TENDER NOTICE

BOARD OF MANAGEMENT
SUNDAR INDUSTRIAL ESTATE

TENDER NOTICE

Board of Management Sundar Industrial Estate (BOMSIE) invites sealed bids through National competitive bidding (NCB) process from Eligible Bidders, Manufacturers, Authorized Sales & Service Dealers / Distributors/ reputed companies in the field of Construction of Tube well with Pump House.(registered with Income Tax and Sales ,PRA and PEC C-6 (Ce09) category and also is active taxpayers list of the federal board of revenue with valid professional tax certificate , if applicable.

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<th>TENDER DESCRIPTION</th>
<th>PROCEDURE</th>
<th>Estimated Budget and Value of earnest money @2%</th>
<th>SUBMISSION DATE &amp; TIME</th>
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<td>CONSTRUCTION OF NEW TUBEWELL # 6 &amp; PUMP HOUSE AT SUNDAR INDUSTRIAL ESTATE</td>
<td>Single Stage – One Envelop Procedure</td>
<td>PKR 16,290,829/- PKR 325,817/-</td>
<td>22-9-2020 At 11:30 hrs</td>
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1. Bidding shall be conducted through Open Competitive Bidding (Single Stage - One Envelop) procedure specified in the Punjab Procurement Rules 2014.

2. Interested eligible bidders on payment of non-refundable fee of PKR1000/-(Pak Rupees; One Thousand Only) in the form of Bank Draft or Pay Order from any schedule Bank of Pakistan in favor of “Board of Management – Sundar Industrial Estate” can purchase complete set Tender Document during working hours (9:00am to 5:00pm – Monday to Friday) from the office of Board of Management Sundar Industrial Estate. The document can also be downloaded from the websites www.sie.com.pk or www.ppra.punjab.gov.pk, respectively.

3. Bids complying in all aspects as per instructions given in the bidding documents along with the requisite bid security in the shape of CDR/Pay Order/Bank Draft/Bank Guarantee issued by a Scheduled Bank in Pakistan in favor of BOMSIE, must reach at BOMSIE office mentioned hereunder. Tender, will be opened as per schedule mentioned above in the presence of Company’s Authorized Representatives who may choose to attend the bid opening.

4. Bidder shall submit their financial capabilities in form of Balance Sheets / Bank Statements / Audited Financial Reports for last three (3) years.

5. Bidder shall submit Undertaking on legal stamped paper of Rs. 100/- claiming that the firm is not Govt. defaulted by any Govt. or bilateral / multilateral Financial Institution.

6. Bidder shall submit minimum Three similar nature of work orders with departmental issued completion letters or certificates during last Seven (7) years from Government Organizations especially in field of construction of Tube-well with Pump House pertaining to installation of 2.0 cusec or higher capacity Turbines with minimum bore of 400 feet deep or more.

7. Bidder must submit Authorization Certificate, incase bidder is not manufacture and Bidder must submit bid security as described in Bid Data Sheet. and Bidder must submit Copy of Tender Purchase Receipt along with their bid documents.

8. Bidder’s Annual Turn Over should not be less than 16.291million during last three years.

9. It shall be the responsibility of Bidder to develop understanding with the project at their own risk and cost.

10. Contract, shall be awarded according to Punjab Procurement Rules 2014.

Estate Engineer BOM SIE.

OFFICE
BOARD OF MANAGEMENT SUNDAR INDUSTRIAL ESTATE
Gate # 2, Sundar Industrial Estate, Sundar Road, Lahore
Phone: +92 42 35297291-3, Fax: +92 42 35297080, Email: info@sie.com.pk
TENDER DOCUMENTS
CONSTRUCTION OF NEW TUBEWELL # 6 & PUMP HOUSE
AT SUNDAR INDUSTRIAL ESTATE

Tender No.: ED/SIE/CAPITAL/2019-20/CNTP/RE Tender

BOARD OF MANAGEMENT
SUNDAR INDUSTRIAL ESTATE (BOMSIE)

Please note: Actual pages may be different due to conversion in PDF (Please check one page prior or after the one listed above)

Bid Document Issued To: ____________________________________________
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PREFACE

Sundar Industrial Estate is a state-of-the-art industrial estate which was inaugurated in February 2007 and is the first project assigned to the Punjab Industrial Estates Development & Management Company (PIEDMC). It was envisioned to be an island of facilitation for prospective industrialists. The objective was to develop an industrial estate where issues of residents are handled and problems solved through ‘One Window’ operations.

SIE has infrastructure comparable to any modern industrial estate globally.

After analyzing the needs of entrepreneurs, SIE has ensured availability of the following amenities.

- Reinforced Concrete Road Network
- Underground Sewerage System
- Underground Electricity Distribution System
- Walled industrial estate with limited entry/exit points.
- Telecommunications System
- Fully Equipped Fire Station
- Technical Training Facilities
- Estate-operated Security Arrangements
- Hospital / Emergency Medical Services (Social Security)
- Mosque
- Petrol Stations

In continuation of the above developments and the maintenance of these facilities, the Board of Management is inviting interested parties to bid for the provision of goods and/or works as stated in the document as follows.
CONSTRUCTION OF NEW TUBEWELL # 6 & PUMP HOUSE AT SIE

I. INVITATION TO BID

II. Board of Management Sundar Industrial Estate (BOMSIE) invites sealed bids through National competitive bidding (NCB) process from Eligible Bidders, Manufacturers, Authorized Sales & Service Dealers / Distributors/ reputed companies in the field of Construction of Tube well with Pump House.(registered with Income Tax and Sales ,PRA and PEC C-6 (Ce09) category and also is active taxpayers list of the federal board of revenue with valid professional tax certificate , if applicable.

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3. Bids complying in all aspects as per instructions given in the bidding documents along with the requisite bid security in the shape of CDR/Pay Order/Bank Draft/Bank Guarantee issued by a Scheduled Bank in Pakistan in favor of BOMSIE, must reach at BOMSIE office mentioned hereunder. Tender, will be opened as per schedule mentioned above in the presence of Company’s Authorized Representatives who may choose to attend the bid opening.

4. Bidder shall submit their financial capabilities in form of Balance Sheets / Bank Statements / Audited Financial Reports for last three (3) years

5. Bidder shall submit Undertaking on legal stamped paper of Rs. 100/- claiming that the firm is not Govt. defaulted by any Govt. or bilateral / multilateral Financial Institution.

6. Bidder shall submit minimum Three similar nature of work orders with departmental issued completion letters or certificates during last Seven (7) years from Government Organizations especially in field of construction of Tube-well with Pump House pertaining to installation of 2.0 cusec or higher capacity Turbines with minimum bore of 400 feet deep or more.

7. Bidder must submit Authorization Certificate, incase bidder is not manufacture and Bidder must submit bid security as described in Bid Data Sheet. and Bidder must submit Copy of Tender Purchase Receipt along with their bid documents.

8. Bidder’s Annual Turn Over should not be less than 16.291million during last three years.

9. It shall be the responsibility of Bidder to develop understanding with the project at their own risk and cost.

10. Contract, shall be awarded according to Punjab Procurement Rules 2014.

Estate Engineer BOM SIE
Board of Management SIE, Gate #2, Sundar Industrial Estate, Lahore
Email: info@sie.com.pk
II. INSTRUCTION TO BIDDER

1. Scope of Bids

1.1 The Board of Management Sundar Industrial Estate (BOMSIE) seeks a bidder interested in “Construction of New Tubewell # 6 & Pump House At Sundar Industrial Estate Capacity as per details mentioned in this tender document. Successful bidder would enter into a contract as per Punjab Procurement Rules 2014.

1.2 Bidding shall be conducted under “Single Stage - One Envelop Procedure” laid down in Punjab Procurement Rules 2014. The contract shall be awarded as per evaluation Criteria mentioned in this document.

1.3 Bidders shall submit their bids with proper Indexing Table / Page Number and attach all the mandatory / required documents in Annex or tagging format.

1a). Bidder’s Capabilities:

   The bidder shall provide documents as per the Sub-Clauses below to demonstrate its experience with such projects. Bidders must possess and provide further evidence, if required, of the following to the satisfaction of the procuring agency.

1. Experience Minimum Three similar nature of work orders with departmental issued completion letters or certificates during last Seven (7) years from Government Organizations especially in field of construction of Tube-well with Pump House pertaining to installation of 2.0 cusec or higher capacity Turbines with minimum bore of 400 feet deep or more.

2. The manufacturer (from which goods are offered) in terms manufacturing, quality-assurance and testing facilities.

3. Bidder shall provide evidence of qualified man-power and previous cases of delivering quality materials according to bid specifications and delivery requirements.

4. In the case of a bidder offering to supply Goods under the Contract, which the bidder did not manufacture or otherwise produce, the bidder shall provide proof of having been duly authorized by the Goods manufacturer or producer to supply the Goods within Pakistan.

5. The bidder has the financial, technical and trading/production capability (as per role in supply chain) necessary to perform the Contract.

6. In the case of a bidder not doing business within Pakistan, the bidder is or will be (if successful) represented by an agent in Pakistan equipped in carrying out warranty terms, if any, fully and to the Employer’s satisfaction.

1b). Further Requirements for JVs

   In addition to the sub-clauses under Clause 4, the following apply for Joint Ventures:

1. At least one of the partners of joint venture shall satisfy the relevant capabilities specified under hereinabove.

2. All firms comprising the joint venture shall be legally constituted and shall meet the eligibility requirements.

3. All partners of the joint venture shall at all times and under all circumstances be
liable jointly and separately to the Employer for the execution of the entire contract in accordance with the contract agreement, terms and conditions; a statement to this effect shall be included in the Form of Contract Agreement (in case of a successful bidder).

4. The Form of Bid, and in the case of successful bidder, the Form of Contract Agreement, shall be signed so as to be legally binding on all partners.

5. One of the joint venture partners shall be nominated as being in-charge and this authorization shall be evidenced by submitting a power of attorney signed by legally authorized signatories of all the joint venture partners.

6. The partner-in-charge shall be authorized to incur liabilities, receive payments and receive instructions for and on behalf of any or all partners of the joint venture.

7. A copy of the agreement entered into by the joint venture partners shall be submitted with the bid stating the conditions under which it will function, its period of duration, the persons authorized to represent and obligate it and which persons will be directly responsible for due performance of the Contract and can give valid receipts on behalf of the joint venture, the proportionate participation of the several firms forming the joint venture, and any other information necessary to permit a full appraisal of its functioning. No amendments / modifications whatsoever in the joint venture agreement shall be agreed to between the joint venture partner without prior written consent of the Employer.

2. Source of Funds
The BOMSIE, a body established by the Punjab Industrial Estate Development and Management Company (PIEMDC), a public-private partnership company formed by the Government of Punjab will arrange funds to meet its cost from its own resources.

3. Eligibility of Bidders
The bidder must provide following documents falling which their bid shall not be considered for evaluation:

3.1 Application letter (as per the format) for participation in tendering process.
3.2 Attested Copy of NTN Registration Certificate and Tax Returns PRA and PEC C-6 (Ce09) category.
3.3 Financial Soundness Details Balance Sheets, Bank Statements, Audited Financial Reports for last three years.
3.4 Office/factory/workshop details at Lahore with Phone Numbers / Addresses.
3.5 Declaration duly Signed and in tamped on Rs. 100/- Pakistan Judicial (Stamp) Paper by bidder as per following specimen.

Declaration Specimen
Certified that M/s. …………………………. has not been blacklisted by any public sector Gov./Semi Gov./Associates organization in Pakistan.

3.6 Bidder shall submit minimum Three similar nature of work orders with departmental issued completion letters or certificates during last Seven (7) years from Government Organizations especially in field of construction of Tube-well with Pump House pertaining to installation of 2.0 cusec or higher capacity Turbines with minimum bore of 400 feet deep or more.

3.7 Duly signed and stamped Certificate / Undertaking on Rs. 100/- Pakistan Judicial (Stamp) Paper by Company as mentioned below of this document.

UNDERTAKING / CERTIFICATE
If provided information with the bid documents is found false or any criminal proceedings found in any court of Law, the Contract/Order will be immediately terminated without making any refund/payment. Further, the performance security given by the firm will also be confiscated and the Firm will be declared as Blacklisted.

3.8 Copy of Tender Purchase Receipt.
3.9 Each and every page of this tender document must be signed and stamped by Bidder.

4. **Cost of Tendering:**

The bidder shall bear the costs associated with the preparation and submission of its documents. BOMSIE in no case shall be responsible or liable for those costs, regardless of the conduct or outcome of the tendering process.

5 **Clarifications of Tendering Documents:**

A prospective bidder requiring any clarification(s) may notify to BOMSIE in writing. The BOMSIE representative will respond to any request for clarification; which is received at least 5 working days before the closing date set for the submission of bids.

**Amendment of Tender Documents:**

5.1 At any time prior to the deadlines for the submission of bids, BOMSIE, for any reason, whether at its own initiative or in response to a clarification requested by a prospective company, may modify the tender documents by issuing addendum/amendment.
5.2 Any addendum/amendment thus issued shall form integral part of the tender documents. To afford Company’s a reasonable time frame in which to take an addendum into account in preparing their bids, the BOMSIE may at its discretion extend the deadline for submission of bids.

6. **Language of Documents:**

6.1 Bid documents and related correspondence will always be in English Language.
6.2 The bid should have a covering letter on printed letterhead of the firm. All pages of the bid shall be initiated / signed and stamped.
6.3 All the documents attached with the bid should be in English language.

7. **Price:**

Price/Bid offer should be quoted in Pak Rupees as per given format.

The price / bid offer quoted should be firm, final and clearly written /types without any ambiguity.

The bid price should include all the government taxes, as per prevailing taxation rates of provincial / federal government etc. (e.g. GST, Income Tax, Withholding Tax etc.). Any change in taxes/duties/levies etc. except change in sales tax shall be to bidder’s account and no claim for change in the quoted prices shall be entertained. The bidder shall deem to have obtained all related information as to the requirements thereto which may affect the bid offer / price if required.

The price/bid offer shall be entered for the whole duration of till expiry of bid validity. The bidder must adhere to the instruction mentioned in these bidding documents and failure to do so may render their bid liable to rejection.

The prices quoted by the bidder which become the basis for placement of a contract and remain fixed during the bidder’s performance of the contract and be not subject to variation on any account. A bid submitted with variable or conditional price will be treated as non-responsive and rejected.
8. **Delivery Schedule:**
The successful bidder shall be required to complete the work as per Data Sheet.

9. **Bid Security / Earnest Money**
9.1 a). The bidder shall furnish a bid security/ earnest money Equivalent to **Estimated Budget and Value of earnest money @2% as mentioned in Invitation to Bid** in the form of a Pay-Order / Demand Draft / Call Deposit, or a Bank Guarantee issued by a scheduled bank of Pakistan, in favour of the Board of Management Sundar Industrial Estate. Bid Bond/Bid Security must be enclosed / received along with the respective bid of a bidder at the time of bids opening in original form. If a bid security / bid bond from a bidder is received separately from its bid, BOMSIE shall not be responsible in any way.

b). The Bid Security will serve as guarantee in case bidder subsequently either withdraw or unilaterally modify vary or alter his bid after opening of the bids and before expiry of bid validity period or fail to accept the contract place on them within the validity of their bid or its extended validity in case his bid turns out to be the successful bid.

c). The cost of the above bid security shall be born by the Bidder.

9.2 All bid bond shall be valid for a period of 90 days after the opening of bids or un till 30 days after the expiry date (or extended expiry date) of quotation submitted by the bidder whichever is later. In case of subsequent extension in the validity of a bid, the bid bond will also be revalidated correspondingly.

9.3 Any bid not accompanied by an acceptable bid security shall not be read out during bid opening and shall stand rejected as Non-Responsive.

9.4 The bid securities / earnest money of the unsuccessful bidders will be returned upon award of contract to the successful bidder or on expiry of validity of bid whichever is earlier.

9.5 The bid security of the successful bidder will be returned only when bidder sign the relevant contract/agreement and furnish the Performance Security.

9.6 **The bid security / earnest money may be forfeited / confiscated/encashed:**

If a bidder either withdraw or unilaterally modify vary or alter his bid after opening of the bids and before expiry of the bid validity period.

If the bidder does not accept the correction of his bid price.

In the case of a successful bidder, if he fails to sign/Accept the contract agreement.

If the bidder fails to fulfill the mandatory requirements upon which he has given certificates / affidavits etc.

In case of submission of mis feeding or incorrect document or both this sceneries.

9.7 **Validity of Bid**

a). Bid must remain valid at least for a period of 90 days from the closing date of the tender failing which such offers having shorter validity period may be rejected.
b). BOMSIE may solicit the bidders consent to an extension of the period of validity. The request and the response there to shall be made in writing/email/fax. The bids security shall also be suitable extended.

c). Once contract is signed within the original/extended validity period of bid, the quoted prices would remain firm and irrevocable and will not be subject to any revision in prices till during whole period of the contract.

10. **Warranty/Guarantee Certificate / After Sale and Service**

The supplier warrants that the material/services will be in accordance with the particulars mentioned in the purchase order.

The supplier warrants that the material/services will be free from defects in material and workmanship.

The supplier obligations under the warranties expressed in sub paragraph (i) and (ii) above shall be limited to replacement at BOMSIE free of cost including all applicable duties and taxes etc., which at the time of receipt by the BOMSIE or under normal use and maintenance prove defective in material/workmanship or fail to comply with required performance in the normal course of service. This warranty shall be valid for a period of 12 months from the date of receipt of material.

This warranty shall be in addition to the normal inspection. Tenders not complying with these instructions are liable to be ignored.

11. **Performance Security:**

11.1 PERFORMANCE SECURITY: Within 7 days after the notification of award of the contract, the amount of Performance Security shall be 10% of Contract price. The Performance Security shall be in the form of bank guarantee/pay order/CDR/ from any schedule bank of Pakistan in favour of the Buyer.

The proceeds of the Performance Security shall be payable to the purchaser as compensation for any loss resulting from the contractor’s failure to complete its obligations under the contract.

11.2 The Performance Bond Guarantee shall remain valid till Completion of DLP Period as mention in Bid Data Sheet. BOM-SIE shall promptly notify the contractor in writing of any claim arising out of performance of the contract. Upon receipt of such notice, the contractor shall, with all reasonable speed, settle the claims. If the contractor having been notified, fails to fully settle the claim within a week’s time, BOM-SIE may proceed to take such remedial action as may be necessary, at the contractor’s risk and expense and without prejudice to any other rights which BOM-SIE may have against the contractor under the contract, including partial or complete forfeiture of the Performance Bond Guarantee.

11.3 Nothing contained herein shall be construed to limit the contractor’s obligations and liabilities with regard to the performance of the contract.

11.4 The Performance Bond Guarantee will be discharged by BOM-SIE as soon as possible following the date of completion of the contractor’s Performance obligations under the contract.

12. **Clarifications / Corrections of Bid**

a). If bidder have any doubts as the meaning of any portion of this tender, they should when submitting their bid, set out in their covering letter, the interpretation upon which they rely.

b). No bidder will be permitted to alter his bid after the bids have been opened, but clarifications not altering substance of his bid may be solicited and/or
accepted. No bidder will be asked or required to alter the substance of his bid.

   c). All deviations from or exceptions to or qualifications of any stipulation in these bidding documents shall be clearly stated separately in the proposals.

   d). Bidders are required to attach all the required enclosures of the tender enquiry duly filled in, signed/stamped along with the bid, failing which the offer may not be considered for evaluation.

   e). Arithmetical errors will be rectified on the following basis:

If there is a discrepancy between unit price and total price that is obtained by the multiplying the unit price and quantity, the unit price shall prevail and total price shall be corrected. If there is a discrepancy between the words and figures the amount in words shall prevail. Any mistake in addition / totaling can be corrected.

If the bidder does not accept the corrected amount of bid, his bid will be rejected and his bid security may be forfeited.

13. **Penalty of Delay**

In case, bidder fails to execute the contract in accordance with the terms & conditions laid down in the contract agreement, performance security may be forfeit/en-cashed with a penalty @ 0.2% of total cost per day will be imposed (maximum up to 10%).

14. **Bid Submission and Opening**

The envelope containing your bid must be submitted in a sealed package in such a manner that contents of the bid are fully enclosed and cannot be known until duly opened. The envelop should be marked as under:

---

**Confidential**

**Tender Enquiry No.** ED/SIE/CAPITAL/2019-20/CNTP/Re Tender

**Description:** “Construction Of New Tubewell # 6 & Pump House At Sundar Industrial Estate”

**Closing Date:** 22-9-2020 at 11:30 hrs.

---

And Addressed to:

**M/s. Board of Management Sundar Industrial Estate (BOM-SIE)**

Sundar Raiwind Road, Lahore

Tel: 042-35297291 – 3, Fax: 042 - 35297080

b). Number of copies of the Bid Document

**One (1) ORIGINAL and one (02) COPIES,**

ORIGINAL Package should be in sealed form containing Two separate sealed Envelopes marked as “Original - Technical Proposal” and “Original - Financial Proposal”.

c). The tender shall close at 11:30 hrs on 22-9-2020 Sealed Bids must be delivered in BOMSIE office not latter than the closing time and date. It shall be the responsibility of the bidder to ensure that his bid reaches the address given in these bidding documents on or before the closing time and date. Bids received late shall not be entertained and shall be returned unopened.

Bids shall be opened the same day at 12:00. hrs in the office of Board of Management
Sundar Industrial Estate (BOMSIE) in the presence of bidders or their authorized representative who may choose to attend. Only one authorized representative of a bidder will be allowed to attend the public opening of the bids, who will be required to submit an authority letter in his favour issued by the respective bidder(s) for attending the public opening of bids, failing which he may not be allowed to attend the public opening.

d). Quotation should not have any over-writings, corrections, if any must be made by deleting and re-writing. All such deletions/cuttings must be authenticated by the additional signatures. Quotation carrying over-writing are likely to be disregarded.

14. Evaluation of Bids
14.1 A bid determined as substantially non-responsive will be rejected and will not subsequently be made responsive by the bidder by correction of the non-conformity.
14.2 The relevant Committee will evaluate and compare only the bids determined to be substantially responsive.
14.3 It will be examined in detail whether the services offered by the company complies with the provisions of this tender document. For this purpose, the company’s data will be compared with the tender document eligibility and evaluation criteria.
14.4 It will be examined in detail whether the documents comply with the conditions of the tender document.
14.5 Any minor informality or non-conformity or irregularity in the documents, which does not constitute a material deviation, may be waived by BOMSIE, provided such waiver does not prejudice or affect the relative ranking of any other bidder.

15. ELIGIBILITY & QUALIFICATION CRITERIA

Qualification Criteria:

a). Valid Sales Tax/ Income Tax Registration. Mandatory
b). Valid professional Tax Certificate, if Applicable. Mandatory
c). Undertaking on legal stamped paper of Rs. 100/- claiming that the firm is not Govt. defaulter, Black listed or disqualified. Mandatory
d). Authorization Certificate, incase bidder is not manufacturer. Mandatory
e). Bid security as described in Bid Data Sheet Mandatory
f). Minimum Three similar nature of work orders with departmental issued completion letters or certificates during last Seven (7) years from Government Organizations especially in field of construction of Tube-well with Pump House pertaining to installation of 2.0 cusec or higher capacity Turbines with minimum bore of 400 feet deep or more. Mandatory
g). Copy of Tender Purchase Receipt. Mandatory
16. **Canvassing**

After the public opening of the bids information relating to examination clarification and evaluation of bids and recommendation concerning award is strictly confidential. Any effect on the part of the bidder or his agent to extract information or canvassing at any stage of the tender evaluation is strictly prohibited.

17. **Award of Contract and BOMSIE Right**

a). Contract against this tender enquiry as per detailed requirements and terms and conditions may be forwarded to the bidders whose bid(s) has been determined to be the lowest evaluated bid (s) with acceptable and assured delivery of services and who meets the required specifications and commercial and reliability standards.

b). BOMSIE reserves the rights to reject all bids or proposals as per PPRA Rules and bids which do not meet the clauses of tender document or where there is evidence of lack of competition or where the lowest evaluated bid is higher than the estimate by an amount which is in the opinion of BOMSIE is sufficient to justify such a cause.

c). BOMSIE does not bind itself to accept the lowest price bid or any particular bid or any part of a bid and will not be responsible to pay the expenses or losses which may be incurred by any tenderer/bidder in preparation of his bid.

d). General Performance of the Bidders The Procuring Agency reserves the right at the time of award of Contract to increase or decrease by up to 15% the quantity of goods and supplies specified in the Schedule of Prices as per procuring rules without any change in the unit price or other terms and conditions.

18. **Force Majeure**

18.1 Force majeure shall mean any event, act or other circumstances not under the control of the BOMSIE or of the Security Service Provider i.e., Earthquake, Flood, or any other Severe Climatic circumstances.

18.2 If by reasons of Force Majeure supplies or security services cannot be delivered by the due delivery date, then the delivery date may be extended appropriately by the BOMSIE keeping in view its all the circumstances and requirements.

18.3 If a Force Majeure situation arises, the Security Service Provider shall, by written notice served on the BOMSIE, indicate such condition and the cause thereof. Unless otherwise directed by the BOMSIE in writing, the Security Service Provider shall continue to perform under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

19 **VARIATIONS AND CLAIMS**

19.1 **Right to Vary**

The Buyer/Engineer may issue Variation Order(s) in writing. Where for any reason it has not been possible for the Buyer/Engineer to issue such Variations Order(s), the Contractor may confirm any verbal orders given by the Buyer/Engineer in writing and if the same are not refuted/denied by the Buyer/Engineer within seven (7) days of the receipt of such confirmation the same shall be deemed to be a Variation Orders for the purposes of this Sub-Clause.
19.2 **Valuation of Variations:**

Variations shall be valued as follows:

- At a lump sum price agreed between the Parties, or
- a. Where appropriate, at rates in the Contract, or
- b. In the absence of appropriate rates, the rates in the Contract shall be used as the basis for valuation, or failing which
- c. At appropriate new rates, as may be agreed or which the Engineer/Buyer considers appropriate, or
- d. If the Engineer/Buyer so instructs, at day work rates set out in the Contract Data for which the Contractor shall keep records of hours of labour and Contractor’s Equipment, and of Materials, used.

19.3 **Early Warning**

The Contractor shall notify the Engineer/Buyer in writing as soon as he is aware of any circumstance which may delay or disrupt the Works, or which may give rise to a claim for additional payment.

To the extent of the Contractor’s failure to notify, which results to the Engineer/Buyer being unable to keep all relevant records or not taking steps to minimize any delay, disruption, or Cost, or the value of any Variation, the Contractor’s entitlement to extension of the Time for Completion or additional payment shall be reduced/rejected.

19.4 **Valuation of Claims**

If the Contractor incurs Cost as a result of any of the Buyer’s Risks, the Contractor shall be entitled to the amount of such Cost. If as a result of any Buyer’s Risk, it is necessary to change the Works, this shall be dealt with as a Variation subject to Contractor’s notification for intention of claim to the Engineer/Buyer within fourteen (14) days of the occurrence of cause.

19.5 **Variation and Claim Procedure**

The Contractor shall submit to the Engineer/Buyer an itemized make-up of the value of variations and claims within twenty eight (28) days of the instruction or of the event giving rise to the claim. The Engineer/Buyer shall check and if possible agree the value. In the absence of agreement, the Buyer shall determine the value.

20. **CONTRACT PRICE AND PAYMENT**

20.1 **Terms of Payments**

The amount due to the Contractor under any Interim Payment Certificate (IPC) issued by the Engineer pursuant to this Clause, or to any other terms of the Contract, shall be paid by the Buyer to the Contractor within 30 days after such Interim Payment Certificate has been jointly verified by Buyer and Contractor, or, in the case of the Final Certificate within 60 days after such Final Payment Certificate has been jointly verified by Buyer and Contractor; Provided that the Interim Payment shall be caused in 42 days and Final Payment...
in 60 days in case of foreign funded project. The contractor shall submit schedule of payment for supply and installation of the work.

20.2 Monthly Statements

The Contractor shall be entitled to be paid at monthly intervals:

The value of the Works executed; and

The percentage of the value of Materials and Plant reasonably delivered to the Site, as stated in the Contract Data, subject to any additions or deductions which may be due.

The Contractor shall submit each month to the Engineer/Buyer a statement showing the amounts to which he considers himself entitled.

20.3 Interim Payments

Payment will be carried out as per payment schedule in condition of contract signed by the Buyer & Contractor. The minimum value of IPC shall be 25% of the value of work.

20.4 Retention

Retention money shall be paid by the Buyer to the Contractor within fourteen (14) days after either the expiry of the period stated in the Contract Data, or the remedying of notified defects, or the completion of outstanding work, all as referred to in Sub-Clause9.1, whichever is the later.

20.5 Final Payment

Within twenty one (21) days from the date of issuance of the Maintenance Certificate the Contractor shall submit a final account to the Engineer to verify and the Engineer shall verify the same within fourteen (28) days from the date of submission and forward the same to the Buyer together with any documentation reasonably required to enable the Buyer to ascertain the final contract value.

Within sixty (60) days from the date of receipt of the verified final account from the Engineer, the Buyer shall pay to the Contractor any amount due to the Contractor. While making such payment the Buyer may, for reasons to be given to the Contractor in writing, withhold any part or parts of the verified amount.

21.6 Currency

Payment shall be in the currency stated in the Contract Data

22 INTEGRITY PACT

22.1 Violation of Integrity Pact

If the Contractor, or Any of His Sub-Contractors, Agents or Servants is found to have violated or involved in violation of the Integrity Pact signed by the Contractor as ScheduleF to his Bid, then the Buyer shall be entitled to:

a. recover from the Contractor an amount equivalent to ten times the sum of any commission, gratification, bribe, finder’s fee or kickback given by the Contractor or any of his Sub-Contractors, agents or servants;
b. Terminate the Contract; and

c. Recover from the Contractor any loss or damage to the Buyer as a result of such termination or of any other corrupt business practices of the Contractor or any of his Sub-Contractors, agents or servants.

On termination of the Contract under Sub-Para (b) of this Sub-Clause, the Contractor shall demobilize from the Site leaving behind Contractor’s Equipment which the Buyer instructs, in the termination notice, to be used for the completion of the Works at the risk and cost of the Contractor. Payment upon such termination shall be made under Sub-Clause 12.4, in accordance with Sub-Para (c) thereof, after having deducted the amounts due to the Buyer under Sub-Para (a) and (c) of this Sub-Clause.
III. BID DATA SHEET

1. **Name and address of the Employer:** Board of Management Sundar Industrial Estate, Gate #2, Sundar Industrial Estate, Sundar-Raiwind Road, Lahore.

2. **Name of the Project & Summary of the Works:** “Construction of New Tube well # 6 & Pump House at Sundar Industrial Estate”

3. **Time limit for clarification:** The bidder may request clarification of the bid documents, in written, until the bid opening date.

4. **Bid language:** All bids shall be in the English language.

5. **Period of Bid Validity:** 90 days from the date of bid opening.

6. **Amount of Bid Security:** Two percent (i.e. PKR 325,817/-) of the total Estimated Budget Value.

7. **Defect Liability Period:** 12 Months.

8. **Estimated Budget Value:** PKR 16,290,829/-

9. **Number of copies of the bid to be completed and returned:** One (1) ORIGINAL and one (02) COPIES

10. **Employers address for the purpose of bid submission:** Board of Management Sundar Industrial Estate, Gate #2, Sundar-Raiwind Road, Lahore, Pakistan.

11. **Name and number of the contact:** Lt.Col. Muhammad Ibrahim, Estate Engineer BOM SIE.

12. **Deadline for submission of bids:** 22-9-2020 at 11:30 hrs.

13. **Venue, time and date of bid opening:** Conference Room, BOMSIE Office, Gate #2, Sundar Industrial Estate, Sundar-Raiwind Road, Lahore at 12:00 hrs on 22-9-2020

14. **Time for Completion with delivery to SIE:** 4 months

15. **Liquidated Damages (LD):** In case, contractor fails to execute the contract within time limit/extended time limit, performance security may be forfeit /encashed with a penalty @ 0.2% of total cost per day will be imposed(maximum up to 10%).

16. **Responsiveness of Tenders:** The responsiveness of the tenders shall be ascertained as the conditions below:
   (i) The Tender is valid till the required period
   (ii) The Tender prices are firm and final for the contract
   (iii) Completion period offered is within specified limits
   (iv) The Tenderer is eligible to Tender and possesses the requisite experience
   (v) The Tender does not deviate from Basic Requirements
   (vi) The Tenders are generally in order, etc.

17. **Currency:** Payment of Contract Price shall be in Pakistani Rupees.

18. **Terms of Payments:**
   15% Payment as Mobilization Advance shall be issued on submission of Bank Guarantee of same amount if requested by Contractor.
   85% Payment shall be made with work in Progress
   The minimum value of IPC shall be 25 % of the value of work done.

19. **Retention Money:**
   Retention money equal to Five (5%) of the work done will be deducted from each payment and will be released after successful completion of Defect Liability Period (DLP).

   **Performance Security:** 10% of total Value of Contract.
IV. AWARD CRITERIA

Contract shall be awarded to Least Cost quoted by the eligible bidder.

Note:

1. Any bidders that fail to meet the eligibility criteria and submit uncompleted documents shall be rejected.
2. Award of Contract shall be inline to class 18 of ITB.
## V. SCHEDULE OF PRICES / SCOPE OF WORK

### FORM I

**CONSTRUCTION OF #6 NEW TUBE WELLS INCLUDING PUMP HOUSES AT SUNDAR INDUSTRIAL ESTATE**

### MAIN SUMMARY

<table>
<thead>
<tr>
<th>SR NO</th>
<th>DESCRIPTION OF WORKS</th>
<th>Total Amount (Rs) (Inclusive of all Taxes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CONSTRUCTION OF #6 NEW TUBE WELLS INCLUDING PUMP HOUSES AT SUNDAR INDUSTRIAL ESTATE</td>
<td></td>
</tr>
</tbody>
</table>

Amount in words: Pak Rupees:.................................................................................................................................................

The total amount of Bid price including all Gov. taxes applicable here is to be entered in paragraph 1 of the form of Bid both in figures as well as in words.

Name of Bidder / Sign & Stamp
## V. SCHEDULE OF PRICES / SCOPE OF WORK

(Appendix A)

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Ref. MRS 1st annual 2020</th>
<th>Description of Works</th>
<th>Unit</th>
<th>Quantity</th>
<th>Rate</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>A) Schedule Items Civil Work</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>/21 (b) +3/25 (i)</td>
<td>Excavation in foundation of building, bridges and other structures, including dagbelling, dressing, refiling around structure with excavated earth, watering and ramming lead up to one chain (30 m) and lift up to 5 ft. (1.5 m) 95% to 100% maximum modified AASHTO dry density</td>
<td>Cft</td>
<td>2494.300</td>
<td>8.569</td>
<td>21,374</td>
</tr>
<tr>
<td>2</td>
<td>3/15 (i) + 3/25 (i)</td>
<td>Filling with surplus earth from foundation i/c compaction up to 95% maximum modified AASHTO dry density in 150mm layers complete in all respects</td>
<td>Cft</td>
<td>1662.867</td>
<td>4.574</td>
<td>7,606</td>
</tr>
<tr>
<td>3</td>
<td>26/42</td>
<td>Spray anti termite liquid mixed in the ratio of 1:40</td>
<td>Sft.</td>
<td>2665.383</td>
<td>2.421</td>
<td>6,453</td>
</tr>
<tr>
<td>4</td>
<td>6/5 (h)</td>
<td>Providing and laying of Cement concrete plain including placing compacting, finishing and curing complete (including screening and washing of stone aggregate): (h) Ratio 1:4:8</td>
<td>Cft</td>
<td>499.587</td>
<td>179.04</td>
<td>89,446</td>
</tr>
<tr>
<td>5</td>
<td>6/6(a)(3)</td>
<td>Providing and laying reinforced cement concrete using coarse sand and screened graded and washed aggregate, in required shape and design, including forms, moulds, shuttering, lifting, compaction, curing, rendering and finishing exposed surface, complete (a)(i) Reinforced cement concrete in roof slab, beams, columns lintels, girders and other structural members laid in situ or precast laid in position, or prestressed members cast in situ, complete in all respects:-(2) Type B (nominal mix 1:2:4) (having minimum 210 kg/sqcm cylindrical compressive strength at 28 day)</td>
<td>Cft</td>
<td>429.66</td>
<td>380.850</td>
<td>163,635</td>
</tr>
<tr>
<td>6</td>
<td>7/4(i)</td>
<td>Pacca brick work in foundation and plinth in. i) Cement, sand mortar 1:5</td>
<td>Cft</td>
<td>1975.36</td>
<td>215.350</td>
<td>425,393</td>
</tr>
<tr>
<td></td>
<td>Item #</td>
<td>Description</td>
<td>Unit</td>
<td>Quantity</td>
<td>Rate</td>
<td>Amount</td>
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</tr>
<tr>
<td>7</td>
<td>6/9 ©</td>
<td>Providing and Fabrication of mild steel reinforcement for cement concrete, including cutting, bending, laying in position, making joints and fastenings, including cost of binding wire and labor charges for binding of steel reinforcement (also includes removal of rust from bars) ('c) Deformed bars (Grade-60)</td>
<td>Kg</td>
<td>447.142</td>
<td>151.460</td>
<td>67,724</td>
</tr>
<tr>
<td>8</td>
<td>7/5 (i) (3)</td>
<td>Pacca brick work in ground floor: cement, sand mortar: Ratio 1:6.</td>
<td>Cft.</td>
<td>1816.688</td>
<td>227.250</td>
<td>412,842</td>
</tr>
<tr>
<td>9</td>
<td>Chapter 7 Item # 5 (i)(3)</td>
<td>Pacca brick work in ground floor: cement, sand mortar: Ratio 1:4</td>
<td>Cft.</td>
<td>23.925</td>
<td>235.800</td>
<td>5,642</td>
</tr>
<tr>
<td>10</td>
<td>Chapter 11 Item # 9 (b)</td>
<td>Cement plaster 1:4 up to 20' (6.00 m) height: 1/2&quot; thick</td>
<td>Sft.</td>
<td>4435.525</td>
<td>21.320</td>
<td>94,565</td>
</tr>
<tr>
<td>11</td>
<td>Chapter 11 Item # 10 (c)</td>
<td>Cement plaster 3/8&quot; (10 mm) thick under soffit of R.C.C roof slabs only, up to 20' height. 1:4</td>
<td>Sft.</td>
<td>629.000</td>
<td>23.800</td>
<td>14,970</td>
</tr>
<tr>
<td>12</td>
<td>Chapter 7 Item # 30 + 3/25 (i)</td>
<td>Supply &amp; filling with sand under floor i/c compaction. Up to 95% maximum modified AASHTO dry density in 150mm layers complete in all respects</td>
<td>Cft.</td>
<td>1476.090</td>
<td>19.519</td>
<td>28,812</td>
</tr>
<tr>
<td>13</td>
<td>Chapter 10 Item #3</td>
<td>Providing, laying, watering and ramming brick ballast 1 ½&quot; to 2&quot; (40 mm to 50 mm) gauge mixed with 25% sand, for floor foundation, complete in all respects</td>
<td>Cft.</td>
<td>270.956</td>
<td>50.440</td>
<td>13,667</td>
</tr>
<tr>
<td>14</td>
<td>6/5(f)</td>
<td>Providing and laying of Cement concrete plain including placing compacting, finishing and curing complete (including screening and washing of stone aggregate): (f) Ratio 1:2:4</td>
<td>Cft.</td>
<td>148.084</td>
<td>225.55</td>
<td>33,400</td>
</tr>
<tr>
<td>15</td>
<td>Chapter 10 Item #22(b)</td>
<td>1½&quot; (40 mm) thick mosaic flooring, consisting of ⅜ &quot; (13 mm) mosaic topping of one part of cement and marble powder in the ratio of 3:1 and two parts of marble chips laid over 1&quot; (25 mm) thick floor of 1:2:4 cement concrete, including rubbing and polishing complete with finishing using grey cement.</td>
<td>Sft.</td>
<td>977.500</td>
<td>125.960</td>
<td>123,126</td>
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<tr>
<td>#</td>
<td>Chapter</td>
<td>Item</td>
<td>Description</td>
<td>Rate</td>
<td>Quantity</td>
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</tr>
<tr>
<td>16</td>
<td>Chapter 10</td>
<td>Item # 39(a)(i)</td>
<td>Providing and laying mosaic dado or skirting 3/8&quot; thick with one part of cement and marble powder in the ratio of 3:1 and two parts of marble chips laid over ⅜&quot; thick cement plaster 1:3 i/c rubbing and polishing finishing complete in all respects using grey Cement</td>
<td>Sft.</td>
<td>97.900</td>
<td>116,790</td>
</tr>
<tr>
<td>17</td>
<td>Chapter 10</td>
<td>Item # 42(b)</td>
<td>Providing and Fixing marble patti of any shade &amp; design size ¼&quot; x 1½&quot; for dividing floor into panels</td>
<td>Per Rft.</td>
<td>521,000</td>
<td>4,600</td>
</tr>
<tr>
<td>18</td>
<td>Chapter 9</td>
<td>Item # 05+(26/37)</td>
<td>Providing and laying single layer of tiles size 9”x4½”x1½” laid over 4” earth and 1” mud plaster with out Bhoosa grouted with cement sand 1:3 on top of R.C.C roof slab using 34 Lbs per % Sft. or 1.72 Kg per sq. meter bitumen coating sand blinded Double Layer polythene sheet 0.005” complete in all respects.</td>
<td>Sft.</td>
<td>675,000</td>
<td>76,660</td>
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<tr>
<td>19</td>
<td>Chapter 9</td>
<td>Item # 15</td>
<td>Top khurras on roof size 2’x2’x6”</td>
<td>Each</td>
<td>3,000</td>
<td>555,350</td>
</tr>
<tr>
<td>20</td>
<td>Chapter 9</td>
<td>Item # 16</td>
<td>Bottom Khuras of brick masonry in cement mortar 1:6 4’x2’x4½” (1200x600x113 mm) over 3” (75 mm) cement concrete 1:4:8.</td>
<td>Each</td>
<td>3,000</td>
<td>941</td>
</tr>
<tr>
<td>21</td>
<td>Chapter 25</td>
<td>Item # 44</td>
<td>Providing and fixing windows consisting of M.S. box section frame 2”x1⅜”, (50x40mm) leaves frame 1⅜”x1” (40x25mm) box section frame for glazing 3/8”x3/8” (10x10mm) using 16 SWG sheet ‘U’ shaped rubber supported with 1”x1/8” (25x3mm) M.S. flat for fixing 3/16” (5 mm) thick glass panes M.S. box section ⅜”x⅜” (13x13mm) of 16 SWG for fixing 24 SWG wire gauze on outer side by means of ⅜”x1/8” (20x3mm) M.S. flat and screws including grill of M.S. flat ⅜”x1/8” (13x3mm) or ⅜”x⅜” (6x6mm) square bar with independent frame of ⅜”x⅜” (13x13mm) box section of 16 SWG i/c all C.P. fitting and painting 3 coats complete in all respects</td>
<td>Sft.</td>
<td>76,000</td>
<td>542,250</td>
</tr>
<tr>
<td>22</td>
<td>Chapter 11</td>
<td>Item 23a iii</td>
<td>Distempering: a) new surface: - iii) three coats</td>
<td>Sft.</td>
<td>1688.175</td>
<td>7.820</td>
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<tr>
<td>No.</td>
<td>Item Description</td>
<td>Unit</td>
<td>Quantity 1</td>
<td>Quantity 2</td>
<td>Quantity 3</td>
<td></td>
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<td>-----</td>
<td>----------------------------------------------------------------------------------</td>
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<td></td>
</tr>
<tr>
<td>23</td>
<td>Chapter 13 Item 32A a(i) + a(ii) Providing and applying weather shield paint on new surface of approved quality on external surface of building including preparation of surface, application of primer complete in all respect: 2x coats</td>
<td>Sft.</td>
<td>419.50</td>
<td>24.470</td>
<td>10,265</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Chapter 13 Item # 5© I &amp; (ii) Preparing surface and painting of doors and windows any type (including edges) 3 coats of paint</td>
<td>Sft.</td>
<td>474.00</td>
<td>17.380</td>
<td>8,238</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>6/47/33-a-ii Providing and laying damp proof course 2&quot; thick (50 mm) of cement concrete 1:2: 4(using Sulphate resistant cement), including 02 coats of bitumen complete in all respects</td>
<td>Sft.</td>
<td>174.480</td>
<td>55.850</td>
<td>9,745</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>6/35 I (a) Providing and laying vertical damp proof course with cement sand plaster 3/4&quot; thick ratio (1:4) and bitumen coating (a) with one coat of bitumen and one coat of polythene sheet 500 gauge:</td>
<td>Sft.</td>
<td>219.000</td>
<td>36.500</td>
<td>7,994</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>25'/9 Providing and fixing of steel door single/double leaf iron work, such as gusset plates, knees, bends, stirrups, straps, rings, etc. including cutting, drilling, riveting, handling, assembling and fixing; complete in all respects as per drawings and directed by the Engineer.</td>
<td>Kg</td>
<td>210.00</td>
<td>222.01</td>
<td>46,622</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>25'/11 Erection and fitting in position iron doors, etc.</td>
<td>Kg</td>
<td>210.00</td>
<td>8.51</td>
<td>1,787</td>
<td></td>
</tr>
</tbody>
</table>

A) Total Schedule Items 1,716,414.83

Non Schedule Items

<table>
<thead>
<tr>
<th>No.</th>
<th>NSI</th>
<th>Providing and fixing first class burnt face bricks(gutka) with butterflies where need size 9&quot;x2 1/4&quot;x2 1/4&quot; laid in 1:2 c/sand mortar with Brick Surkhi i/c filling, curing and scaffolding for any height and designing of bricks complete in all respect, as per instructions of the Engineer.</th>
<th>Sft.</th>
<th>837.74</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>NSI</td>
<td>Providing &amp; Laying ceramic glazed tiles on walls Size (10&quot; x 13&quot;) Master or equivalent laid in cement mortar (1:2) and grouting with cement and pigment complete in all respect as per instructions of the Engineer.</td>
<td>Sft.</td>
<td>130.00</td>
</tr>
<tr>
<td></td>
<td>NSI</td>
<td>Description</td>
<td>Unit</td>
<td>Rate</td>
</tr>
<tr>
<td>---</td>
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<td>----------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------</td>
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</tr>
<tr>
<td>3</td>
<td></td>
<td>Providing &amp; Laying ceramic glazed tiles on floor Size (10&quot; x 13&quot;) Master or equivalent laid on 3/4&quot; thick cement sand bedding (1:3) set in cement mortar (1:2) and growing with cement and pigment complete in all respect as per instructions of the Engineer.</td>
<td>Sft.</td>
<td>42.50</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>P/F Steel Cabnit Shutter consisting of M.S angle iron 1-1/4&quot; x 1-1/4&quot; x 3/16&quot; frame brocod cover with 18 BG MS sheet hinged with angle iron 1-1/2&quot; x 1-1/2&quot; x 3/16&quot; chowkat Including welding riveting hold faste etc. with Red oxide Paint, complete in all respects as per drawings and directed by the engineer.</td>
<td>Per Sft.</td>
<td>22.50</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>Providing and fixing of UPVC Door 38mm thick shutter with chowkat including all necessary fitting, mongery, hinges etc. complete in all respects.</td>
<td>Per Sft.</td>
<td>17.50</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>Extra Item for Sulphate resistant cement</td>
<td>Per bag</td>
<td>158.00</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>Providing and fixing Steel Girder Size 7&quot;x12&quot;x1/2&quot; as required place i/c 3 coats of enamel paint complete in all respects.</td>
<td>Rft.</td>
<td>17.00</td>
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</tbody>
</table>

**B) Total Non-Schedule Items**

<table>
<thead>
<tr>
<th></th>
<th>CH 19: Item no.</th>
<th>Description</th>
<th>No</th>
<th>Rate</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3 (ii)</td>
<td>Providing and fitting glazed earthen ware water closet, squatter type (Orisa pattern), combined with foot rest. Coloured</td>
<td>1</td>
<td>1491.14</td>
<td>1,491.14</td>
</tr>
<tr>
<td>2</td>
<td>34 (ii)</td>
<td>Providing and fitting &quot;P&quot; trap: 10 cm (4&quot;) glazed</td>
<td>1</td>
<td>154.45</td>
<td>154</td>
</tr>
<tr>
<td>3</td>
<td>R (ii)</td>
<td>Providing and fixing, flushing bend of PVC 4 cm (1½&quot;)</td>
<td>1</td>
<td>55.45</td>
<td>55</td>
</tr>
<tr>
<td>4</td>
<td>12 (ii)</td>
<td>Providing and fitting plastic made low down flushing cistern 13.63 litre (3 gallons) capacity, including bracket set, copper connection, etc. complete.</td>
<td>1</td>
<td>1267.50</td>
<td>1,268</td>
</tr>
<tr>
<td>5</td>
<td>6 (ii)</td>
<td>Providing &amp; fitting glazed earthen ware wash hand basin 56x40 cm (22&quot;x16&quot;) including bracket set, waste pipe and waste coupling, etc. coloured, with pedestal.</td>
<td>Each</td>
<td>2778.75</td>
<td>2,779</td>
</tr>
<tr>
<td></td>
<td>Chapter</td>
<td>Item #</td>
<td>Description</td>
<td>Quantity</td>
<td>Unit Price</td>
</tr>
<tr>
<td>---</td>
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<td>------------</td>
</tr>
<tr>
<td>6</td>
<td>Chepter 19</td>
<td>(R) 7 (i)</td>
<td>Providing and fixing 1.5 cm (½”) dia connection, including check nuts, etc.: plastic rubber connection</td>
<td>Each</td>
<td>5</td>
</tr>
<tr>
<td>7</td>
<td>Chepter 19 Item # 24(i)</td>
<td>Providing and fixing chromium plated stop cock, heavy: 2 cm (¾”)</td>
<td>Each</td>
<td>3</td>
<td>286.60</td>
</tr>
<tr>
<td>8</td>
<td>Chepter 19 Item # 26(i)</td>
<td>Providing and fixing chromium plated bib cock: 2 cm (¾”)</td>
<td>Each</td>
<td>3</td>
<td>358.60</td>
</tr>
<tr>
<td>9</td>
<td>Chepter 19 Item #(R) 3(ii)</td>
<td>Providing and fixing, waste pipe of PVC: 4 cm (1½”)</td>
<td>Each</td>
<td>1</td>
<td>58.35</td>
</tr>
<tr>
<td>10</td>
<td>Chepter 19 Item # 35</td>
<td>Providing and fitting 10 cm (4&quot;) gully trap, including cement concrete, cost of PVC grating 15x15 cm (6&quot;x6&quot;) and masonry chamber 30x30 cm (12&quot;x12”).</td>
<td>Each</td>
<td>2</td>
<td>742.80</td>
</tr>
<tr>
<td>11</td>
<td>Chepter 19 Item # 39 (ii)</td>
<td>Supply and fitting of cast iron manhole cover with frame, etc. complete. 45 cm (18&quot;) dia</td>
<td>Each</td>
<td>1</td>
<td>879.90</td>
</tr>
<tr>
<td>12</td>
<td>Chepter 19 Item # 19</td>
<td>Providing and fixing looking glass 55x40 cm (22&quot;x16&quot;) size, and 5 mm thick, first quality. complete in all respects as per drawings and as directed by the engineer in charge.</td>
<td>Each</td>
<td>1</td>
<td>396.95</td>
</tr>
<tr>
<td>13</td>
<td>Chepter 19 Item # 22 (iv)</td>
<td>Providing and fixing plastic shelf 60x13 cm (24&quot;x5&quot;) with bracket and railing.</td>
<td>Each</td>
<td>1</td>
<td>438.30</td>
</tr>
<tr>
<td>14</td>
<td>19/22 (i)</td>
<td>Providing and fixing, plastic soap dish</td>
<td>No</td>
<td>1</td>
<td>165.60</td>
</tr>
<tr>
<td>15</td>
<td>19/18ii</td>
<td>P/F Chromium plated towel rail 50cm (20&quot;) long and 1.5 cm (1/2&quot;) dia.</td>
<td>Each</td>
<td>1</td>
<td>304.65</td>
</tr>
<tr>
<td>16</td>
<td>19/17</td>
<td>P/F Chromium plated toilet paper holder</td>
<td>Each</td>
<td>1</td>
<td>419.90</td>
</tr>
<tr>
<td></td>
<td>C) Total Schedule Items Public Helth</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Non Schedule Items Public Helth

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Page 25 of 95
Providing, laying, fixing and testing UPVC soil, waste, vent as per BS 4514 & 5255 or equivalent BS specifications including uPVC fittings with solvent cement jointing or rubber ring joints Popular/pipeplus make type B as approved by the Engineer Incharge complete in all respects, including, clamps, bends, tees, Y-tees, cowels, reducers, clean out etc., embedded in floors and walls, clamped to walls, suspended from slab, making requisite no. of holes and making good the same complete in all respects.

<table>
<thead>
<tr>
<th>NSI</th>
<th>4” i/d</th>
<th>Rft</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSI</td>
<td>3” i/d</td>
<td>Rft</td>
<td>20</td>
</tr>
</tbody>
</table>

Providing, laying, fixing, testing (at 90 psi) and disinfecting, polypropylene pipelines for cold and hot water supply inside toilets as per DIN or equivalent BS specification popular/pipeplus/bbj make PN-20 as approved by the Engineer Incharge complete in all respects to their entire satisfaction, including specials such as tee, cross, reducer, bend, union, elbow, plug, socket etc., supported on walls or suspended from slab or run in chases (chased in walls shall be made by using electric cutter) including supports, cutting and making good the same as necessary to the structure complete in all respects.

<table>
<thead>
<tr>
<th>NSI</th>
<th>i) 25mm o/d</th>
<th>Per Rft</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSI</td>
<td>ii) 32mm o/d</td>
<td>Per Rft</td>
<td>50</td>
</tr>
<tr>
<td>NSI</td>
<td>iii) 40 mm o/d</td>
<td>Per Rft</td>
<td>40</td>
</tr>
</tbody>
</table>

Providing and fixing, chromium plated mixer for wash hand basin, sink or shower.

| NSI | Providing and fixing gate valve | 2 |  

| Non MRS | P/F C.P double Bib cock 1/2” dia approved equivalent. | 1 |  

| Non MRS | P/F muslim shower ½” dia approved equivalent. | 1 |  

Providing and fixing gate valve

<table>
<thead>
<tr>
<th>NSI</th>
<th>i) 25mm</th>
<th>Each</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSI</td>
<td>ii) 32mm</td>
<td>Each</td>
<td>3</td>
</tr>
<tr>
<td>NSI</td>
<td>iii) 40 mm</td>
<td>Each</td>
<td>3</td>
</tr>
</tbody>
</table>

Page 26 of 95
### MRS ITEMS EXTERNAL SEWERAGE WORKS

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Unit</th>
<th>Quantity</th>
<th>Rate</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chepter 3 Item # 42i Earthwork excavation of trenches in open cutting for sewers and manhole chambers, etc. as shown in drawings including shuttering and timbering, dressing to correct section and dimensions according to templates and levels, and removing surface water, in all types of soil except shingle, gravel and rock. i) 0 ft. to 7.0 ft. (0 to 2.10 m) depth</td>
<td>Cft</td>
<td>1520.08</td>
<td>6.32</td>
<td>9,607</td>
</tr>
<tr>
<td>2</td>
<td>10/3/66 Providing and laying, watering and ramming brick ballast 1½&quot; to 2&quot; (40 mm to 50 mm) gauge mixed with 25% sand, for floor foundation, complete in all respects.</td>
<td>Cft.</td>
<td>122.91</td>
<td>50.44</td>
<td>6,199</td>
</tr>
<tr>
<td>3</td>
<td>21/15-A Providing and fixing 6&quot; thick R.C.C. manhole cover with tee shaped C.I. frame of 22&quot; I/d (frame weighing 37.324 Kg. or one maund as per Standard Drawing STD/PD No. 6, of 1977, complete in all respects.</td>
<td>Each</td>
<td>3.00</td>
<td>7911.20</td>
<td>23,734</td>
</tr>
<tr>
<td>4</td>
<td>Chepter 13 Item # 9i Bitumen coting to plaster or cement concrete surface 20Lbs per 100 Sft (9.07 K/g / Sqm)</td>
<td>Sft</td>
<td>201.35</td>
<td>12.65</td>
<td>2,547</td>
</tr>
<tr>
<td>5</td>
<td>7/30 Supplying and filling sand under floor; or plugging in wells in all respect or as per directed by the Engineer.</td>
<td>Cft</td>
<td>450.00</td>
<td>18.63</td>
<td>8,384</td>
</tr>
<tr>
<td>6</td>
<td>7/4(i) Pacca brick work in foundation and plinth in. i) Cement, sand mortar 1:4</td>
<td>Cft</td>
<td>233.63</td>
<td>220.23</td>
<td>51,451</td>
</tr>
<tr>
<td>7</td>
<td>11 Item # 9 (b) Cement plaster 1:4 up to 20' (6.00 m) height: 1/2&quot; thick</td>
<td>Sft</td>
<td>672.31</td>
<td>21.32</td>
<td>14,334</td>
</tr>
<tr>
<td>8</td>
<td>6/5i Providing and laying of Cement concrete plain including placing compacting, finishing and curing complete (including screening and washing of stone aggregate): (h) Ratio 1: 4: 8</td>
<td>Cft</td>
<td>45.38</td>
<td>179.04</td>
<td>8,124</td>
</tr>
<tr>
<td>9</td>
<td>6/5f Providing and laying of Cement concrete plain including placing compacting, finishing and curing complete (including screening and washing of stone aggregate): (h) Ratio 1: 2: 4)</td>
<td>Cft</td>
<td>21.98</td>
<td>225.55</td>
<td>4,957</td>
</tr>
</tbody>
</table>

### E) Total MRS EXTERNAL SEWERAGE WORKS

<table>
<thead>
<tr>
<th></th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>129,336.72</td>
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</tbody>
</table>

### NON-MRS ITEM EXTERNAL SEWERAGE WORKS
<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Providing and laying, cutting, jointing, testing Upvc pipe Class &quot;B&quot; 150 mm (6'') dia including all specials complete in all respect or as per directed by the Engineer.</th>
<th></th>
<th>Rft</th>
<th>450.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>NSI</td>
<td>Extra Item for Sulphate resistant cement</td>
<td></td>
<td>Per bag</td>
<td>35.00</td>
</tr>
</tbody>
</table>

**F) Total Non-MRS EXTERNAL SEWERAGE WORKS**

<p>| | | | | | |</p>
<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3/48'</td>
<td>Cleaning and grabbing uproot Sarkanda growth and disposal within 100 ft.</td>
<td>Sft</td>
<td>1400.00</td>
<td>0.87</td>
</tr>
<tr>
<td>2</td>
<td>3/25i</td>
<td>Compaction of earthwork with power road roller, including ploughing, mixing, moisturing, earth to optimam contant in layers etc complete. 95% to 100% maximam modified AASHO dry density.</td>
<td>Sft</td>
<td>1400.00</td>
<td>0.889</td>
</tr>
<tr>
<td>3</td>
<td>3/5i</td>
<td>Earthwork in ordinary soil for embankments lead upto 100 ft, including ploughing, mixing with blade grade or disc harrow or other suitable equipment and 95 % to 100 % maximam modified AASHTO dry density</td>
<td>Cft</td>
<td>2100.00</td>
<td>6.449</td>
</tr>
<tr>
<td>4</td>
<td>3/15i+3/25i</td>
<td>Compaction of earthwork with power road roller, including ploughing, mixing, moisturing, earth to optimam contant in layers etc complete. 95% to 100% maximam modified AASHO dry density. Filling , watering and ramming earth under floors with surplus eary from foundation etc</td>
<td>Cft</td>
<td>2100</td>
<td>4.574</td>
</tr>
<tr>
<td>5</td>
<td>3/7i</td>
<td>Earth work excavation in open cutting upto 5'-0 depth for storm water channels, drains, sullage drain in open areas, roads, streets, lanes, including under pinning of walls and shoring to protect existing works, shuttering and timbering the trenches, dressed to designed level and dimensions, trimming, removal of surface water.</td>
<td>Cft</td>
<td>700.00</td>
<td>6.46</td>
</tr>
</tbody>
</table>
### 6. 18/3(a)i + carriage

Providing and laying sub-base course of stone product of approved quality and grade, including placing, mixing, spreading and compaction of sub-base material to required depth, camber, grade to achieve 100% maximum modified AASHO dry density, including carriage of all material to site of work except gravel and aggregate.

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cft</td>
<td>600.00</td>
<td>114.59</td>
</tr>
</tbody>
</table>

### 7. 10/43b

Providing and laying Tuff pavers, having 7000 PSI, crushing strength of approved manufacturer, over 2" to 3" sand cushion i/c grouting with sand in joints i/c finishing to require slope. Complete in all respect. (50% Grey / 50% Colored) 60 mm thick

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<thead>
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</thead>
<tbody>
<tr>
<td></td>
<td>Sft</td>
<td>600.00</td>
<td>104.50</td>
</tr>
</tbody>
</table>

### G) Total Schedule Item FOOTPATH

<p>| | | | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td></td>
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<td>161,586.20</td>
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### Non Schedule Items

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NSI</td>
<td>Providing and Laying Kerb Stone of Precast cement concrete (1:2:4) 3500 PSI size (12”x6”x18”) laying in cement sand mortar 1:3 over PCC 1:4:8 under and sides including allighning, placing including 2 Coats of enamel painting including cost of excavation and back filling of excavated stuff and its disposal complete in all respect as per drawing &amp; specifications.</td>
<td>Rft</td>
</tr>
</tbody>
</table>

### H) Total Non-Schedule Item FOOTPATH

<p>| | | | |</p>
<table>
<thead>
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### MRS ITEMS MECHANICAL WORKS

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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Direct rotary /Reverse rotary drilling of bore hole for tubewell in all type of soil except shingle / gravel rock 20”-26” inch dia.</td>
<td>Rft</td>
<td>200.00</td>
</tr>
<tr>
<td>a</td>
<td>From ground level to 250 ft. (75 m) below ground level</td>
<td>Rft</td>
<td>200.00</td>
</tr>
<tr>
<td>b</td>
<td>Exceeding 250 ft. (75 m) depth below ground level</td>
<td>Rft</td>
<td>339.00</td>
</tr>
<tr>
<td>2</td>
<td>Providing &amp; installation M.S blind pipe socketed / welded joint, M.S reducer (where necessary), in tube well bore hole, including jointing / welding with strainer, etc. complete in all respects 20” i/d, (500 mm i/d 6 mm) thick.</td>
<td>Rft</td>
<td>200.00</td>
</tr>
<tr>
<td>Sr. No</td>
<td>Code</td>
<td>Description</td>
<td>Quantity</td>
</tr>
<tr>
<td>--------</td>
<td>------</td>
<td>-------------------------------------------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>3</td>
<td>23/16 (c)</td>
<td>Providing &amp; installing P.V.C blind pipe, B.S.S class &quot;D&quot;, in tube well bore hole, including sockets and solvents etc. complete in all respects 2&quot; i/d (50 mm)</td>
<td>Rft</td>
</tr>
<tr>
<td>4</td>
<td>23/18</td>
<td>Shrouding with graded pea gravel 3/8&quot; to 1/8&quot; (10 to 3 mm), around tubewell in bore hole (according to dia) complete in all respects</td>
<td>Cft</td>
</tr>
<tr>
<td>5</td>
<td>23/7</td>
<td>Providing strong substantially built box of deodar wood 4' x 2½' x 9&quot; (1200 x 750 x 225 mm), with compartments, lock complete and locking arrangement, for preserving samples of strata from bore hole. complete in all respects.</td>
<td>job for complete bore</td>
</tr>
<tr>
<td>6</td>
<td>3/7 (i)</td>
<td>Earthwork excavation in open cutting upto 5' depth for storm water channels, drains, sullage drains in open areas, roads, streets, lanes including under pinning of walls and shoring to protect existing works, shuttering and timbring the trenches, dresses to designed to level and dimensions, trimming, removal of surface water from trenches, back filling and surplus excavated material disposed of and dressed within 50 ft. complete in all respects.</td>
<td>Cft</td>
</tr>
<tr>
<td>7</td>
<td>6/9 (c)</td>
<td>Providing &amp; fabrication of mild steel reinforcement for cement concrete, including cutting, bending, laying in position, making joints &amp; fastening, including cost of binding wire, and labour charges for binding of steel reinforcement (also including removal of rust from deformed bars (Grade - 60) complete in all respects as per drawings, specifications or as directed by engineer.</td>
<td>Kg</td>
</tr>
<tr>
<td>8</td>
<td>6/6 a ii (3)</td>
<td>Providing and laying reinforce cement concrete in foundation (Ratio 1:2:4) i/c forms molds, shuttering, lifting compacting curing rendering, finishing surface in foundation, complete in all respects.</td>
<td>Cft</td>
</tr>
<tr>
<td>9</td>
<td>25/9 25/11</td>
<td>M.S plate 2'-6&quot; x 2'-6&quot; x 6&quot;&quot;(sooter) thick for motor foundation with 1' long, 1&quot; thick Bolt / Nut. Including erection/ fixing complete in all respects</td>
<td>Kg</td>
</tr>
</tbody>
</table>

I)  Total MRS Items Mechanical 1,865,009.10
<table>
<thead>
<tr>
<th>No.</th>
<th>NSI</th>
<th>Description</th>
<th>Unit</th>
<th>Quantity</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NSI</td>
<td>Providing &amp; installing of Fiber glass blind pipe 10&quot; dia and 6mm wall thickness, including jointing with strainer pipe, complete in all respects.</td>
<td>Rft</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>NSI</td>
<td>Providing &amp; installing Fiber glass strainer of 10&quot; dia and 6mm wall thickness with 1 mm slot openings including jointing with blind pipe etc. complete in all respects.</td>
<td>Rft</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>NSI</td>
<td>Providing &amp; installing of Fiber glass bail plug of 10&quot; dia and 6mm wall thickness, complete in all respects.</td>
<td>Ft</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>NSI</td>
<td>Taking sample one number at every 10 ft. or from each stratum as per direction of Engineer including submission of construction charts etc. and results of strata analysis, complete in all respects.</td>
<td>No.</td>
<td>53</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>NSI</td>
<td>Providing &amp; fixing M.S Reducer 20&quot; x 10&quot; dia, 6 mm thick, 2' long, complete in all respects.</td>
<td>Each</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>NSI</td>
<td>Providing &amp; sealing with puddle clay between shrouding &amp; grouting etc.</td>
<td>Cft</td>
<td>625</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>NSI</td>
<td>Providing &amp; fixing MS steel cap 1/4&quot; thick (top plate) of 20&quot; dia to cover the casing complete in all respects.</td>
<td>Job</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>NSI</td>
<td>Providing sanitary seal cement mortar using sulphate resistance cement ratio 1:2 of annural space around 20&quot; mild steel housing pipe including all materials, complete in all respects.</td>
<td>Rft</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>NSI</td>
<td>Developing (above 2-cusec discharge), Testing and disinfecting of complete well in accordance with specifications including disposal arrangement of water as pumped complete Continuously along with compressor, accessories as required at site complete in all respects. (Till clearance of sand)</td>
<td>Per Hrs</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>NSI</td>
<td>Electrical logging by using logging equipment. Logging parameters includes:- Natural Gamma- Long/short normal resistivity - Single point resistance (SPR)- spontaneous potential (SP)- Temperature.</td>
<td>Job</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>NSI</td>
<td>Providing &amp; installing Centralizers as per specifications.</td>
<td>No.</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NSI</td>
<td>Description</td>
<td>Unit</td>
<td>Quantity</td>
<td>Rate</td>
</tr>
<tr>
<td>---</td>
<td>-----</td>
<td>------------------------------------------------------------------------------</td>
<td>-------</td>
<td>----------</td>
<td>-------</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>Furnishing sample of water from borehole and chemical analysis.</td>
<td>Each</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>J) Total Non Schedule MECHANICAL WORKS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Schedule Items water supply</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>3/44</td>
<td>Excavation of trenches in all kind of soil, except cutting rock, for water</td>
<td>Cft</td>
<td>2,562.50</td>
<td>5.472</td>
</tr>
<tr>
<td></td>
<td></td>
<td>supply pipe lines upto 5 ft. (1.5 m) depth from ground level, including</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>trimming, dressing sides, leveling the beds of trenches to correct grade</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>and cutting pits for joints, etc. complete in all respects.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>3/15 (i)</td>
<td>Filling, watering and ramming earth under floors, with surplus earth from</td>
<td>Cft</td>
<td>2,401.58</td>
<td>3.685</td>
</tr>
<tr>
<td></td>
<td></td>
<td>foundation, etc.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>23/30 (g)</td>
<td>Providing and fixing sluice valve 12'' dia of B.S.S. quality and weight,</td>
<td>Each</td>
<td>4.00</td>
<td>39306</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Class 'B', for cast iron/MS pipe line, (including cost of jointing material)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>complete in all respects.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>k) Total MRS Items water supply</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Non - Schedule Items</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>NSI</td>
<td>Providing and installation M.S pipe (schedule 40) socketed/welded joint M.S</td>
<td>Rft</td>
<td>170.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>reducer (where necessary) in trenches or in pump house with flanged and</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>flanged joints with hanging and fixing arrangements including nut bolts and</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>connecting with over head water tank (missing pipes ), rising main and</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>existing distribution system including bitumen coating and</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>testing/commissioning complete in all respects as per drawing or as</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>directed by the Engineer:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>12'' i/d (300mm) // (schedule 40)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>NSI</td>
<td>Providing and fixing M.S Elbows including nut bolts ,welding where</td>
<td>No</td>
<td>10.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>required 12'' dia (Schedule 40)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>NSI</td>
<td>Providing &amp; fixing MS Flanges 12'' dia 1'' thick including nut bolts and</td>
<td>Each</td>
<td>36.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>jointing material complete in all respects</td>
<td></td>
<td></td>
<td></td>
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<td>---</td>
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<td></td>
</tr>
</tbody>
</table>
| 4 | NSI | Supply & installation water gauge with following accessories  
- 15" dia 9" deep 16 gauge brass ball.  
- 1/8" thick brass or copper rod or tube for float guide.  
- 2 1/2" dia cast iron pulley  
- 1/8" dia Steel rope.  
- Teak wood gauge board 16' length, 2" thick.  
- Water level gauge.  
Complete job including all specials required at site | Job | 1.00 | - |
<p>| 5 | NSI | Providing &amp; fixing Air Release Valve (Double acting) nominal dia 80 mm (3&quot; dia) in cast iron, suitable for maximum pressure of 16 bars (AEP/Gen field, KSB group or equivalent approved by the Engineer), complete in all respects (Imported) | No | 1.00 | - |
| 6 | NSI | Providing &amp; fixing Pressure gauge 4&quot; internal dia 0 - 150 PSI capacity including gauge cock, copper pipe, flair nut and drilling of holes in pipes etc complete in all respects | Job | 1.00 | - |
| 7 | NSI | Providing &amp; Installing of bulk flow water meter 8&quot; internal dia complete in all respects. | Job | 1.00 | - |
| 8 | NSI | Providing and fixing of MS TEE 12&quot; dia schedule-40, seamless including welding and nut bolts complete in all respects. | Each | 2.00 | - |
| 9 | NSI | Supply and Fixing M.S pipe 8&quot; dia, 5mm thick including welding with bend flanges and existing system as required at site complete job including Nut / Bolts and joints or as directed by Engineer incharge Including Raducer where required (missing pipes of over flow from top of water tank to bottom) | Rft | 10.00 | - |
| 10 | NSI | Supply and Fixing M.S elbow 8&quot; dia, 5mm thick including welding with bend flanges and existing system as required at site complete job including Nut / Bolts and joints or as directed by Engineer incharge (Including Raducer where required) | No | 2.00 | - |</p>
<table>
<thead>
<tr>
<th></th>
<th>NSI</th>
<th>Supply and Fixing M.S flange 8” dia, 5mm thick including welding with bend flanges and existing system as required at site complete job including Nut / Bolts and joints or as directed by Engineer incharge (Including Raducer where required)</th>
<th>No</th>
<th>6.00</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>L)</td>
<td></td>
<td>Total Non-Schedule water supply</td>
<td></td>
<td></td>
<td>-</td>
</tr>
</tbody>
</table>

**Part- A  VERTICAL TURBINE Non MRS**

<table>
<thead>
<tr>
<th>1. Vertical Line Shaft turbine pump (KSB Pumps) Complete Set</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity 2.0 Cusecs</td>
</tr>
<tr>
<td>Pump total head 230 ft</td>
</tr>
<tr>
<td>Speed 1450 RPM</td>
</tr>
<tr>
<td>Bowl Input 65.04 Hp</td>
</tr>
<tr>
<td>Line shaft loss 1.52 HP</td>
</tr>
<tr>
<td>Pump Input 66.56 HP</td>
</tr>
<tr>
<td>Prime Mover (SEM/DE) 100 HP</td>
</tr>
<tr>
<td>Max O.D of Bowl 11.5 inch</td>
</tr>
<tr>
<td>I.D. tube well 16” Minimum</td>
</tr>
<tr>
<td>Length of column pipe 140 ft</td>
</tr>
<tr>
<td>Length of top pipe 1 ft</td>
</tr>
<tr>
<td>Total length of column 141 ft</td>
</tr>
<tr>
<td>Material Specifications</td>
</tr>
<tr>
<td>Bowls Cast Iron</td>
</tr>
<tr>
<td>Impellers Bronze</td>
</tr>
<tr>
<td>Wearing rings Cast Iron</td>
</tr>
<tr>
<td>Shaft Stainless Steel</td>
</tr>
<tr>
<td>Shaft sleeves Bronze</td>
</tr>
<tr>
<td>Bearings Rubber Lined</td>
</tr>
<tr>
<td>Column Pipe Assembly</td>
</tr>
<tr>
<td>Column pipe Steel</td>
</tr>
<tr>
<td>Shaft Carbon steel</td>
</tr>
<tr>
<td>Shaft sleeves S.S</td>
</tr>
<tr>
<td>Shaft coupling Carbon steel</td>
</tr>
<tr>
<td>Bearings Rubber Lined</td>
</tr>
<tr>
<td>Bearing Retainer (Ready cast) Cast Iron</td>
</tr>
<tr>
<td>Column pipe Coupling Flanged</td>
</tr>
<tr>
<td>Top shaft Stainless Steel</td>
</tr>
<tr>
<td><strong>Components parts of each pumping unit</strong></td>
</tr>
<tr>
<td>Pump assembly of 5 stages with mixed flow type impeller</td>
</tr>
<tr>
<td>Column assembly of 8 inches I.D with flanged joint.</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Each 10 ft Length 14 Sets</td>
</tr>
<tr>
<td>and one top set 1 ft length</td>
</tr>
<tr>
<td>Shaft dia 35 mm</td>
</tr>
<tr>
<td>Discharge head with 8 inches discharge branch, type VN-2541 Flange BSS with pre lubrication tank</td>
</tr>
<tr>
<td>Vertical solid shaft electrical motor, totally enclosed fan cooled, tropically insulated, 3 phase, 50 cycles, 380/400 volts, 100 HP/1450 RPM with non-reverse ratchet, make SIEMENS, insulation class F and temperature rise 80 degree C above 40 degree C ambient temperature.</td>
</tr>
<tr>
<td>Accessories</td>
</tr>
<tr>
<td>1. MCU Type ASD 100 HP (KSB)</td>
</tr>
<tr>
<td>2. Mounting clamps 8 inch column 4 halves</td>
</tr>
<tr>
<td>3. Cast Iron Sluice &amp; N. R Valves 8”</td>
</tr>
<tr>
<td>4. Electrical &amp; Mechanical installation with in the pump house</td>
</tr>
<tr>
<td>Part-B VERTICAL TURBINE</td>
</tr>
<tr>
<td>Part-B VERTICAL TURBINE Non MRS</td>
</tr>
<tr>
<td>Power Factor Improvement Panel for 100 H.P Motor complete unit</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1</th>
<th>Fully protected automatic power factor improvement relays set of three steps to maintain the set, 0.95 lagging in motor operating condition, 1 set (complete unit including power factor relay, power factor capacitors, magnetic contactor, MCCBs 3 poles, control breakers, C/Ts, indication lights, meters etc, (Components make SIEMENS/Tersaki/Legrand) or as approved by the Engineer in charge.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Digital power factor meter of BSS class - 2, 1 job</td>
</tr>
<tr>
<td>3</td>
<td>Internal component wiring with copper Bus bar arrangements duly tuned and color coated 1 no</td>
</tr>
<tr>
<td>4</td>
<td>Surge Suppressor 09 No’s, for capacitors protection, 1 no</td>
</tr>
<tr>
<td>5</td>
<td>Rubber sheet 3’ x 6’, 1 No</td>
</tr>
</tbody>
</table>

**PART-B VERTICAL TURBINE**

**POWER FACTOR IMPROVEMENT PANEL FOR 100 H.P MOTOR COMPLETE UNIT**

| 1 | Fully protected automatic power factor improvement relays set of three steps to maintain the set, 0.95 lagging in motor operating condition, 1 set (complete unit including power factor relay, power factor capacitors, magnetic contactor, MCCBs 3 poles, control breakers, C/Ts, indication lights, meters etc, (Components make SIEMENS/Tersaki/Legrand) or as approved by the Engineer in charge. | 1 |
|---|---|
| 2 | Digital power factor meter of BSS class - 2, 1 job |
| 3 | Internal component wiring with copper Bus bar arrangements duly tuned and color coated 1 no |
| 4 | Surge Suppressor 09 No’s, for capacitors protection, 1 no |
| 5 | Rubber sheet 3’ x 6’, 1 No |

**M) TOTAL Non-Schedule VERTICAL TURBINE Part A+B**

**EXTERNAL ELECTRICAL MRS ITEMS**
<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Description</th>
<th>Unit</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3/44</td>
<td>Excavation of trenches in all kind of soil, except cutting rock, for water supply pipe lines upto 5 ft (1.5 m) depth from ground level, including trimming, dressing sides, leveling the beds of trenches to correct grade and cutting pits for joints, etc. complete in all respects.</td>
<td>Cft</td>
<td>3150</td>
<td>5.472</td>
<td>17236.8</td>
</tr>
<tr>
<td>2</td>
<td>3 / 42</td>
<td>Earthwork excavation in open cutting for sewer and manhole as shown in drawings including shuttering and timbring, dressing to correct section and dimensions according to templates and levels, and removing surface water, in all type of soil except shingle, gravel and rock.</td>
<td>Cft</td>
<td>36</td>
<td>6.32</td>
<td>227.52</td>
</tr>
<tr>
<td>3</td>
<td>6/9 c</td>
<td>Providing and Fabrication of mild steel reinforcement for cement concrete, including cutting, bending, laying in position, making joints and fastenings, including cost of binding wire and labour charges for binding of steel reinforcement (also includes removal of rust from bars (Grade 60) complete in all respects as per drawings, specifications or as directed by engineer.</td>
<td>kg</td>
<td>15.50</td>
<td>151.46</td>
<td>2,347.15</td>
</tr>
<tr>
<td>4</td>
<td>6/5i</td>
<td>Providing and laying of Cement concrete plain including placing compacting, finishing and curing complete (including screening and washing of stone aggregate): (h) Ratio 1: 4: 8</td>
<td>Cft</td>
<td>6.68</td>
<td>179.04</td>
<td>1,196.43</td>
</tr>
<tr>
<td>5</td>
<td>7/4(i)</td>
<td>Pacca brick work in foundation and plinth in. i) Cement, sand mortar 1:4</td>
<td>Cft</td>
<td>24.00</td>
<td>220.23</td>
<td>5,285.52</td>
</tr>
<tr>
<td>6</td>
<td>6/f</td>
<td>Providing and laying reinforced cement concrete using coarse sand and screened graded and washed aggregate, in required shape and design, including forms, moulds, shuttering, lifting, compacting, curing, rendering and finishing exposed surface, complete (a)(ii) Reinforced cement concrete in slab of rafts / strip foundation, base slab of column and retaining walls; etc and other structural members other than those mentioned in 5(a)(i)above not requiring form work (i.e. horizontal shuttering) complete in all respects: (3) Type C (nominal mix 1: 2: 4)</td>
<td>Cft</td>
<td>5.06</td>
<td>225.55</td>
<td>1,141.85</td>
</tr>
<tr>
<td></td>
<td>Chapter 11 Item # 9 (b)</td>
<td>Cement plaster 1:4 up to 20’ (6.00 m) height: 1/2” thick</td>
<td>Cft</td>
<td>24.00</td>
<td>21.32</td>
<td>511.68</td>
</tr>
<tr>
<td>---</td>
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<td>---</td>
</tr>
<tr>
<td><strong>N)</strong></td>
<td>Total MRS External Electrical</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>27,946.95</td>
</tr>
</tbody>
</table>

**NON MRS ITEMS External Electrical**

<table>
<thead>
<tr>
<th>1</th>
<th>Main Panel Board (MPB)</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>NSI</td>
<td>Supply, Installation and Commissioning of floor standing/wall mounted type Main Panel Board (MPB) fabricated from 14-SWG sheet steel with electrostatic paint of approved color, Powder coated comprising of incoming 3 phase moulded case circuit breakers (as specified) and outgoing single phase Miniature circuit breakers (having magnetic and thermal trip devices) as given below, complete with internal wiring earthing, neutral link, termination blocks and cable chamber and brass glands at the bottom of the MPB shall have of comprising of following:</td>
<td></td>
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<tr>
<td><strong>INCOMING</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>250 ATP MCCB (ICS 25 KA) including termination link.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Digital voltmeter + volt selector switch.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Digital ampere meter + ampere selector switch</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>C.T’s ratio 250/5A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Phase Indication light+control MCB’s (2A)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>OUTGOING</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>250 ATP&amp;NE copper busbars for termination pump panel cable.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>200 ATP MCCB (ICS 15 KA)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>30 ATP MCCB (ICS 10 KA) couple to and having 6-10/15 ASP MCB (6 KA) including neutral and earth connection strip.</td>
<td></td>
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</tr>
</tbody>
</table>

| 2 | POWER CABLE AND CABLE CATCH PIT | | | | | |
### NSI Supply, laying and connecting PVC sheathed armoured with G.I. WIRE 16 SWG cable 37/0.072” 660/1100 volts 4 core (95mm²) Copper as approved by engineer of following size (including sand cushion & bricks where req):

<table>
<thead>
<tr>
<th></th>
<th>Per Meter</th>
<th></th>
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<tbody>
<tr>
<td>a</td>
<td>90</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### EARTHING SYSTEM
Supply and installation of 1½” dia and 10 ft long 16-SWG tin plated copper pipe to be lowered in 30 feet deep 4” dia bore hole, complete with clamps from bottom and top of pipe rod to ground surface earth connecting point the pipe and bore hole to be filled with earth chemical make ERICO model GEM-25A, complete with 1 x 70 mm² Standard copper conductor from earth pipe to ground surface in 11/2” dia PVC pipe with with breather hole (Length 5 feet only) with watering cap, earth hole comprising of 8” dia, 12” deep, 16-SWG M.S. cover, both hot dipped galvanized as per detail shown in drawings.

<table>
<thead>
<tr>
<th></th>
<th>Job</th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### NSI Extra Item for Sulphate Resistant Cement

<table>
<thead>
<tr>
<th></th>
<th>Bags</th>
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<tbody>
<tr>
<td></td>
<td>10.00</td>
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</tr>
</tbody>
</table>

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**Total NON MRS ITEMS External Electrical**

### Schedule Item Internal Electrical

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>24/3</td>
<td>Supply and erection of PVC pipe for wiring recessed in walls, including inspection boxes, pull boxes, hooks, cutting jharries and repairing surface, etc, complete with all specials.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>i) 20 mm i/d</td>
<td>Rft 330.00 48.05 15,857</td>
</tr>
<tr>
<td></td>
<td>ii) 25 mm i/d</td>
<td>Rft 167.00 55.30 9,235</td>
</tr>
<tr>
<td></td>
<td>iii) 40 mm i/d</td>
<td>Rft 30.00 81.75 2,453</td>
</tr>
</tbody>
</table>

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>24/10 a</td>
<td>Supply and erection of single core PVC insulated copper conductor cables, in pre laid PVC pipes / MS conduit / GI pipe, complete in all specials (rates only for cable)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>i) 3/0.29 inch</td>
<td>Rft 930.00 12.75 11,858</td>
</tr>
<tr>
<td></td>
<td>ii) 7/.029 inch</td>
<td>Rft 400.00 17.00 6,800</td>
</tr>
<tr>
<td></td>
<td>iv) 7/.036 inch</td>
<td>Rft 200.00 24.15 4,830</td>
</tr>
<tr>
<td>P</td>
<td>Total Schedule Item Internal Electrical</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>----------------------------------------</td>
<td>---</td>
</tr>
<tr>
<td>Non Schedule Item</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>51,031.60</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>NSI</td>
<td>Supply &amp; Fixing 4 x Feet long double LED light complete in all respects approved make / as approved by engineer incharge.</td>
</tr>
<tr>
<td>2</td>
<td>NSI</td>
<td>Supply &amp; Fixing Light Plug 10 Amp with box complete approved make / as approved by engineer incharge.</td>
</tr>
<tr>
<td>3</td>
<td>NSI</td>
<td>Supply &amp; Fixing 6 Gang One way Switch Plate with box complete approved make / as approved by engineer incharge.</td>
</tr>
<tr>
<td>4</td>
<td>NSI</td>
<td>Supply &amp; Fixing Ceiling Fan 56“ dia with fan box approved make / as approved by engineer incharge.</td>
</tr>
<tr>
<td>5</td>
<td>NSI</td>
<td>Supply &amp; Fixing 4 Gang One way Switch Plate with box complete approved make / as approved by engineer incharge.</td>
</tr>
<tr>
<td>6</td>
<td>NSI</td>
<td>Supply &amp; Fixing Fan Dimmer approved make / as approved by engineer incharge.</td>
</tr>
<tr>
<td>7</td>
<td>NSI</td>
<td>Supply &amp; Fixing Exhaust Fan Steel Body 18” dia approved make / as approved by engineer incharge.</td>
</tr>
<tr>
<td>8</td>
<td>NSI</td>
<td>Supply &amp; Fixing Exhaust Fan Plastic Body 12” dia approved make / as approved by engineer incharge.</td>
</tr>
<tr>
<td>9</td>
<td>NSI</td>
<td>Supply &amp; Fixing LED Light Round Shape (Open) 9” dia approved make / as approved by engineer incharge.</td>
</tr>
<tr>
<td>10</td>
<td>NSI</td>
<td>Supply and fixing Mirror light approved make / as approved by engineer incharge.</td>
</tr>
<tr>
<td>11</td>
<td>NSI</td>
<td>Supply and fixing wall bracket LED light approved make / as approved by engineer incharge.</td>
</tr>
<tr>
<td>12</td>
<td>NSI</td>
<td>Supply &amp; Fixing Electric pannel board 15” x 18” (D.B) duly painted and wiring complete approved make / as approved by engineer incharge, along with following accessories:1 x 30 Amp TP MCCB RC : 25KA4 x 10 Amp Single phase SP RC : 25ka3 x Volt meter/Amp Meter3 x Indication lamp</td>
</tr>
</tbody>
</table>
13 NSI Supply and installation of 11/2” dia and 10 ft long 16-SWG tin plated copper pipe to be lowered in 30 feet deep 4” dia bore hole, complete with clamps from bottom and top of pipe rod to ground surface earth connecting point, the pipe and bore hole to be filled with earth chemical make ERICO model GEM-25A, complete with 1 x 70 mm2 standard copper conductor from earth pipe to ground surface in 11/2” dia PVC pipe with breather hole (Length 5 feet only) with watering cap, earth access hole comprising of 8” dia, 12” deep 16-SWG M.S cover, both hot dipped galvanized as per details shown in drawings approved make / as approved by engineer incharge.

Each 1.00 -

<table>
<thead>
<tr>
<th>Q)</th>
<th>Total Non-Schedule Item Internal Electrical</th>
</tr>
</thead>
<tbody>
<tr>
<td>R)</td>
<td>Total MRS (A+C+E+G+I+K+N+P)</td>
</tr>
<tr>
<td>S)</td>
<td>Add 5% PRA</td>
</tr>
<tr>
<td>T)</td>
<td>Grand TOTAL MRS ITEMS</td>
</tr>
<tr>
<td>U)</td>
<td>Grand Total NON MRS (B+D+F+H+J+L+M+O+Q)</td>
</tr>
</tbody>
</table>

v) INCREASE EFFECT

<table>
<thead>
<tr>
<th>Schedule Items Rs.4,350,695 X __________ % Above / Below</th>
<th>Rs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRAND TOTAL (T+U+V) included of all applicable taxes</td>
<td>Rs.</td>
</tr>
</tbody>
</table>

Amount in words: Pak Rupees;

Name of Bidder / Sign & Stamp

Notes:
1. The financial data shall be expressed in Pakistani Rupees (PKR).
2. Bids should be submitted inclusive of all taxes / duties.
**Work Program till Delivery Schedule**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Description</th>
<th>Work Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>CONSTRUCTION OF NEW TUBEWELL # 6 &amp; PUMP HOUSE AT SUNDAR INDUSTRIAL ESTATE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>As per attached Bill of Quantities (BOQs) – Appendix A</td>
<td></td>
</tr>
</tbody>
</table>

Note: Shortest possible completion timeframe is required.
### Organizational Information

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Required Information</th>
<th>Response (to be filled by Bidder)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Legal name of the organization</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Year of Registration / Establishment of the Organization</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>National Tax Number</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>General / Punjab Sales Tax Number</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>What is the legal status of Bidder’s organization?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Public Sector Org. / Section 42 Company / Public Ltd. Company / Private Ltd Company / Others (Pls. specify)</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Name and designation of Head of Organization</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mobile Number</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Phone/s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Email</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fax</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Address of Organization:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Website Address:</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Name and designation of Contact Person</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mobile Number</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Phone/s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Email</td>
<td></td>
</tr>
</tbody>
</table>

**Bidder’s Company:**

- **Name:**
- **Sign / Stamp:**

### VI. FORM OF BID

Date

To: Board of Management Sundar Industrial Estate
Gate #2 Sundar Industrial Estate
Sundar-Raiwind Road, Lahore, Pakistan
Having examined the Bidding Documents including Instructions to Bidders, Bidding Data, Conditions of Contract and other sections within the aforementioned document for ____________________.

We (the undersigned), offer to perform the scope of works with remedy for any defects therein in conformity with the General and Special Conditions of Contract, Specifications and other details for the sum of Rs. ____________________ or such other sum as may be ascertained in accordance with the said conditions. We agree that the Board of Management Sundar Industrial Estate reserves the right to reject one or all bids on the basis of powers bestowed upon procuring agencies within the PPRA Rules 2014.

We also understand that the selection of the bidder shall be as per the evaluation criteria clearly mentioned within these bidding documents, the purpose of which is to maximize the value for money for the Employer.

____________________________________

M/s.

Sign / Stamp

VII. FORM OF BID SECURITY

Guarantee No.__________________________

Executed on _________________________
Name of Guarantor (Bank) with address: 
________________________________________________________________________

Name of Principal (Tenderer) with address __________________________________________
________________________________________________________________________

Penal Sum of Security (express in words and figures): ______________________________
________________________________________________________________________

Tender Reference No. ___________________________ Date of Tender ____________________
________________________________________________________________________

KNOW ALL MEN BY THESE PRESENT, that in pursuance of the terms of the Tender and at the request of the said Principal, we the Guarantor above-named are held and firmly bound unto the ____________________________________, (hereinafter called The “Procuring Agency”) in the sum stated above, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal has submitted the accompanying Tender numbered dated as above for ____________________________________ (Particulars of Tender) to the said Procuring Agency and WHEREAS, the Procuring Agency has required as a condition for considering said Tender that the Principal furnish a Tender Security in the above said sum to the Procuring Agency, conditioned as under:

that the Tender Security shall remain valid for a period of 28 days beyond the period of validity of the tender;
that in the event of;
the Principal withdraws his Tender during the period of validity of Tenderer failure of the successful tenderer to sign the proposed Contract Agreement.
then the entire sum be paid immediately to the said Procuring Agency for delayed completion and not as penalty for the successful tenderer’s failure to perform.

NOW THEREFORE, if the successful tenderer shall, within the period specified therefor, on the prescribed form presented to him for signature enter into a formal Contract with the said Procuring Agency in accordance with his Tender as accepted and furnish within the allotted time of his being requested to do so.

PROVIDED THAT the Guarantor shall forthwith pay to the Procuring Agency the said sum stated above upon first written demand of the Procuring Agency without cavil or argument and without requiring the Procuring Agency to prove or to show grounds or reasons for such demand notice of which shall be sent by the Procuring Agency by registered post duly addressed to the Guarantor at its address given above.

PROVIDED ALSO THAT the Procuring Agency shall be the sole and final judge for deciding whether the Principal has duly performed his obligations to sign the Contract Agreement, or has defaulted in fulfilling said requirements and the Guarantor shall pay without objection the
sum stated above upon first written demand from the Procuring Agency forthwith and without any reference to the Principal or any other person.

IN WITNESS WHEREOF, the above bounded Guarantor has executed the instrument under its seal on the date indicated above, the name and seal of the Guarantor being hereto affixed and these presents duly signed by its undersigned representative pursuant to authority of its governing body.

Guarantor (Bank) __________________________

<table>
<thead>
<tr>
<th>Witness 1</th>
<th>Witness 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Signature</td>
<td>1. Signature</td>
</tr>
<tr>
<td>2. Name</td>
<td>2. Name</td>
</tr>
<tr>
<td>3. Title</td>
<td>3. Title</td>
</tr>
</tbody>
</table>
VIII. FORM OF CONTRACT AGREEMENT

[The successful Bidder shall fill in this form in accordance with the instructions indicated]

THIS CONTRACT AGREEMENT is made on the [insert: number] day of [insert: month], [insert: Year].

BETWEEN
(1) Board of Management Sundar Industrial Estate, a semi-government organization under the laws of Pakistan and having its principal place of business at Gate #2, Sundar Industrial Estate, Sundar-Raiwind Road, Lahore. ] (hereinafter called “the Employer”), and

(2) [ insert name of Contractor], a corporation incorporated under the laws of Pakistan and having its principal place of business at [ insert: address of Contractor ] (hereinafter called “the Contractor”).

WHEREAS the Purchaser invited bid No. _______________ for the __________________________ and has accepted a Bid by the Supplier for the supply of those __________________________ in the sum of [insert Contract Price in words and figures, expressed in the Contract currency(ies)] (hereinafter called “the Contract Price”).

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to.

2. The following documents shall constitute the Contract between the Employer and the Contractor, and each shall be read and construed as an integral part of the Contract:

   (a) This Contract Agreement
   (b) Special Conditions of Contract
   (c) General Conditions of Contract
   (d) The Supplier’s Bid and original Price Schedules
   (e) The Purchaser’s Notification of Award

3. This Contract shall prevail over all other Contract documents. In the event of any discrepancy or inconsistency within the Contract documents, then the documents shall prevail in the order listed above.

4. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Supplier hereby covenants with the Purchaser to provide the Goods and Services (i.e. __________________________) and to remedy defects therein in conformity in all respects with the provisions of the Contract.

5. The Purchaser hereby covenants to pay the Employer in consideration of the provision of the Goods and Service (i.e. __________________________) and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.
IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of [insert the name of the Contract governing law country] on the day, month and year indicated above.

____________________  _______________________
(Employer)            (Contractor)

Witness 1
Signature
Name
Title

Witness 2
Signature
Name
Title

BANK GUARANTEE FOR ADVANCE PAYMENT

(Letter by the Guarantor to the Buyer)

Guarantee No.  Executed on

of his obligations under the said Contract.
called the Guarantor) at the request of the Contractor and in consideration of the Buyer agreeing to make the above advance to the Contractor, has agreed to furnish the said Guarantee.

NOW THEREFORE The Guarantor hereby guarantees that the Contractor shall use the advance for the purpose of above mentioned Contract and if he fails, and commits default in fulfilment of any of his obligations for which the advance payment is made, the Guarantor shall be liable to the Buyer for payment not exceeding the aforementioned amount.

Notice in writing of any default, of which the Buyer shall be the sole and final judge, as aforesaid, on the part of the Contractor, shall be given by the Buyer to the Guarantor, and on such first written demand payment shall be made by the Guarantor of all sums then due under this Guarantee without any reference to the Contractor and without any objection.

This Guarantee shall come into force as soon as the advance payment has been credited to the account of the Contractor.

This Guarantee shall expire not later than by which date we must have received any claims by registered letter, telegram, telex or facsimile. It is understood that you will return this Guarantee to us on expiry or after settlement of the total amount to be claimed hereunder.

Guarantor (Scheduled Bank)

Witness:
Signature of the Contactor
_____________________
(Seal)

Signature of the Buyer
_____________________
(Seal)

Signed, Sealed and Delivered in the presence of:

Signature of the Contactor
_____________________
(Seal)

Signature of the Buyer
_____________________
(Seal)

Signed, Sealed and Delivered in the presence of:

Witness:
_____________________
(Name, Title and Address)

Witness:
_____________________
(Name, Title and Address)
INTEGRITY PACT
DECLARATION OF FEE AND COMMISSION ETC. PAYABLE BY THE SUPPLIERS OF WORKS, SERVICES & GOODS IN CONTRACTS WORTH ₹S. 10.00 MILLION OR MORE

Contract No. ____________________ Dated ____________________
Contract Value: ____________________
Contract Title: ____________________

Hereby declares that it has not obtained or induced the procurement of any contract, right, interest, privilege or other obligation or benefit from Government of Punjab (GOP) or any administrative subdivision or agency thereof or any other entity owned or controlled by GOP through any corrupt business practice.

Without limiting the generality of the foregoing, [name of Supplier] represents and warrants that it has fully declared the brokerage, commission, fees etc. paid or payable to anyone and not given or agreed to give and shall not give or agree to give to anyone within or outside Pakistan either directly or indirectly through any natural or juridical person, including its affiliate, agent, associate, broker, consultant, director, promoter, shareholder, sponsor or subsidiary, any commission, gratification, bribe, finder’s fee or kickback, whether described as consultation fee or otherwise, with the object of obtaining or inducing the procurement of a contract, right, interest, privilege or other obligation or benefit in whatsoever form from GOP, except that which has
been expressly declared pursuant hereto.

[Name of Supplier] certifies that it has made and will make full disclosure of all agreements and arrangements with all persons in respect of or related to the transaction with GOP and has not taken any action or will not take any action to circumvent the above declaration, representation or warranty.

[Name of Supplier] accepts full responsibility and strict liability for making any false declaration, not making full disclosure, misrepresenting facts or taking any action likely to defeat the purpose of this declaration, representation and warranty. It agrees that any contract, right, interest, privilege or other obligation or benefit obtained or procured as aforesaid shall, without prejudice to any other rights and remedies available to GOP under any law, contract or other instrument, be voidable at the option of GOP.

Notwithstanding any rights and remedies exercised by GOP in this regard, [name of Supplier] agrees to indemnify GOP for any loss or damage incurred by it on account of its corrupt business practices and further pay compensation to GOP in an amount equivalent to ten time the sum of any commission, gratification, bribe, finder's fee or kickback given by [name of Supplier] as aforesaid for the purpose of obtaining or inducing the procurement of any contract, right, interest, privilege or other obligation or benefit in whatsoever form from GOP.

Name of Seller/Supplier: ---------------------

________________
Signature: -------------------------------

Date: -------------------------------
IX. GENERAL CONDITION OF CONTRACT

1. GENERAL PROVISIONS

1.1 DEFINITIONS

In the Contract as defined below, the words and expressions defined shall have the following meanings assigned to them, except where the context requires otherwise:

**The Contract**

1.1.1 “Contract” means the Contract Agreement and the other documents listed in the Contract Data.

1.1.2 “Specifications” means the document as listed in the Contract Data, including Employer’s requirements in respect of design to be carried out by the Contractor (if any), and any Variation to such document.

1.1.3 “Drawings” means the Employer’s drawings of the Works as listed in the Contract Data, and any Variation to such drawings.

**Persons**

1.1.4 “Employer” means the person named in the Contract Data and the legal successors in title to this person, but not (except with the consent of the Contractor) any assignee.

1.1.5 “Contractor” means the person named in the Contract Data and the legal successors in title to this person, but not (except with the consent of the Employer) any assignee.

1.1.6 “Party” means either the Employer or the Contractor.

**Dates, Times and Periods**

1.1.7 “Commencement Date” means the date fourteen (14) days after the date the Contract comes into effect or any other date named in the Contract Data.

1.1.8 “Day” means a calendar day.

1.1.9 “Time for Completion” means the time for completing the Works as stated in the Contract Data (or as extended under Sub-Clause 7.3), calculated from the Commencement Date.

**Money and Payments**

1.1.10 “Cost” means all expenditure properly incurred (or to be incurred) by the Contractor, whether on or off the Site, including overheads and similar charges but does not include any allowance for profit.

**Other Definitions**

1.1.11 “Contractor’s Equipment” means all machinery, apparatus and other things required for the execution of the Works but does not include Materials or Plant intended to form part of the Works.

1.1.12 “Country” means the Islamic Republic of Pakistan.


1.1.14 “Force Majeure” means an event or circumstance which makes performance of a Party’s obligations illegal or impracticable and which is beyond that Party’s reasonable control.

1.1.15 “Materials” means things of all kinds (other than Plant) to be supplied and incorporated in the Works by the Contractor.

1.1.16 “Plant” means the machinery and apparatus intended to form or forming part of the Works.

1.1.17 “Site” means the places provided by the Employer where the Works are to be executed, and any other places specified in the Contract as forming part of the Site.

1.1.18 “Variation” means a change which is instructed by the Engineer/Employer under Sub-Clause 10.1.
“Works” means any or all the works whether Supply, Installation, Construction etc. and design (if any) to be performed by the Contractor including temporary works and any variation thereof.

“Engineer” means the person notified by the Employer to act as Engineer for the purpose of the Contract and named as such in Contract Data.

Interpretation
Words importing persons or parties shall include firms and organizations. Words importing singular or one gender shall include plural or the other gender where the context requires.

Priority of Documents
The documents forming the Contract are to be taken as mutually explanatory of one another. If an ambiguity or discrepancy is found in the documents, the priority of the documents shall be in accordance with the order as listed in the Contract Data.

Law
The law of the Contract is the relevant Law of Islamic Republic of Pakistan

Communications
All Communications related to the Contract shall be in English language.

Statutory Obligations
The Contractor shall comply with the Laws of Islamic Republic of Pakistan and shall give all notices and pay all fees and other charges in respect of the Works.

THE EMPLOYER

Provision of Site
The Employer shall provide the Site and right of access thereto at the times stated in the Contract Data.

Permits etc.
The Employer shall, if requested by the Contractor, assist him in applying for permits, licenses or approvals which are required for the Works.

Engineer’s/Employer’s Instructions
The Contractor shall comply with all instructions given by the Employer or the Engineer, if notified by the Employer, in respect of the Works including the suspension of all or part of the Works.

Appraisals
No approval or consent or absence of comment by the Engineer/Employer shall affect the Contractor’s obligations.

ENGINEER’S/EMPLOYER’S REPRESENTATIVES

Authorized Person
The Employer shall appoint a duly authorized person to act for him and on his behalf for the purposes of this Contract. Such authorized person shall be duly identified in the Contract Data or otherwise notified in writing to the Contractor as soon as he is so appointed. In either case the Employer shall notify the Contractor, in writing, the precise scope of the authority of such authorized person at the time of his appointment.

Engineer’s/Employer’s Representative
The name and address of Engineer’s/Employer’s Representative is given in Contract Data. However the Contractor shall be notified by the Engineer/Employer, the delegated duties and authority before the Commencement of Works.

THE CONTRACTOR

General Obligations
The Contractor shall carry out the Works properly and in accordance with the Contract. The Contractor shall provide all supervision, labour, Materials, Plant and Contractor’s Equipment which may be required.

4.2 **Contractor’s Representative**

The Contractor shall appoint a representative at site on full time basis to supervise the execution of work and to receive instructions on behalf of the Contractor but only after obtaining the consent of the Employer for such appointment which consent shall not be unreasonable withheld by the Employer. Such authorized representative may be substituted/replaced by the Contractor at any time during the Contract Period but only after obtaining the consent of the Employer as aforesaid.

4.3 **Subcontracting**

The Contractor shall not subcontract the whole of the Works. The Contractor shall not subcontract any part of the Works without the consent of the Employer.

4.4 **Performance Security**

The Contractor shall furnish to the Employer within fourteen (14) days after receipt of Letter of Acceptance a Performance Security @ 10% of the contract amount at the option of the bidder, in the form of Bank Draft or Bank Guarantee for the amount and validity specified in Contract Data.

5. **DESIGN BY CONTRACTOR**

5.1 **Contractor’s Design**

The Contractor shall carry out design to the extent specified, as referred to in the Contract Data. The Contractor shall promptly submit to the Engineer/Employer all designs prepared by him. Within fourteen (14) days of receipt the Engineer/Employer shall notify any comments or, if the design submitted is not in accordance with the Contract, shall reject it stating the reasons. The Contractor shall not construct any element of the Works designed by him within fourteen (14) days after the design has been submitted to the Engineer/Employer or which has been rejected. Design that has been rejected shall be promptly amended and resubmitted. The Contractor shall resubmit all designs commented on taking these comments into account as necessary.

5.2 **Responsibility for Design**

The Contractor shall remain responsible for his bided design and the design under this Clause, both of which shall be fit for the intended purposes defined in the Contract and he shall also remain responsible for any infringement of any patent or copyright in respect of the same. The Engineer/Employer shall be responsible for the Specifications and Drawings.

6. **EMPLOYER’S RISKS**

6.1 **The Employer’s Risks**

The Employer’s Risks are:-

a) war, hostilities (whether war be declared or not), invasion, act of foreign enemies, within the Country;

b) rebellion, terrorism, revolution, insurrection, military or usurped power, or civil war, within the Country;

c) riot, commotion or disorder by persons other than the Contractor’s personnel and other employees including the personnel and employees of Sub-Contractors, affecting the Site and/or the Works;

d) ionising radiations, or contamination by radio-activity from any nuclear fuel, or from any nuclear waste from the combustion of nuclear fuel, radio-active toxic explosive, or other hazardous properties of any explosive nuclear assembly or nuclear component of
such an assembly, except to the extent to which the Contractor/Sub-Contractors may be responsible for the use of any radio-active material;

e) Pressure waves caused by aircraft or other aerial devices travelling at sonic or supersonic speeds;

f) use or occupation by the Employer of any part of the Works, except as may be specified in the Contract;

g) late handing over of sites, anomalies in drawings, late delivery of designs and drawings of any part of the Works by the Employer’s personnel or by others for whom the Employer is responsible;

h) a suspension under Sub-Clause 2.3 unless it is attributable to the Contractor’s failure; and

i) physical obstructions or physical conditions other than climatic conditions, encountered on the Site during the performance of the Works, for which the Contractor immediately notified to the Employer and accepted by the Employer.

7. TIME FOR COMPLETION

7.1 Execution of the Works
The Contractor shall commence the Works on the Commencement Date and shall proceed expeditiously and without delay and shall complete the Works, subject to Sub-Clause 7.3 below, within the Time for Completion.

7.2 Programme
Within the time stated in the Contract Data, the Contractor shall submit to the Engineer/Employer a programme for the Works in the form stated in the Contract Data.

7.3 Extension of Time
The Contractor shall, within such time as may be reasonable under the circumstances, notify the Employer/Engineer of any event(s) falling within the scope of Sub-Clause 6.1 or 10.3 of these Conditions of Contract and request the Employer/Engineer for a reasonable extension in the time for the completion of Works. Subject to the aforesaid, the Employer/Engineer shall determine such reasonable extension in the time for the completion of Works as may be justified in the light of the details/particulars supplied by the Contractor in connection with the such determination by the Employer/Engineer within such period as may be prescribed by the Employer/Engineer for the same; and the Employer shall extend the Time for Completion as determined.

7.4 Late Completion
If the Contractor fails to complete the Works within the Time for Completion, the Contractor’s only liability to the Employer for such failure shall be to pay the amount stated in the Contract Data for each day for which he fails to complete the Works.

8. TAKING-OVER

8.1 Completion
The Contractor may notify the Engineer/Employer when he considers that the Works are complete.

8.2 Taking-Over Notice
Within fourteen (14) days of the receipt of the said notice of completion from the Contractor the Employer/Engineer shall either takeover the completed Works and issue a Certificate of Completion to that effect or shall notify the Contractor his reasons for not taking-over the Works. While issuing the Certificate of Completion as aforesaid, the Employer/Engineer may identify any outstanding items of work which the Contractor shall undertake during the Maintenances Period.

9. REMEDYING DEFECTS
9.1 **Remedying Defects**
The Contractor shall for a period stated in the Contract Data from the date of issue of the Certificate of Completion carry out, at no cost to the Employer, repair and rectification work which is necessitated by the earlier execution of poor quality of work or use of below specifications material in the execution of Works and which is so identified by the Employer/Engineer in writing within the said period. Upon expiry of the said period, and subject to the Contractor’s faithfully performing his aforesaid obligations, the Employer/Engineer shall issue a Maintenance Certificate whereupon all obligations of the Contractor under this Contract shall come to an end.

Failure to remedy any such defects or complete outstanding work within a reasonable time shall entitle the Employer to carry out all necessary works at the Contractor’s cost. However, the cost of remedying defects not attributable to the Contractor shall be valued as a Variation.

9.2 **Uncovering and Testing**
The Engineer/Employer may give instruction as to the uncovering and/or testing of any work. Unless as a result of an uncovering and/or testing it is established that the Contractor’s design, Materials, Plant or workmanship are not in accordance with the Contract, the Contractor shall be paid for such uncovering and/or testing as a Variation in accordance with Sub-Clause 10.2.

10. **VARIATIONS AND CLAIMS**

10.1 **Right to Vary**
The Employer/Engineer may issue Variation Order(s) in writing. Where for any reason it has not been possible for the Employer/Engineer to issue such Variations Order(s), the Contractor may confirm any verbal orders given by the Employer/Engineer in writing and if the same are not refuted/denied by the Employer/Engineer within seven (7) days of the receipt of such confirmation the same shall be deemed to be a Variation Orders for the purposes of this Sub-Clause.

10.2 **Valuation of Variations**
Variations shall be valued as follows:

a) at a lump sum price agreed between the Parties, or

b) where appropriate, at rates in the Contract, or

c) in the absence of appropriate rates, the rates in the Contract shall be used as the basis for valuation, or failing which

d) at appropriate new rates, as may be agreed or which the Engineer/Employer considers appropriate, or

e) if the Engineer/Employer so instructs, at day work rates set out in the Contract Data for which the Contractor shall keep records of hours of labour and Contractor’s Equipment, and of Materials, used, or

f) Market Rate System (MRS) District Lahore issued by Govt. of the Punjab Finance Department.

10.3 **Early Warning**
The Contractor shall notify the Engineer/Employer in writing as soon as he is aware of any circumstance which may delay or disrupt the Works, or which may give rise to a claim for additional payment.
To the extent of the Contractor’s failure to notify, which results to the Engineer/Employer being unable to keep all relevant records or not taking steps to minimise any delay, disruption, or Cost, or the value of any Variation, the Contractor’s entitlement to extension of the Time for Completion or additional payment shall be reduced/rejected.

10.4. **Valuation of Claims**

If the Contractor incurs Cost as a result of any of the Employer’s Risks, the Contractor shall be entitled to the amount of such Cost. If as a result of any Employer’s Risk, it is necessary to change the Works, this shall be dealt with as a Variation subject to Contractor’s notification for intention of claim to the Engineer/Employer within fourteen (14) days of the occurrence of cause.

10.5 **Variation and Claim Procedure**

The Contractor shall submit to the Engineer/Employer an itemised make-up of the value of variations and claims within twenty eight (28) days of the instruction or of the event giving rise to the claim. The Engineer/Employer shall check and if possible agree the value. In the absence of agreement, the Employer shall determine the value.

11. **CONTRACT PRICE AND PAYMENT**

11.1 **(a) Terms of Payments**

The amount due to the Contractor under any Interim Payment Certificate issued by the Engineer pursuant to this Clause, or to any other terms of the Contract, shall, subject to Clause 47, be paid by the Employer to the Contractor within 30 days after such Interim Payment Certificate has been jointly verified by Employer and Contractor, or, in the case of the Final Certificate referred to in Sub Clause 60.8, within 60 days after such Final Payment Certificate has been jointly verified by Employer and Contractor; Provided that the Interim Payment shall be caused in 42 days and Final Payment in 60 days in case of foreign funded project.  

**(b) Valuation of the Works**

The Works shall be valued as provided for in the Contract Data, subject to Clause 10.

11.2 **Monthly Statements**

The Contractor shall be entitled to be paid at monthly intervals:

a) the value of the Works executed; and

b) The percentage of the value of Materials and Plant reasonably delivered to the Site, as stated in the Contract Data, subject to any additions or deductions which may be due.

The Contractor shall submit each month to the Engineer/Employer a statement showing the amounts to which he considers himself entitled.

11.3 **Interim Payments**

Within a period not exceeding seven (7) days from the date of submission of a statement for interim payment by the Contractor, the Engineer shall verify the same and within a period not exceeding thirty (30) days from the said date of submission by the Contractor, the Employer shall pay to the Contractor the sum verified by the Engineer less retention money at the rate stated in the Contract Data.

11.4 **Retention**

Retention money shall be paid by the Employer to the Contractor within fourteen (14) days after either the expiry of the period stated in the Contract Data, or the remedying of notified defects, or the completion of outstanding work, all as referred to in Sub-Clause 9.1, which ever is the later.

11.5 **Final Payment**

Within twenty one (21) days from the date of issuance of the Maintenance Certificate the Contractor shall submit a final account to the Engineer to verify and the Engineer shall
verify the same within fourteen (14) days from the date of submission and forward the same to the Employer together with any documentation reasonably required to enable the Employer to ascertain the final contract value. Within sixty (60) days from the date of receipt of the verified final account from the Engineer, the Employer shall pay to the Contractor any amount due to the Contractor. While making such payment the Employer may, for reasons to be given to the Contractor in writing, withhold any part or parts of the verified amount.

11.6 **Currency**

Payment shall be in the currency stated in the Contract Data.

12. **DEFAULT**

12.1 **Default by Contractor**

If the Contractor abandons the Works, refuses or fails to comply with a valid instruction of the Engineer/Employer or fails to proceed expeditiously and without delay, or is, despite a written complaint, in breach of the Contract, the Employer may give notice referring to this Sub-Clause and stating the default. If the Contractor has not taken all practicable steps to remedy the default within fourteen (14) days after receipt of the Employer’s notice, the Employer may by a second notice given within a further twenty one (21) days, terminate the Contract. The Contractor shall then demobilise from the Site leaving behind any Contractor’s Equipment which the Employer instructs, in the second notice, to be used for the completion of the Works at the risk and cost of the Contractor.

12.2 **Default by Employer**

If the Employer fails to pay in accordance with the Contract, or is, despite a written complaint, in breach of the Contract, the Contractor may give notice referring to this Sub-Clause and stating the default. If the default is not remedied within fourteen (14) days after the Employer’s receipt of this notice, the Contractor may suspend the execution of all or parts of the Works. If the default is not remedied within twenty eight (28) days after the Employer’s receipt of the Contractor’s notice, the Contractor may by a second notice given within a further twenty one (21) days, terminate the Contract. The Contractor shall then demobilise from the Site.

12.3 **Insolvency**

If a Party is declared insolvent under any applicable law, the other Party may by notice terminate the Contract immediately. The Contractor shall then demobilise from the Site leaving behind, in the case of the Contractor’s insolvency, any Contractor’s Equipment which the Employer instructs in the notice is to be used for the completion of the Works.

12.4 **Payment upon Termination**

After termination, the Contractor shall be entitled to payment of the unpaid balance of the value of the Works executed and of the Materials and Plant reasonably delivered to the Site, adjusted by the following:

a) any sums to which the Contractor is entitled under Sub-Clause 10.4,
b) any sums to which the Employer is entitled,
c) if the Employer has terminated under Sub-Clause 12.1 or 12.3, the Employer shall be entitled to a sum equivalent to twenty percent (20%) of the value of parts of the Works not executed at the date of the termination, and
d) if the Contractor has terminated under Sub-Clause 12.2 or 12.3, the Contractor shall be entitled to the cost of his demobilisation together with a sum equivalent to ten percent (10%) of the value of parts of the Works not executed at the date of termination.
The net balance due shall be paid or repaid within twenty eight (28) days of the notice of termination.

13. **RISKS AND RESPONSIBILITIES**

13.1 **Contractor’s Care of the Works**
Subject to Sub-Clause 9.1, the Contractor shall take full responsibility for the care of the Works from the Commencement Date until the date of the Employer’s/Engineer’s issuance of Certificate of Completion under Sub-Clause 8.2. Responsibility shall then pass to the Employer. If any loss or damage happens to the Works during the above period, the Contractor shall rectify such loss or damage so that the Works conform with the Contract. Unless the loss or damage happens as a result of any of the Employer’s Risks, the Contractor shall indemnify the Employer, or his agents against all claims loss, damage and expense arising out of the Works.

13.2 **Force Majeure**
If Force Majeure occurs, the Contractor shall notify the Engineer/Employer immediately. If necessary, the Contractor may suspend the execution of the Works and, to the extent agreed with the Employer demobilise the Contractor’s Equipment. If the event continues for a period of eighty four (84) days, either Party may then give notice of termination which shall take effect twenty eight (28) days after the giving of the notice. After termination, the Contractor shall be entitled to payment of the unpaid balance of the value of the Works executed and of the Materials and Plant reasonably delivered to the Site, adjusted by the following:

a) any sums to which the Contractor is entitled under Sub-Clause 10.4,

b) the cost of his demobilization, and

c) less any sums to which the Employer is entitled.

The net balance due shall be paid or repaid within thirty five (35) days of the notice of termination.

14. **INSURANCE**

14.1 **Arrangements**
The Contractor shall, prior to commencing the Works, effect insurances of the types, in the amounts and naming as insured the persons stipulated in the Contract Data except for items (a) to (e) and (i) of the Employer’s Risks under Sub-Clause 6.1. The policies shall be issued by insurers and in terms approved by the Employer. The Contractor shall provide the Engineer/Employer with evidence that any required policy is in force and that the premiums have been paid.

14.2 **Default**
If the Contractor fails to effect or keep in force any of the insurances referred to in the previous Sub-Clause, or fails to provide satisfactory evidence, policies or receipts, the Employer may, without prejudice to any other right or remedy, effect insurance for the cover relevant to such as a default and pay the premiums due and recover the same plus a sum in percentage given in Contractor Data from any other amounts due to the Contractor.
15. **RESOLUTION OF DISPUTES**

15.1 **Engineer’s Decision**
If a dispute of any kind whatsoever arises between the Employer and the Contractor in connection with the Works, the matter in dispute shall, in the first place, be referred in writing to the Engineer, with a copy to the other party. Such reference shall state that it is made pursuant to this Clause. No later than the twenty eight (28) days after the day on which he received such reference, the Engineer shall give notice of his decision to the Employer and the Contractor.

Unless the Contract has already been repudiated or terminated, the Contractor shall, in every case, continue to proceed with the Work with all due diligence, and the Contractor and the Employer shall give effect forthwith to every such decision of the Engineer unless and until the same shall be revised, as hereinafter provided in an arbitral award.

15.2 **Notice of Dissatisfaction**
If a Party is dissatisfied with the decision of the Engineer or if no decision is given within the time set out in Sub-Clause 15.1 hereabove, the Party may give notice of dissatisfaction referring to this Sub-Clause within fourteen (14) days of receipt of the decision or the expiry of the time for the decision. If no notice of dissatisfaction is given within the specified time, the decision shall be final and binding on the Parties. If notice of dissatisfaction is given within the specified time, the decision shall be binding on the Parties who shall give effect to it without delay unless and until the decision of the Engineer is revised by an arbitrator.

15.3 **Arbitration**
A dispute which has been the subject of a notice of dissatisfaction shall be finally settled as per provisions of Arbitration Act 1940 (Act No. X of 1940) and Rules made thereunder and any statutory modifications thereto. Any hearing shall be held at the place specified in the Contract Data and in the language referred to in Sub-Clause 1.5.

16 **INTEGRITY PACT**

16.1 If the Contractor, or any of his Sub-Contractors, agents or servants is found to have violated or involved in violation of the Integrity Pact signed by the Contractor as Schedule-F to his Bid, then the Employer shall be entitled to:

(a) recover from the Contractor an amount equivalent to ten times the sum of any commission, gratification, bribe, finder’s fee or kickback given by the Contractor or any of his Sub-Contractors, agents or servants;

(b) terminate the Contract; and

recover from the Contractor any loss or damage to the Employer as a result of such termination or of any other corrupt business practices of the Contractor or any of his Sub-Contractors, agents or servants.

On termination of the Contract under Sub-Para (b) of this Sub-Clause, the Contractor shall demobilize from the Site leaving behind Contractor’s Equipment which the Employer instructs, in the termination notice, to be used for the completion of the Works at the risk and cost of the Contractor. Payment upon such termination shall be made under Sub-Clause 12.4, in accordance with Sub-Para (c) thereof, after having deducted the amounts due to the Employer under Sub-Para (a) and (c) of this Sub-Clause.

1. **Liquidated Damages for Delay**
If the Contractor fails to comply with the Time for Completion in accordance with Clause 48, for the whole of the Works or, if applicable, any Section within the relevant time prescribed in the Contract, then the Contractor shall pay to the Employer the relevant sum stated in the Contract Data as liquidated damages for such default and not as a penalty (which sum shall be the only monies due from the Contractor for such default) for every day or part of a day which shall elapse between the relevant Time for Completion and the date stated in a Taking-Over Certificate of the whole of the Works or the relevant Section, subject to the applicable limit stated in the Appendix to Tender. The Employer may, without prejudice to any other method of recovery, deduct the amount of such damages from any monies due or to become due to the Contractor. The payment or deduction of such damages shall not relieve the Contractor from his obligation to complete the Works, or from any other of his obligations and liabilities under the Contract.

TECHNICAL SPECIFICATIONS

1.0 GENERAL

1.01 This General Specification is to be taken as applying to all the works in this Contract. Figured dimensions on the working drawings shall be followed in preference to the scale.

1.02 Until and unless specified otherwise, all goods and materials are to be Pakistan manufactured and to be of the best quality, and where not otherwise specified shall be according to latest engineering practice and conforming to Pakistan Standards (P.S) or British Standard Specifications (B.S.S) or Standard of American Society of Testing Materials (ASTM). The Engineer or the Consultants may also supplement such specifications during the progress of work.

1.03 All materials and goods used for such and other items shall be subjected to standard testing and if found below the specified standard such as PS or BSS or ASTM or their equivalent shall be removed from the site immediately at Contractor’s own expense. All testing of materials finished and unfinished, shall be carried out by the Contractor at his cost, in the presence of Engineer or Engineer or his Representative for which the Contractor shall maintain a reasonably well equipped laboratory of his own, close to the site of work or make any other additional arrangement to the satisfaction and convenience of the Engineer. The Contractor shall include testing charges in his quotations and shall not be entitled to any reimbursement on this account for routine testing.

1.04 The Contractor must give early attention to the submission of samples of materials for approval of the Engineer, indicating the names of the manufacturing firms where applicable especially of cement, sand, aggregates, steel, water, tiles, hard-core and all fittings. Whenever practicable, samples shall be submitted at least three weeks before it is proposed to use the materials. Until and unless specified otherwise and whenever materials are ordered to be forwarded to a testing laboratory other than site laboratory for check/testing, the Contractor will be reimbursed the cost of fees for such tests if proved satisfactory, by the Buyer. The Contractor, however, will be required to bear the cost of the fees for tests, which proved unsatisfactory.

1.05 The Contractor must take all steps necessary to prevent damage or interference with all supply lines such as water, electric power, fuel, telephones, drains, buried cables and any construction designed for the use of the public, government or semi government authorities or the Buyer. The Contractor shall be responsible for any damage caused to such services or constructions and settle all claims in respect of such damage.
1.06 The Contractor shall protect from injury by covering all work, internally and externally needing protection including new concrete, brickwork, surface renderings, floors, etc., to the satisfaction of the Engineer, including the work of his subcontractors at his own cost.

1.07 The whole work shall be carried out in the best manner in accordance with the instructions contained in these documents and those given by the Engineer from time to time during the progress of the work. The work shall be carried out in conformity with the best of the standard construction practices preferably the British Codes of Practices.

1.08 The Contractor shall submit to the Engineer for his approval before beginning the work, a complete plan of the proposed sequence and methods of operations for the execution of the works. Detailed drawings showing the location and construction of dumping and working platforms, cranes, building and all other structures in connection with the Contractor’s plant and material storage sheds shall also be submitted to the Engineer for his approval before construction.

1.09 Orders and directions may be given orally by the Engineer or his Representative, and shall be received and promptly obeyed by the Contractor or his Representative or any superintendent or foreman or any supervisor of the Contractor whosoever may have charge of the particular part or section of work in relation to which the orders or directions are given, and a confirmation in writing of such order or directions will be given to the Contractor by the Engineer, if so requested. The Contractor shall provide and maintain at his own expense during the performance of the work an office in the vicinity of work. Orders or directions, written or oral, from the Engineer or his Representative delivered at such office shall be considered as delivered to the Contractor. The Contractor’s office shall be fitted with a telephone connected to the local Telephone Exchange.

1.10 The Contractor shall not use the site for any other purpose than that of carrying out this Contract work. The operations of the Contractor shall be confined to the area immediately adjoining the buildings and the works included in this Contract but site clearance shall be kept to the satisfaction of the Engineer to permit carrying out of other works by other Contractors. The Contractor shall not affix advertisements; neither shall he permit advertisements to be displayed without the written consent of the Engineer.

1.11 The contract drawings are the working drawings to guide the Contractor generally about the shape and size of all the structures and fittings. Before proceeding to make preparations, fabrication, execution, erection of any such fittings and other details of any temporary works, scaffolds, railings, shuttering, details of doors, windows, partitions, iron mongers work, etc; the Contractor shall be under obligation to prepare and submit all detailed shop drawings to the satisfaction and the approval of the Engineer, before doing any or all of that described above or as directed. Approval of the contractor’s drawings shall not relieve the Contractor for any part of his obligation to meet all the requirements of the specifications or correctness of his drawings.

1.12 No cement work shall be permitted during extreme cold weather when unless otherwise authorized by the engineer.

2.0 SITE CLEARING, GRUBBING AND SETTING OUT OF WORKS

2.01 SCOPE OF WORK
The work covered by this section of specifications consist of furnishing all labour, necessary equipment, services, miscellaneous and necessary items required to satisfactorily complete the clearing, grubbing and setting out of the works, as indicated on drawings, specified herein or both.

2.02 CLEARING
Clearing shall consist of cutting, or trimming of trees, if any, and the satisfactory disposal of tree and other vegetation designated for removal, together with the timber snags, bushes, and rubbish occurring within the area. Trees, other vegetation stumps, roots, and bushes in area to be cleared shall be cut off flush with or below the original ground surface except such individual trees, group of trees and vegetation as may be indicated on the drawing or designated by Engineer or his Representative to be left standing. Individual trees and other vegetation, to be left standing shall be thoroughly protected from damage during construction operation, by erection of barriers or by such other means as the circumstances require and as approved by the Engineer or his Representative. Clearing operation shall be conducted in a manner that existing structures and installations under construction, employees and others remain safe.

2.03 GRUBBING
Grubbing shall consist of the removal and disposal of all stumps, roots and matted roots in the designated grubbing areas. Stumps, roots, logs and timber and other debris, shall be excavated and removed to a depth not less than 2 feet below any subgrade level. In areas where the cut is over 3'-6" grubbing shall not be necessary.

2.04 DISPOSAL OF DEBRIS
Timber and other refuse to be disposed off by burning shall be burned at location, approved by the Engineer or his Representative, in a manner that will avoid all hazard such as damage to existing structures, construction in progress, trees and vegetation. The contractor shall be responsible for compliance with all pertinent laws and regulations pertaining to the burning of fire. Disposal by burning shall be kept under constant attendance, and residual materials will not be permitted to be pushed or placed on the adjacent areas without written approval of the owner/owners. The stones and concrete shall be broken and removed from the site for receiving the structure/flooring where required. All debris shall be disposed off by the Contractor as directed by the Engineer.

2.05 SETTING OUT OF WORKS
The Contractor shall set out the works and shall be responsible for true and perfect setting out of the same and for correctness of the direction, levels, dimension and alignment of all parts thereof.

If at any time any error in this respect shall appear during the progress of the works, the Contractor shall, at his own expense, rectify the error to the satisfaction of the Engineer. The Contractor shall construct accurate benchmarks so that the lines and levels can easily be checked by the Engineer.

2.06 DRAINAGE DITCHES
The Contractor shall construct and maintain such ditches, in addition to those shown on drawings or as may be ordered by the Engineer to adequately drain and areas under construction.

2.07 PAYMENT
Lump sum payment shall be made for the work covered in this section of the specification and all costs of site clearing and setting out shall be covered in
the unit rates of the Contractor for this item.

3.0 EXCAVATION, FILLING, BACKFILLING AND DISPOSAL

3.01 SCOPE OF WORK

The work covered by this section of the Specifications consists of furnishing all Plant, Labour, Equipment, Appliances and materials and in performing all operations in connection with excavating, filling, backfilling and disposal for building construction, and other foundations complete in strict accordance with this section of the Specifications and the applicable drawings and subject to the terms and conditions of the Contract.

3.02 BORING LOG DATA

A preliminary report on Subsoil investigation and exploratory data of the site area is available for reference only in the office of the Engineer. The Buyer or Engineer’s predications, regarding character or extent of soil or other subsurface conditions to be encountered during the work are not bounding on the Contractor. The Contractor shall make his own deductions for subsurface conditions which may affect methods or cost of constructions of the work hereunder and he shall make no claim whatsoever for damages or compensation, should he find conditions during the progress of the work, different from those indicated by the soil investigation report of Engineer.

3.03 EXCAVATION

(a) Classification

Excavation shall include the removal of all materials of every category and nature. If rock is encountered it shall be removed carefully and without excessive noise and vibration. Blasting shall not be resorted to without specific permission in writing from the Engineer.

(b) The excavation shall conform to the dimensions and elevations as indicated on the Drawings. Foundations on made up ground shall be taken down to natural bottom soil as per direction and approval of the Engineer. Excavation shall extend a sufficient distance from walls and footings to allow for placing and removal of forms installation of services and for inspection but the same shall not be paid.

(c) In the event of any excavations being carried out wider or deeper than authorized, the same shall be filled in by the Contractor at his own cost to the required levels with lean concrete if below footing or with properly compacted, local river sand if beneath slabs or as directed by the Engineer.

(d) Shoring and Bracing:

The Contractor shall provide at his own cost, where required all shoring walls, supports etc.
to the sides of the excavation to prevent sliding or any movement; where necessary, excavated sides shall be sloped as directed by the Engineer.

(e) Dewatering and Drainage:

The Contractor shall control the grading in the vicinity of site of work in order to prevent any water from running into the excavated areas. He shall at his own cost keep dry all pits and trenches during construction and all de-watering and pumping out whether due to ground water seepage or otherwise, shall be included in the rates as quoted by the Contractor. The method employed in all cases shall be approved and agreed by the Engineer or his Representative.

(f) Protection of utility lines:

When any existing utility lines whether to be retained or be removed are encountered within the area of operations, the Contractor shall notify the Engineer and his Representative, and shall not proceed until necessary measures are taken for protection or removal of the lines and instructions are obtained from the Engineer.

(g) Excess and undesirable material:

Excess and undesirable material from excavation not required for fill or backfill of the building site, shall be disposed off, removed and/or deposited as for filling and levelled anywhere on the work site as directed by the Engineer. Earth suitable and meant for backfill shall be stored at site in a manner not to interfere with the progress of construction works.

3.04 FILL AND BACKFILL

Where concrete slabs are to be placed on the ground, any loam, organic and other unsuitable material shall be removed. Fill where required to raise the subgrade for concrete slabs shall be clean, unadulterated local river sand or gravel and shall be free from wood, stones and other debris. Excavated material shall only be used for fill if approved by the Engineer in writing. All the backfill behind the subgrade walls shall be done with clean local river sand or approved excavated soil. Fill shall be compacted up to 95% modified AASHTO Density by a Power vibratory roller, mechanical rammer, or other approved equipment, in layers not more than 6 inch thick. Each layer shall be uniformly spread, watered to the extent of optimum moisture requirement for the required degree of compaction and then compacted. Contractor shall arrange at his own cost the testing of the filling where required by the Engineer or his Representative, after completion of foundation footings, walls, slabs and other construction below the elevation of the final grades and prior to backfilling. Backfill shall be brought to a suitable elevation above grade to provide for anticipated
settlement and shrinkage thereof. Backfill shall not be placed against foundation, walls etc., prior to the damp proofing treatment, if specified and approved by the Engineer or his Representative. Backfill shall be brought up evenly on each side walls as far as practicable. Heavy equipment for spreading and compacting backfill shall not be operated closer to the wall than distance equal to the height of the backfill above the top of footing.

3.05 COMPACITION:

Fill and/or backfill within the building or structures and for a distance of 6 ft. outside structures shall be compacted to a density of not less than 95% maximum density at optimum moisture content.

3.06 ROUGH GRADING:

(a) Necessary rough grading shall be carried out by the Contractor to establish grade or construction requirements of the site. Grades not otherwise indicated shall be uniform levels or slopes between points on existing and finished grades. Abrupt changes in slopes shall be rounded. Additional fill required to complete rough grading shall be provided as directed by the Engineer or his Representative.

(b) Where paving or slabs are specified, all rough grading shall be done to the subgrade of the base course, removing all large stones and debris and shall be compacted uniform to the correct lines and levels ready to receive the paving or slab. Refilling, where required shall be executed with suitable selected materials in layers not exceeding 6 inch thick and thoroughly compacted to the required density. In place density tests shall be carried out by the Contractor for the approval of the compaction by the Engineer.

3.07 FOOTING BOTTOM LEVELS:

The levels as noted in the Drawings are only approximate and must be adjusted in the field with the approval of Engineer, depending on the soil conditions encountered. No concreting shall begin until the soil bearing capacity is substantiated by visual inspection by the Engineer or his Representative. The Contractor in planning his work shall make arrangement and provisions to construct the lowest level footings first.

3.08 FIELD LEVELS:

Prior to starting the work, the Contractor shall arrange to take the levels of the piece of land on which the building is located as directed by the Engineer. The same shall be simultaneously checked by the Engineer or his Representative and shall form the basis of payments for excavation and filling etc.

3.09 DISPOSAL OF SURPLUS EARTH AND RUBBISH:

All surplus earth and rubbish shall be disposed off at site as directed by the Engineer. Disposal
of surplus earth and rubbish can only be carried out in timings allowed by the local authorities. The term disposal shall include all operations of loading, unloading, stacking, spreading, re-handling, filling in depressions, including consolidating and ramming in layers not exceeding 6 inch thickness.

3.10 MEASUREMENTS AND PAYMENTS:
All excavation shall be measured net and perpendicular and no allowance shall be made for any increase in bulk of the excavated material after excavation or for sloping sides, or widened trenches to accommodate formwork, shoring and bracing etc. Similarly the measurements for filling/backfilling shall be thoroughly compacted and measured net and no allowance shall be made for any increase in bulk after excavation. Excavation, filling and Disposal shall include all leads and lifts as specified elsewhere in these specifications. Payment for all the items under this section shall be made at the rates entered in the BOQ appended to the contract and in accordance with the applicable conditions of the contract.

4.0 WATER

4.01 SCOPE:
The work covered by this section of the Specification consists of furnishing all labour, appliances and in performing all operations in connection with obtaining, conveying and storing water at site of work.

4.02 QUALITY OF WATER:
The water used for construction the contractor shall supply sufficient water for all purposes, including mixing the concrete, curing and cleaning plants and tools. Where doubt exists as to the suitability of the water, it shall be tested at the cost of the contractor in accordance with BS3148. Where water shall be shown to contain any organic impurities sugar or an excess of acid, alkali or salt or inorganic impurities in solution or suspension, the engineer shall refuse to permit its use. The suitability of water shall be subject to test when required by the engineer.

4.03 CHEMICAL REQUIREMENTS
As a guide, water may be used as mixing water if the chemical contents do not exceed the following limits, otherwise control test’s to show the suitability have to be made.

<table>
<thead>
<tr>
<th>Kinds of Ingredient</th>
<th>Permissible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dissolved Solids</td>
<td>2,000 ppm</td>
</tr>
<tr>
<td>Alkali Carbonate and Bicarbonate</td>
<td>1,000 ppm</td>
</tr>
<tr>
<td>Chloride*</td>
<td>500 ppm</td>
</tr>
<tr>
<td></td>
<td>1,000 ppm</td>
</tr>
<tr>
<td>Sulphate (SO₄)</td>
<td>3,000 ppm</td>
</tr>
<tr>
<td>Alkalies (Na₂O+0.658 K₂O)</td>
<td>600 ppm</td>
</tr>
<tr>
<td>PH - Value</td>
<td>4 (min)</td>
</tr>
</tbody>
</table>

* The maximum concentration of chloride in prestressed concrete should not be higher than
500 ppm.

In general, for reinforcement concrete in moist environment, or concrete containing imbedded aluminum structures with dissimilar metals, a maximum concentration of 1000 ppm is acceptable.

If the result of the acceptance tests are within 90% of the permissible limits, the quality control tests for above impurities shall be down each month, of not otherwise directed by the engineer.

If the amounts of each chemical ingredient are lower than specified in the section, and trial mixes show that no harmful effects appear due to the subject tested, the water can be used as mixing water.

4.04 TEMPORARY STORAGE TANK:
The Contractor shall provide onsite at his own cost temporary storage water tank with all necessary G.I. Pipes and fittings as per instructions of the Engineer. No separate payment will be made for tank, pipes and accessories, etc. These tanks shall be removed or dismantled or demolished and the area shall be cleaned and made good on completion of work as per direction of Engineer.

4.05 PAYMENT:

No separate payment will be made for the work covered under this section, and all costs in connection therewith shall be deemed to be included in the unit rates.

6.0 STEEL REINFORCEMENT

6.01 SCOPE OF WORK:
The work covered by the section of the specification consists of furnishing all materials, tools, labour, equipment & appliances and in performing all operations in connection with the providing, straightening, cutting, bending, binding, fixing, elsewhere with necessary overlaps, wastage including binding wire, chairs, pins, spacer block complete in strict accordance with this section of the Specifications, the applicable drawings, approved bar bending schedule according to BS-4466 and the terms and conditions of the Contract. All steel reinforcement should be placed at locations, to lines and level as shown in the drawings and as the directed by the Engineer.

6.02 MATERIALS:

6.2.1 Reinforcing steel to be new billet stock of mild steel (plain bar), hard grade (deformed bar) and Ribbed Tor steel as specified on the drawings and shall conform to British Standard Specifications or equivalent ASTM or Pakistan Standard.

6.2.2 The Contractor shall furnish to the Engineer’s Representative Manufacturers’ mills certificate to guarantee that steel meets the standard, specifications requirements and minimum certified yield stresses as follows:-

i) Mild Steel plain bars conforming to B.S.S. 4449 or PS-231
   a) Tensile Strength: 438 to 517 N/Sq.mm (63.5 to 75 Kips/Sq. in).
   b) Yield Strength: 250 N/Sq. mm (36 Kips/Sq. in)
   c) Elongation: 16% to 24% (average 20%).

ii) Hot rolled deformed bars conforming to ASTM A-615 Grade 60 or PS-605
   a) Tensile Strength: 560 N/Sq. mm (81 Kips/Sq. in).
   b) Yield Strength: 415 N/Sq. mm (60 Kips/Sq. in).
   c) Elongation: 11%
6.2.3 All steel to be true to the Standard Specifications with regard to bend ability specially the hard grade deformed bars under 19 mm (3/4") dia. shall be capable of being bent cold through 90 degree round a bar of four times its own diameter without fractures or injury of any kind. In case of deformed bars over 19 mm (3/4") dia. and under 28 mm (1-1/8") dia. round a bar of 6 times its own diameter.

6.2.4 18 gauge galvanized wire shall be used for binding the steel reinforcement.

6.03 TESTING:
Reinforcement shall be obtained only from manufacturers approved by the Engineer or his Representative. All reinforcement shall be tested according to ASTM standard. If and when required samples shall be tested for above specification in an approved laboratory when required by the Engineer or his Representative and all costs of such tests shall be borne by the Contractor is a minimum three (03) samples will be tasted per twenty (20) ton of steel.

6.04 STORAGE
Reinforcing bars shall be stored on platforms above surface of ground and be free from scales, oil, structural defects prior to placement in works. Rusted or dirty steel bars shall not be used in the works unless brushed and cleaned by proper steel wire brushes and after being approved for use by the Engineer or his Representative.

6.05 REINFORCEMENT CUTTING AND PLACING
6.5.1 All reinforcement steel shall be cut and bent cold in strict accordance with bar bending schedules approved and drawings supplied by Engineer. The Contractor shall prepare bar bending schedule from approved structural working drawings conform to ACI 318-02 section 12.5. The bending schedules shall be drawn on approved forms and submitted to the Engineer or his Representative for checking and approval. The steel reinforcement shall be cut and bent to sizes as per drawings and approved bending schedules. In case any bars, cut, bent or even fixed in position are found incorrect in dimensions size or shape according to the requirements of the drawings and instructions of Engineer, the Contractor shall replace such steel bars cut bent or fixed in position by correct sized bars at his own cost and no extra payment shall be made to the Contractor on such account. The system of holding bars in place shall ensure that all steel in top section will support weight of workmen without displacement or distortion. Suitable spacers and chairs as approved by the Engineer or his Representative shall be used for supporting and spacing purposes of bars. In case any bars are bent or displaced they shall be straightened or replaced prior to pouring. If reinforcement bars within the limit of a day’s pour shall be in place and firmly tied with 18 gauge G.I. wires. Bars with kinks or bends not shown on drawings shall not be used.

6.5.2 Where indicated in the drawings, mesh shall be of the sizes as shown on drawings and conform to British Standard B.S.785. Mesh reinforcement when used in slabs shall be supported at proper elevations by standard accessories. In slabs on ground, pre cast concrete blocks may be substituted for chairs.

6.06 LAPS AND SPLICES
6.6.1 No splicing of bars shall be allowed at position other than shown on the drawings. All lap lengths shall be of the minimum sizes as indicated on the drawings or in conform to ACI-318-02 section 12.5 and in no case shall lap length be less than 40 times the diameter of the bigger lapping bars for nominal M.S. bars. Hard grade bars and tor steel shall have laps of 50 times the bigger diameter of lapping bars. Splices of adjacent bars shall be staggered unless
approved otherwise by the Engineer or his Representative.

6.6.2 All reinforcing steel fixed in position shall be inspected by the Engineers Representative and no concrete shall be poured until steel placement has been approved by the Engineers Representative. For inspection purposes the Contractor shall give to the Engineers Representative reasonable notice before the scheduled pouring time. Clear concrete cover to reinforcement steel shall be as indicated on the drawings/specified.

6.07 MANUFACTURE
Steel shall be manufactured from prime Pakistan Steel billets or equivalent quality approved.

6.08 MEASUREMENT AND PAYMENT

6.8.1 The quantity to be paid for shall be the calculated in theoretical number of metric ton of reinforcement steel bars or mesh as determined from the approved bar bending diagrams and incorporated in the concrete and accepted, except when reinforcement is paid for under other items.

6.8.2 The weight of plain or deformed bars will be computed from the theoretical weight of plain round bars of the same nominal size as shown in the following tabulation:

<table>
<thead>
<tr>
<th>Size</th>
<th>Weight in Lbs / ft.</th>
<th>Weight in Kg. / ft.</th>
<th>Weight in Lbs / Inch</th>
<th>Weight in Kg / Inch</th>
</tr>
</thead>
<tbody>
<tr>
<td>¼</td>
<td>0.167</td>
<td>0.076</td>
<td>1.50</td>
<td>0.076</td>
</tr>
<tr>
<td>7/8</td>
<td>0.376</td>
<td>0.170</td>
<td>2.04</td>
<td>0.170</td>
</tr>
<tr>
<td>1</td>
<td>0.668</td>
<td>0.303</td>
<td>2.67</td>
<td>0.303</td>
</tr>
<tr>
<td>1-1/18</td>
<td>1.043</td>
<td>0.473</td>
<td>3.38</td>
<td>0.473</td>
</tr>
</tbody>
</table>

6.8.3 Clips, ties, separators, and other material used for positioning and fastening the reinforcement in place, and structural steel, shall not be included in the weight calculated for payment under this item. If bars are substituted upon the Contractor’s request and as a result more steel is used than specified only the amount specified shall be included.

6.8.4 When laps are made for splices, other than those shown on the drawings or required by the Engineer and for the convenience of the Contractor, the extra steel shall not be measured nor paid for.

6.8.5 When continuous bars are shown on the drawings, without the splices being shown, the necessary steel in the splices will be paid for on the basis of the individual bars not being shorter than 40 ft (12 m).

6.8.6 The accepted quantity measured as provided above shall be paid for at the contract unit price for the items listed in the Bill of Quantities, which price and payment shall be full compensation for furnishing materials, labour, equipment and incidentals necessary to complete the item.

7.0 BRICK WORK

7.01 SCOPE
The work under this section includes First Class brick work in walls, both internal and external of any thickness and of the heights shown on the drawings. The brick work shall be carried out in cement sand mortar of proportion specified in the Bill of Quantities.

7.02 CONFORMITY TO %V.P. SPECIFICATIONS VOL. PART I AND IT
Except as otherwise specified, all brickwork shall be erected in conformity with
West Pakistan Schedule of Rates Volume I Part II Section 21.1 “Brick Work General “as applicable to the work shown on the drawings and as specified.

7.03 **Materials**

7.3.1 Brick shall be first class, strong and sound of well burnt clay, uniform in shape, colour and shall measure 220x105x67 mm with dimensional tolerance of 1.6mm so that every four courses laid shall measure 305mm in height. Bricks should produce a ringing sound when struck. The brick shall be free from flaws, cracks, chip stones, nodules of lime or kankar or other blemishes. The brick shall not absorb more than 1/6th its weight when soaked in water for an hour. Minimum compressive strength shall not be less than 140kg/sq.cm. Bricks of only one size shall be used throughout the work and bricks from different kilns not having the same size shall not be allowed. All the bricks shall, conform to W.P. Specifications Vol. I, Part I14o.4.1 for First Class Burnt Clay Bricks.

7.3.2 **Mortar for Brick Work**

a. Mortar shall be mixed in proportion as specified in Bill of Quantities and shall be done by volume except directed ‘otherwise by the Engineer.

b. Cement and sand shall be thoroughly mixed in a dry state on a hard platform or in a trough & appropriate quantity of water shall be a to make the mortar of workable consistency. The mortar in any single batch shall be of quantity which could be used within 30 minutes of mixing water. Such mortar which has not been used within 30 minutes Of addition of water shall be discarded. The mixing platform or, trough shall be thoroughly, washed and cleaned at the close of the day’s’ work.


d. Sand shall be as specified under section “Concrete Work”.

e. Water shall be clean, free from any organic impure &-. ties, acids, alkaline, greasy or oily substances, either in solution or in suspension as specified under section “Concrete Work”.

7.3.3 **Wall Ties**

Mild steel bars, wall ties, lugs, anchors etc. shall be provided as per drawing and instructions of the Engineer.

7.04 **SAMPLES**

The samples of ‘all the material used for brick work shall be approved by the Buyer after necessary testing. The Contractor shall incorporate in the work only approved materials during the work in progress. If the Engineer, desires to get the material tested, this will be got done by the Contractor from a Laboratory approved by the Engineer at the Contractor’s expenses.

7.05 **WORKMANSHIP FOR BRICK WORK**

7.5.1 **Brick Laying:**

Brick laying shall conform to the applicable requirements of W.P. Specifications Vol. 1, Part II. II brick work shall be ‘done with approved bricks and shall be strictly in accordance with the drawings. The bricks shall be laid in mortar specified in the Bill of Quantities. Before the bricks
are used they shall be soaked in water tanks (to be constructed by the Contractor at his own cost) for at least four hours. They shall be placed in the water tanks in a manner that they do not get damaged.

7.5.2 Bricks shall always be laid in English bond (unless otherwise directed by the Consultants) with frogs upwards. Bricks shall be laid with bed and vertical Joints patilled with specified mortar. Brick work must be truly plumb and must be checked by plumb bob and straight edge frequently. Brick work should present a perfect straight and vertical surface and no chipping or rubbing shall be allowed. Brick work where necessitated by the d have curved or chamfer surface shall be cut and chiseled finely such as when placed in position they do not present an ugly look or require levelling up with extra mortar. Where work has to be left incomplete, it shall be left in slope and in no case the difference of height between different walls shall be more than 1.5 feet at any section of the building.

7.5.3 All brick work shall be bonded where it abuts other brick work, concrete walls and concrete columns. Where brick walls and partitions intersect or abut, it is absolutely necessary to interlock the masonry of the two walls in a way as not to leave a straight vertical joint between the two walls. In such cases the bond shall be obtained by placing the closer 115mm from the face in every alternate course of the wall or masonry ties shall be provided. Where brick work abuts concrete, wall ties engaging in dovetail, slots shall be provided at every fourth course. 76mm long brick course height shall be considered sufficient under these specifications, unless the Contractor considers continuous length of slots convenient for his working. %there 14.S.bar wall ties are shown on drawings; these shall supersede dovetail wall ties specified herein.

7.5.4 Brick work shall be wedged to the underside of floor and roof slabs and the top moat horizontal joints shall be, filled with mortar well compacted. Putlog holes shall always be along headers and not more than one brick in length and shall be neatly bricked I on removal of scaffolding. All the built-in items such as anchor bolts, inserts, pipe supports, hangers, pipe sleeves, dowels, ties and all items shown on the drawings or specified are required to be built into the masonry as the work progresses. Frames and other built-in work shall be maintained in their proper position and bracing shall not be removed until they are securely held in position by the masonry. The spaces around all built in items shall be filled with masonry. Where required for later’ building in, opening in masonry for heating and plumbing pipes, electric conduits etc. shall be left, and after piping or conduits have been installed, filled around with brick work and mortar.

7.5.5 All cutting and patching of masonry required for installation of built in work or work supported by masonry shall be kept properly cured, for at least 10 dayswhere cement mortar is used. Where according to plans and sections the masonry work requires cut bricks to be used, the same shall be done by ‘the Contractor free of cost, to obtain correct thickness according to drawings.

7.5.6 Jointing
Vertical joints in alternate course must be directly one over the other, horizontal joints shall be truly level. The thickness of joints shall be between 8mm to 13mm or as shown otherwise on the drawings. The thickness of joints must be kept uniform throughout the progress of work and varying sizes of joints shall not be allowed. The joints of the masonry must be raked out uniformly at the close of each day’s work and any extra mortar sticking on the face of the work must be scrubbed out and cleaned daily.
7.06 MEASUREMENT AND PAYMENT

7.6. Brick work in wall having 230 mm thickness shall be measured in square meter i.e. multiplying the length or breadth of wall with height of the wall. 115 and 76 mm thick walls shall also be measured in square meter. All the openings left in masonry wall will be deducted. II mild steel reinforcement shall be measured as specified in section “Concrete Work”. The rate for items of work in this section shall include:

7.6.2 The cost of material, labour, curing, scaffolding and appliances at site and all operations in connection with the installation of brick work in accordance with the drawings, finish schedules and as specified above, and cutting and patching work required for installation built in work.

8.0 PLASTERING

8.01 Scope of Work:

The work covered by this section of the Specifications consists of furnishing all plant, labour, appliances, and materials and in performing all operations in connection with the installation of plastering complete in strict accordance with this section of the Contract.

8.02 General

Except as may be otherwise shown on the drawings or specified elsewhere; the plaster surfaces shall include walls, partitions jambs, returns, reveals, backs of recesses and jambs and heads of windows and doors and all the soffits, alcoves etc.

8.03 Materials:

a) "WATER" as specified in respective section.

b) "CEMENT" shall be ordinarily Portland cement and shall conform to B.S.S.12.

c) "SAND" shall be from approved source and free from dust and salt as specified in Section on concrete.

d) "METAL LATH" shall be expanded metal not less than 9" wide strips, and weighing at least 2.5 lbs, per square yard or as directed by the Engineer.

e) "CORNER LATH" shall be strips 6" wide bent to form two 3-inches wings.

9. CONCRETE PAVEMENTS

9.1 DESCRIPTION

This work shall consist of a pavement composed of Portland cement concrete with or without reinforcement as specified constructed on a prepared subgrade or base course in accordance with these specifications and in conformity with the lines, grades, thickness and typical Cross-sections shown on the plans. Both plain and reinforced concrete shall include deformed bars for contraction joints and dowel bars for expansion joints or as shown on the Drawings.

9.2 MATERIAL REQUIREMENTS

9.2.1 Concrete

Concrete materials shall conform to the requirements indicated in item 401 and as specified
hereinafter. In addition to it the contractor shall advise the Engineer immediately after the award of the contract of the source of all materials to be used in proportioning concrete for the work. If the contractor later proposes to obtain materials from a different source, he shall notify the Engineer at least thirty (30) days before such materials are to be used.

9.2.2 Reinforcing Steel

Concrete reinforcement shall conform to item 404 or as indicated on the Drawings. If required, steel fabric for reinforcement of concrete shall conform to AASHTO M 55-73. It must be supplied in sheets.

9.2.3 Polythene Sheeting

Polythene sheeting for placing immediately below concrete slabs shall be 0.065mm thick or having a minimum weight of fifty (50) grams per square meter (whichever is greater) made from polythene or other approved hydrocarbon thermoplastic resin (produced by the polymerization of ethylene under high pressure and density) and given an antistatic treatment to reduce dust attraction and reduce friction. The sheeting shall have the minimum mechanical properties shown in table as under:

<table>
<thead>
<tr>
<th>Properties of Polythene Sheeting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine</td>
</tr>
<tr>
<td>Tensile Strength Method ASTM D882-73 Kgf/SM</td>
</tr>
<tr>
<td>Elongation at Break %</td>
</tr>
<tr>
<td>Tear Strength Elmendorf Method ASTM D689-62 (1974)-Kg/cm2390</td>
</tr>
</tbody>
</table>

9.2.4 Joint Filler

Joint filler shall be of approved quality and consist of cane or other suitable long fibers of a cellular nature uniformly impregnated with asphalt. The asphalt content of the joint material shall be between thirty and fifty per cent. The joint material will not deteriorate under any weather conditions and is to be of such a character as not to be permanently deformed or broken by moderate twisting, bending or other ordinary handling. Strips of the joint filler which do not conform to the specified dimensions within the tolerance + two (2) mm for thickness and + twelve (12) mm for depth are to be rejected. All damaged strips are to be rejected too.

9.2.5 Joint Sealing Compound

Joint sealing compound is to be as BS 2499(1973) type A1 or A2, or as approved by the Engineer. The compound is to be impermeable, is to withstand all weather conditions and is to be capable of adhering to the concrete without cracking, spalling or disintegrating and will not require an impracticable condition of dryness or cleanliness of the concrete slabs.

Where recommended by the manufacturer of the sealing compound, a primer supplied by him is to be used to improve adhesion.

9.2.6 Dowel Bars

Dowel bars shall be cut from mild steel bars and will be approved by the Engineer. The Contractor's attention is directed to the requirement that one end of each dowel bar in all joints, except bonded construction joints, shall be sawn and not sheared so that no
irregularities likely to interfere with, sliding action in the concrete shall occur. The minimum length of the dowel bars spaced at one meter center to center or as shown on the drawings, shall be thirty five (35) times the diameter of the bar used unless otherwise specified or as directed by the Engineer.

9.2.7 Expansion Caps
Expansion caps for dowel bars in expansion joints shall consist of pressed metal sleeves plugged at one end by punching the specified joint filler board of a wad of cotton waste of similar compressibility and sealed at the end against entry of mortar. The tube shall have an internal diameter permitting sliding on the dowel bar but close enough to prevent entry of mortar.

9.2.8 Darkening Agent
Darkening agent for the top course of concrete pavements if ordered and specified shall be carbon black; either as an aqueous dispersion containing at least 25% of solids, to be added to the mixing water, or as a self dispensing powder to be added to aggregate and cement. It shall be approved by the Engineer as non-deleterious giving grey colour and shall be added at the rate of 0.1% by weight of the mixed concrete or as specified by the manufacturer if it is aqueous dispersion. The minimum quantity of self dispersing powder shall be 0.025% by weight of the concrete aggregate.

The darkening agent shall be free from Sulphur trioxide and from any other matter deleterious to concrete. Crack inducing battens shall be of wood or of any other suitable material proposed by the Contractor at the time of tendering and approved of at the award of the Contract or approved by the Engineer at his discretion after the award of the Contract. Battens of highly absorbent wood or other material shall be of cross-sectional dimensions shown on the Drawings, and treated to prevent adhesion between them and the concrete.

9.2.10 Sampling and Testing
All materials shall be approved by the Engineer prior to use in the work. Additional samples will be taken and tested by the Buyer during the progress of the work to check on the quality of the materials being supplied and/or placed by the Contractor. The results of these tests will be available for the Contractor’s use, however they are not intended for construction control purpose. The contractor should set up his own test facilities or arrange the same from a private laboratory, to assure that his materials and workmanship comply with the specification.

9.3 CONSTRUCTION REQUIREMENTS

9.3.1 Pavement Base
The base upon which the concrete pavement is laid shall be levelled compacted and true to the grades and cross-sections shown on the plans and shall be so maintained, as provided under such other items throughout the period of placing concrete pavement. To ensure the proper depth and section, a, scratch template true to depth and section and resting on accurately set side forms shall be moved over the surface immediately before placing concrete, and any irregularities shall be immediately corrected. High spots shall be planned down and the Contractor shall have the option of either filling low spots to the proper elevation with approved material, which shall be watered compacted and struck off to the required grade or of placing
additional concrete. No measurement or payment will be made for such additional concrete. Until the subgrade has been checked and approved, no material shall be deposited thereon. Storing or stock piling of materials on the subgrade and placing of surfacing material or laying of pavement on muddy or frozen subgrade will not be permitted.

9.3.2 Forms
Side forms shall be made of metal of an approved section and construction provided with adequate devices for secure setting so that when in place, they shall withstand the impact and vibration of the compacting and finishing equipment with settlement not exceeding 1.5 mm in three (3) meters form a true plane surface on the top of the form and inside face shall not vary more than six (6) millimeters from a plane surface. The width of the bases of steel forms shall be not less than their height except that the forms having a base not less than two third (2/3) of their height and meeting all other requirements herein may be used for manual laying of nonrectangular bays. The depth shall be equal to the thickness of the pavement at the edge or as shown on the plans. The forms sections shall be tightly joined by each joint free from play in any direction. These forms shall be stacked with steel stakes and shall be of a length approved by the Engineer. Each section of forms shall have stake pocket* at each end and at intervals of not more than one and one-half (1:5) meters between ends. Each section of forms shall be straight and free form bends and warps at all times. Side forms for machine placing shall have rolled section steel rails which shall be of adequate stiffness to carry the laying, compaction and finishing machines. These machines shall not run on folded sheet metal form tops. The top faces of the forms are to be carefully cleaned and maintained. The forms shall be without horizontal joints and with flange braces extending outward on the base not less than two thirds (2/3) the height of the forms. Each stack pocket shall be equipped with a positive non detachable wedge. These forms shall be placed by using at least three steel pins of the size and length approved by the Engineer or as shown on the plans. They shall be equipped with positive locking devices which will permit neat tight joints and do not, deform under impact vibration by trust. Pins for stacking forms in place shall be made of steel at least two (2) centimeters in diameter as directed by the Engineer in case of impractical use, Wooden forms may be used for curves having a radius of less than fifty (50) meters. They shall be made of two and half (2.5) centimeters well-seasoned surfaced planks fastened together and shall be attached securely to a wooden base in width. All wooden forms shall be braced at least every sixty (60) centimeters with steel pins of the size and length here in specified. Straight forms shall be set out as chords to convex edges and as tangents to concave edges, but payment will not be made for concrete outside the curved edges shown on the Drawings. Before placing forms the underlying material shall be excavated to the required grade, and shall be firm and compact. The forms shall have full bearings upon the foundation throughout their length and shall be placed with exactness to the required grade and alignment of the edge of the finished pavement. Forms shall be set to the required lines and grades well in advance of placing concrete, preferably not less than two hundred (200) meters, Forms shall not be removed for at least twelve (12) hours after the concrete has been placed. Forms shall be carefully removed in a manner to avoid damage to the pavement. Under no circumstances will the use of pry bars between the forms and the pavement be permitted. Pavement which in the opinion of the Engineer is damaged due to the careless removal of forms shall be repaved by the Contractor as directed by the Engineer at
the Contractor's own expense.
Forms shall be thoroughly cleaned and oiled each time they are used.
Special forms or other supporting devices meeting the approval of the Engineer shall be used
to support the joint filler at transverse control joints when concrete is to be placed on only
one side of the filler. When pavement is placed adjoining existing concrete pavement upon
which the finishing machine will travel, any irregularities in the old pavement shall be ground
down to a true uniform surface of sufficient width to accommodate the wheels of the
finishing equipment if necessary to obtain proper smoothness of the pavement.

9.3.3 Composition and Compressive Strength of Concrete
9.3.3.1 Strength Requirement
(a) All concrete shall be proportioned by weighing and conform to the following strength
and mix requirements
I. Minimum cylindrical compressive strength at 28 days: 280 kg/sq.cm.
II. Cement content, 50 Kg sacks: 7-5 bags
III. Maximum water cement ratio: 0.45
IV. Slump range: 25-75 mm
V. Entrained air in percent: 3+0.6 %
VI. Nominal size of aggregate: 1/2” Max.
(b) At least 35 days prior to the start of paving operations and after approval of all
materials to be used
in the concrete, the contractor shall submit for approval, the mix design he intends to use
based
on proportioned weights of cement, air entrainment agent, saturated surface dry aggregates and
water.
This mix design will be tested by the Engineer and approval will not be granted unless the
average twenty eight (28) days compressive strength exceeds the minimum strength
requirement by at least 1.5%. However, the Engineer may allow paving operation on the
basis of seven (7) days strength if he is satisfied with the results of seven (7) days strength.
(c) The cement content given in the foregoing table is the minimum. If it is not sufficient
to produce
concrete of the compressive strength specified it shall be increased as necessary without
additional compensation under the contract.
(d) The compressive strength of the concrete will be determined by testing standard
cylinders made
from concrete taken from the mixer. The making, curing and testing of the specimens will be
in accordance with AASHTO T23-73.
(e) During the course of construction, when the source of any material for the concrete
is to be
changed, or if there is any variation in the quality of the materials furnished, additional tests
and necessary adjustments in the mix shall be made as required to obtain the specified
strengths.

9.3.3.2 Composition
The required consistency of the concrete mixture shall be such that the mixture will be
cohesive, uniform and plastic, permitting proper handling and finish. When deposited it shall not flow, but shall remain in a conical pile. There shall be minimum segregation and surplus water during the process of handling and finishing. The slump shall be determined by AASHTO T1 19-74 except that during the course of construction control of concrete may be accomplished by the ball penetration as outlined in AASHTO T183-72. Two and a half (2.5) centimeter ball penetration is considered equivalent to a slump of five (5) centimeters. The cement content shall be determined by means of a yield test in accordance With AASHTO T 121-74.

9.3.4 Placing Concrete

9.3.4.1 General

The mixer shall be operated outside of the forms at all times except at locations where the Engineer deems it not feasible to do so. When ordered by the Engineer, the subgrade shall be moistened as directed, prior to the placement of the subgrade paper such as polythene sheeting. Concrete mixed in central plant shall be transported without delay from the mixing plant to the position for laying and any concrete which in the opinion of Engineer has been mixed too long before reaching, the work will be rejected and shall be removed from the site. The concrete shall be deposited on the subgrade in successive batches for the full width between forms and in a manner which will require as little re handling as possible. Spreading shall be done by an approved mechanical spreader in a manner that will prevent segregation and separation of the materials.

Necessary hand spreading shall be done with shovels, not rakes. Workmen shall not be allowed to walk in the freshly mixed concrete with boots or shoes coated with earth or foreign substances. The amount of material deposited shall be sufficiently in excess of that required to form the pavement to the required cross-section after consolidation in order to provide a roll of concrete ahead of the front screed of the finishing machine for the full length of the screed.

Concrete shall be thoroughly consolidated against and along the faces of all forms and along the full length and on both sides of all expansion joint assemblies by means of vibrators inserted in the concrete. Vibrators shall not be permitted to come in contact with a joint assembly, the grade or a side form. In no case shall the vibrator be operated longer than fifteen (15) seconds. Concrete shall be deposited as near to expansion and contraction joints as possible without disturbing them) but shall not be dumped from the discharge bucket or hopper on to a joint assembly. The hopper is well cantered on the joint assembly. Damage to joint assemblies caused by dumped concrete shall be repaired immediately as directed by the Engineer at Contractor's expense. Trucks delivering concrete shall not run on polythene sheeting nor shall they run on, completed slabs until at least fourteen (14) days after placing the concrete.

Should any concrete materials fall on or be worked into the surface of completed slab, they shall be removed immediately by methods approved by the Engineer.

Placement of concrete ahead of the initial spreader strike off shall not be more than fifteen (15) minutes ahead of final spreader strike off. If concrete is placed in one (1) layer only, the placement of concrete shall not be more than twenty (20) minutes ahead of the spreader strike off.
In order to secure adequate compaction, the concrete is to be spread with a surcharge above the finished level of the layer. Spreading, compacting and finishing operations are to be completed without delay.

The total time taken from the addition of the water to the mix until the completion of the surface finishing operations shall not exceed thirty (30) minutes when the shade or mix temperature exceeds twenty seven (27) degree C or forty (40) minutes when less than twenty seven (27) degree C. The mixing and placing of the concrete shall progress only at such a rate as to permit proper finishing, protecting and curing of the pavement.

The additives shall be added to the concrete mix so as to ensure more setting time. The top of the forms shall be kept free from accumulation of concrete or foreign material. The Contractor shall not permit the accumulation of laitance along the edge of a slab poured adjacent to one previously placed. Any accumulation of laitance shall be removed and replaced with fresh concrete. As soon as the side forms are removed, the edges of the slab shall first be inspected by the Engineer and any minor honey combed areas shall then be filled in with mortar composed of one part of cement to two parts of fine aggregate under the supervision of the Engineer.

9.3.4.2 Weather Conditions

For concreting during hot/cold weather, requirements 401.3.6 (1) of these specifications will be followed.

9.3.6 Placing Reinforcement All pavement reinforcement shall be placed as shown on the plans. All marginal bars, dowel bars, and tie bars required by the plans shall be held in proper position by sufficient number of metal bar supports or pins as approved by the Engineer. If the center joint is to be sawed in lieu of placing the metal center strip, the tie bars may be installed mechanically by means of equipment and methods approved by the Engineer. The satisfactory placement of the tie bars shall depend upon the ability of the mechanical device to place the tie bars in their true position. The Engineer may require, when satisfactory placement is not obtained by mechanical means, that the tie bars be installed ahead of placing the concrete and that they be securely staked and tied if necessary to hold them in their exact position. The use of removable devices, supporting the bars from the forms, will not be permitted.

Following the placing of the concrete, it shall be struck off to conform to the cross section shown on the plans and to an elevation such that when the concrete is properly consolidated and finished, the surface of the pavement will be at the elevation shown on the plans. When reinforced concrete pavement is placed in two (2) layers, the entire width of the bottom layer shall be struck off to such length and depth that the sheet of fabric or bar mat may be laid full length on the concrete in its final position without further manipulation. The reinforcement shall then be placed directly upon the concrete after which the top layer of the concrete shall be placed, struck off and screed. Any position of the bottom layer of the concrete which has been placed more than thirty (30) minutes without being covered with the top layer shall be removed and replaced with freshly mixed concrete at the contractor's expense. Plain concrete and bar reinforced bridge approach pavement may be placed in one (1) layer. Where two (2) layers of wire mesh reinforcement are required, such as bridge approaches, the bottom layer shall be supported in the required position with bar chairs. Separators shall be used for the top layer if the strike off cannot be properly used for the operation. Laps in
adjustment sheets or mats of reinforcement shall be as shown on the plans. Laps parallel to the centerline of the pavement will not be permitted except for unusual widths of pavement lanes or for irregular areas. If the plans do not show dimensions for taps, the minimum lap either perpendicular or parallel of the centerline of the pavement shall be fifteen (15) centimeters. The adjacent sheets shall be fastened or tied together to hold all parts of the sheets in the same plane. Reinforcing steel shall be free from detrimental amounts of dirt, oil, paint, grease, loose mill scale, and loose or thick rust which could impair bond of the steel with the concrete.

9.3.7 Joints
Joints shall be constructed exactly in accordance with the details shown on the plans and specifications and with the best of workmanship. Failure to construct the joints as called for and in the best possible manner, as determined by the Engineer, will be cause for suspension of work until the cause of the defective work is remedied.

If removal of existing pavement of any type is required to connect with the new pavement, and the termination of the removal is not at an existing joint, the new joint shall be made by sawing the existing pavement not less than five (5) centimeters deep before removal.

9.3.7.1 Expansion Joints
The subgrade at Expansion joints shall be accurately trimmed to the required cross section and to the proper depth of the pavement.

A string line shall be stretched between the pavement forms along the centerline of the joint. One half of the length of each dowel bar shall be painted in accordance with the directions shown on the plans and then thoroughly coated with hard grease, or lubricant as approved by the Engineer, to prevent the concrete from bonding to that portion of the dowel.

The entire joint assembly shall be of a type designated on the plans and shall be installed in such a position that the centerline of the joint assembly is perpendicular to the centerline of the pavement slab and the dowels lie parallel to the centerline of the slab. Finished joints shall not deviate more than six (6) millimeters in the horizontal alignment from a straight line. No plugs of concrete shall be permitted anywhere within the expansion space.

A slip sleeve of the dimensions shown on the plans shall be placed on the greased end of each dowel. The greased ends shall be free to slide in the dowel holder and shall extend in the direction as indicated on the plans. Any excess grease on the dowel holder shall be removed. The joint shall be securely staked or fastened in place prior to placing the concrete and in a manner to ensure the joint and the dowel bars will remain in their proper position after the concreting and finishing operations are completed.

Joints for pavement designed for two (2) or less lanes of traffic shall be assembled and installed in one (1) continuous piece or the connections between sections shall be made rigid and tight to prevent offsets in sections of the joints. The length of individual pieces of the expansion joint filter shall be not less than the width of one (1) traffic lane of the pavement.

The finishing machine shall be operated in a manner that prevents displacement of the joint. If for any reason it is necessary to straighten a joint, any depression caused by this operation shall immediately be filled with fresh concrete, reshaped and brought to the original crown in advance of the longitudinal finishers. Any fluid laitance or mortar caused by this operation shall be removed and replaced with fresh concrete.

As the finishing machine approaches the joint on the first trip, the excess concrete shall be
shoveled ahead and the tamper and each screed, in turn, shall be lifted over the joint. On the second trip of the finishing machine, the screed may be operated over the joint.

9.3.7.2 Contraction Joints

Contraction joints shall be of the type and dimensions and at the spacing shown on the plans. Sawed contraction joints shall be cut by means of an approved concrete saw. The joints shall not be sawed until the concrete has hardened to the extent that tearing and reveling is precluded. All joints shall be sawed during the initial curing period and the sawing shall begin before the pavement starts shrinking and uncontrolled cracking takes place. Any procedure which results in premature and uncontrolled cracking shall be revised immediately by adjusting the sequence of cutting the joints or the time interval involved between the placing of the concrete or removal of the curing media and the cutting of the joints. In no case shall the pavement be left overnight without having the joints sawed.

The joints shall be sawed at the depth, spacing, and lines shown on the plans. Guidelines or devices approved by the Engineer shall be provided to ensure cutting the joint in a straight line and perpendicular to the centerline of the pavement. The dust resulting from sawing shall be completely removed from the joint and adjacent areas by means of an air jet or a combination of air and water applied under pressure immediately after the joint has been cut, and before filling with joint compound.

When the plan so specifies that the dowels be installed through contraction joints; the subgrade at the contraction joints shall be accurately trimmed to the required cross section and to the proper depth of the pavement. A string line shall be stretched between the pavement forms along the center line of the joint. Each dowel shall be painted and thoroughly coated with hard grease or lubricant, in accordance with the direction shown on the plans or as approved by the Engineer, to prevent the concrete from bonding to that portion of the dowel. The entire joint assembly shall be of the type designated on the plans and shall be installed in such a position that the centerline of the joint assembly is perpendicular to the centerline of the slab and the dowels lie parallel to the slab surface as well as to the centerline of the slab. The greased ends of the dowels shall be placed in the direction as indicated on the plans and shall be free to slide in the dowel holder. Any excess hard grease on the dowel holder shall be removed.

9.3.7.3 Longitudinal Joints

Longitudinal joints shall be constructed in conformance with the details shown on the plans. When the fabricated steel strip is specified, it shall be held rigidly in place with an adequate number of pins driven into the subgrade to ensure that it will remain true to line and grade during concreting and finishing operations. On multiple lane pavements, where longitudinal joints are constructed at the form line, an approved recessed form and tie bars will be required. The full depth fabricated steel strip designated for other longitudinal joints will not be permitted. When sawed joints are specified or used, suitable guidelines or devices shall be furnished to ensure cutting the longitudinal joint on the true lines as shown on the plans. The sawing of longitudinal joints shall be performed at a time that will preclude erratic or uncontrolled cracking. Sawed joints shall be filled with the type of joint compound indicated on the plans. The dust resulting from sawing shall be completely removed from the joint and adjacent areas by means of air jet or a combination of air
and water applied under pressure immediately after the joint has been cut and before filling with joint compound.

9.3.7.4 Construction Joints

A butt construction joint shall be made perpendicular to the centerline of the pavement at the close of each day’s work and also when the process of depositing concrete is stopped for a length of time such that, in the opinion of the Engineer, the concrete will have taken its initial set. This joint shall be formed by using a clean plank header having a nominal thickness of five (5) centimeters, a width of not less than the thickness of the pavement and a length of not less than the width of the pavement. The header shall be cut true to the crown of the finished pavement and shall be accurately set and held in place in a plane at right angles to centerline and perpendicular to the surface of the pavement.

The top surface of the header shall be protected with steel as approved by the Engineer. On the face along with the center of the header there shall be fastened a trapezoidal piece of metal or wood the full length of the header, five (5) centimeters wide and at least twenty five (25) millimeters in depth to form a grooved joint. The header shall have drilled holes to accommodate the dowel or tie bars hereinafter specified. Upon resumption of Work any surplus concrete remaining upon the subgrade shall be removed. The header shall then be carefully removed and fresh concrete deposited against the old in such a manner as to avoid injury to the edge of the old concrete. The fresh concrete shall be vibrated into the groove in a manner to ensure an interlocking joint. Dowel bars or load transfer devices shall be used in all construction joints in accordance with the details shown on the plans. If no such details are shown on the plans, tie bars as provided for the longitudinal joint, and spaced at forty-five (45) centimeter centers, shall be placed across the joint in a plane parallel to the surface of the pavement approximately midway between the top and bottom surfaces of the pavement. The edges of the joint shall be grooved, edged, and sealed with the material used for sealing expansion and contraction joints.

No construction joint shall be placed within three (3) meters of an expansion, contraction, or other construction joint.

9.3.7.4 Sealing Joints

a) Materials: Joints shall be sealed with material of the approved type designated on the plans.

b) Hot Poured Joints: The joints shall be sawed as provided in sub item 310.33(b) and covered as provided in sub item 310.3.7(c). After the fourteen (14) or seventeen (17) day curing period for the pavement has elapsed, the jute or other protective covering shall be removed from the joint and the joint thoroughly cleaned of all loose scale, saw dust, dirt, laitance or other matter. Cleaning may be accomplished with a compressed air jet, water under pressure, wire brushes or in extreme cases the joint shall, when directed by the Engineer, be re-sawn to ensure a completely clean joint. The joint surfaces and adjacent areas of the slab shall be thoroughly clean.

The hot poured joint material shall be heated in a heating unit approved by the Engineer to the temperature within the range required as shown by tests. The joint shall be filled from the bottom of the saw cut to the surface of the pavement. Any joint with a depth greater than twenty five (25) millimeters shall be filled with a minimum of two (2) layers, each layer being approximately equal in depth.
c) Cold Poured Joints: The joints shall be sawed as provided in sub~ item 310.3.7(b) & 310.3.7(c) and cleaned of all loose saw dust, laitance, dirt, other foreign matter and free water. The joints shall be filled immediately after cleaning. The nozzle used must be so designed that the joint is filled completely from bottom to top. The joint shall be filled so it is rounded on top about six (6) millimeters above the pavement surface. Immediately after the joints have been filled, they shall be covered with strip of non-absorptive paper at least four (4) centimeters wide. Eleven (11) kilogram glass line or heavy craft is suitable. The paper shall remain on the joint until it weathers or wears off.

d) Permanent Header Board
Immediately after the forms are removed from the ends of concrete pavement that will be exposed to other than permanent type surfacing and temporary and permanent traffic, a header board having dimensions of not less than eight (8) centimeters (nominal) by twenty (20) centimeters shall be bolted securely to the end of the pavement in a manner to protect the edge of the pavement from damage. The header board shall extend the full roadway width, but may be in two (2) sections.

At the time of placing the concrete, six (6) (three for each lane), thirteen (13) millimeters by twenty (20) centimeters bolts shall be embedded in the end of the pavement in a manner that will hold the header board securely. The header board shall be shaped to conform to the crown of the pavement and shall be installed flush with the concrete pavement surface. The finishing and installing of the header board shall be considered subsidiary Work pertaining to the other items in the Bill of Quantities and will not be paid for directly.

The header will not be required on concrete base course Work.

9.3.8 Consolidating and Finishing
After being spread and struck off as provided in sub item 310.3.5 "Placing Concrete," the concrete shall be further struck off and consolidated with an approved finishing machine to such an elevation that when finishing operations are completed, the surface will conform to the required grade and crown. The finishing machine shall operate over the entire surface at least twice, the first time with the finishing machine tamper and both screeds in operation. A uniform roll of concrete approximately fifteen (15) centimeters above the pavement grade shall be maintained ahead of the front screed for its entire length during the first trip over with the finishing machine. Excessive tamping or finishing resulting in bringing an excess of mortar to the surface will not be permitted.

After the last pass of the finishing machine, a mechanical longitudinal finisher shall be operated over the concrete surface. The forward motion of the longitudinal finisher shall be so adjusted that the screed will pass over each portion of the surface at least twice. The longitudinal finisher shall be operated in a manner that will prevent excessive slumping of the concrete at the form lines or the metal center strip or the loss of the crown of the pavement.

If necessary or when ordered by the Engineer, the finisher shall be operated in one direction only or shall be operated from only the form to the centerline in order to ensure that the proper cross section of the pavement is obtained. The leading edge of the screed shall clear the forms upon completion of each transverse pass in order to clear the pavement surface of any laitance or thin mortar.

In general, the addition of superficial water to the surface of the concrete to assist in finishing
operations will not be permitted. If the application of water to the surface is permitted by the Engineer, it shall be applied as a fog spray by means of approved spray equipment.

As an alternative to the longitudinal finisher, the contractor may use a machine composed of a cutting and smoothing float, or floats, suspended from and guided by a rigid frame. The frame shall be carried by four (4) or more visible wheels riding on, and constantly in contact with, the side forms.

When directed by the Engineer, following one of the preceding methods of longitudinal finishing, long handled floats having blades not less than one and one half (1.5) meters in length and fifteen (15) centimeters in width shall be used to smooth and fill in open textured areas in the pavement. Long handled floats shall not be used to float the entire surface of the pavement in lieu of, or supplementing, one of the preceding methods of longitudinal finishing.

When the longitudinal finishing has been completed, the entire surface shall be tested with straightedges not less than three (3) meters in length. The straightedges shall be operated parallel to the pavement centerline starting at the center and progressing toward the forms. Advance along the pavement shall be in successive stages of not more than one half (1/2) the length of the straightedges. All laitance, surplus water, and inert material shall be removed from the surface. All high places shall be worked down and all low places filled by combined operations of floats and straight edges until no irregularities exist. The proper crown of the pavement shall be maintained throughout the operations.

After floating and straightening has been completed, the concrete shall be finished by using a belt made of canvas, rubber, or other approved belting not less than fifteen (15) centimeters in width, nor less than sixty (60) centimeters longer than the width of the pavement. This belt shall be worked with a longitudinal and crosswise motion. Care shall be exercised in the use of the belt to ensure that the edges of the belt do not dig into the surface of the concrete or work the crown out of the pavement. Either machine belting or hand belting will be permitted.

As soon as all excess moisture has disappeared, and while the concrete is still plastic enough to make a granular surface possible, a drag shall be used which shall consist of a seamless strip of damp burlap or cotton fabric, which shall produce a uniform surface of gritty texture after dragging it longitudinally along the full width of pavement. For pavement (5) meters or more in width, the drag shall be such that a strip or burlap or fabric at least one and one half (1.5) meters wide is in contact with the full width of pavement surface while the drag is used. The drag shall be maintained in such condition that the resulting surface is of uniform appearance and reasonably, free from grooves over two (2) millimeters in depth, as determined by the Engineer. Drags shall be maintained clean and free from encrusted mortar. Drags that cannot be cleaned shall be discarded and new drags substituted.

After dragging the surface with burlap, the concrete over the expansion joint filler shall be completely removed and the joint finished. The edges of the concrete at expansion joints shall be finished with a straight edge to the radius shown on the plans. The exposed edge of the pavement shall be finished with a straight edge to a radius of six (6) millimeters. Any tool marks appearing on the slab adjacent to the joints or edge of slab shall be eliminated by dragging the surface. In doing this, the rounding of the corner of the slab shall not be disturbed.
9.3.8.1 Hand Finishing

Unless otherwise specified, hand finishing methods will not be permitted except under the following conditions:

a. In the event of breakdown of the mechanical equipment, hand methods may be used to finish the concrete already deposited on the grade when the breakdown occurs, and no additional concrete shall be placed until such equipment is repaired to the satisfaction of the Engineer.

b. Narrow widths or areas of irregular dimensions where operation of mechanical equipment is impractical as determined by the Engineer, may be finished by approved hand methods.

c. Short lengths of pavement, such as bridge approach pavement, where the operation of mechanical equipment is impractical may be finished by approved hand methods. Concrete, as soon as placed, shall be struck off and screed done. An approved portable screed shall be used. A second screed shall be provided for striking off the bottom layer of concrete if reinforcement is used.

The screed for the surface shall be at least one (1) meter longer than the maximum width of the slab to be struck off. It shall be of approved design, sufficiently rigid to retain its shape, and be constructed either of metal or other suitable material shod with metal. Consolidation shall be attained by the use of a suitable vibrator or other approved equipment.

In operation the screed shall be moved forward on the forms with a combined longitudinal and transverse shearing motion, moving always in the direction in which the work is progressing and so manipulated that neither end is raised from the side forms during the striking off process. If necessary, this shall be repeated until the surface is of uniform texture, true to grade and cross section, and free from porous areas.

After the concrete has been struck off, it shall be further smoothed, trued, and consolidated by means of a longitudinal float. The hand operated longitudinal float shall be not less than three and one-half (3.5) meters in length and fifteen (15) centimeters in width, properly stiffened to prevent flexing and warping. The longitudinal float, operated from foot bridges resting on the side forms and spanning but not touching the concrete, shall be worked with a sawing motion, while held in a floating position parallel to the road centerline, and passing gradually from one side of the pavement to the other, Movement ahead along the centerline of the pavement shall be in successive advances of not more than one half (112) the length of the float. Any excess water or soupy material shall be wasted over the side forms on each pass.

At the option of the Engineer, the long handled floats having blades not less than one and one half (1.5) meters in length and fifteen (15) centimeters in width may be substituted for the hand operated longitudinal float.

All other operations after this substitution for the mechanical equipment shall be performed in the manner previously described.

Concreting operation shall be performed only in daylight, under no circumstances shall concrete pavement placed or finished at night.

9.3.9 Removing Forms
Unless otherwise provided, forms shall not be removed from freshly placed concrete until it has set for at least twelve (12) hours, except auxiliary forms used temporarily in widened areas. Forms shall be removed carefully so as to avoid damage to the pavement. After the forms have been removed, the sides of the slab shall be cured as specified for the surface. Major honeycombed areas will be considered as defective work and shall be removed and replaced at the Contractor’s expense, as directed by the Engineer. Any area or section so removed shall neither be less than three (3) meters in length nor the full width of lane involved. When it is necessary to remove and replace a section of pavement, any remaining portion of the slab adjacent to the joints that is less than three (3) meters in length, shall also be removed and replaced.

9.3.10 Protecting and Curing of Concrete Pavement

a. Initial Curing

As the surface of the newly laid pavement is progressively finished, the initial curing and protection operations shall be started. Upon completion the finishing operation and while the surface of concrete is still moist, but no free water remains, a liquid curing membrane approved by the Engineer shall be applied to the exposed surface of the pavement at the rate not less than one (1) liter per three and two thirds (3\(\frac{2}{3}\)) square meters of surface area when mechanical pressure distributors are used. The curing membrane, except on irregular areas, shall be applied by means of approved self-propelled mechanical pressure distributors or approved hand sprays. Satisfactory means shall be provided for thoroughly mixing the curing membrane compound before and during its use. The mechanical spraying equipment may be either a full width spray bar equipped with multiple nozzles or a traversing spray which travels from one edge of the pavement to the other. In either case the path of adjacent nozzles or passes of the traversing spray shall overlap a minimum of one-half (112) the width of the spray pattern so that all portions of the surface shall receive double applications from adjacent nozzles or passes. The pumping, pressure and distribution arrangement shall be correlated with the forward speed to provide adequate and uniform coverage of the pavement at not less than the minimum rate required. Irregular areas to which the mechanical distributor cannot be adapted may be covered with hand sprays.

When hand sprays are used, the curing membrane shall be applied in two (2) applications, each at a rate of not less than one (1) liter per five (5) square meters of surface area so as to provide a total rate of application of one (1) liter per two and one half (2\(\frac{1}{2}\)) square meters of surface area. The path of the spray on the second application shall be at right angles to the path of the spray on the first application. When hand operated sprays are permitted, the equipment supplying the pressure to them. Spray nozzle shall be capable of supplying a constant and uniform pressure to provide uniform and adequate distribution of the curing membrane compound at the rate required. If from any cause, such as rainfall soon after its application, the curing membrane is damaged, the Contractor shall immediately apply another application of curing membrane to the surface of the pavement. The rate of application for the replacement membrane shall be the same as for the original membrane. Unless otherwise directed by the Engineer, immediately following the application of curing membrane, an approved shade canvas shall be placed approximately thirty (30) centimeters above the pavement surface. The shade canvas shall be constructed of materials and in a
manner approved by the Engineer. In no case shall any portion of the shade canvas come in contact with the pavement. The initial curing shall be continued for a period of twenty-four (24) hours from the time the curing membrane is applied. When forms are removed, whether during the initial or the final curing period, the edges of the pavement shall receive curing membrane at the rate of coverage specified for the pavement surface.

The curing membrane may be applied to the vertical edges of the pavement by means of hand sprays or by nozzles attached to the mechanical distributor, but the edges of the pavement shall be covered with curing membrane at the rate specified within thirty (30) minutes after removal of the forms.

When cold poured joint compound is used, all joints shall be sawed during the initial curing period. The shade canvas may be moved at joint locations for short periods of time to permit the sawing. Before being sealed, the joints shall be thoroughly cleaned of all loose saw dust, laitance, dirt, other foreign matter, and free of water. As the method of final curing is different from that of the initial curing, the cleaning and sealing of joints shall be performed immediately following the removal of the shade canvas at the end of the initial curing period and prior to the application of the polyethylene sheeting.

When hot poured joint compound is used, the joints shall be sawed, cleaned, and filled with jute or other acceptable protective material in the same time sequence as for cold poured joints. In no case shall any portion of the concrete pavement be exposed to the direct rays of the sun for more than one (1) hour.

Following jointing operations, curing membrane shall be applied to the joint area at the rate specified for the pavement surface.

b. Final Curing

Upon completion of the initial curing period and after the shade canvas has been removed and jointing operation has been completed, the pavement shall be completely covered with White Opaque Polyethylene Film as specified in AASHTO M 171. Adjoining sheets shall be lapped a minimum of forty-five (45) centimeters. The sheeting shall be held in place in a manner approved by the Engineer.

Final curing shall be continued until the concrete reaches an age of fourteen (14) days. During this period, the curing membrane and polyethylene film shall be protected from damage from any cause. Any damage from one cause shall be immediately repaired by the Contractor at his expense. No traffic, including workmen and pedestrians, shall be allowed on the surface of the pavement until the expiration of the fourteen (14) day curing period. When concrete is being placed during the time that the air temperature may be expected to drop below fifteen (15) degrees C, a sufficient supply of burlap, straw, hay, or other suitable blanketing material shall be provided along the work to protect the concrete and maintain a minimum temperature of fifteen (15) degrees C in the concrete as measured on the surface of the pavement. An approved moisture barrier such as wet burlap or plastic sheeting shall be placed on the concrete prior to placing the blanketing material. This type of cure shall be maintained for a period of seventy two (72) hours as the initial cure. After the initial cure as specified above, a final cure as specified above may be used. The final cure shall be maintained for a period of fourteen (14) days, thus making a seventeen (17) day curing period for cold weather concreting.
9.3.11 Surface Tolerance
As soon as the concrete has hardened sufficiently, the pavement surface shall be tested with a three (3) meter straightedge or other specified devices. Areas showing high spots of more than three 3 mm, but not exceeding twelve 12 mm in three (3) meters between any two contact points, shall be marked and immediately grinded down with an approved grinding tool to a tolerance of less than three (3) mm as described above.
Where the departure from correct cross section exceeds twelve 12 mm, the pavement shall be removed and replaced by the Contractor at his expense. Any area or section so removed shall neither be less than three (3) meters in length nor the full width of the lane involved. When it is necessary to remove and replace a section of pavement, any remaining portion of the slab adjacent to the joints that is less than three (3) meters in length, shall also be removed and replaced.

9.3.12 Tests for Thickness of Pavement and Degree of Compaction
a. Thickness of Pavement
The Buyer will not be liable for payment of any excess in thickness of depth of pavement. During the progress of the work, the thickness or depth of pavement will be determined by the Engineer from cores cut from the concrete pavement by the Contractor. The cost of cutting and recovering all the cores described in this clause and the following paragraph shall be deemed to be included in the rates and prices for Portland Cement Concrete Pavement entered by the Contractor in the Bill of Quantities.
Unsatisfactory work shall be repaired, replaced, or will be paid for at an adjusted price, as follows:
1) One 15cm diameter core will be removed by the Contractor from each lane, at such locations as the Engineer may direct, and shall represent not more than 1000 SQM of pavement area. A lane shall be considered the pavement surface between longitudinal joints, or a longitudinal joint and pavement edge.
2) If any core measurement is deficient more than 6.5 mm from the required thickness a core measurement shall be taken at each 30m interval in both directions longitudinal from the first deficient core in the same lane, as defined herein, until the thickness of the pavement is found to be not more than 6.5 mm deficient from the required thickness. Each deficient core shall be considered as representing the condition in the same lane or longitudinal section, as above defined, for a distance of 15m, in each direction longitudinally from the core.
3) Sections of pavement which are deficient in thickness, as determined by cores, by an amount more than 1.3 cm shall be removed and replaced with pavement of the specified thickness at the expense of the Contractor. The removal and replacement shall start at the determined point of deficiency and proceed longitudinally as hereinafter specified, until the pavement is to be not more than 6.5 mm deficient from the required thickness. The old reinforcing steel shall be left extended a sufficient distance so as to allow the new reinforcement steel to be lapped with the old, the required distance to be welded to the satisfaction of the Engineer.
4) The removal and replacements of pavements shall extend transversely the full width each lane in which such deficiency is found.
5) All pavements within two (2) meters of the deficiency spot shall be removed, except
that when any joint is more than two (2) meters, all pavements shall then be removed to the next joint.

6) Sections of pavement which are deficient in thickness, as determined by measurement of cores in accordance with AASHTO T148-49, by an amount more than 6.5 mm, but not more than 1.3 cm, will be paid for at an adjusted price as specified in Table Below:

**DEFICIENCY IN THICKNESS AS DETERMINED FROM CORES**

<table>
<thead>
<tr>
<th>Proportional Part of Contract of Thickness Deficient</th>
<th>Contract Price to be allowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.00 mm to 6.5 mm</td>
<td>95%</td>
</tr>
<tr>
<td>6.5 mm to 13 mm</td>
<td>75%</td>
</tr>
</tbody>
</table>

b. Degree of Compaction

The cores that have been cut from the concrete pavement according to the requirements of (i) above shall be examined by the Engineer’s Representative to check the degree of compaction achieved through the slab and to check the effectiveness of the bond between the top and bottom course concrete.

Should any core reveal that any part of the slab has not been adequately compacted by revealing honeycombed or segregated concrete and should the bond between the top and bottom layers of concrete be such that a plane of weakness is present, then additional cores shall be taken to check the areas of defective concrete pavement according to the procedure laid down in (i) above for determining the areas of concrete pavement deficient in compaction.

Any areas of defective pavement concrete so found shall be replaced with new concrete in accordance with this section at contractor’s own expense.

The Engineer reserves the right to carry out crushing tests on any or all of the concrete cores taken in accordance with this clause, and should these tests show that any area of pavement concrete has failed to meet the strength requirements of the specification, then such areas of concrete shall be removed and replaced with new concrete, mixed, laid, compacted and finished to the requirements of this section at contractor’s own expense.

c. Refilling, of Holes

Holes in the pavement created by the cutting of cores shall be thoroughly coated on the inside with a neat cement grout and shall then be filled with concrete of the same mix as shown in the pavement. The filling shall be in two equal layers and each shall be vibrated to its full depth. The surface shall be finished flush and brushed, the surface shall be kept thoroughly wet for 72 hours thereafter.

9.3.13 Replacement of Defective Concrete

Any concrete not complying with the specification shall be cut out and replaced in accordance with the specification over the full width of the slab between longitudinal construction joints and over a length extending between two transverse joints each of a type other than a warping joint.

9.3.14 Concrete Lug Anchors

"Concrete Lug Anchors" shall be constructed in accordance with the dimensions and notes
and at the locations shown on the plans. Unless otherwise indicated on the plans, the class, composition, consistency, proportioning, batching, mixing and curing of the concrete used in concrete lug anchors shall conform to the same requirements as the concrete pavement. Reinforcing steel, concrete and excavation for lug anchors shall be subsidiary to the Bill of Quantities item.0Concrete Lug Anchors.”

9.4 MEASUREMENT AND PAYMENT

9.4.1 Measurement
The unit of measurement for payment shall be the cubic meters of the completed and accepted Portland Cement Concrete Pavement, as measured in place. The number of cubic meters of the completed Portland Cement Concrete Pavement shall be determined by the length measured along the center line and upon the surface of the road, times the width as shown on the Drawings plus the areas of any widening on curves, turnouts and intersection, authorized and measured separately. Measurement of pavement thickness will be ensured by erecting shutters for spreading concrete at required level.

The unit of measurement for bridge Approach Slabs shall be the square meters of the area actually constructed in accordance with the Drawings or as directed in writing by the Engineer.

Concrete Lug Anchors shall be measured by the linear meters in place, the measuring being made along the centerline of the concrete lug anchor transverse to the pavement centerline. No measurement will be made of unauthorized areas or for extra thickness.

9.4.2 Payment
The number of cubic meters of Portland Cement Concrete Pavement, measured as specified in sub item 310.4.1 above, will be paid for, at the price tendered per cubic meter in the Bill of Quantities, adjusted as specified for deficiency in thickness, which price shall include the cost of constructing, finishing, curing, protecting and cleaning the pavement as above described; the preparation of subgrade to receive the pavement; the construction of all joints of whatever type; cutting of cores and filling of holes, all materials, including joint filler and other material, equipment, labour and all else necessary therefore, and all other work in connection therewith and incidental there to in accordance with the specification and Drawings. Reinforcing steel shall be measured separately under relative items of work.

The number of cubic meters of Bridge Approach Slabs, will be paid for at the price tendered per cubic meter in the Bill of Quantities, which price shall include the cost of constructing, finishing, curing, protecting and cleaning the slab as above described; the surface preparation of the subbase to receive the slab: the construction of all joints of whatever type; all materials, including joint filler and other joint material, equipment, labour and all else necessary therefore, and all other work in connection therewith and incidental thereto in accordance with the Specification and Drawings.

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Description</th>
<th>Unit of Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 a</td>
<td>Plain Concrete Pavement</td>
<td>CM</td>
</tr>
<tr>
<td>9 b</td>
<td>Reinforced Concrete Pavement</td>
<td>CM</td>
</tr>
</tbody>
</table>
9 c Concrete Lug Anchors Meters

10. CONCRETE CURBS, GUTTERS AND CHANNELS

10.1 DESCRIPTION
This work shall consist of Curb, gutter, channel, or combination of Curb and gutter or channel; constructed of the following materials and in accordance with the specifications at the location and of the form, dimensions and designs shown on the Drawings or as directed by the Engineer. The Curb, gutter, channel or in combination may be constructed by one of the following methods.
1. Cast in place concrete Curbing.
2. Precast concrete Curbing.
3. Extruded concrete Curbing.

10.2 MATERIAL REQUIREMENTS
The concrete cast-in-place for concrete Curbs, gutters and channels shall be either Class W or class 'C' or as indicated on the Drawings or as approved by the Engineer and shall conform to the requirements of that particular class prescribed under item 401.1.1 "Classes of concrete". An air entraining agent, if required, shall be added during mixing an amount to produce five (5) to eight (8) percent air by volume in the mixed concrete.
Precast concrete curbing units shall consist of class 'C' concrete conforming to the requirement of item 401 and to lengths, shape and other details shown on the Drawings. Curbing which shows surface irregularities of more than five (5) mm when checked with three meter straight edge or surface pits more than fifteen (15) mm in diameter will be rejected. Forms to hold the concrete shall be built and set in place as described under item 403-Formwork. Forms for at least sixty meters of Curb or combination of Curb and gutter or channels shall be in place and checked for alignment and grade before concrete is placed. Curved sections shall have forms of either wood or metal and shall be accurately shaped to radius of curvature shown on the Drawings. Steel Reinforcement if required shall conform to item 404 "Steel Reinforcement". Expansion joint filler shall be either the performed type conforming to requirement of AASHTO-M 153 or shall be precast fiber board packing. Joint filler shall consist of one part cement and two parts of approved sand with sufficient quantity of water necessary to obtain the required consistency. The mortar shall be used within thirty (30) minutes after preparation.
The Bonding compound when used shall conform to AASHTO M-200.

10.3 CONSTRUCTION REQUIREMENTS
10.3.1 Cast in Place
a. Excavation and Bedding
Excavation shall be made to the required depth and the base upon which the Curb or combination of Curb and gutter is to be set shall be compacted to a minimum density of ninety (90) percent of the maximum dry density as determined by AASHTO T-191 Method. All soft and unsuitable material shall be removed and replaced with suitable material acceptable to the Engineer.
Where directed by the Engineer, a layer of cinders or clean sand and gravel, or other approved porous material having a minimum compacted thickness, of fifteen (15) cm shall be placed to form a bed for the Curb or combination of Curb and gutter.
b. Placing Concrete
Concrete may be placed in the gutter to the full depth required. The top of the Curb or combination of Curb and gutter shall be floated smooth and the edges rounded to the radii shown on the Drawings. Before finishing, the surface of the gutter shall be tested with a three (3) meter straight edge and any irregularities of more than five (5) mm in three (3) meters shall be eliminated. In finishing concrete only mortar normally present in the concrete shall be permitted for finishing. The use of a separate mortar finishing coat or the practice of working dry cement into the surface of the concrete will not be permitted.

c. Joints
The Curb and gutter shall be constructed in uniform sections of not more than twenty five (25) meters in length except where shorter sections are required to coincide with the location of weakened planes or contraction joints of the concrete pavement or for closures but no section shall be less than two (2) meters long.

The sections shall be separated by sheet templates set perpendicular to the face and top of the Curb and gutter. The templates shall be approximately five (5) mm in thickness, of the same width as that of the Curb or gutter and not less than five (5) cm greater than the depth of the Curb or gutter. Templates shall be set carefully and held firmly during the placing of concrete and shall be allowed to remain in place until the concrete has set sufficiently to hold its shape, but shall be removed while the forms are still in place.

When pre-cut fiber board packing is used in the expansion joints it may be used in place of the sheet template referred to above, on the approval of the Engineer. In this case the fiber board shall be pre-cut to the shape of Curb so that its outer edge is flushed with the abutting Curb.

Expansion joints shall be formed in the Curb and gutter at intervals of six (6) to ten (10) meters in order to coincide with the expansion joints of cement concrete pavement or as shown on the Drawing.

d. Dowels at Expansion Joints in Channels
At expansion joints in channels and in the channel portion of Curbs and channel built monolithically, painted dowel bars with slip sleeve shall be provided as a load transfer medium at locations shown on the Drawings.

The size and spacing of the dowel bars shall be as indicated on the Drawings. Each dowel shall be set accurately parallel to the top surface of the gutter and accurately at right angles to the expansion joint.

e. Contraction Joints
Transverse contraction joints shall be provided opposite to all contraction joints in abutting concrete pavement and other locations shown on the Drawing spaced to a maximum of four (4) meters.

The contraction joints shall be provided by forming grooves in the face and surface of structure at right angle to the Curb alignment and Curb surface. The grooves shall be rectangular in cross-section, five (5) cm deep by five (5) cm wide. The grooves shall be formed in the top of all Curbs and in the exposed roadway face of Curb and in the channel surface of monolithic type Curb and channels and in the surface of channels. The edges of the joints shall be tooled and the joints shall be left clean, neat and of specified width and depth.

f. Removal of Forms and Finishing
The forms shall be removed within twenty four (24) hours after concrete has placed except
that the, form used against the face of the Curb in a combination of Curb and gutter shall be removed as soon as the concrete has set sufficiently to hold its shape. Minor defects shall be repaired with mortar containing one part of Portland cement and two parts of the fine aggregate. Plastering shall not be permitted on the face of a Curb or Curb and gutter and all rejected Curb or gutter shall be removed and replaced without additional compensation. All surfaces which will be exposed in the finished construction of the Curb and gutter shall be finished, while the concrete is still "green" by wetting a wood block of float and rubbing the surface until they are smooth.

g. Curing
During seventy two (72) hours following placing of concrete, the Curbs, channels and gutters shall be protected against premature drying by covering with suitable cotton or Hessian mats and by frequent sprinkling with water, with liquid forming compounds or with waterproof paper or by any other method as mentioned in section 401.3.8-Curing, Concrete and approved by the Engineer.

h. Backfilling
After forms has been removed and concrete has been cured as specified, the excavation of Curbs, gutters or channels shall be backfilled with suitable earth or granular material tamped into place in layers of not more than fifteen (15) cm each until firm and solid.

10.3.2 Precast

a. Excavation and Bedding
Excavation shall be made to the required depth as shown on the Drawings. All soft and unsuitable material shall be removed and replaced with a suitable material acceptable to the Engineer. Bedding shall consist of Class B Concrete conforming to the requirements of Item 401 and shall be to the section and dimension shown on the Drawings.

b. Placing
The precast concrete Curbs shall be set in 1:3 of cement sand mortar to the line, level and grade as shown on the Drawings or as directed by the Engineer.

c. Joints
Joints between consecutive Curbs shall be three (3) to five (5) mm wide and filled with cement mortar to the full section of the Curb.

d. Backfilling
Backfilling shall meet the requirements of Item 601.3.1 (h).

10.3.3 Extruded Concrete Curbing and Channels

a. Excavation and Bedding
Excavation and bedding shall conform to the requirements as described under item 601.3.1 (a).

b. Placing
Concrete shall be fed to the machine at a uniform rate. The concrete shall be of such consistency that after extrusion it will maintain the shape of the Curb section without support and shall contain the maximum amount of water that will permit this result. The machine shall be operated under sufficient uniform restraint to forward motion to produce a well compacted mass of concrete which requires no further finishing other than light brushing with a brush filled with water only. The forming tube portion of the extrusion machine shall be readily adjustable vertically during the forward motion of the machine. A grade line gauge
or pointer shall be attached to the machine so that a continual comparison can be made between the Curb being placed and the established Curb grade as indicated by an offset guideline.

The top end face of the finished Curb shall be true and straight and the top surface of the Curb shall be of uniform width, free from bumps or surface pits larger than fifteen (15) mm in diameter. When a straightedge three (3) meters long is laid on the top or face of the Curb or surface of the gutter, the surface shall not be more than five (5) mm from the edge of the straightedge except at grade changes or curves.

Where adhesive is used to bond the Curb to an existing pavement, the surface shall be first thoroughly cleaned of all dust, loose material and oil, the cost of which shall be included in other items of work.

c. Joints

Expansion joints shall be constructed by sawing through the Curb section to its full depth. The width of the cut shall be such as to admit the joint filter with a tight fit. Preformed joint filler shall conform to the provisions of Item 601.2 and shall be inserted and mortared in place.

If sawing is performed before the concrete has hardened, the adjacent portion of the Curb shall be supported firmly with close fitting shields and the operations of sawing and inserting the joint filler shall be completed before curing the concrete.

Alternatively pre-cut joint fillers shall be permitted to be placed at the location of the expansion joints prior to placing of the extruded Curb with the approval of the Engineer. The joint fillers shall be set firmly in place in a vertical position to the line and grade of the Curb profile.

d. Curing and Backfilling

Curing and backfilling shall be as described in item 601.3.1(g) and Item 601.3.1 (h).

10.4 MEASUREMENT AND PAYMENT

10.4.1 Measurement

The unit of measurement for concrete Curb, gutter, or combination of Curb and gutter, channel, or extruded Curbs and channels shall be measured by the linear meter along the front face of the section at the finished grade elevation. Deduction in length will be made for drainage structure installed in the Curbing such as catch basins and drop inlets etc. Measurement will not include any area in excess of those shown on the Drawings except for any area authorized by the Engineer in writing.

10.4.2 Payment

Measured and accepted quantities shall be paid for at the contract unit price per linear meter for each of the particular pay item listed below and shown in the Bill of Quantities which prices and payment shall constitute full compensation for furnishing and placing all materials for concrete, for reinforcing steel if required on the Drawings for expansion Joints, material, form for drainage opening, excavation, backfilling and dumping and disposal of surplus material and for all labour, equipment, tool and incidentals necessary to complete the item.

Payment for expansion joint filler material used in transverse expansion and contraction joints in Curbs and channel shall be understood to be included in the price tendered per linear meter for the Curbs and channels and shall not be paid for separately.

Concrete and mortar required for bedding of precast concrete Curbs as shown on the
Drawings shall not be paid for as separated item, but the cost shall be included in the contract unit price for precast concrete Curb.

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Description</th>
<th>Unit of Measurement</th>
</tr>
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<tbody>
<tr>
<td>10 a</td>
<td>Concrete Curb, in place, Type ____</td>
<td>Metres</td>
</tr>
<tr>
<td>10 b</td>
<td>Combination of Curb and Gutter in Place, Type ____</td>
<td>Metres</td>
</tr>
<tr>
<td>10 c</td>
<td>Combination of Curb and Channel in Place, Type ____</td>
<td>Metres</td>
</tr>
<tr>
<td>10 d</td>
<td>Precast Curb in Place, Type ____</td>
<td>Metres</td>
</tr>
<tr>
<td>10 e</td>
<td>Concrete Channel, Type ____</td>
<td>Metres</td>
</tr>
<tr>
<td>10 f</td>
<td>Extruded Curb and Channel, Type ____</td>
<td>Metres</td>
</tr>
</tbody>
</table>

**D - SOURCES OF CONSTRUCTION MATERIALS**

<table>
<thead>
<tr>
<th>Ser</th>
<th>Material</th>
<th>Source of Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Granular Sub Base.</td>
<td>Sargodha or equivalent.</td>
</tr>
<tr>
<td>3</td>
<td>Pre-stressed, Precast boundary wall</td>
<td>Banu Mukhtar / Izhar (Pvt.) Ltd. / Ittefaq Concrete or equivalent.</td>
</tr>
<tr>
<td>4</td>
<td>Concrete Pavers.</td>
<td>Bin Creet / Izhar (Pvt.) Ltd. OR Equivalent.</td>
</tr>
<tr>
<td>5</td>
<td>Crush for PCC / RCC</td>
<td>Sargodha/Margalla or equivalent.</td>
</tr>
<tr>
<td>6</td>
<td>Sand for Concrete 3000 PSI &amp; Above</td>
<td>Lawrencepur. or equivalent</td>
</tr>
<tr>
<td>7</td>
<td>Sand for other type of Concrete.</td>
<td>Local / River Sand or equivalent</td>
</tr>
<tr>
<td>8</td>
<td>Steel.</td>
<td>Mughal / Model / AFCO or equivalent.</td>
</tr>
<tr>
<td>9</td>
<td>HDPE Pipes.</td>
<td>DADEX / ILL / BBJ or equivalent</td>
</tr>
<tr>
<td>10</td>
<td>Gutka.</td>
<td>Lahore / Pattoki or equivalent</td>
</tr>
</tbody>
</table>

**X. SPECIAL CONDITIONS OF CONTRACT**

1. The contractor shall agree with the Procuring Agency for the time and place for the testing of any material, if required by procuring Agency.

2. If as a result of the inspection, examination or testing, the delivered goods/services do NOT fulfil the agreed requirement. The Procuring Agency may ask for replacement or failure to meet the Procuring Agency’s requirements as per the Tender Documents, the contract may be terminated by serving two weeks’ notice time.
3. In case of Public Holiday / Close Day on the day of tender opening, tender shall be opened on next working day.

4. Conditional or incomplete bids shall not be accepted and shall be disqualified

5. In addition to other Tender clauses if successful bidder fail to initiate the work within 15 days from the date of signing of work order/ Purchase order the procuring Agency reserve the right to impose a plenty of PKR 5000/- per day or cancel the work order/ purchase order with forfeit of the performance security.

6. “Reference experiences will only be considered if bidder shall submit documentary evidence of work done from the name of their company” (Sublet contracts / joint venture are not accepted).