxide in their manufactured form. All ungalvanised/ unplated boxes shall be again painted with red oxide paint as required before fixing. Boxes fixed on surface shall, in addition, be painted with finished paint of approved color and finish. Before laying conduits shall be painted at such places where paint has been damaged.

2.3.6.4 Protection of conduits

To safeguards against filling up with mortar/plaster etc.. All the outlets and switch boxes shall be provided with temporary covers and plugs which shall be replaced by sheet/plate cover as required. All screwed and socketed joints shall be made fully water tight with white lead paste.

CLEANING OF CONDUITS RUNS

The entire conduit system including outlets and boxes shall be thoroughly cleaned after completion of erection and before drawing in of cables.

2.3.6.5 Earthing

Continuous of wires shall be provided for all points, outlets. Earthing terminal shall be provided inside all switch boxes, outlet boxes and draw boxes etc. Earth wire for concealed conduits shall in variably be provided by means of bare copper wire draw inside the conduit and connected to earth stud of all outlet boxes, switch boxes and draw boxes etc. Earth wire for surface conduit shall be by means of bare wire as for concealed conduit or bare copper earth wire taken outside the conduit as per schedule of quantities. Connection with conduit shall be made by suitable screwed clamp, paint or conduit being removed for making effective electrical connection.

2.4 WIRING

Wiring shall be carried out with PVC insulated 660V grade unsheathed single core wires with electrolytic annealed stranded copper (unless otherwise stated) conductors and conforming to IS 694 / 1990. All wires shall be ISI embossed. All wires shall bear manufacturer's label and shall be brought to site in new and original packages. Manufacturer's certificate, certifying that wires brought to site are of their manufacturer shall be furnished as required. All the wires must be FRLS type.

Final connection to light fitting / appliance from termination of point wiring in ceiling / wall light outlet boxes shall be made with 660V grade stranded Cu. Conductor unsheathed PVC flexible cords conforming to IS 694/1990 and having a cross-sectional area not less than 0.75 sq.mm

2.4.1 Bunching of wires

Wires carrying current shall be so bunched in conduits that the outgoing and return wire are drawn into the same conduit. Wires originating from two different phases shall not be run in the same conduit.

2.4.2 Drawing of wires

The drawing of wires shall be done with due regard to the following precautions:

No wires shall be drawn into any conduit until all work of any nature that may cause injury to wire is completed. Care shall be taken in pulling the wire so that no damage occurs to the insulation of the wire. Screwed buses shall be provided at conduit terminations. Before the wires are drawn into the conduits, conduits shall be thoroughly cleaned of moisture, dust, dirt or any other obstruction by forcing compressed air through the conduits if necessary.

2.4.2 Termination / jointing of wires

Sub circuit wiring shall be carried out in loping system. Joints shall be made only at distribution board terminals, switches / buzzers and at ceiling roses / connectors / lamp holders terminals for lights / fans / socket outlets. No joints shall be made inside conduits or junction / draw / inspection boxes. Switches controlling lights, fans or socket outlets shall be connected in the phase wire of the final sub circuit only. Switches shall never be connected in the neutral wire.

Wiring conductors shall be continuous from outlet to outlet. Joints where unavoidable, due to any special reason shall be made by approved connectors. Specific prior permission from Engineer-in-charge in writing shall be obtained before making such joint.

Insulation shall be shaved off for a length of 15 mm at the end of wire like sharpening of a pencil and it shall not be removed by cutting it square or wringing.

Standards of wires shall not be cut for connecting terminals. All strands of wires shall be soldered at the end before connection.

Ends of PVC insulated aluminum conductor wire ends before connection shall be properly soldered (at least 15 mm length) with suitable soldering material.

Conductors having normal cross sectional area exceeding 4 sq. mm shall always be provided with crimping sockets.

At all bolted terminals, brass flat washer of large area and approved steel spring washers shall be used.

Brass nuts and bolts shall be used for all connections.

The pressure applied to tighten terminal screws shall be just adequate, neither too much nor too less.

Switches controlling lights, fans, socket outlets etc. shall be connected to the phase wire of circuits only.

Only certified wiremen shall be employed to do wiring / jointing work.

2.4.4 LOAD BALANCING

Balancing of circuits in three-phase installation shall be planned before the commencement of wiring and shall be strictly adhered to.

2.4.5 COLOUR CODE OF CONDUCTORS

Colour code shall be maintained for the entire wiring installation – red, yellow, blue for three phases, black for neutral and green for earth.

2.5 SWITCHES AND ACCESSORIES

2.5.1 SWITCHES

All 6 and 16 amps switches shall be of the modular flush mounting type unless otherwise stated, suitable for 250 volt AC supply, best quality and of approved make. The switch moving and fixed contacts shall be of silver nickel and silver graphite alloy and contact tips coated with silver. Housing of switches shall be made from high impact resistant, flame retarding and ultra violet stabilized engineering plastic material.

2.5.2 FAN REGULATORS

Fan regulators shall be fixed inside the switch boxes on grid plates with tapped holes and brass machine screws unless otherwise stated, leaving ample space at the back and sides for accommodating wires. If fan regulator is to be fixed at the later date by Owners, provision for such fixing in the switchbox shall be provided and a blank of plate over the space meant for regulator shall be provided without any extra cost.

2.5.3 SOCKET OUTLETS

6/16 amps socket outlets shall be of modular flush mounting type, unless otherwise stated, and shall be switched, three pin type and fitted with automatic linear safety shutters to ensure safety from prying fingers. Un switched 6/16 amp socket outlets where called for shall also be of three pin type socket outlets shall be made from high impact resistant, flame retarding and ultra violet stabilized engineering plastic material.

Switches and sockets shall be located in the same plate. Plates for 6 amp switched / un switched power and telephone outlets shall be of the same size and shape.

An earth wire shall be provided along the wires feeding socket outlets for electrical appliances. The earth wire shall be connected to the earthing terminal screw inside the box. The earth terminal of the socket shall be connected to the earth terminal provided inside the box.

2.5.4 FLUSH PLATES

Switches, socket outlets, receptacles, and telephone outlets etc. in walls shall be provided with moulded cover plates of approved colour, shape and size made from high impact resistant, flame retarding and ultra violet stabilized engineering plastic material, and secured to the box with counter sunk / round head chromium plated brass screws unless otherwise stated. Where two or more switches are installed together, they shall be provided with one common switch cover plate as described above with notches to accommodate all switches either in one, two or three rows.

One and two gang switch cover plate, telephone outlet cover plate, 6 and 16 amps switched / un switched outlet plates, shall have the same shape and size. Three and four gang switch cover plates shall have the same shape and size. Six and eight gang switch cover plates shall have the same shape and size. Nine and twelve switch cover plates shall have the same shape and size. Whenever five switches, seven switches, ten switches and eleven switches are to be fixed the next higher size of gang switch cover plate to be used and extra openings shall be provided with blank-offs.

2.5.5 OUTDOOR SWITCHES

Switches located outdoors shall be, of required size, type and rating and shall be provided in weather proof enclosures, with weather proof gasket covers. The MCS's/ uses for all outdoor switches shall be separate and of required rating.

2.5.6 LIGHTING FIXTURES, FANS AND EXHAUST FANS

Light fixtures and fittings shall be assemble and installed complete as required and make ready for service, in accordance with drawings, instructions and as offered by Engineer-in-charge.

Wires brought out from junction boxes shall be encased in flexible conduits of make and quality approved by Engineer-in-charge for connecting to fixtures concealed in suspended ceilings. Flexible conduits shall be provided with a check nuts at both ends.

Pendant fixtures specified with overall lengths are subject to change and shall be checked with site conditions and installed as required.

All suspended fixtures shall mounted rigid and fixed in position in accordance with drawings, instructions and as approved by Engineer-in-charge.

Fixtures shall be suspended true to alignment, plumb, level and capable of resisting all lateral and vertical force.

All suspended light fixtures, fans etc. shall be provided with concealed suspension arrangement in the concrete slab / roof members. Making adequate provision for such arrangements at the appropriate stage of construction is deemed to be included in Contractors' scope.

Exhaust fans shall be fixed and locations shown on the drawings. They shall be wired to a plug socket at a convenient location near the fan in flexible conduits.

All switch and outlet boxes, and fan regulators shall be bonded to earth with bare copper wire or equivalent as required.

Wires shall be connected to all fixtures through connector blocks.

Down rods of ceiling fans shall be minimum 19 mm dia class B GI pipes. These shall be rigidly connected to the ceiling fan in an approved manner and shall be connected to the concealed hook in the ceiling by means of standard shackle arrangement as approved by Engineer-in-charge.

2.6 MEASUREMENT AND PAYMENT OF WIRING

Wiring for lights, fans, socket outlets, telephone outlets etc., carried out as per tender specifications shall be measured and paid on point basis only unless otherwise specifically stipulated. The point wiring basis shall assume average wiring length and average conduiting length per point base on parameters stipulated in paragraph below. The average wiring length and average conducting length forming the basis of point wiring payment, shall take the electrical layouts of the entire project into consideration. Tenderers are advised to seek clarifications, if they so desire, on this aspect before submitting their tenders. No claim for extra payment on account of electrical layouts in parts of the project requiring larger average wiring and conduiting length per point whether specifically shown in tender drawings or not shall be entertained after the award of contract.

2.6.1 POINT WIRING

Point wiring shall be carried out as per following parameter.

In concealed / surface conduit system unless otherwise stipulated.

Only looping system of wiring shall be adopted throughout.

All accessories shall be flush types unless otherwise stated.

For estimation of load, following loads per point shall be assumed.

Light points	100 Watts
6 amps socket outlet points	100 watts
Fan points	60 watts
Exhaust fan points	300 Watts or as specified
16-amp socket outlet points	1000 watts.

Light points, fan points and 6 amp socket outlet points may be wired on a common final such circuit. Such circuit shall not normally have more than a total of ten light, fan or socket outlets or a load of 800 watts.

Wiring from DB to the first switch in each first sub-circuit is defined as circuit wiring which shall be wired with on size higher wire.

Power circuits shall normally have maximum one 16 amps socket outlet unless otherwise stated. Separate circuit shall be run for each geyser, kitchen equipment, window air conditioners and similar appliances.

Point wiring rates shall include painting of conduits and other accessories as required. Point wiring rates shall include cleaning of dust, splashes of colour wash or paint from all fixtures, fans, fittings etc. at the time of taking over of the installation.

2.6.2 LIGHT POINT

Light point wiring shall commence at the distribution board terminals and shall terminate at the terminate at the ceiling rose/connector in ceiling box/lamp holder via the control switch. Rates quoted shall be deemed to be inclusive of the cost of entire materials and labour required for completion of point wiring thus defined including: a) concealed/surface conducting system complete with all accessories, junction/draw/inspection boxes, screwed brass bushes, check nuts etc complete as required, b) wiring with stranded copper(unless otherwise stated) PVC insulated 660Volt grade wires for point wiring including circuit wiring(wiring from distribution board terminals to the first switch in the circuit) and terminals etc. complete as required), control switch with switch box and cover plate of specified type including fixing screws, earth terminal etc. complete as required) loop earthing with bare copper wires.

2.6.3 CEILING FAN POINT

Point wiring for ceiling fan points shall be same as for light points in para 6.3 above and shall in addition, include ceiling outlet box with recessed fan hoods and provision in the switch box for mounting the fan regulator.

Switch socket shall be earthed with bare copper wires as required.

2.6.4 EXHAUST FAN POINT

Point wiring for exhaust fan point shall be same as for light point above and shall in addition include socket outlet near the exhaust fan and control switch with regulator at a convenient location complete as required.

3 PINS 5 AMPS SOCKET OUTLET POINT (LIGHTING)

Point wiring for lighting convenience socket outlet points shall be same as for light points above and shall in addition include 3 pin 5 a control switch of specified type mounted in a ms box with cover as required and 3rd pin earthed with bare Cu wire as specified

3 PINS 16 AMPS SOCKET OUTLET POINT (POWER)

Point wiring for lighting convenience socket outlet points shall be same as for light points above and shall in addition include 3 pin 5 a control switch of specified type mounted in a ms box with cover as required and 3rd pin earthed with bare Cu wire as specified

2.6.5 CIRCUIT WIRING

Wiring from DB to the first switch in any sub circuit is defined as circuit wiring min. size of PVC insulated Cu conductor wires for all circuit wiring for light, exhaust fan, ceiling fan, and lighting convenience outlet point shall be 2.5sq.mm unless otherwise specified. Circuit wiring shall not be separately measured and paid for point wiring rates shall include the cost of providing circuit wiring as required.

SUB MAIN WIRING

Sub main wiring shall comprise of stranded Cu conductor PVC insulated 660V grade wires in ms conduits including loop earthing, termination etc complete as required. Sizes of conduits, no. / type / size of wires and loop earthing shall be as stipulated in the schedule of quantities and / or drawings.

Wires shall be drawn in the concealed or surface conduits as required, without being damaged. For this purpose draw boxes shall be located at convenient locations.

Every sub mains shall run in an independent conduit with an independent earth wire of bare Cu as specified running along the entire run of conduit. For 1 Ph. One earth wire and for 3 ph. 2 earth wire shall run.

Necessary provision of wire lengths entering and emerging from the conduit shall be made for connection. Measurement shall be taken of the actual conduit run containing the wires from one point to another.

3.0 MEDIUM VOLTAGE CABLES

Specifications for cables will be as per enclosed.ES: 8160

4.0 MEDIUM VOLTAGE FINAL DISTRIBUTION BOARDS

STANDARDS AND CODES

Indian Standard Specifications and codes of practice will apply to the equipment and the work covered by the scope of this contract. In addition the relevant clauses of the Indian Electricity Act 1910 and Indian Electricity Rules 1956 as amended upto date shall apply.

MINIATURE CIRCUIT BREAKER

The MCB's shall be of the completely moulded design suitable for operation at 240 / 415 V 50Hz system. The MCB's shall have a rupturing capacity of 10 KA at 0.5 pf. The MCB's shall have inverse time delayed thermal overload and instantaneous magnetic short circuit protection. Type test certificates from independent authorities shall be submitted with the tender.

FINAL DISTRIBUTION BOARDS

Final distribution boards shall be flush mounting, today enclosed, dust and vermin proof and shall comprise of miniature circuit breakers, earth leakage circuit breakers neutral link etc. as detailed in the schedule of quantities. The distribution equipment forming a part of the distribution board shall comply with the relevant standards and codes of the bureau of Indian Standards and as per detailed specification included in this tender document. The board shall be fabricated from 14 gauge CRCA sheet steel and shall have a hinged lockable spring loaded cover. All cutouts and cover shall be provided with synthetic rubber gaskets. The entire construction shall have IP54 degree of protection. The bus bar shall be of Cu having a maximum current density of 1.6 A / sq.mm and PVC insulated throughout the length. All the internal connection shall be with either solid Cu PVC insulated or Cu conductor PVC insulated wires of adequate rating. All the internal connection shall be concealed by providing a hinged protective panel to avoid accidental contact with live points. All outgoing equipment shall be concealed direct to the bus bar on the live side. The equipment shall be mounted on a frame work for easy removal and maintenance. The sheet steel work shall undergo a rigorous rust proofing process, two coats of filter oxide primer and final powder coated paint finish. All the circuit shall have an independent neutral insulated wire, one per circuit, and shall be numbered and marked as required by the Engineer –in-charge. A sample of the completed board is to be got approved by the Engineer-in-charge before commencement of supply and erection.

SHEET STEEL TREATMENT AND PAINTING

Sheet steel materials used in the construction of these units should have undergone a rigorous rust proofing process comprising of alkaline degreasing, de-scaling in dilute sulphuric acid and recognized phosphate process. The steel work shall receive two coats of oxide filler primer before final painting. All the sheet steel shall after metal treatment is given powder coating finish painted with two coats of shade 692 of IS-5 on the outside and white in the inside. Each coat of the paint shall be **properly stove** and paint thickness shall not be less than 50 micron.

NAME PLATES AND LEBELS

Suitable engraved white on black nameplate and identification labels of metal for all switch board shall be provided. These shall indicate the feeder no. and feeder designation.

5.0 MEDIUM VOLTAGE SWITCHBOARD

Specifications for switchboard will be as per enclosed **ES : 8060**

EARTHING MATERIAL

Materials of which the protective system is composed shall be resistant to corrosion or be adequately protected against corrosion. The material shall be as specified in the schedule of quantities and shall comply with the following requirements:

1. Copper – When solid or stranded copper wire is used it shall be of the grade ordinarily required for commercial electrical work generally designated as being of 98% conductivity when annealed, conforming to Indian standard specifications.
2. Galvanised Steel – Galvanised steel used shall be thoroughly protected against corrosion by hot dipped Zinc coating. The material coating shall withstand the test specified in IS2309: 1969.
3. The strips to be used shall be in maximum lengths available as manufactured normally avoiding unnecessary joints.

EARTHING CONDUCTORS

Earthing conductors shall form the earthing network throughout the installation for earthing of all non-carrying metal parts.

CONNECTION OF EARTHING CONDUCTORS

Main earthing conductors shall be taken from the earth connections at the main switch boards to all distribution boards in the network.

Metal conduits, cable sheathing and armouring shall be earthed at the ends adjacent to switch boards at which they originate, or otherwise at the commencement of run by an earthing conductor in effective electrical contact with cable sheathing. Switches, accessories, lighting fitting etc. shall be effectively connected to the loop Earthing conductors. These through rigidly secured in effective electrical contact with a run of metallic conduit shall not be considered earthed, even though the run of metallic conduit is earthed.

EARTHING CURRENT INSTALLATION

The earthing conductors inside the building wherever exposed shall be properly protected from mechanical injury by running the same in GI pipe of adequate size.

Joints shall be reverted and brazed in approved manner.

Sweated lugs of adequate size shall be used for termination. Lugs shall be bolted to the equipment body to be earthed after the metal body is cleaned of paint and other only substances and properly tinned.

PROHIBITED CONNECTION

Neutral conductor, pipes conveying water, gas or inflammable liquid, structural steel work, metallic enclosures, metallic conduits and lighting protection system conductors shall not be used as a means of earthing an installation or even as a link in an earthing system.

RESISTANCE TO EARTH

No earth electrode shall have a greater ohmic resistance 3ohms as measured by an approved earth testing apparatus. In rocky soil, the resistance may be up to 1 ohm. The electrical resistance measured between earth connection at the main switch board and any other point on the completed installation shall be low

enough to permit the passage of current necessary to operate fuses or circuit breakers and shall not exceed 1 ohm.

9.0 ROUTING AND COMPLETION TESTS

INSTALLATION COMPLETION TESTS

At the completion of the work, the entire installation shall be subject to the following tests—

1. Wiring continuity test
2. IR test
3. Earth continuity test
4. Earth resistivity test

Besides the above any other test specified by the local authority shall be carried out. All tested and calibrated instruments for testing, labour, materials and incidentals necessary to conduct the above tests shall be provided by the contractor at his own costs.

Wiring Continuity Test

All wiring systems shall be tested for continuity of circuits, short circuits and earthing after wiring is completed and before installation is energized.

Insulation Resistance Test

The insulation resistance shall be measured between earth and the whole system conductors, or any section thereof with all fuses in place and all switches closed and except in concentric wiring all lamps in position of both poles of the installation otherwise electrically connected together, a direct current pressure of not less than twice the working pressure provided that it does not exceed 660 volts for medium voltage circuits. Where the supply is derived from AC three phase system, the neutral pole of which is connected to earth, either direct or through added resistance, pressure shall be deemed to be that which is maintained between the phase conductor and the neutral. The insulation resistance measured as above shall not be less than 50 megohms divided by the number of points provided on the circuit the whole installation shall not have an insulation resistance lower than one megohm.

The insulation resistance shall also be measured between all conductors connected to one phase conductor of the supply and shall be carried out after removing all metallic connections between the two poles of the installation and in those circumstances the insulation shall not be less than that specified above.

The insulation resistance between the frame work of housing of power appliances and all live parts of each appliance shall not be less than that specified in the relevant Standard specification or where there is no such specification, shall not be less than half a megohm or when PVC insulated cables are used for wiring 12.5 megohms divided by the number of outlets. Where a whole installation is being tested a lower value than that given by the above formula subject to minimum of 1 Megohms is acceptable.

Testing of Earth Continuity Path

The earth continuity conductor including metal conduits and metallic envelopes of cable in all cases shall be tested for electric continuity and the electrical resistance of the same alongwith the earthing lead but excluding any added resistance of earth leakage circuit breaker measured from the connection with the earth electrode to any point in the earth continuity conductor in the completed installation shall not exceed one ohm.

Testing of Polarity of non-linked Single Pole Switches

In a two-wire installation, a test shall be made to verify that all non-linked single pole switches have been connected to the same conductor throughout, and such conductor shall be labeled or marked for connection to an outer or phase conductor or to the non-earthed conductor of the supply. In the three or four-wire installation, a test shall be made to verify that every non-linked single pole switch is fitted to one of the outer or phase conductor of the supply. The entire electrical installation shall be subject to the final acceptance of the Engineer-in-charge as well as the local authorities.

Earth Resistivity Test

Earth resistivity test shall be carried out in accordance with IS Code of Practice for earthing IS 3043.

Performance

Should the above tests not comply with the limits and requirements as above the contractor shall rectify the faults until the required results are obtained. The conductor shall be responsible for providing the necessary instruments and subsidiary earths for carrying out the tests. The above tests are to be carried out by the contractor without any extra charge.

Tests and Test Reports

The contractor shall furnish test reports and preliminary drawings for the equipment to the Engineer-in-charge for approval before commencing supply of the equipment. The Contractor should intimate with the tender the equipment intended to be supplied with its technical particulars. Any test certificates etc., required by the local Inspectors or any other Authorities would be supplied by the Contractor without any extra charge.

10.0 LICENCED SUPERVISOR AND WORKMAN :

It is obligatory under the IE Rules that all electrical installation works shall be executed under qualified electrical Supervisor holding Electrical Supervisor's Certificate of Competency, granted by the State Licensing Board. The Contractor will decide in consultation with the Engineer-in-Charge on the number of Electrical Licensed Supervisors to be engaged on the job. If the volume of work is such that it requires more than one such supervisor, and than employ such number.

The Contractor may employ artisans and wiremen but must also have sufficient number of highly skilled licensed electricians and workmen for the installation of switch fuses, distribution board, HT & LT switch gears, under ground cable work etc.

The Contractor will remove any such workmen from the site of work who in the opinion of the Site Engineer is not sufficiently efficient or otherwise unsuitable for any reason whatsoever, upon receipt of intimation in writing by Engineer-in-Charge. The decision of Engineer-in-Charge shall be final.

11.0 INFORMATION TO BE FURNISHED BY TENDERER:

The tenderer shall furnish the following information along with the tender:

1. Contractor's License Number and :
next date of renewal.
2. Name of Electrical Supervisor with :
registration Number.
3. Parts in which Electrical supervisor's :
certificate of Company has been issued
by the Licensing Board.
4. Next Date of renewal of supervisor's :
certificate.

The owner in case the above information is not furnished may reject the tender without assigning any reason whatsoever.

12.0 TEST REPORT AND BILLS:

Within 15 days from the date of completion of prior to the date of final measurement of work, which ever is earlier the Contractor will furnish the installation test report, of which all tests must be carried out in presence of the Site Engineer and Contractor's Supervisor and signed by both of them. First and final bill shall not be paid to the Contractor unless a complete and satisfactory test report is received by the Engineer-in-Charge on the installation.

13.0 TESTING AND COMMISSIONING OF INSTALLATION:

After satisfactory completion of the job, the contractor should apply to the AT&T or networking Contractor of IOCL for approving the networking work. The owner will assist the Contractor for get the installation approved before commissioning the installation.

14.0 COMPLETION TEST:

On completion of wiring (or an extension to an installation) a certificate will be furnished by the Contractor in a prescribed form duly signed by the certified supervisor under whose direct supervision of the installation was carried out. The certificate will obtain the following main points.

- a) Continuity test for each circuit.
- b) Physical verification for ferruling, numbering and no damage.
- c) Megger value of all cables, circuits etc.
- d) Earth resistance value of earth stations.
- e) Any other routine test specified by the engineer in charge.

The contractor will be supplied with one copy of the drawing. On completion of the work, he will submit the drawing therein:

- a) Circuit routes and points.
- b) Schedule of wires.
- c) DB details.
- d) Schedule of DBs.
- e) All drawing as required by the Engineer in charge after completion.

SAFETY MANAGEMENT SYSTEM

1. SAFETY, FIRE & SECURITY REGULATIONS:

1.1 No smoking:

- 1.2 The Contractor shall instruct his personnel/ employees NOT TO SMOKE except at the prescribed places. The contractor shall be responsible for all defaults of his workers in this regard and Engineer-in-Charge / site Engineer reserves the right to TERMINATE the work of the contractor and forfeit any or all the amounts which may be due to him

1.3 Operational Area:

- 1.3.1 The Engineer-in-Charge reserves the right to terminate the contract and forfeit any or all amounts due to him in case he finds that the precautions written on the permit are not strictly adhered to by the Contractor.
- 1.3.2 The Contractor shall take all necessary safety precautions and obtain required certificates/ fire permits / safety / work permits etc. from the competent authority before carrying out any hot works during execution of the entire works covered by this tender. Safety barricade wherever necessary are to be put up at his own cost.
- 1.3.3 Contractor's employee shall abide by the Fire & Safety rules and regulations. The Contractor shall ensure smooth construction activities / hot works may be suspended temporarily as per the instruction of the Engineer-in-Charge /Site Engineer. Any extra claim for whatsoever reasons for such suspension of the work will not be entertained.
- 1.3.4 The Contractor shall make his own arrangements of Gate Pass with photo for his employees as prescribed and instructed by the Security Deptt. i.e. CISF, BRBNMPL, SALBONI at his own cost each gate pass has to be endorsed by the Security Officer of the BRBNMPL before the pass be used by any employee. In case of termination of the service of any of his employee during the contractual period, the contractor shall have to surrender the Gate Pass issued to the employees to the Security Deptt. At the end of the project all the gate passes endorsed by the Security Deptt. for use of the contractor's employee shall have to be returned.
- 1.3.5 For any damage done by the contractor's employees to the existing facilities of the BRBNMPL, the contractor shall be solely responsible to make good as per the instruction of the Engineer-in-Charge at his own cost.
- 1.3.6 For any hazardous / overhead work contractor has to arrange necessary safety belt for his workman at his own cost.

2. SPECIAL CONDITION OF CONTRACT ON SAFETY REGULATIONS

- 2.1 The following is a list of Rules and Regulations which must be observed by the contractor working in the BRBNMPL.

2.2 Safety:

- 2.2.1 The contractor shall ensure that their workmen / supervisors shall not move to other places other than their work premises without proper permission/ authorization.
- 2.2.2 The contractor shall ensure verification of antecedents of the labourers/ supervisors from Polices/ Sarpanch / other officials before they are engaged by him. No person

having adverse antecedent shall be employed by the contractor. The contractor shall be held responsible for all the acts carried out by his workmen.

2.2.3 The contractor / his workmen / supervisor shall fully adhere to the security instructions issued by Management from time to time.

2.2.4 Persons below the age of 18 (Eighteen) will not be employed in any part of the BRBNMPL

2.3 Work Permit:

2.3.1 Any work involving open flames and spark such as welding, gas cutting, soldering, grinding, concrete breaking, use of hurricane lamps and internal combustion driven vehicles / equipment.

2.3.2 Use of gasoline, diesel or electrical power engines or tools.

2.3.3 Open fire such as burning of wood, coal etc. is strictly prohibited inside the BRBNMPL.

2.3.4 While carrying out the hot job, the contractor and his workmen must ensure the following safety measures and job should not be carried out without these:

- Valid hot jobs permit.
- Availability of Tested and proper Fire Extinguisher at the work places.
- Provision of running fire water hose at the work place.

2.3.5 All Flammable / combustible materials should either be removed from the work place or should be properly protected.

2.4 Safety Permits:

2.4.1 The contractor must obtain the safety permit from the Engineer-in-charge, prior to the starting of the job as stated below.

2.5 Working at Heights:

While working at height, at more than 3 meters from floor level, following safety precautions has to be followed

- (i) Proper type of scaffolding / platform/ ladder should be made to facilitate the job at height. Minimum 2 nos. of ladders should be provided at opposite sides.
- (ii) Use of bamboo scaffolding is strictly prohibited inside the BRBNMPL. Only steel scaffolding shall be used for work inside the BRBNMPL. The steel scaffolding material and it's erection shall be done as per relevant IS specification.
- (iii) The contractor shall ensure the use of safety belts by the person who is working at heights. Safety belt to be used should be of good quality (IS marked) and shall be hooked up with firm support.
- (iv) Safety nets also to be used as per site conditions.
- (v) Before starting the job, scaffolding shall be inspected by competent person and a record of the same shall be kept at site.

2.6 Working with Electrical System:

2.6.1 Contractor or his nominated subcontractor should have valid electrical contractor's license for working in West Bengal State. Contractor shall furnish a copy of the same to Engineer-in-Charge before commencement of any work pertaining to Electrical

System. In any case, no work shall be permitted to be executed at site without a valid Electrical Contractor License, and the decision of the Engineer-in-Charge in this regard shall be final and binding and no claim/ compensation whatsoever shall entertain on this account.

2.6.2 While working on electrical system, the contractor and his workmen shall ensure that the following safety measures are in place:

- The cables are properly insulated and are without any temporary joint.
- All Flammable / combustible materials should either be removed from the work place or should be properly protected.
- Suitable Earth leakage Circuit Breaker (ELCB) is provided for incoming and all outgoing feeders.
- Proper earthing is provided to distribution board and other electrical equipment's like welding machines & grinding machines etc.
- Pipe sleeves are provided for road crossing of temporary cables laid by the contractor for his work.
- The power connection should not be overloaded and suitable overload protection should be provided.
- The tools used by the contractor personnel should be properly insulated and in good condition.
- The grinding machine & other power tools should have proper guard.

2.7 Use of Company Facilities:

Under no condition shall any contractor personnel temper with or use any property belonging to the BRBNMPL, Salboni without obtaining prior sanction from the supervisor of area concerned.

2.8 Compressed Gas Cylinders:

- 2.8.1 Compressed gas cylinders should be used in upright position. They must be firmly located on the ground or to a sturdy stand and the cylinder should be chained to prevent accidental fall.
- 2.8.2 Rolling or throwing of cylinders is strictly prohibited. Cylinders shall be handled carefully and transported through hand trolleys.
- 2.8.3 Cylinders shall be stacked properly. Empty cylinders shall be stacked separately and filled cylinders separately. After completion of the job, all cylinders must be removed.

2.9 Housekeeping:

- 2.9.1 Good House Keeping must be practiced by the contractor personnel at all times while the BRBNMPL, Salboni. During and after completion of the work, they are to ensure that their work area is kept clean and tidy. Materials and equipment should be stored in a safe and orderly manner so that they will not block exist to roads, buildings, aisles, passage and approach to firefighting equipment such as fire hydrants, fire hose and fire extinguishers or area where emergency safety showers, electrical switch panels and switch rooms are located.
- 2.9.2 The work/ construction sites are to be cleaned daily and all debris / scrap generated is to be kept at the designated place only every day by the contractor as direct by the Engineer-in-Charge. The scrap/ debris so generated shall disposed off to the designated places once a week as per the direction of Engineer-in-Charge.
- 2.9.3 A job will not be considered completed until all surplus materials, scrape and debris/ rubbish are removed from the job site.

- 2.9.4 Any failure by the contractor in maintaining good house-keeping / clearing the site as above shall be recorded in the performance report of the contractor.

2.10 Personal Protective Equipment:

2.10.1 For the safe conduct of any job, contractor has to arrange personnel protective equipment's for his personnel as per requirement. The equipment's shall be approved type, good condition and adequate numbers. Use of PPE such as safety belt, safety goggles, etc. is a must BRBNMPL; Salboni shall not provide any personal protective equipment.

2.10.2 Contractor shall arrange all Non- Respiratory Type of Personal Protective Equipment (PPE) (e.g. Safety Goggles, Welding Helmets, Belts etc.) at their own cost and shall ensure use of these PPE by their workmen / personnel during execution of the job as per Fire& Safety Rules and Regulations of the BRBNMPL, Salboni and as directed by the Site Engineer-in-Charge.

2.10.3 Special precautions and personal protection shall be taken as per Safety Regulation during the following jobs:

- Cleaning /handling of oily sludge.
- Welding/ Grinding/ Gas cutting jobs.
- Radiography of Mechanical jobs.

2.11 Personal Conduct:

2.11.1 Working under influence of alcohol/ narcotics and entering the BRBNMPL, Salboni premises while in the influence of alcohol / narcotics is strictly forbidden. The contractor should ensure compliance of above by him and all his workmen.

2.12 Horseplay:

- (i) Fooling on the job, mock fighting within the BRBNMPL, Salboni premises will not be tolerated.
- (ii) Gambling within the BRBNMPL premises is strictly forbidden.
- (iii) Entering the BRBNMPL while in possession of weapons such as knives etc. is prohibited.
- (iv) Contractor personnel shall not pick up quarrel or get into arguments with BRBNMPL personnel or act in any manner, which is in violation of plant discipline. In case of any misunderstanding, such problems should be referred to appropriate BRBNMPL official /Engineer-in-charge.

2.13 Driving of Motor Vehicles:

2.13.1 Contractor shall ensure that all state traffic rules and regulations are complied with while motor vehicles are driven inside the BRBNMPL ` Centre premises. In addition, the following points are also outlined for compliance:

- (i) Speed Limit: Speed limit within the BRBNMPL 20-KMPH. In any case, vehicle drivers should take cognizance of road, weather and vehicle condition and adjust their driving accordingly. All vehicles must be mechanically sound and have an efficient exhaust silencer, horn, breakers and fuel cap.
- (ii) Parking: Park vehicles only in approved area. Vehicles must be parked in such manner that they will not move while unattended.
- (iii) Vehicles driven inside the BRBNMPL premises should have effective brake horns, lights, and mufflers.

- (iv) Vehicles shall carry only the number of passengers or weight of load it is authorized to carry as per law. Loads carried in trucks shall be properly secured so that they will not accidentally fall off while vehicle is in motion.
- (v) Any kind of repair work on Contractor's vehicle is not allowed inside the BRBNMPL, Salboni.

2.14 Use of heavy equipment:

2.14.1 If hoists, cranes, derrick, mixer machine, pumps etc. are used by the contractor, the following are to be ensured by the contractor and his workmen:

- Testing of crane for its capacity.
- Inspection & Maintenance logs.
- Crane operation logs.
- Safety latch is provided on the hooks.
- Overhead power cables is removed or kept at a safe distance.
- The exhaust of machines should have a proper flame arrester.
- No change of boom length beyond permissible limit.

2.15 Fire Protection Equipment:

2.15.1 The BRBNMPL center will provide fire protection equipment wherever it is required Contractor personnel who are working on such jobs will be instructed by the concerned department about the operation of such stand by fire protection equipment. In the event of an accidental fire, it is expected of such personnel to make efforts to extinguish the fire with the stand by equipment made available and the contractor personnel should immediately get in touch with concerned BRBNMPL personnel. In all cases, accidental fires shall be reported to the supervisor of the area concerned.

2.15.2 All efforts should be made by contractor personnel to prevent occurrence of any unwanted fire, Gasoline driven engines, trucks, tractors etc. shall not be filled with fuel while the motor is still running.

2.15.3 Gasoline, naphtha, benzene or toluene must not be used as a cleaning

2.16 Report on Accidents:

2.16.1 All accidents such as personal injuries sustained by contractor personnel and damage to vehicle and property, no matter how slight they are, shall be immediately reported to the engineer-in-charge in writing. It is the responsibility of the contractors to fulfill all legal formalities.

2.16.2 Medical treatment for injured contractor personnel will be entirely the responsibility of contractors.

STANDARD SPECIFICATION FOR PLUMBING & BUILDING DRAINAGE

1. GENERAL

1.1 This specification is intended to establish and define the materials and constructional requirements for plumbing & building drainage work.

1.2 All materials fixtures and workmanship shall be in accordance with the relevant Indian Standards Specifications and Codes of practices.

.3 Sanitary Fittings

All glazed earthen ware shall be Hindustan Parryware or equivalent approved make white in colour and of one piece construction. All metallic fixtures like taps, stop cocks, soap holders etc. shall be of CP brass and 'Ego' or approved equivalent make. All wall fittings shall be fixed with wooden cleats and CP brass screws and washers.

2. INDIAN_TYPE_WATER_CLOSET

2.1 Squatting pan shall be 580 mm long conforming to IS:2556 part III.

The closet shall be fixed in the floor with 150mm thick sand cushion and shall be connected with 100mm dia C I. or stone ware S or P trap. The closet shall also be fitted with 10 litres valve less syphonic type, flushing cistern, conforming to : IS:774, 15 mm dia. PVC inlet with brass union, PVC ball valves.

2.2 Payment shall be made on unit basis. Rate quoted shall include providing and fixing water-closet and flushing cistern with all accessories, breaking wall and floors and making good the same, all inlet and outlet connections of cistern and water closet, wiped solder joints, painting and testing of all connections etc. complete.

3. WASH DOWN TYPE WATER CLOSET

3.1 Wash down water closet shall be pattern-I conforming to IS:2556 Part-II water closet shall be of one piece construction. This shall be fixed with plastic seat and cover as per IS:2548 of Brite or approved equivalent make,

fixed with CP brass hinges and rubber buffers and an integral 100 mm dia 'S' or 'P' trap with anti-syphonage vent horn.

3.2 Payment

Payment shall be made on unit basis. The rate shall include providing and fixing of all fittings, floors and wall, making good the same, making inlet and outlet connection to the cistern and the closet, testing of joints, painting the exposed metallic surface with two coats of white enamel paint over a coat of primer etc. complete.

4. URINALS

- 4.1 Half stall type urinal shall be conforming to IS:2556 Part-VI. Urinals shall be of single piece construction with integral flushing box rim. These shall be mounted on walls. The flushing inlet pipe shall be of CP brass 15mm dia and water pipe 32mm dia G.I., 720 mm long, with necessary unions and CP bottle trap.

Rawl plugs with CP brass screws, shall be used for fixing the urinal. Fixing shall ensure that no liquid is left over the pan after flushing. Unless otherwise indicated height above floors shall be 650mm.

Urinal shall be connected to automatic flushing cisterns either individually, or in groups, where individually connected to flushing cistern, the cistern capacity shall be 5 liters. For two urinals, one cistern of 10 liters capacity and for three urinals, one cistern of 15 liters, capacity shall be provided.

Cistern inlet shall be 15mm dia PVC pipe with brass union. Outlet pipe from cistern shall be 25mm CP brass main, with 15mm CP distributor pipe of sufficient lengths to reach each bowl. Where individual cisterns are provided, the outlet shall be of 15mm CP brass. All exposed metallic

surfaces shall be painted with coats of approved white enamel paint over a coat of primer, cistern interior shall

be painted with two coats of anticorrosive paint of approved quality.

- 4.2 Payment for set of urinals shall be on unit basis. Rate quoted shall include cost of urinals inlet and outlet pipes, flushing cistern, breaking and making good the walls and flooring, making inlet and outlet connections, painting exposed brackets and GI pipes etc.

5. WASH BASINS

- 5.1 This shall be flat back wash basin with one tap hole conforming to IS:2556 Part-IV. Wash basins shall be of one piece construction including a combined overflow. A slot type of overflow having an area of not less than 5 Sq. cm. shall be provided in the front or back of the bowl and it shall be so designed as to facilitate cleaning of the overflow. This shall be fitted on CI or MS brackets. Brackets shall conform to IS:775. The brackets shall be given two coats of white enamel paint or aluminum paint, over coat of primer.

The wall side shall be fixed wall flushed with plaster of wall and joint if any, shall be properly stopped with mortar and painted white. One pillar cock, PVC connection pipe with brass union, a CP brass bottle trap with union, CP brass chain and rubber PVC stopper, 32mm dia, GI waste pipe shall also be supplied with the wash basin. The top of rim of the wash basin shall be fixed at 800mm above finished floor level, unless otherwise specified.

- 5.2 Payment shall be made on unit basis. The rate shall include provision and fixing of wash basin with all accessories, providing stop cocks and pillar cocks, breaking and making good walls, fixing and making inlet and outlet connections for stop cock, pillar cock and waste pipe, providing & fixing M.S. or C.I. brackets painted as mentioned above etc. complete.

6. BEVELLED EDGE MIRROR

The beveled edge mirror shall be of best quality of 'HINDUSTAN PILKINGTON' or equivalent, approved by the Engineer-in-Charge. The size of the mirror shall be 600 x 850mm and fixed to wooden cloats with CP brass screws and CP washers in proper line. The payment shall be made on unit basis. Rate shall include mirror, AC sheet backing, fixing etc. complete.

7. GLASS SHELF

- 7.1 The glass shall be of size 60cm x 12cm x 40cm thick, clear with edges ground smooth and corners rounded. Quality shall be got approved from the Engineer-in-Charge. Glass sheet shall be fixed to wall CP brass brackets. Brackets shall be fixed to wall through wooden cleats and CP brass screws and washers. Bracket shall have a guard

rall running around three sides of glass.

- 7.2 Payment shall be on unit basis. Rate shall include providing glass brackets guard rall, cleat, breaking walls and making good the same, all labour and materials etc. complete.

8. TOWEL RAIL

Towel rail shall be of aluminium/C.P, brass pipe with suitable brackets. The towel rail shall be 20mm dia 1.25mm thick 600mm long. It shall be approved by the Engineer-in-Charge. It shall be fixed at specified place as shown in drawing or as directed by the Engineer-in-Charge. Payment shall be made on unit basis, the rate include cost of rail materials, fixing the towel rail in position, labour etc. complete.

9. LIQUID SOAP CONTAINER

- 9.1 The liquid soap container shall be of superior quality chromium plated brass of Ego's make or equivalent as approved by the Engineer-in-Charge.
It shall be fixed with C.P. brass screws on wooden cleat.

- 9.2 The payment shall be made on number basis and the rate shall include supplying and fixing C.P. brass soap container of approved quality with brackets, C.P. screws and wooden plugs etc, all complete including cutting walls and making good the same.

10. BIB AND STOP COCKS

- 10.1 Bib and stop cocks of screw-down type shall conforms to IS:781. All taps shall be of heavy grade. The taps shall be chromium plated brass or ordinary brass easy cleaning type as specified.
- 10.2 The payment shall be made on units basis. The rate quoted shall include supplying and fixing bib or stop cocks with chite zinc and yarn etc. complete.

11. H.C.I. NAHNI TRAP [FLOOR TRAP]

- 11.1 Nahani trap shall be of heavy cast iron as per IS:3989 with 100mm inlet and 80/100mm outlet with CP pressed steel grating. It shall be of self-cleaning design. Grating shall be of either hinged or screwed down type.

It shall be fixed cement mortar 1:2 and as directed by Engineer-in-Charge.

- 11.2 The payment will be made per number basis. The rate shall include supplying and fixing Nahani trap, including cement mortar, cutting walls and floors and making good the same, providing and fixing chromium plated pressed steel grating

all complete.

12. STONEWARE GULLY TRAP CHAMBER

- 12.1 The square mouth gully trap shall be of 100mm dia, conforming to IS:651 of specified and/or approved quality stoneware, complete with cast iron grating, and shall be got approved by the Engineer-in-Charge. The size of CI frame and cover shall be of 3000mm x 300mm. It shall be properly fixed as directed by the Engineer-in-Charge.

The size of the chamber shall be 300x300x675mm (internal). It shall be constructed of brick masonry walls 115mm thick in 1:4 cement mortar and M-15 concrete foundations. Inside & outside faces of the masonry walls shall be plastered with 1:3 cement mortar. The top of the chamber shall be provided with CI cover and frame.

- 12.2 The payment shall be made on per number basis. The rate shall include supplying and fixing of stoneware gully trap. CI grating, construction of masonry chamber, providing and fixing CI frame and cover, earthwork in excavation, foundation concrete and backfilling, removal of surplus earth upto a lead of 30M. etc. all labour and material complete.

13. BRICK MASONRY (MANHOLES/INSPECTION CHAMBER & VALVE CHAMBER)

- 13.1 The size of the manholes and valve chamber shall be as specified in the drawings or items. It shall be constructed of brick masonry walls 230mm thick in CM 1:4 (1 cement : 4 sand) resting on M-15 concrete foundations. The inside and outside falls of the masonry wall shall be plastered with 13mm thick plaster of cement mortar 1:3 (1 cement : 3 sand).

The top of the chamber shall be provided with reinforced concrete 20M grade slab as per drawing and directions of the Engineer-in-Charge.

M.S. rungs made out of 16mm dia M.S. bars shall be fixed inside the manhole as shown in the drawing after applying two coats of anti-corrosive paint.

Valve chambers shall be provided and fixed with a light duty CI cover and frame.

The top of the chamber shall be provided with reinforced cement concrete M-15 grade as per drawings as direction of Engineer-in-Charge.

The C.I. manhole covers and frames shall conform to IS:1726. The type size and grade shall be as per drawing, schedule of items and the directions of the Engineer-in-

Charge.

The frame shall be fixed in position during concreting of top slab, inside faces of frame and cover shall be given to coats of approved anti-corrosive, paints.

The specification for brick masonry, plastering, concreting, excavation, and back-filling, etc. as given under relevant clauses shall be applicable for this work also.

- 13.2 Payment shall be made as per number basis including excavation, back-filling, removal of earth, construction of the chamber manhole, making connections of pipes through the walls, cost of M.S. directions of the Engineer-in-Charge.

The rate shall include breaking concrete or brick masonry work and making good the same with 1:4 cement mortar if necessary, finishing, painting, etc. as per direction of the Engineer-in-Charge.

14. C.I. SOIL/ WASTE PIPES

- 14.1 Cast iron pipe socket and spigot shall be of standard quality conforming to IS:3486 (heavy duty).

The spigot of the pipe shall be placed fully resting inside the socket and hemp caulked home to leave space for lead depth as specified. Lead conforming to IS:782 in molten state shall than be poured in to the joint filling the same in one pouring. The lead shall be caulked by proper tools to make it even all round depths of lead in the joints from the top of the socket shall be 37mm for 150 mm dia pipes, 25 mm for 100 mm and 50 mm dia pipes. All pipes shall be fixed 25mm clear of the wall with MS holder bat clamps or as approved by the Engineer-in-Charge. All holes in walls and floors shall be made good by cement concrete M-15 grade and should be leak proof. All soil and waste pipes shall be tested for leakage by hydraulic test.

All pipes shall be painted with two coats of paint of approved make and shade over a coat of primer. Earth work in excavation, back filling and removal of surplus earth shall be considered as a part of the work. No separate payment will be made for same.

- 14.2 The payment shall be made per running metre fo pipe laid with fittings as required on site.

The rate quoted shall include supplying and fixing of pipes and necessary specials including cowl with hamp and lead, jointing & tested, bat clamps, fixtures painting,

cutting of walls, floors and making good the same and necessary scaffolding, earthwork in excavation, back filling & removal of surplus earth etc. complete.

15. CI/SOIL/VENT PIPES

- 15.1 CI pipes shall be standard quality conforming to IS:1729. The supply shall include all necessary accessories e.g. bends, tees etc. complete.

Jute yarn gasket of suitable diameter shall be used as required to support the spigot of the pipe at the proper grade and make truly concentric joints single piece of sufficient length shall be used to pass around the pipe and lap at the top and shall be thoroughly sutured in bitumen. This gasket shall be laid in the socket for lower third of the circumference of the joint and covered with cement mortar. The spigot of the pipe thoroughly cleaned with wet brush, inserted and carefully driven home, after which a small amount of cement mortar (1:2) shall be inserted in the annular space around the entire circumference of pipe and solidly rammed into the joint with caulking tool. The joint shall then be completely filled with mortar and bevelled off at angle of 45° with outside of the pipe: Cement used for joint shall conform to IS:269.

All holes in walls and floors shall be made good by cement concrete M-15 grade.

All CI pipes shall be painted with two coats of anticorrosive bituminous paint externally.

- 15.2 The payments shall be on running metre basis of pipes laid. The rate shall include supplying and fixing pipes jute gaskets dipped into bitumen and cement mortar and necessary specials including jointing with clamps, painting, cutting of walls, floor and making good the same, necessary scaffolding etc. complete.

16. GI PIPES AND FITTINGS

- 16.1 All G.I. pipes and fittings shall conform to IS:1239 and shall be of medium grade for water supply system.

All screwed tubes and sockets shall have pipe threads in accordance with requirements specified in IS:554. Unless specified otherwise pipes shall be supplied screwed with taper threads and sockets parallel thread.

All fittings shall be malleable galvanized iron approved by the Engineer-in-Charge. Fittings in G.I. line shall include all couplings, elbows tees, bends, unions, nipples, reducers, flanges with nuts bolts and rubber insertions, bushes and all other fittings to make a complete job.

Screwed G.I. pipes shall be jointed with screwed socket joints, using screwed fittings. Care shall be taken to

remove any burr from the end of the pipes after threading. While lead with a few strands of fine hemp shall be applied while tightening. Compounds containing red lead shall not be used.

All pipes above ground shall be fixed with G.I. holders but clamps clear off the wall at 1.2M centers. If the pipes are fixed in encased or embedded in wall, they shall be secured in position by iron hooks at 1.2M centers. All visible pipes and clamps within and outside building shall be painted with two coats of white paints or aluminium paint as directed by the Engineer-in-Charge. No extra payment shall be made for clamps, hooks, cutting holes in walls, chasing and making good the same.

All underground pipes shall have a minimum earth cover of 600 mm. or as directed by the Engineer-in-Charge. No extra payment shall be made for excavation in trenches, refilling the same and removal of surplus earth. Before any pipes are painted or covered up they shall be tested to a hydro-static pressure of 6 Kg/Sq.Cm.

- 16.2 Payment shall be on running meter basis of actual pipeline laid. In addition to the suctional testing of water supply piping the contractor shall test Engineer-in-Charge. No extra payment shall be made for testing. The contractor shall make his own arrangement for supply of water for testing at his own cost. The rate for this item shall include supply and laying of G.I. pipes with necessary fittings, cuttings of pipes to required lengths, threadings; making holes in walls and refilling including the testing and directed by the Engineer-in-Charge.

17. GUN METAL VALVE

- 17.1 All full way and globe valves shall be of heavy gunmetal and tested at 300 psi and shall be approved by the Engineer-in-Charge. Values shall conform to IS:778. Size of valve chamber shall be as per item description, construction of valve chamber shall be carried out as detailed in clause 13 above. Valve chamber shall be provided & fixed with heavy duty C.I. surface box conforming to IS:3950. The surface box shall be hinged pin open type & shall be fixed in the chamber slab. It shall have a hole opening.
- 17.2 The payment shall be made per number basis including valve chamber & surface box. The rate shall include const. of valve chamber supplying and fixing valves & surface box in position as per drawing and directions of Engineer-in-Charge.

19. MARBLE PARTITIONS

The marble partition shall be 25mm. thick and approved by the Engineer-in-Charge.

The edges of marble be cut by machine to have proper

smooth edges.

Vertical face shall be fixed in position with cement mortar (1:3) as directed by Engineer-in-Charge for minimum depth of 100mm. in the wall. It shall be polished after fixing. Two horizontal faces shall be supported by M.S. Channels of size 35mm. deep embedded into wall.

- 19.2 The payment shall be made on square meter basis. The rate shall include the cost of partitions cutting of walls and making good the same as in its original condition, M.S. brackets, painting and polishing the partition etc. complete.

20. SHOWERS

- 20.1 The shower head shall be chromium plated brass, 100/150mm. dia with holes of one millimeter diameter each, is sufficient large for all ordinary requirements. It shall be fixed at a height of 2.0M from floor level or as directed by Engineer-in-Charge. It shall conform to Is:2064.

20. The payment shall be made on unit basis.

21. TOILET PAPER HOLDER

- 21.1 Toilet paper holders shall be of chromium plated brass as approved by the Engineer-in-Charge. It shall be 100mm. long. It shall be fixed on wooden cleats as directed by Engineer-in-Charge.

- 21.2 Payment shall be made on unit basis. Rate shall include providing paper holder cleat, breaking walls and making good the same all labour etc. complete.

25. SOAK PITS

- 25.1 All earthwork in excavation, brick work etc. shall conform to relevant I.S. standard.

The brickbats should preferably be slightly overburnt or thoroughly well burnt, deep red in colour with some proportion of deep blue or black veins. Spongy or vitrified material, as a result of excessive over burning is useless and shall be rejected. Brick bats bigger than specified size shall be reduced to required size (40 to 50mm.) before filling in soak pit and no extra payment shall be made for this. It shall be stacked at site as directed by Engineer-in-Charge, soak pit & septic tank shall be connected with required piping.

- 25.2 Payment of soak pit shall be made per number basis. Rate quoted shall include brick masonry work, providing & filling brick bats, earthwork in excavation back filling making inlet connection with pipe and connecting same to septic tank etc. complete as shown in drawing.

26. SEPTIC TANK

- 26.1 Ready made septic tank of M/s Indian hume pipe or any equivalent make, consisting of sewage receiving chamber inspection doors, vent pipe, inlet & outlet connections, manhole cover, C.I. steps etc. shall be used.

Design, testing & commissioning shall conform to IS:2470 Part-I.

Access opening shall be provided for desludging & inspection.

The ventnating pipe shall be provided with pipe of at least 50 mm. dia. extended 2 meters above the nearest working platform level.

- 26.2 Payment of septic tank shall be made per number basis & Rate shall include all accessories like, inlet, outlet vent pipe, manhole cover & C.I. steps, earthwork in excavation & backfilling removal of surplus earth etc. complete.

26.3 Shutters

26.3.1 Particle Board flush shutter

Particle board flush shutter shall in general conform to IS-2202.

26.3.1.1 Materials

26.3.1.1.1 Particle board

Particle board shall conform to IS-3097 and shall be three layer flat pressed teakwood based and of exterior grade (Grade - I), type-1, BWP type, bonded with phenol Formaldehyde synthetic resin conforming to IS-848.

26.3.1.1.2 Hinges

Hinges shall be of Extracted Aluminum Alloy and butt type conforming to IS-205. Size of hinges shall be in accordance with shutter width and as per IS-205.

26.3.1.2 Workmanship

The particle board of required size and thickness shall be lipped on all the edges with T-type, teakwood lipping. The overall board lipping composition shall be of uniform and specified thickness and shall be properly sized in view of the operation of shutter.

All the four edges of the door shutter shall be square. The shutter shall be free from twist or warp in its plane. In case of double leaf shutters. the meeting of the stiles shall be rebated by one third the thickness of shutter. The rebating shall be splayed.

The shutter then shall be veneered on both faces by gluing approved shade and textured commercial type 0.5 mm. thick veneering conforming to class I of IS-303.

The veneering shall be done by gluing the veneer with BWP type, phenol formaldehyde synthetic resin conforming to IS-848 by hot press process on the shutter. Workmanship and finish of the veneering shall conform to IS-303.

The exposed surfaces of the lipping of the edges, shall be French polished.

The shutter shall be fixed to the door frame, by means of hinges @ minimum 3 hinges per leaf, maximum spacing of hinges being 600mm. or as per drg. with suitable sizes screws.

The shutter when fitted to the frame shall satisfy all operational aspects of the door like smooth movement, proper closing against the door frame etc.

SPECIFICATION_NO._6-75-04_: _ALUMINIUM_DOORS,_WINDOWS_&_VENTILATORS

26.4.2 Workmanship

The profile and type of windows, VENTILATORS (glazed, party glazed/louvered, side hung/top hung/fixed shutter, composite) shall be as per drawings.

The frames shall be constructed of sections cut to size and mitred. Corners shall be welded to form a fused welded joint. Process of welding shall be flash butt welding. The welded joints shall be grinded to square and flat edges.

Were larger units are to be formed by coupling individual units, the mullions, transoms shall be bedded in mastic to ensure weather tightness. Mastic shall be applied liberally to the channels of the outside frame sections before assembly, and the two units being coupled shall be drawn together tight with clamps, the mastic being squeezed out and cut off neatly when the units shall be screwed together tight.

Where fixed glazing units are placed over open able units a push fit weather bar shall be provided.

Before glazed, all opening parts shall be checked for their operational smoothness. The frame shall be completely cleaned and bedding putty shall be placed in the rebate before glazing. Glass then shall be cushioned into the bedding and shall be fronted with front putty in a manner so as to enable the painting to be done up to the sight line. The back putty oozing out over the glazing

rebate shall be cut off square and smoothed down.

For pans exceeding 600 x 300 mm. in size, glass shall be secured by special glazing clips inserted in holes already providing in the steel sections, before applying the front putty.

For glazing of very large areas, rust proof steel beading with mitred corners shall be provided with screws @ 10 cm. from each corner and @ 20 cm. apart from each other. Putty shall be provided to the face of the bead in contact with glass, in addition to back putty.

Side hung shutters shall be connected to the frame by means of friction hinges. The handle for side hung shutters shall be of pressed brass mounted on a steel handle plate welded to the opening shutter frame and shall not be removable easily after glazing. The handle shall have a two point nose which shall engage with a brass striking plate on the fixed frame in a slightly open as well as in a fixed position.

Top hung shutters shall be provided with steel butt hinges welded to the fixed frame after cutting a slot in it. Top hung casements shall be provided with peg stay of 3 holes of pressed brass, 300 mm. long which when closed shall be held tightly by the locking bracket fitted to the fixed frame or to the window.

Before fixing the frames, the size of the opening shall first be checked and cleaned of all obstructions. The positions of the unit in the reveal shall be taken off the drawings and shall be marked on the reveal at the jambs using a plumb line. In case of fixing with masonry, holes for fixing the lugs/hold fasts shall be cut at required locations. In case of concrete or stone, the frames shall be fixed by means of dash fasteners. In case of masonry, the lugs shall be grouted in the holes with cement concrete, M-15 Grade when fixing to steel work, mastic shall be applied to the sill of the opening and the unit shall be placed on it with the jambs and head buttered with mastic and the unit shall be fixed with special fixing clips or with nuts and bolts.

The windows/ventilators shall be checked to ensure smooth operation, perfect level and plumb.

All the steel surfaces shall be thoroughly cleaned free of rust, mill scale, dirt, oil etc. by sand and shot blasting and then finished with painting by priming with red oxide zinc chromate primer conforming to IS-2074 and painting conforming to IS-1477 (Part-II) or by hot dipped galvanizing conforming to IS-1477 (Part-I). Putty shall also be provided with painting in a manner so as to seal the putty glass junction.

Surfaces not meant for painting shall be cleaned of any strains of paint.

26.4.5 Aluminum Glazed Doors/Windows/Ventilator

26.4.5.1 General

Aluminum glazed doors/windows/ventilator shall be of Specified sectional size, dimension and profile as per dwg.

26.4.5.2 Materials

All Aluminum sections shall be extruded sections of INDAL aluminum alloy as per IS:1285. Aluminum sections shall be anodized as per IS:7088 to min.25 microns.

Glass used for glazing shall be of following type in accordance with item description.

- i) 5.5 mm. thick wired glass conforming to IS:5437
- ii) 6.3 mm. thick laminated safety glass conforming to IS:2553
- iii) 5.5 mm. thick transparent sheet glass conforming to IS:2835 (wt. 7.2 kg/sq.M)

26.4.5.3 Workmanship

Frames shall be square and flat, the corner of the frame being fabricated to true right angles. Details of construction of frames, shutters etc. shall be as per drgs.

Side hung windows shutters shall either be fixed to the frame with pivots, or aluminum alloy hinges. For fixing the hinges, slots shall be cut in the fixed frames and the hinges inserted inside may be riveted to the frame. The hinges shall normally be of the projecting type conforming to IS designation A-5-M of IS 617, IS 733. In which case peg stay of 300 mm. long complete with locking bracket and conforming to IS codes same as for hinges shall be provided. Friction hinges may also be provided in which case peg stays are not required.

The handles for side hung shutters shall be of cast aluminum conforming to IS designation A-5-M of IS 617 and shall be mounted on a handle plate riveted to the opening frames. The handle shall have anodised finish with minimum anodic film thickness of 25 micron or electro colour finish. The handle shall have a two point nose which shall engage with an aluminum striking plate on the fixed frame. The striking plate shall be finished in the same manner as for the handle.

In case of top hung shutters, aluminum alloy cast hinges and peg stays (same as per side hung shutters)

shall be provided.

Centre hung shutters shall be hung on the two pairs of cup pivots of aluminum alloy of IS designation NS-4 of IS 737 and IS designation A-5-M of IS 617 or chromium/cadmium plated brass/bronze cup pivots riveted to the outer and inner frames to permit to swing through an angle of 85 degree. Cast aluminum (conforming to IS

designation A-5-M of IS 617) or chromium/cadmium plated bronze spring catches shall be fitted in the centre of the top bar of the shutter. The spring catch shall be secured to the frame by screwing/fiveting to the frame and shall close into an aluminum catch plate riveted/welded to the outside of the outer shutter frame bar. Aluminum of cadmium plated brass chord pulley wheel in an aluminum bracket shall be fitted at the sill of the shutter with Aluminum or galvanized/cadmium plated steel screws.

The door shutters shall be fitted with pivots as specified. The handle for doors shall be of Aluminum and as per design. The door shutters shall be provided with locking device floor spring. O/H door closer and any other hardwares, specified in item.

In case of composite Door/Windows/Ventilator units, the units shall be coupled as per drg. Weather bar shall be provided whenever a coupling member is fitted over an external opening shutter.

Glazing shall be fixed to the extruded sections by means of extruded aluminum beading. Glass panes shall be provided with rubber lining before fixing.

The aluminum frames shall be fixed to the masonry by means of aluminum lugs fixed to the frame (by counter sunk galvanized machine screws) and grouted with M-15 grade concrete in the hole in the masonry as per drg. In case of concrete wall, the frames shall be foxed by 96mm. long, 12mm. dia metallic dash fasteners. Any steel material coming in contact with aluminum shall be galvanized.

The windows/ventilators/doors shall be checked to ensure smooth operation, perfect level and plumb.

26.4.6 Measurement and Rates

Measurement shall be on sq.M. or Rm basis as per item description. Area shall be measured correct upto two places of decimal. Dimensions shall be measured correct upto 0.5cm.

To calculate height and width of composite units, 2.5cm. for each mullion, transom coupling bar for each unit shall be added. A composite unit of various designations shall be first measured over all as a unit of predominant designations and measurement for remaining designations shall be deducted from the overall measurement of the

composite unit in order to arrive at the quantities for various designations.

Rate shall include cost of all materials, specified hardwares, labour, erection, hoisting, scaffolding, removal of scaffolding, protective measures, conveyance, handling, loading/unloading, storing etc. required for proper completion off the item of work in accordance with the specification.

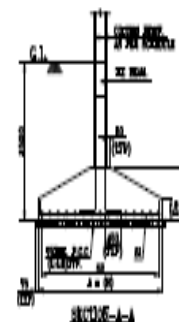
COLDEN SCHOLAR

SEE: 401K OR THE PLAN

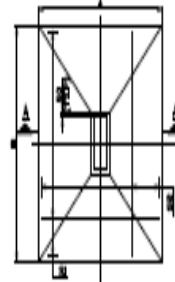
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SCHEDULE OF COL. FOUNDATION

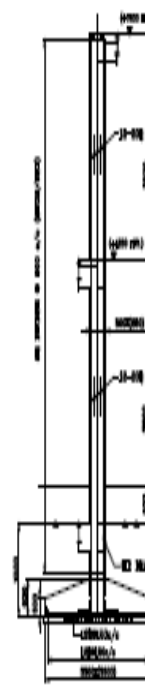
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		IN	FE	FEEDS (TL)	FEEDS (TR)
71	1000 X 1000	100	100	1000000/0	1000000/0
72	8000 X 2000	800	800	1000000/0	1000000/0
73	8000 X 1000	800	800	1000000/0	1000000/0
74	1000 X 1000	100	100	1000000/0	1000000/0



890305-1-1



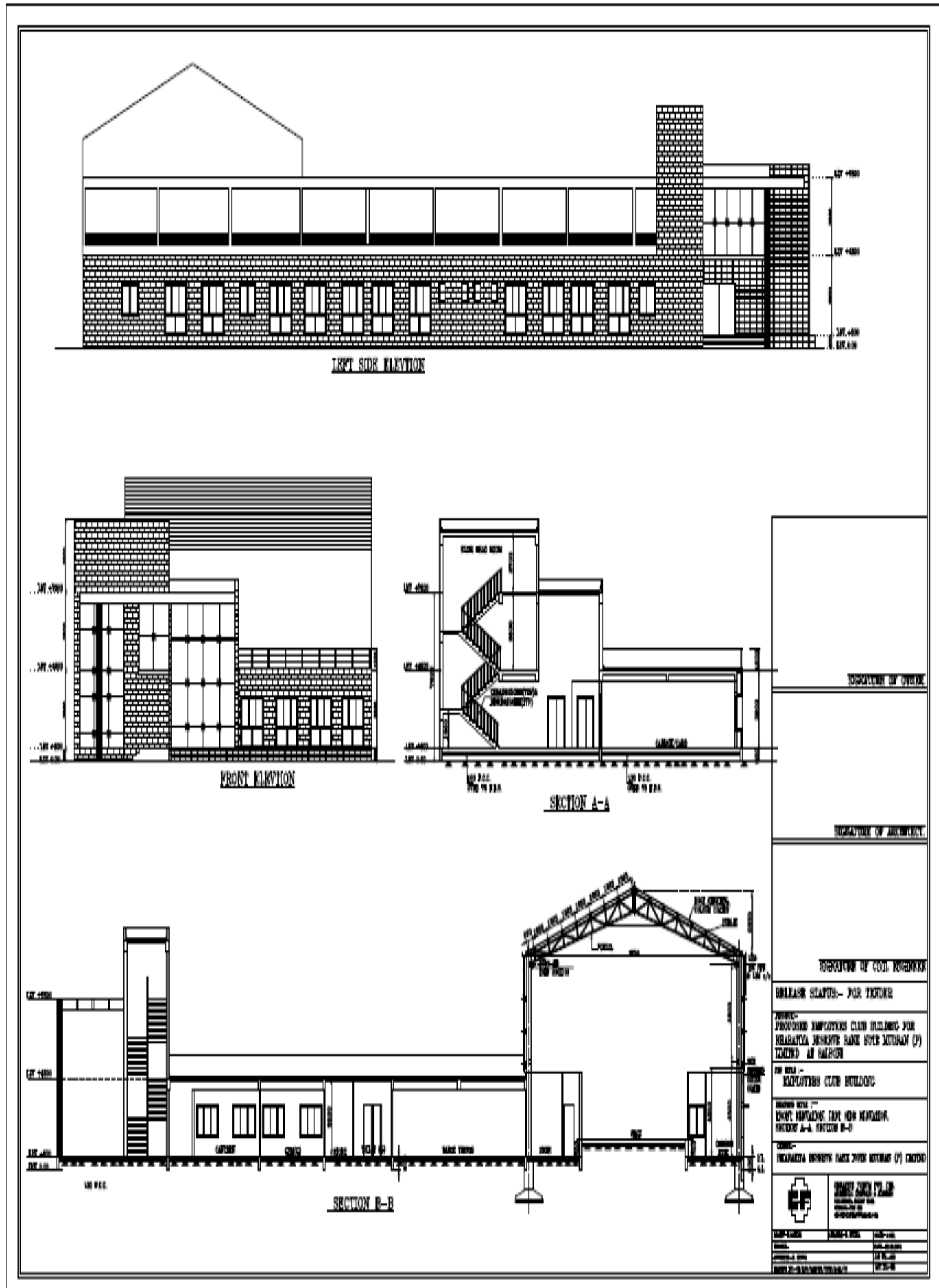
TYPICAL PLAN OF ISOLATED FOOTINGS



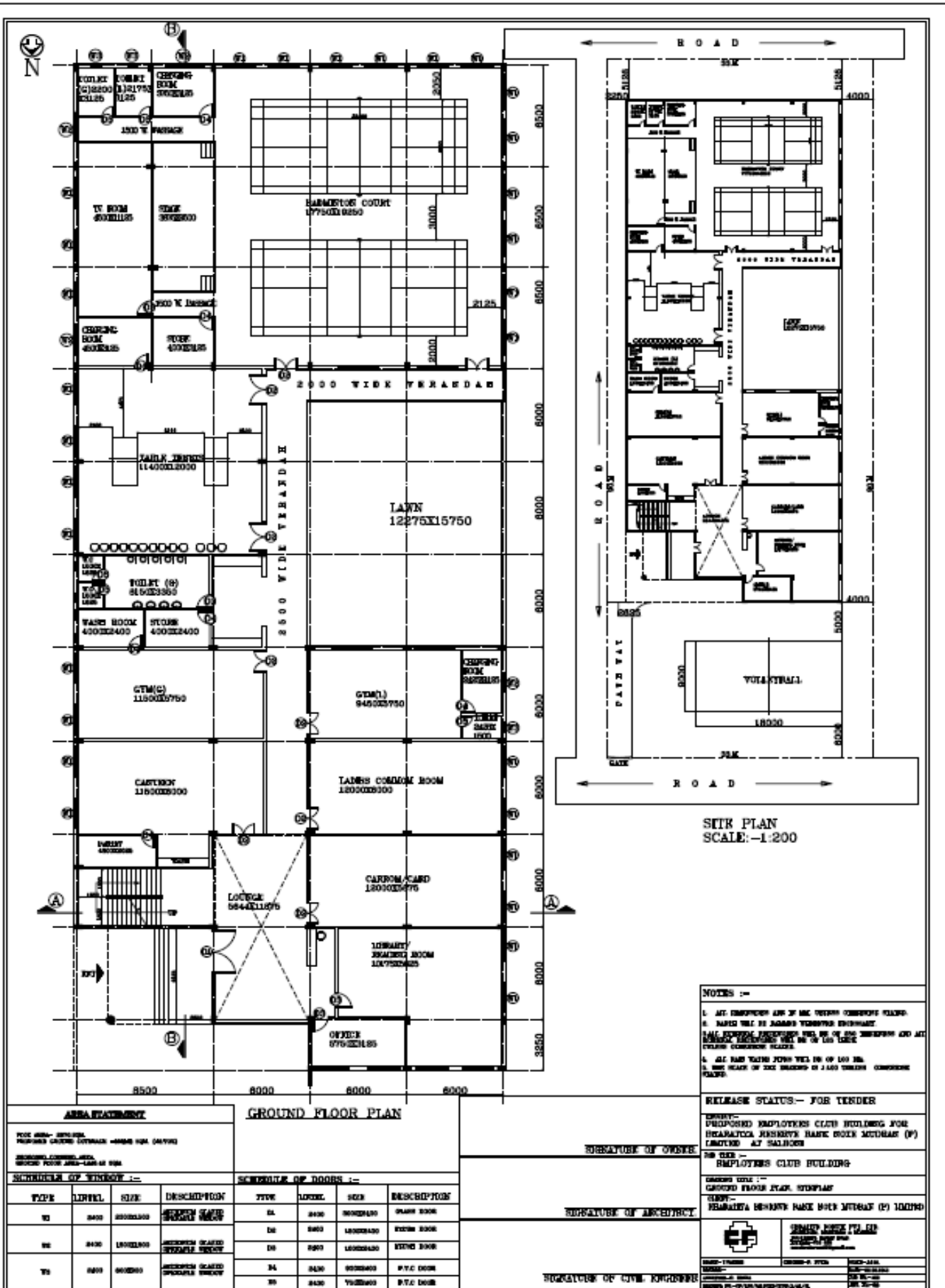
REPORT OF THE JOINT COMMISSION
FOR THE RECORD - CIVIL

 $\mathbb{N}\mathbb{G}$ [illegible]

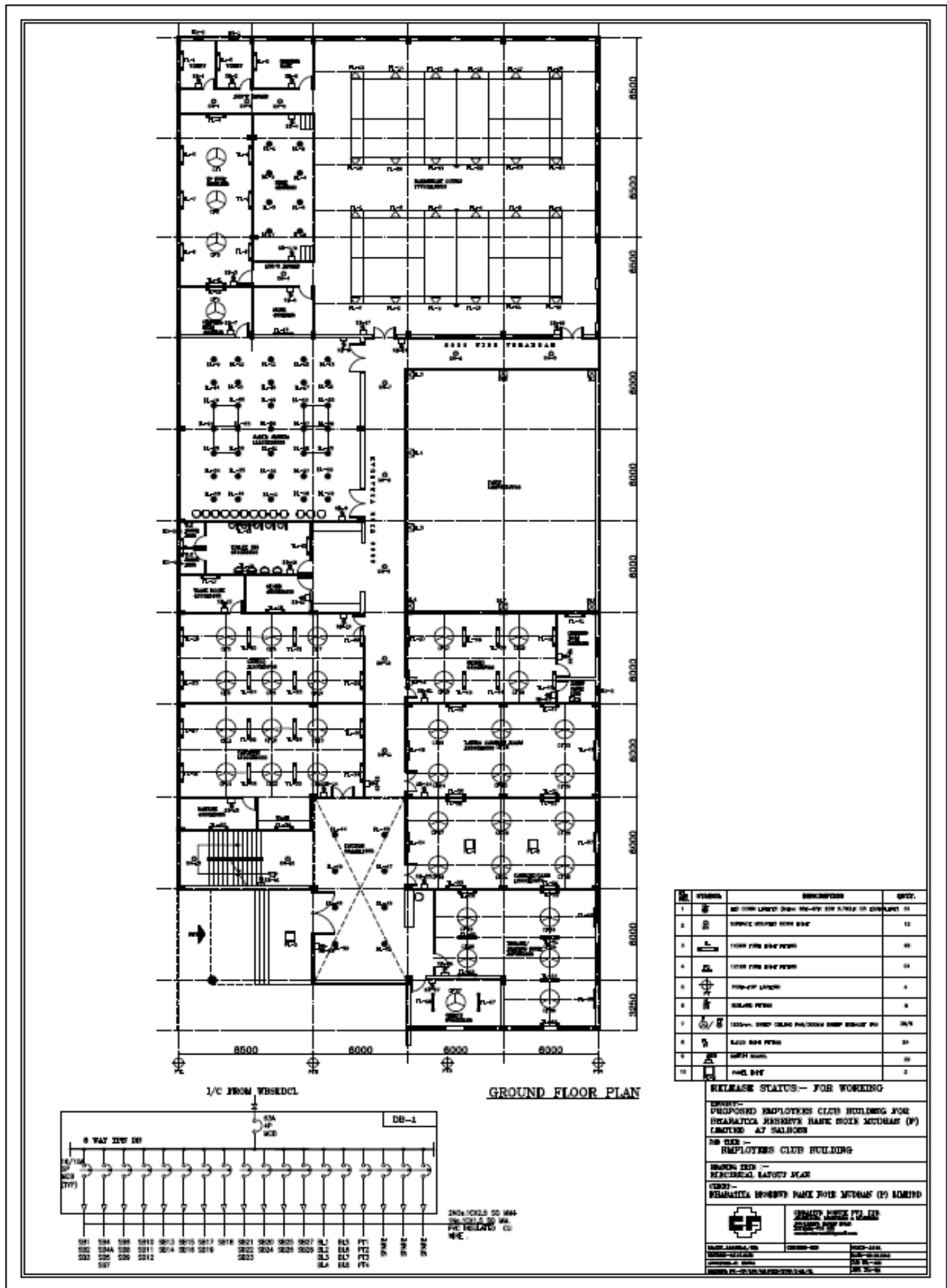
2. Front Elevation, Left Side Elevation Section A-A Section B-B



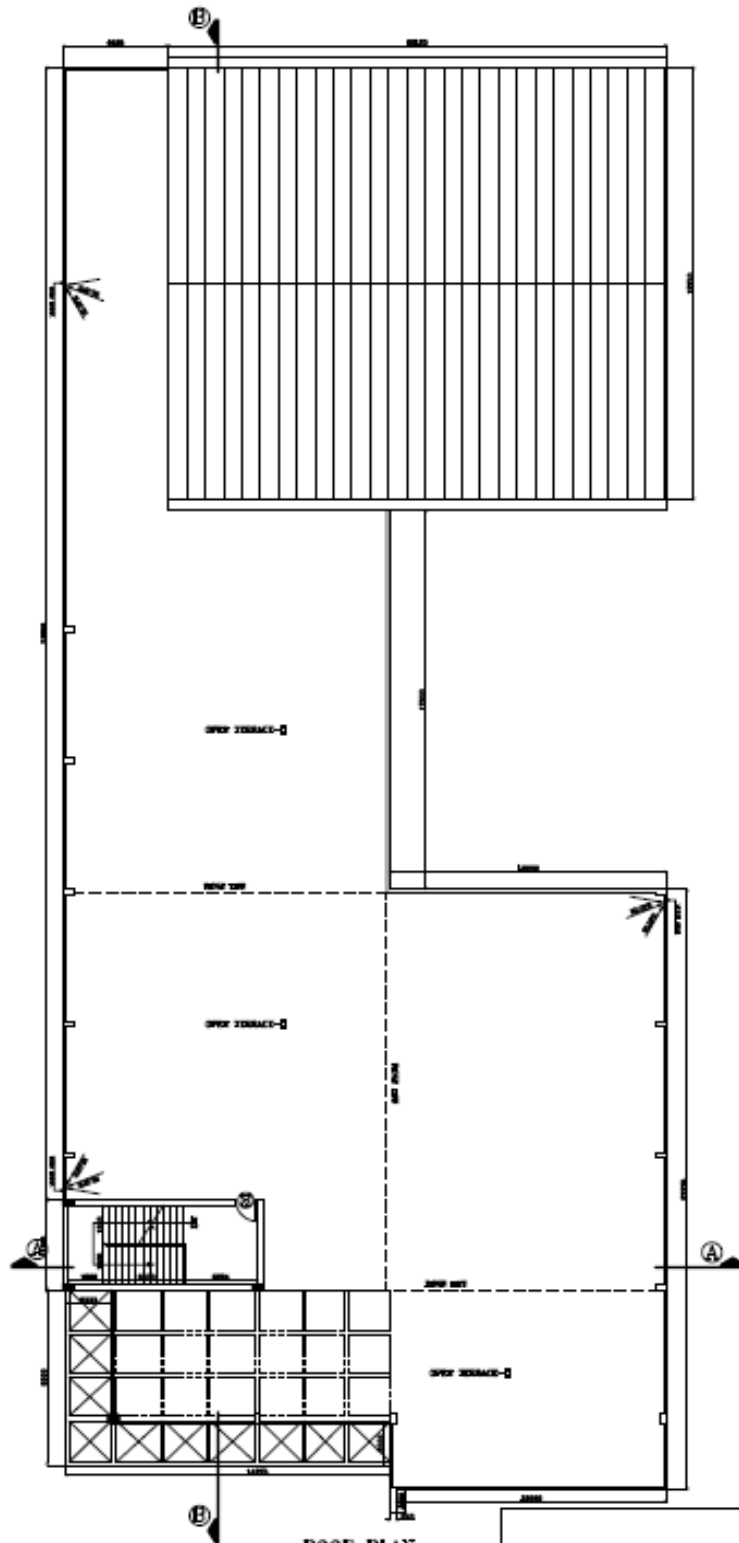
3. Ground Floor Plan, Site Plan




4. Electrical Layout Plan



5. Roof Plan



ROOF PLAN

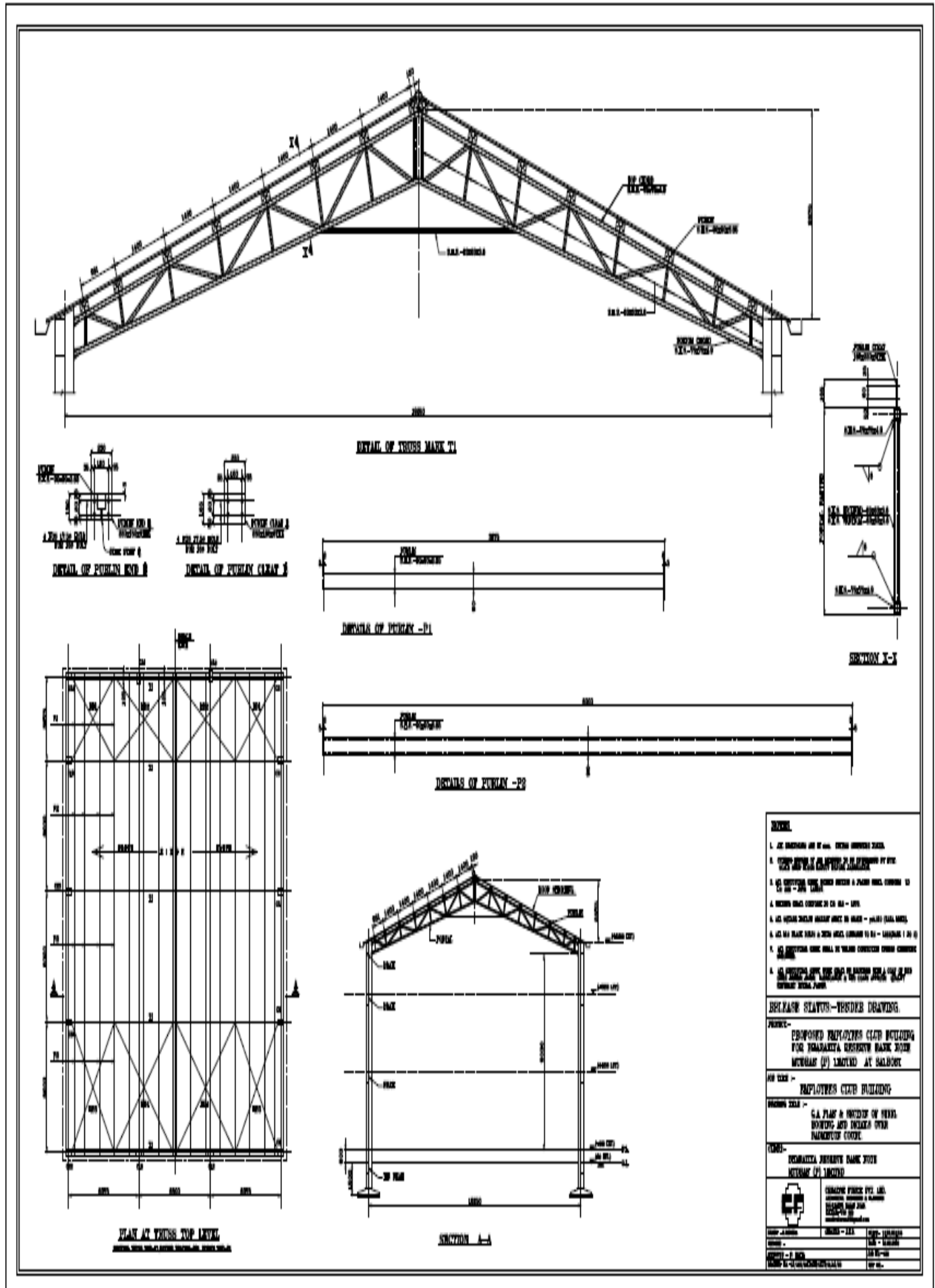
NOTES :-		
1. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE STATED.		
2. RAISED WALK BE JAGGED TERRACE ELEVATION.		
3. ALL EXISTING STRUCTURE WILL BE OF THE EXISTING AND ALL NEW CONSTRUCTION SHALL BE OF THE SAME.		
4. ALL RAISED WALK SHALL BE OF 150 MM.		
5. ALL RAISED WALK SHALL BE OF 150 MM. CONCRETE SLAB.		
RELEASE STATUS:- FOR TENDER		
DESIGN:- UNDESIGNED EMPLOYERS CLUB BUILDING FOR MECHANICAL REINFORCEMENT HAVING ROOF STRUCTURE (P) LOCATED AT SALBONI		
NO. OF FLOORS:- EMPLOYERS CLUB BUILDING		
DESIGN CODE:-		
ROOF PLAN		
DESIGN:-		
REINFORCEMENT HAVING ROOF STRUCTURE (P) LOCATED		
		
DESIGNER:-	DESIGNER'S SIGN	DESIGNER'S NAME
DATE:-	DATE:-	DATE:-
PROJECT NO:-	PROJECT NO:-	PROJECT NO:-
PROJECT NO:-	PROJECT NO:-	PROJECT NO:-

SIGNATURE OF OWNER

SIGNATURE OF ARCHITECT

SIGNATURE OF CIVIL ENGINEER

6. G.A. Plan & Section Of Steel Roofing And Details Over Badminton Court



7. Layout Marking Plan And RCC Details Of Beam And Slab

[illegible]

№ п/п	№ п/п	№ п/п	ЛОКАЛЬНЫЕ ИТЕРАЦИОННЫЕ						ГЛОБАЛЬНЫЕ		
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			МЭ	СЭ	МЭ	СЭ	МЭ	СЭ			
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- BREAKAW SLOTH:-THUNDER DRAWING.

EMPLOYERS CLUB BUILDING

MARKETING PLAN AND B.C.C. DECISION

DEPARTMENT OF JUSTICE
FEDERAL BUREAU OF INVESTIGATION



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