

Standard Bidding Document

TENDER FOR FACADE FACELIFT & RESTORATION WORK OF PNSC BUILDING (Works)

National

Single Stage-Two Envelope

CORRIGENDUM # 1	CORR-P106762-001
Initiation Date	September 29, 2026



September 29, 2026

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REQUEST FOR BIDS

PROCUREMENT OF CIVIL WORKS

1. The **Pakistan National Shipping Corporation (Maintenance & Project / Technical Department)** has reserved Funds for the procurement planned for FY **2026-27**. The **Pakistan National Shipping Corporation (Maintenance & Project / Technical Department)** intends to apply part of the proceeds of this Fund to cover eligible payments under the contract for the **"TENDER FOR FACADE FACELIFT & RESTORATION WORK OF PNSC BUILDING"** with the reference of **"P106762"**.

2. The **Pakistan National Shipping Corporation (Maintenance & Project / Technical Department)** invites electronic Bids from eligible Bidders for procurement of Works (**TENDER FOR FACADE FACELIFT & RESTORATION WORK OF PNSC BUILDING**) described in the bidding documents on **EPADS v2.0**.

3. **Single Stage-Two Envelope** will be used by adopting **Least Cost Based Selection (LCBS)** Technique for the subject procurement, in line with the Public Procurement Rules, 2004 and any Regulations, Regulatory Guides, Procurement Guidelines or Instructions issued by the Authority from time to time.

4. All Bids must be accompanied by a Bid Security amounting described in Bid Security Section in Bidding Document in the form of . Or all bids must be accompanied by bid securing declaration in the format specified in the Bidding documents

5. E-Bidding documents, containing detailed terms & conditions, specifications and requirements etc. are available on **e-Pak Acquisition and Disposal System (EPADS)** at **<https://epads.gov.pk/opportunities/federal/procurements/106762>** for all the interested bidders registered on **EPADS v2.0**. Bidders are required to get themselves registered on **EPADS v2.0** to participate in Bidding process.

6. The e-bids, prepared in accordance with the instructions in the e-Bidding documents, must be submitted through **EPADS v2.0** on or before **Thursday,**

October 15, 2026 11:00 AM. E-bids will be opened by using **EPADS v2.0** on the same day at **Thursday, October 15, 2026 11:30 AM.** Manual submission of Bids shall not be entertained. Those vendor who have not yet registered on the new version of **EPADS v2.0**, may register themselves on <https://pa.epads.gov.pk/>. A tutorial to explain the registration process is available at <https://www.youtube.com/watch?v=MNW6T38v7tc>.

In terms of Rules 48 of Public Procurement Rules, 2004 Grievance Redressal Committee (GRC) is notified for the subject procurement and notification copy is available on the procuring agency's website and on Authority's website at (www.ppra.org.pk).

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Instructions to Bidders

A. INTRODUCTION

1. Scope of Bid

1.1. The Procuring agency/Employer (PA), as indicated in the **Bid Data Sheet** (BDS) invites Bids for the execution of Works as specified in the BDS and **Section V- Works Requirements**. The name, identification, and number of lots (contracts) of this National/ International Competitive Bidding process are specified in the BDS.

2. Source of Funds

2.1. Source of funds as referred in Clause 2 of Bid Data Sheet.

3. Eligible Bidders

3.1. A bidder may be natural person, company or firm or public or semi-public agency of Pakistan or any foreign country, or any combination of them with a formal existing agreement (on Judicial Papers) in the form of a joint venture or consortium. In the case of a joint venture or consortium, all members shall be jointly and severally liable for the execution of the Contract in accordance with the terms and conditions of the Contract. The joint venture or consortium shall nominate a Lead Member as nominated in the BDS, who shall have the authority to conduct all business for and on behalf of any and all the members of the joint venture or consortium during the Bidding process, and in case of award of contract, during the execution of contract. Verifiable copy of the agreement that forms a joint venture, consortium or association shall be required to be submitted as part of the Bid.

Any bid submitted by the joint venture, consortium or association shall indicate the part of proposed contract to be performed by each party and each party shall be evaluated (or post qualified if required) with respect to its contribution only, and the responsibilities of each party shall not be substantially altered without prior written approval of the Procuring Agency and in line with any instructions issued by the Authority.

(The limit on the number of members of JV or Consortium may be prescribed

in BDS, in accordance with the guidelines issued by the PPRA).

3.2. The invitation for bids is open to all prospective bidders subject to any provisions of incorporation or licensing by the respective national/international incorporating agency or statutory body established for that particular trade or business. Procuring agencies shall specify the registration/licensing requirements for the foreign bidder keeping in view the requirement of that business.

3.3. A Bidder shall not have a conflict of interest. All Bidders found to have a conflict of interest shall be disqualified. A Bidders may be considered to have a conflict of interest with one or more parties in this Bidding process, if they:

3.3.1. are associated or have been associated in the past, directly or indirectly with a firm or any of its affiliates which have been engaged by the Procuring agency/Employer to provide consulting services for the preparation of design or technical specifications of the works that are the subject of the bid; or

3.3.2. have controlling shareholders in common; or

3.3.3. receive or have received any direct or indirect subsidy from any of them; or

3.3.4. have the same legal representative for purposes of this Bid; or

3.3.5. have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the bid of another bidder, or influence the decisions of the Procuring agency/Employer regarding this Bidding process; or

3.3.6. Submit more than one bid in this bidding process.

3.4. A Bidder may be ineligible if –

3.4.1. he is declared bankrupt or, in the case of company or firm, insolvent;

3.4.2. payments in favor of the bidder is suspended in accordance with the judgment of a court of law other than a judgment declaring bankruptcy and resulting (in accordance with the national laws) in the total or partial loss of the right to administer and dispose of its property;

3.4.3. the bidder is convicted, by a final judgment of a Court of Law or relevant Professional Statutory Body, of any offence involving professional conduct;

3.4.4. The bidder is debarred/ blacklisted by a national level Procuring agency/Employer and hence debarred due to involvement in corrupt and fraudulent practices, or performance failure or due to breach of bid securing declaration.

3.5. As and when required, bidders shall provide to the Procuring agency/Employer evidence of their eligibility, proof of compliance with the necessary legal requirements to carry out the contract effectively.

3.6. Bidders shall submit proposal relating to the nature, conditions and modalities of sub-contracting wherever the sub-contracting of any elements of the contract is envisaged.

4. Eligible Material and Equipment

4.1. All the material and equipment to be mobilized under the contract shall have their origin in eligible source countries, and all expenditures made under the contract will be limited to such materials and equipment. For this purpose, ineligible countries are stated in the section-IV titled as “Eligible Countries”.

B. BIDDING DOCUMENTS

5. Contents of Bidding Documents

5.1. The scope of Works, bidding procedures, and terms and conditions of the contract are prescribed in the bidding documents. In addition to the Invitation for Bids, the bidding documents which should be read in

conjunction with any addenda issued in accordance with ITB 7.1 include:

- i. Section I -Invitation for Bids
- ii. Section II Instructions to Bidders (ITBs)
- iii. Section III Bid Data Sheet (BDS)
- iv. Section IV Eligible Countries
- v. Section V Evaluation and Qualification Criteria
- vi. Section VI Works Requirements Technical Specifications & Schedule of Requirements
- vii. Section VII Standard Bidding Forms
- viii. Section VIII General Conditions of Contract (GCC)
- ix. Section IX Particular Conditions of Contract (PCC)
- x. Section X Contract Forms

5.2. The bidder is expected to examine all instructions, forms, specifications, terms and conditions prescribed in the bidding documents. Failure to furnish all the information required in the bidding documents will be at the bidder's risk and may result in the rejection of his bid.

6. Clarification of Bidding Document, Pre-bid Meeting

6.1. A prospective bidder requiring any clarification of the bidding document may notify the Procuring agency/Employer through **EPADS v2.0**.

6.2. The Procuring agency/Employer shall respond to the request for clarification in accordance with the Public Procurement Rules 2004, Rule No.31 i.e. **Clarification of bids**.

6.3. Should the Procuring Agency deem it necessary to amend the BIDDING document as a result of a clarification, it shall do so following the procedure under **ITB 7**.

6.4. If indicated in the **BDS**, the bidder's designated representative is invited at the bidder's cost to attend a pre-bid meeting at the place, date and time mentioned in the BDS. During this pre-bid meeting, prospective bidders may request clarification of the schedule of requirement, the evaluation criteria or any other aspects of the bidding documents.

6.5. Minutes of the pre-bid meeting, if applicable, including the text of the questions asked by bidders, including those during the meeting (without identifying the source) and the responses given, together with any responses prepared after the meeting will be uploaded on **EPADS v2.0**. Any modification to the bidding documents that may become necessary as a result of the pre-bid meeting shall be made by the Procuring agency/Employer exclusively through the use of an Addendum pursuant to **ITB 7**. Non-attendance at the pre-bid meeting will not be a cause for disqualification of a bidder.

6.6. The bidder is advised to visit and examine the Site of Works and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the bid and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the bidder's own expense.

6.7. The bidder and any of its authorized personnel will be granted permission by the Procuring agency/Employer to enter upon its premises and lands for the purpose of such visit, but only upon the express condition that the bidder and its personnel will release and indemnify the Procuring agency/Employer from and against all liability in respect thereof, and will be responsible for death or personal injury, loss of or damage to property, and any other loss, damage, costs, and expenses incurred as a result of the inspection.

7. Amendment of Bidding Documents

7.1. The procuring agency may issue notification of any change, addition, modification or deletion in accordance with the PP Rules 2004, rule no. 23 i.e. **Bidding Documents**.

7.2. To give prospective bidders reasonable time in which to take an addendum/corrigendum into account in preparing their bids, the Procuring

agency/Employer may, at its discretion, extend the deadline for the submission of bids:

*Provided that the Procuring agency/Employer shall extend the deadline for submission of bid in pursuance of PP Rules 2004, rule no. 27 i.e. **Extension of time for submission of bids**, if such an addendum is issued within last three (03) days of the bid submission deadline.*

C. PREPARATION OF BIDS

8. Language of Bid

8.1. The bid prepared by the bidder, as well as all correspondence and documents relating to the bid exchanged by the bidder and the Procuring agency/Employer shall be written in the English language unless specified in the **BDS**. Supporting documents and printed literature furnished by the bidder may be in another language provided they are accompanied by an accurate translation of the relevant pages in the English language unless specified in the **BDS**, in which case, for purposes of interpretation of the bidder, the translation shall govern.

9. Documents Constituting the Bids

9.1. The Bids prepared by the Bidder shall constitute of all the documents required in the **BDS**.

10. Documents Establishing Eligibility of Material, Equipment and Works, their Conformity to Bidding Documents

10.1. The bid prepared by the bidder shall constitute the following components: -

10.1.1. Documentary evidence established in accordance with **ITB 10** that the material and equipment to be utilized by the Bidder for the executions of works are eligible material and equipment and conform to the Bidding Documents;

10.1.2. Documentary evidence established in accordance with **ITB 11** that the bidder has been authorized to carry out the Construction works;

10.1.3. Documentary evidence established in accordance with **ITB 11** that the bidder is eligible and/or qualified for the subject bidding process;

10.1.4. Form of Bid and Bid Prices completed in accordance with **ITB 12** and **13**;

10.1.5. Completed schedules as required, including priced Bill of Quantities in accordance with **ITB 13**.

10.1.6. Technical Proposal completed in all aspects in accordance with **ITB-15**.

10.1.7. Bid security or Bid Securing Declaration furnished in accordance with **ITB 17**;

10.1.8. Any other document required in the **BDS**.

10.2. In addition to the requirements, bids submitted by a JV shall include a copy of the Joint Venture Agreement entered into by all members. Alternatively, a letter of intent to execute a Joint Venture Agreement in the event of a successful bid shall be signed by all members and submitted with the bid, together with a copy of the proposed Agreement.

10.3. The bidder shall furnish, as part of its bid, all those documents establishing the eligibility in conformity to the terms and conditions specified in the bidding documents for all material, equipment and works which the bidder proposes to execute.

10.4. The documentary evidence of conformity of the material, equipment and works to the Bidding Documents may be in the form of literature, drawings, and data, and shall consist of:

10.4.1. a detailed description of the work methodology, approach, schedule and resources to be mobilized at site;

10.4.2. an item-by-item commentary on the Procuring agency/Employer's Technical Specifications demonstrating substantial responsiveness of the material, equipment and works to those specifications, or a statement of deviations and exceptions to the provisions of the Technical Specifications;

10.4.3. any other procurement specific documentation requirement as stated in the **BDS**.

10.5. The required documents and other accompanying documents must be in English. In case any other language than English is used the pertinent translation into English shall be attached to the original version.

11. Documents Establishing Eligibility and Qualification of the Bidder

11.1. The bidder shall furnish, as part of its bid, all those documents establishing the bidder's eligibility to participate in the bidding process and/or its qualification to perform the contract if its bid is accepted.

11.2. The documentary evidence of the bidder's eligibility to bid shall establish to the satisfaction of the Procuring agency/Employer that the bidder, at the time of submission of its bid, is from an eligible country as defined in Section-IV titled as "Eligible Countries".

11.3. The documentary evidence of the bidder's qualification to perform the contract if its bid is accepted shall establish to the satisfaction of Procuring agency/Employer that:

11.3.1. The bidder has the financial and technical capability necessary to perform the Contract, meets the qualification criteria specified in Section-V, Evaluation and Qualification Criteria and **BDS**.

11.3.2. In the case of a bidder not doing business within Pakistan, the bidder is or will be (if awarded the contract) represented by a local bidder (Joint Venture) in accordance with the PEC works bylaws, and in case of award of works such foreign firm is required to participate in the execution of works to carry out its obligations as prescribed in the Conditions of Contract and /or Technical Specifications.

11.3.3. That the bidder meets the qualification criteria listed in Section-V, Evaluation and Qualification Criteria and **BDS**.

12. **Forms of Bid**

12.1. The Bidder shall fill the Form of Bids furnished in the bidding documents. The Bids Form must be completed without any alterations to its format and no substitute shall be accepted.

13. **Bid Prices**

13.1. The bid prices quoted by the bidder in the Standard bid Forms, Bill of Quantities and in the Price Schedules shall conform to the requirements specified below or exclusively mentioned hereafter in the bidding documents.

13.2. The bidder shall fill in rates and prices for all items of the Works described in the Bill of Quantities. If a Price Schedule shows items listed but not priced, their prices shall be construed to be included in the prices of other items in the Bill of Quantities and will not be paid for separately by the Procuring agency/Employer.

13.3. Items not listed in the Price Schedule shall be assumed not to be included in the bid, and provided that the bid is still substantially responsive in their absence or due to their nominal nature, the corresponding average price of the respective item(s) of the remaining substantially responsive bidder(s) shall be construed to be the price of those missing item(s):

Provided that:

13.3.1. where there is only one (substantially) responsive bidder, or

13.3.2. where there is provision for alternate proposals and the respective items are not listed in the other bids,

The Procuring agency/Employer may fix the price of missing items in accordance with market survey, and the same shall be considered as final price.

13.4. The Bid price to be quoted in the Form of Bid in accordance with ITB 12 shall be the total price of the bid.

13.5. Unless otherwise specified in the **BDS** and the Contract, the rates and prices quoted by the bidder are subject to adjustment during the performance of the Contract in accordance with the provisions of the Conditions of Contract.

13.6. If so specified in ITB 1.1, bids may be invited for individual lots (contracts) or for any combination of lots (packages).

13.7. Prices quoted by the Bidder shall be fixed during the bidder's performance of the contract and not subject to variation on any account. A bid submitted with an adjustable price will be treated as non-responsive and shall be rejected, pursuant to **ITB 27**, unless otherwise price adjustment is permissible under Conditions of the Contract.

13.8. All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, as of the date twenty-eight (28) days prior to the deadline for submission of bids, shall be included in the rates and prices and the total bid price submitted by the bidder.

14. Currencies of Bid and Payment

14.1. Prices shall be quoted in Pakistani Rupees unless otherwise specified in the **BDS**. Comparison of bids and tie of bid shall be treated in accordance with the PP rules 2004, rule no. 30.

15. Documents Comprising the Technical Proposal

15.1. The bidder shall furnish a Technical Proposal including a statement of work methods, equipment, personnel, schedule and any other information as stipulated in Section VII - Standard Bid Forms, in sufficient detail to demonstrate the adequacy of the bidder's proposal to meet the work requirements and the completion time.

16. Bid Validity Period

16.1. Bids shall remain valid for the period specified in the BDS after the bid submission deadline prescribed by the Procuring agency/Employer. A bid valid for a shorter period shall be rejected by the Procuring agency/Employer as non-responsive. The period of bid validity will be determined from the complementary bid securing instrument i.e. the expiry period of bid security or bid securing declaration as the case may be.

16.2. Under exceptional circumstances, prior to the expiration of the initial Bids/Bid validity period, the Procuring Agency may request the Bidders' consent to an extension of the period of validity of their Bids/Bid. Such request for extension of the period of bid validity shall be carried out in accordance with the PP rules 2004, rule no. 26 i.e. Bid Validity.

17. Bid Security or Bid Securing Declaration

17.1. Pursuant to ITB 11.1 unless otherwise specified in the BDS, the bidder shall furnish as part of its bid, a Bid Security in accordance with the PP Rules 2004, rule no. 25 in the amount and currency specified in the BDS or Bid Securing Declaration as specified in the BDS in the format provided in Section VII (Standard Bidding Forms).

In case Procuring agency/Employer is inviting bids in lots / packages, the bidder shall be required to submit his bid security against the respective lot/package for which he is submitting his bid.

Until the development of functionality of auto verification of financial instrument in **EPADS v2.0**, the scanned copy of bid security or bid securing declaration, as the case may be, shall be uploaded on **EPADS v2.0** whereas the original instrument to be submitted to the procuring agency before closing of bid submission deadline,

17.2. The Bid Security shall be denominated in the local currency or in another freely convertible currency, and it shall be in the form specified in the BDS which shall be in any of the following:

17.2.1. A bank guarantee, an irrevocable letter of credit issued by a Scheduled bank in the form provided in the Bidding Documents or another form acceptable to the Procuring agency/Employer and valid for twenty-

eight (28) days beyond the end of the validity of the Bid. This shall also apply if the period for Bid Validity is extended. In either case, the form must include the complete name of the bidder;

17.2.2. A cashier's or certified cheque; or

17.2.3. Another security as indicated in the **BDS**.

17.3. The Bid Security or Bid Securing Declaration shall be in accordance with the Form of the Bid Security or Bid Securing Declaration included in Section VII (Standard Bidding Forms) or another form approved by the Procuring agency/Employer prior to the bid submission.

17.4. The Bid Security shall be payable promptly upon written demand by the Procuring agency/Employer in case any of the conditions listed in **ITB 17.9** are invoked.

17.5. Any bid not accompanied by a Bid Security or Bid Securing Declaration in accordance with **ITB 17.1 or 17.3** shall be rejected by the Procuring agency/Employer and shall be declared as non-responsive bid, pursuant to **ITB 27**.

17.6. Unsuccessful bidders' Bid Security will be discharged or returned as promptly as possible, however in no case later than thirty (30) days after the expiration of the period of Bid Validity prescribed by the Procuring agency/Employer pursuant to **ITB 16**. The Procuring agency/Employer shall make no claim to the amount of the Bid Security, and shall promptly return the Bid Security document, after whichever of the following that occurs earliest:

17.6.1. The expiry of the Bid Security;

17.6.2. The entry into force of a procurement contract and the provision of a performance security (or guarantee), for the performance of the contract if such a security (or guarantee), is required by the Bidding documents;

17.6.3. The rejection by the Procuring agency/Employer of all Bids;

17.6.4. The withdrawal of the bid prior to the deadline for the submission of bids, unless the bidding documents stipulate that no such withdrawal is permitted.

17.7. The successful bidder's Bid Security will be discharged upon the bidder signing the contract pursuant to **ITB 40**, or furnishing the performance security (or guarantee), pursuant to **ITB 41**.

17.8. The Bid Security may be forfeited or the Bid Securing Declaration executed:

if a Bidder:

17.8.1. Withdraws its Bid during the period of Bid Validity as specified by the Procuring agency/Employer, and referred by the bidder on the Form of Bid except as provided for in ITB 16.2; or

17.8.2. In the case of a successful bidder, if the bidder fails:

17.8.2.1. to sign the contract in accordance with ITB 40; or

17.8.2.2. to furnish performance security (or guarantee) in accordance with ITB 41.

17.9. In case of Bid Security issued by the foreign bank is allowed by the Procuring agency/Employer, the same should be counter guaranteed by a corresponding bank in Pakistan. Furthermore, in case of joint venture, it should be in the name of Joint venture to ensure joint responsibility. In case the JV is not legally constituted at the time of bid submission, the bid security or bid securing declaration shall be in the names of all future members as named in the letter of bid.

18. Withdrawal of Bids

18.1. Before bid submission deadline, any bidder may withdraw, substitute, or modify its bid after it has been submitted by sending a written notice, duly signed by an authorized representative, and the corresponding must accompany the respective written notice.

19. Format and Signing of Bid

19.1. The Bidder shall prepare and submit Bids through EPADS with due diligence after carefully reading all the terms and condition before bid submission deadline.

D. SUBMISSION OF BIDS

20. Submission of Bids

20.1. All bids shall be submitted through **EPADS v2.0**.

21. Deadline for Submission of Bids

21.1. All bids shall be received through **EPADS v2.0** not later than bid submission deadline as specified in the **BDS**.

21.2. The Procuring agency/Employer may, under exceptional circumstances and at its discretion, extend the deadline for the submission of bids, pursuant to PP Rules 2025, rule no.39 Extension of Time for submission of bid, by amending the Bidding Documents in accordance with ITB 7, in which case all rights and obligations of the Procuring agency/Employer and bidders previously subject to the deadline will thereafter be subject to the new deadline.

22. Substitution and Modification of bids

22.1. A bidder may substitute or modify his bid after it has been submitted, provided that written notice of the substitution or modification of the bid, is received by the Procuring agency/Employer prior to the deadline for submission of bids.

22.2. Revised bid may be submitted after the substitution or modification made in the original bid in accordance with the provisions referred in ITB 18.

E. OPENING AND EVALUATION OF BIDS

23. Opening of Bids

23.1. The Procuring Agency will open bids in accordance with the PP rules 2004, rule no 28 and as specified in the **BDS**.

24. Confidentiality

24.1. Information relating to the examination, clarification, evaluation and comparison of bids and recommendation of contract award shall not be disclosed to bidders or any other persons not officially concerned with such process until the time of the announcement of the respective evaluation report.

25. Clarification of Bids

25.1. Clarification of Bidding Documents shall be carried out in accordance with the PP Rules 2025, rule no 38 i.e. Clarifications.

25.2. The alteration or modification in the bid which in any case affect the following parameters will be considered as a change in the substance of a bid:

- 25.2.1. evaluation & qualification criteria;
- 25.2.2. required scope of work;
- 25.2.3. contract price;
- 25.2.4. all securities requirements;
- 25.2.5. tax requirements;
- 25.2.6. terms and conditions of bidding documents.
- 25.2.7. change in the ranking of the bidder

26. Preliminary Examination of Bids

26.1. Prior to the detailed evaluation of bids, the Procuring agency/Employer will determine whether each bid:

26.1.1. meets the eligibility criteria defined in ITB 3 and ITB 4;

26.1.2. has been prepared as per the format and contents defined by the Procuring agency/Employer in the bidding documents;

26.1.3. has been properly signed;

26.1.4. is accompanied by the required securities; and

26.1.5. is substantially responsive to the requirements of the bidding documents.

The Procuring agency/Employer's determination of a bid's substantial responsiveness will be based on the contents of the bid itself.

26.2. A substantially responsive Bid is one which conforms to all the terms, conditions, and specifications of the Bidding Documents, without material deviation or reservation. A material deviation or reservation is one that: -

26.2.1. affects in any substantial way the scope, quality, or performance of the Works;

26.2.2. limits in any substantial way, inconsistent with the bidding documents, the Procuring agency/Employer's rights or the bidders' obligations under the Contract; or

26.2.3. if rectified, would affect unfairly the competitive position of other bidders presenting substantially responsive bids.

26.3. The Procuring agency/Employer will confirm that the documents and information specified under ITB 9, 10 and 11 have been provided in the bid. If any of these documents or information is missing, or is not provided in accordance with the Instructions to Bidders, the bid shall be rejected.

26.4. The Procuring agency/Employer may waive-off any minor informality, nonconformity, or irregularity in a bid which does not constitute a material deviation, provided such waiver does not prejudice or affect the relative ranking of any Bidder.

Explanation: A minor informality, non-conformity or irregularity is one that is merely a matter of form and not of substance. It also pertains to some

immaterial defect in a Bid or variation of a bid from the exact requirements of the invitation that can be corrected or waived without being prejudicial to other bidders. The defect or variation is immaterial when the effect on quantity, quality, or delivery is negligible when contrasted with the total cost or scope of the works. The Procuring agency/Employer either shall give the bidder an opportunity to cure any deficiency resulting from a minor informality or irregularity in a bid or waive the deficiency, whichever is advantageous to the Procuring agency/Employer. Examples of minor informalities or irregularities include failure of a bidder to –

26.4.1. Submit the number of copies of signed bids required by the invitation;

26.4.2. Furnish required information concerning the number of its employees;

26.4.3. the firm submitting a bid has formally adopted or authorized, before the date set for opening of bids, the execution of documents by typewritten, printed, or stamped signature and submits evidence of such authorization and the bid carries such a signature.

26.5. Provided that a Technical Bid is substantially responsive, the Procuring agency/Employer may request the bidder to submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities or omissions in the Technical Bid related to documentation requirements. Requesting information or documentation on such nonconformities shall not be related to any such aspect of the technical Proposal linked with the ranking of the bidders. Failure of the bidder to comply with the request may result in the rejection of its bid.

26.6. Provided that a Technical Bid is substantially responsive, the Procuring agency/Employer shall rectify quantifiable nonmaterial nonconformities or omissions related to the Financial Proposal. To this effect, the Bid Price shall be adjusted, for comparison purposes only, to reflect the price of the missing or nonconforming item or component.

26.7. If a bid is not substantially responsive, it will be rejected by the Procuring agency/Employer and may not subsequently be evaluated for

complete technical responsiveness.

27. Examination of Terms and Conditions; Technical Evaluation

27.1. The Procuring agency/Employer shall examine the bid to confirm that all terms and conditions specified in the GCC and the PCC have been accepted by the bidder without any material deviation or reservation.

For this purpose:

“Deviation” means departure from the requirements specified in the Bidding Document.

“Reservation” means setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Bidding Document.

27.2. The Procuring agency/Employer shall evaluate the technical aspects of the bid submitted in accordance with ITB 30, to confirm that all requirements specified in Section VI – Works Requirement, Technical Specifications of the Bidding Documents have been met without material deviation or reservation.

27.3. If after the examination of the terms and conditions and the technical evaluation, the Procuring agency/Employer determines that the bid is not substantially responsive in accordance with ITB 27, it shall reject the bid.

28. Correction of Arithmetic Errors

28.1. Bids determined to be substantially responsive will be checked for any arithmetic errors. Errors will be corrected as follows: -

28.1.1. if there is a discrepancy between unit prices and the sub-total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail, and the sub-total price shall be corrected, unless in the opinion of the Procuring agency/Employer there is an obvious misplacement of the decimal point in the unit price, in which the total price as quoted shall govern and the unit price shall be corrected;

28.1.2. if there is an error in a total corresponding to the addition or subtraction of sub-totals, the sub-totals shall prevail, and the total shall be corrected; and

28.1.3. where there is a discrepancy between the amounts in figures and in words, the amount in words will govern.

28.1.4. Where there is discrepancy between grand total of price schedule and amount mentioned on the Form of Bid, the amount referred in Price Schedule shall be treated as correct subject to elimination of other errors.

28.2. The amount stated in the Bid will, be rectified by the Procuring agency/Employer in accordance with the above procedure for the correction of errors and, with, the concurrence of the bidder, shall be considered as binding upon the bidder. If the bidder does not accept the corrected amount, its bid shall be rejected after forfeiture of Bid Security or execution of the Bid Securing Declaration, as the case may be, in accordance with ITB 41.3.

29. Conversion to Single Currency

29.1. The unit rates and the prices shall be quoted by the bidder entirely in Pak rupees. A bidder expecting to incur expenditures in other currencies for inputs to the Works from outside the Procuring agency/Employer's country (referred to as the "Foreign Currency Requirements") shall indicate the same in the letter of bid-financial proposal. The proportion of the Bid Price (excluding Provisional Sums) needed by him for the payment of such Foreign Currency Requirements either (i) entirely in the currency of the Bidder's home country or, (ii) at the bidder's option, entirely in Pak rupees provided always that a bidder expecting to incur expenditures in a currency or currencies other than those stated in (i) and (ii) above for a portion of the foreign currency requirements, and wishing to be paid accordingly, shall indicate the respective portions in his bid. Comparison of bids quoted in different currencies and conversion of bids into a single currency shall be carried out in accordance with the PP Rule 2004, rule no. 30 (2).

30. Evaluation of Bids

30.1. The Procuring agency/Employer shall evaluate and compare only the bids determined to be substantially responsive, pursuant to ITB 27.

30.2. In evaluating the Technical Proposal of each Bid, the Procuring agency/Employer shall use the criteria and methodologies listed in the BDS and in terms of works requirement. No other evaluation criteria or methodologies shall be permitted.

30.3. The Procuring agency/Employer's evaluation of a bid will take into account:

30.3.1. the bid price, excluding provisional sums and the provision, if any, for contingencies in the summary bill of quantities, but including day work items, where priced competitively;

30.3.2. converting the amount resulting from applying above, if relevant, to a single currency in accordance with ITB 29;

30.4. The estimated effect of the price adjustment provisions of the Conditions of Contract, applied over the period of execution of the Contract, shall not be taken into account in bid evaluation.

30.5. If these bidding documents allow bidders to quote separate prices for different lots, and the award to a single bidder of multiple lots, the methodology of evaluation to determine the lowest evaluated lot combinations in the Form of Bid, is specified in the BDS.

30.6. If the bid, which results in the Evaluated Bid Price (Successful Bid), is seriously unbalanced or front loaded in the opinion of the Employer, the Employer may require the Bidder to produce detailed price analyses for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analyses, taking into consideration the schedule of estimated Contract payments, the Employer may require that the amount of the performance security be increased at the expense of the Bidder to a level sufficient to protect the Employer against financial loss in the event of default of the successful Bidder under the Contract.

Explanation:

“Unbalanced” or “front-loaded” bids consist of deliberately submitting bids with artificially high prices or unit rates for the early stages of a construction project, offset by artificially low prices or unit rates for the later stages of the project, to improve the contractor’s cash flow.

31. Domestic Preference

31.1. If the BDS so specifies, the Procuring agency/Employer will grant a margin of preference to the domestic contractor in line with the rules, regulations, regulatory guides or instructions issued by the Authority from time to time.

32. Determination of Successful Bid

32.1. The Procuring agency/Employer shall compare the evaluated bids in accordance with the predefined bidding procedure, of all substantially responsive bids to determine the Successful bidder.

33. Qualification of Bidder

33.1. The Procuring agency/Employer shall determine to its satisfaction whether the bidder is substantially responsive and whose bid is declared as Successful bid either continues to meet (if prequalification applies) or meets (if post-qualification applies) the qualifying criteria specified in Evaluation and Qualification Criteria.

Note: In case of international bidding, the parameters for incorporation or licensing within Pakistan may be fulfilled as part of post qualification.

33.2. The determination shall be based upon an examination of the documentary evidence of the bidder’s qualifications submitted by the bidder, pursuant to ITB 11.

33.3. Prior to contract award, the Procuring agency/Employer will verify that the successful bidder (including each member of a JV) is not blacklisted/debarred. The Procuring agency/Employer will conduct the same verification for each sub-contractor proposed by the successful bidder.

34. Sub-Contractors

34.1. The bidder shall provide details regarding any specialized sub-contractor to the Procuring agency/Employer. In case change of sub-contractors, the bidder shall promptly notify the Procuring agency/Employer and obtain approval for replacement of sub-contractors.

34.2. Bidders may propose sub-contracting up to the percentage of total value of contracts or the volume of works as specified in the BDS.

35. Abnormally Low Financial Bid

35.1. A procuring Agency may reject abnormally low bids in accordance with the PP Rules 2025 rule no. 43. The decision of the Procuring agency/Employer to reject a bid and reasons for the decision shall be recorded in the procurement proceedings and promptly communicated to the bidder concerned. Moreover, the Procuring agency/Employer shall not incur any liability solely by rejecting abnormally bid

Guidance for Procuring agency/Employer:

An abnormally low bid means, in the light of the Procuring agency/Employer's estimate and of all the bids submitted, the bid appears to be abnormally low by not providing a margin for normal levels of profit. In order to identify the Abnormally Low Bid (ALB) following approaches can be considered to minimize the scope of subjectivity:

35.1.1. Comparing the bid price with the cost estimate;

35.1.2. Comparing the bid price with the bids offered by other bidders submitting substantially responsive bids; and

35.1.3. Comparing the bid price with prices paid in similar contracts in the recent past either government- or development partner-funded.

35.2. The Procuring agency/Employer will determine to its satisfaction whether the bidder that is selected as having submitted the successful bid is qualified to perform the contract satisfactorily, in accordance with the criteria listed in ITB 11

35.3. The determination will take into account the bidder's financial and technical capabilities. It will be based upon an examination of the

documentary evidence of the bidder's qualifications submitted by the bidder, pursuant to ITB 11, as well as such other information as the Procuring agency/Employer deems necessary and appropriate. Factors not included in these bidding documents shall not be used in the evaluation of the bidders' qualifications.

35.4. Procuring agency/Employer may seek "Certificate for Independent Price Determination" from the bidder and the results of reference checks may be used in determining award of contract.

Explanation: *The Certificate shall be furnished by the bidder. The bidder shall certify that the price is determined keeping in view of all the essential aspects such as raw material, its processing, value addition, optimization of resources due to economy of scale, transportation, insurance and margin of profit etc.*

35.5. An affirmative determination will be a prerequisite for award of the contract to the bidder. A negative determination will result in rejection of the bidder's bid, in which event the Procuring agency/Employer will proceed to the next ranked bidder to make a similar determination of that bidder's capabilities to perform satisfactorily.

F. AWARD OF CONTRACT

36. Criteria of Award

36.1. Subject to ITB 36 and 37, the Procuring agency/Employer will award the Contract to the bidder whose bid has been determined to be substantially responsive to the bidding documents and who has been declared as Successful Bidder, provided that such bidder has been determined to be:

36.1.1. eligible in accordance with the provisions of ITB 3;

36.1.2. is determined to be qualified to perform the Contract satisfactorily; and

36.1.3. Successful negotiations have been concluded, if any.

37. Negotiations

37.1. The Committee of the Procuring agency/Employer may negotiate with the Most Advantageous Bidder relating to the following areas:

37.1.1. a minor alteration to the technical (drawings, design technical specifications) details of the statement of works;

37.1.2. Methodology, work plan, staffing in view to streamline the work;

37.1.3. a minor amendment to the Particular conditions of Contract;

37.1.4. finalizing payment arrangements;

37.1.5. clarifying details that were not apparent or could not be finalized at the time of Bidding;

37.2. Where negotiation fails to result into an agreement, the Procuring agency/Employer may invite the next ranked bidder for negotiations. Where negotiations are commenced with the next ranked bidder, the Procuring agency/Employer shall not reopen earlier negotiations.

38. Procuring agency/Employer's Right to reject All Bids

38.1. The procuring agency has the right to reject all bids in accordance with the PP Rules 2025 rule no. 45. However, the Authority (i.e. PPRA) may call from the Procuring agency/Employer the justification of those grounds.

39. Notification of Award

39.1. The procuring agency shall announce and publish the evaluation result in accordance with the PP Rules 2004, rule no. 40.

39.2. Where no complaints have been lodged, the bidder whose bid has been accepted will be notified of the award by the Procuring agency/Employer prior to expiration of the bid validity period through EPADS. However, the Procuring agency/Employer shall not award any procurement contract at least for five (05) days after the announcement of final evaluation report. The notification letter (herein after and in the condition of the contract and contract form called "Letter of Acceptance"

will specify the sum that the Procuring agency/Employer will pay the successful bidder in consideration for the execution and completion of the works as prescribed by the Contract (hereinafter and in the Contract called the "Contract Price).

39.3. The notification of award will constitute the formation of the Contract, subject to the bidder furnishing the Performance Security (or guarantee) in accordance with ITB 41 and signing of the contract in accordance with ITB 40.

39.4. Upon the successful bidder's furnishing of the performance security (or guarantee) pursuant to ITB 41, the Procuring agency/Employer will promptly notify each unsuccessful bidder, the name of the successful bidder and the Contract amount and will discharge the Bid Security or Bid Securing Declaration of the bidder(s) pursuant to ITB 17.

40. Signing of Contract

40.1. Promptly after notification of award, Procuring agency/Employer shall send the successful bidder the draft agreement, incorporating all terms and conditions as agreed by the parties to the contract.

40.2. Immediately after the Redressal of grievance by the GRC, and after fulfillment of all conditions precedent of the Contract Form, the successful bidder and the Procuring agency/Employer shall sign the contract.

40.3. Where no formal signing of a contract is required, work order issued to the bidder shall be construed to be the contract.

41. Performance Security (or Guarantee)

41.1. After the receipt of the Letter of Acceptance, the successful bidder, within the specified time, shall deliver to the Procuring agency/Employer a Performance Guarantee in the amount and in the form stipulated in the BDS and PCC, denominated in the type and proportions of currencies in the Letter of Acceptance and in accordance with the Conditions of Contract.

41.2. If the Performance Guarantee is provided by the successful bidder and it shall be in the form specified in the BDS which shall be in any of the

following:

41.2.1. certified cheque, cashier's or manager's cheque, or bank draft;

41.2.2. irrevocable letter of credit issued by a scheduled bank of Pakistan or in the case of an irrevocable letter of credit issued by a foreign bank, the letter shall be confirmed or authenticated by a scheduled bank of Pakistan;

41.2.3. bank guarantee confirmed by a reputable local bank or, in the case of a successful foreign bidder, bonded by a foreign bank; or

41.2.4. surety bond callable upon demand issued by any reputable surety or insurance company.

Any Performance Guarantee submitted shall be enforceable in Pakistan.

41.3. Failure of the Most Advantageous Bidder to comply with the requirement of ITB 40 shall constitute sufficient grounds for the annulment of the award and forfeiture of the Bid Security or declare blacklisted (in case bid securing declaration is submitted) in which event the Procuring agency/Employer may make the award to the next most advantageous bidder or reinitiate the procurement process afresh (as a case may be).

42. Advance Payment

42.1. Advance payment will be provided to the bidder in percentage and in the manner as agreed by the both parties in terms of Conditions of the Contract.

42.2. The Procuring agency/Employer will provide an advance payment as stipulated in the Conditions of Contract, subject to a maximum amount, as stated and/or Conditions of the Contract. The advance payment request shall be accompanied by an advance payment security (guarantee) in the form provided in Section X. For the purpose of receiving the advance payment, the bidder shall make and estimate of, and include in its bid, the expenses that will relate to the purchase of equipment, machinery, materials, and on the engagement of labor during the first month beginning with the date of the Procuring agency/Employer's "Notice to Commence" as specified in the PCC.

43. General Performance of the Bidders

43.1. The Procuring agency/Employer reserves the right to obtain information regarding performance of the bidders on their previously awarded contracts / works. The Procuring agency/Employer may seek information / report from the previous employer for consideration. However, the Procuring agency/Employer shall incorporate such parameters in the evaluation criteria and accordingly decide the fate of the bid submitted.

44. Corrupt & Fraudulent Practices

44.1. Procuring agencies (including beneficiaries of Government funded projects and procurement) as well as Bidders/Suppliers/Contractors under Government financed contracts, observe the highest standard of ethics during the procurement and execution of such contracts, and will avoid to engage in any corrupt and fraudulent practices.

G. GRIEVANCE REDRESSAL & COMPLAINT REVIEW MECHANISM

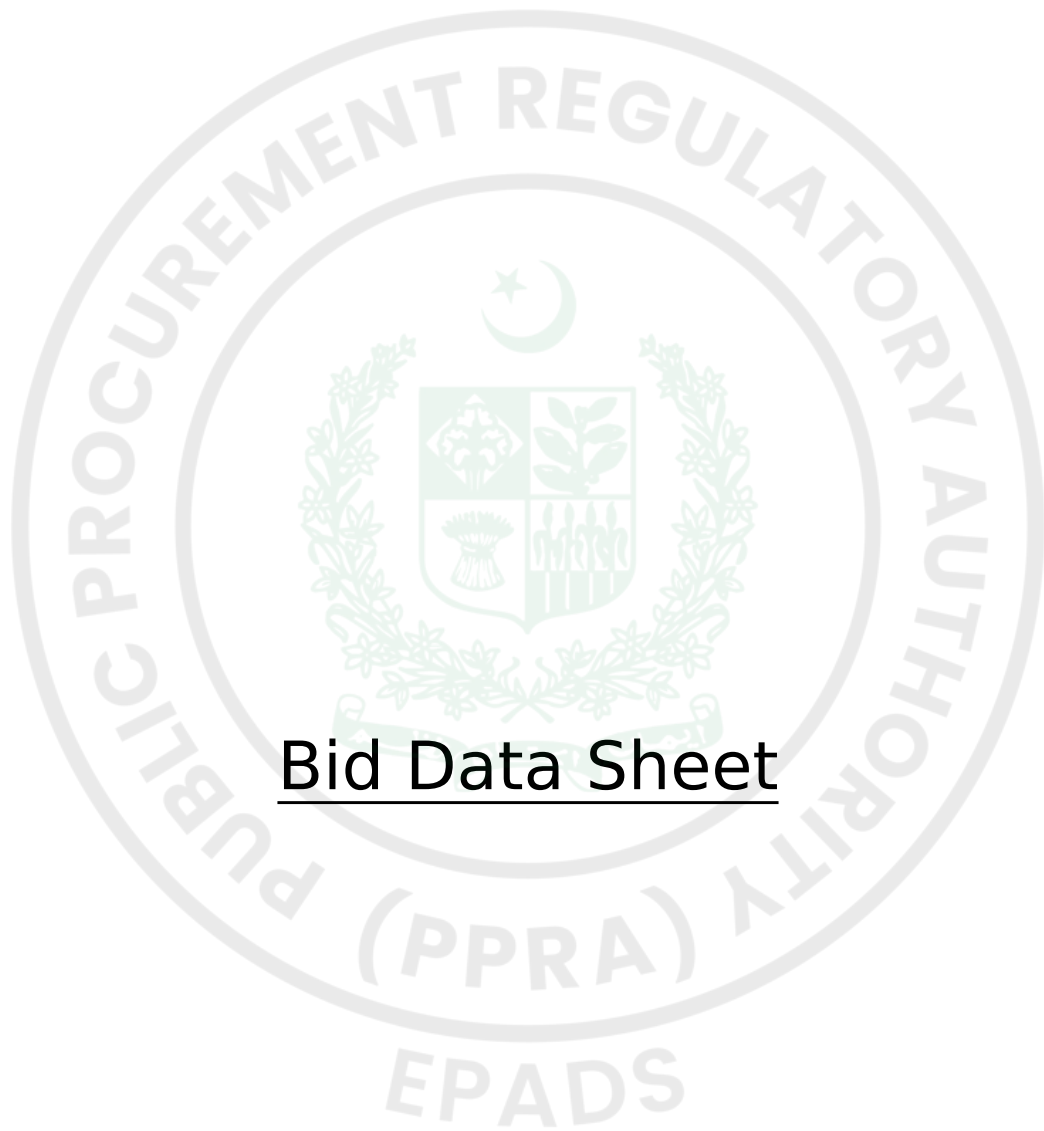
45. Grievance Redressal

45.1. Grievance Redressal shall be carried out in accordance with the PP Rules 2025, rule no. 65 i.e. Redressal of grievances by the procuring agency and "Redressal of Grievances Regulations 2021".

H. MECHANISM OF BLACKLISTING

46. Mechanism of Blacklisting

46.1. The Procuring agency/Employer shall proceed Blacklisting of Bidders/Contractors in accordance with PP Rules 2025, rule no.25 i.e. Blacklisting and "Blacklisting and Debarment of Bidders or Contractors Regulations 2024.



Bid Data Sheet

Bid Data Sheet (BDS)

The following specific data for the procurement of works shall complement, supplement, or amend the provisions in the Instructions to Bidders (ITBs). Whenever there is a conflict, the provisions herein shall prevail over those in ITBs.

A. Introduction

ITB Number

Amendments of, and Supplements to, Clauses in the Instruction to Bidders

ITB Number1.1

Name of Procuring agency/Employer: **Pakistan National Shipping Corporation (Maintenance & Project / Technical Department)**

The subject of procurement is: **TENDER FOR FACADE FACELIFT & RESTORATION WORK OF PNSC BUILDING**

Period for completion of the works **2.5 Years**

Commencement date execution of the works: **14 Days**

Type of Procurement:**Local**

ITB Number2.1

Financial year for the operations of the Procuring agency/Employer: **2026-27**

Name of Project [insert: name and summary description of the Project if any]

Name of financing institution: [insert: name if any]

Name and identification number of the Contract: **P106762**

ITB Number3.1

JV/Consortium or Association Allowed: **Yes**

Maximum number of members in the joint venture shall be: **3.**

B. Bidding Documents

ITB Number6.4

The Bidders may seek clarifications through **EPADS v2.0: Last Clarification Date: Monday, October 5, 2026**
Pre-Bid Meeting: Tuesday, October 6, 2026 11:30 AM

C. Preparation of Bids

ITB Number8.1

The Language of all correspondences and documents related to the Bid is:
English

ITB Number 5.1 & 9.1

The following documents must be included to constitute the Bid

No

ITB Number9.4 (b)

Other procurement specific documentation requirements are:

As required in Qualification /Eligibility Criteria and Evaluation

ITB Number12.4

The Bid price will be/will not be subject to the price adjustment **Yes**
Price Adjustment Annexure is attached in the Annexure Section with the name of Adjustment Data.

ITB Number12.6

The Bid price shall be adjusted in accordance with Schedule-A to Bid – “Schedule of Adjustment Data” if available.

ITB Number13.1

Bidders to quote entirely in **Pak rupees (PKR)**

Schedule of Adjustment Data for Local Currency (LC)

Index Code	Index Description	Source of Index	Weighting
1	Non-adjustable	---	0.35

Index Code	Index Description	Source of Index	Weighting
2	Labour	Pakistan Bureau of Statistics (PBS) / applicable official notified labour index	0.08
3	Cement / Concrete	Pakistan Bureau of Statistics (PBS) / applicable official construction material index	0.03
4	Steel, Steel Sections & Steel Sheets	Pakistan Bureau of Statistics (PBS) / applicable official steel price index	0.17
5	Aluminium Composite Panel / Façade Cladding Material	Officially published manufacturer/supplier price or other source specified in the Contract	0.31
6	Paint, Waterproofing & Chemical Materials	Pakistan Bureau of Statistics (PBS) / applicable official material price index	0.02
7	High-Speed Diesel / Petroleum, Oil & Lubricants	OGRA / Government-notified HSD price	0.04
	Total	PKR	1.00

ITB Number15.1

The Bid Validity period shall be **90 Days** days.

ITB Number16.1

The amount of Bid Security shall be (insert amount)

The currency of the Bid Security shall be: **PKR**.

ITB Number16.2

The Bid Security shall be in the form of: **Pay Order, Bank Guarantee**

D. Submission of Bids

ITB Number19.1

The deadline for Bid submission is: **Thursday, October 15, 2026 11:00 AM**
Address for submission of Original Bid Security: **Maintenance & Project/Technical Department, 12 Floor, PNSC Building, M.T Khan Road, Karachi**

ITB Number 21.1

The Bid opening shall take place at: **EPADS v2.0**

Day : **Thursday**

Date: **October 15, 2026**

Time : **11:30 AM**

ITB Number 27.1

The currency that shall be used for Bid evaluation and comparison purposes to convert all Bid prices expressed in various currencies is: **PKR Only**

The source of exchange rate shall be: **Nil**

The date of exchange rate shall be: **Nil**

ITB Number 28.2 & 28.5

Least Cost Based Selection (LCBS)

see Evaluation Criteria

ITB Number 29.1

Domestic preference to apply.

Domestic preference: **No**

Preference to domestic or national suppliers or contractors shall be provided in accordance with policies of the Federal Government and/or in accordance with the regulations issued by the Authority.

If Yes, The percentage for the domestic preference alongwith calculation formula is provided in the evaluation and qualification criteria.

ITB Number 32.2

Sub-contracting is allowed? : **Yes**

50% of the total value of the contract.

39.1 The Performance Security (or guarantee) shall be **5.00%**

39.2 The Performance Security (or guarantee) shall be in the form of: **Pay Order, Bank Guarantee**

Eligibility Criteria

Bidder's Type	Required Registration
Individual / Individual Consultant	NADRA CITIZENSHIP (CNIC/NICOP)
Sole Proprietorship	FBR (NTN)
Partnership Firm	FBR (GSTN)
Company (Private Limited)	PEC
Company (Public Limited)	
Company (Holding Company)	
Company (Limited by Guarantee)	
State Owned Enterprise (Private Limited)	
State Owned Enterprise (Public Limited)	

Eligibility Criteria	Document
The contractor shall be registered with PEC in category C2 or above, a valid PEC registration and renewal certificate shall be submitted with relevant PEC specialization codes applicable to demolition, rehabilitation, structural works and Building construction activities	Yes
Must be registered with FBR/SRB and appear on the Active Taxpayer List (ATL). (Copy of SRB Registration and ATL verification printout)	Yes
The Contractor and his associated sub contractor shall demonstrate proven experience in executing projects of a similar nature and complexity that is: a. Demolition of reinforced concrete structures b. Rehabilitation and restoration of existing buildings. structural repairs and strengthening works. Facade replacement and cladding systems if any. Installation of ACP, FRP, Glass, or other Facade systems	Yes

The contractor shall provide completion certificates ,work order, client reference and project profiles for similar works executed during last five years	Yes
The contractor shall demonstrate sufficient financial strength and resources to undertake a project of this magnitude. The following document shall be submitted;a. Financial statements for last three years b. Bank solvency certificate. Recent bank statements. The contractor should demonstrate the capability to successfully execute projects with a contract value of PKR 500 Million or above	Yes
The contractor shall provide a comprehensive list of available equipment, machinery and specialized tools necessary for execution of the works, wither self owned or with rental associate.a. Tower Crane b. Scaffolding system c. suspended platforms and cradles d. material lifting equipment. demolition equipment f. concrete repair and rehabilitation tools g. safety and monitoring equipment	Yes
The contractor shall submit details of key personnel working with the group; A. Project Manager B. Construction Manager C. Structural Engineer D. Site Engineer E. Quality surveyor F. Safety officers G. Supervisory Staff Detailed Curriculum vitae (C.Vs), professional and relevant experience shall be provided	Yes
Considering the complexity of Façade demolition and replacement works on an occupied high rise building, special emphasis shall be placed on health, safety and environment (HSE) compliance. the contractor shall demonstrate: A. Established HSE management procedures B. availability of qualified safety professionals C. Emergency response plans D. Work at height safety procedures E. Risk assessment and mitigation procedures.	Yes
Preference shall be given to contractors whose safety personals possess internationally recognized certification such as: a. NEBOSH b. IOSH c. OSHA or any equivalent certifications	Yes
The bidder must not be blacklisted or involved in any litigation with public or private sector entities.(Affidavit on Rs. 100 Stamp Paper duly notarized)	Yes

Evaluation Criteria

Least Cost Based Selection (LCBS)

Weightage

Technical Evaluation %	
100	

Technical Marks	100
Passing Marks	70
1. Experience in Similar Projects	
Demolition of reinforced concrete structures (Quantitative)(Doc Required)	6
03 Completed Projects (6)	
02 Completed Projects (4)	
01 Completed Project (2)	

Rehabilitation/restoration, structural repair and strengthening of existing buildings (Quantitative)(Doc Required)	8
04 Completed Projects (8)	
03 Completed Projects (6)	
02 Completed Projects (4)	
01 Completed Project (2)	
Façade demolition/replacement, ACP, FRP, glass or other façade systems (Quantitative)(Doc Required)	8
04 Completed Projects (8)	
03 Completed Projects (6)	
02 Completed Projects (4)	
01 Completed Project (2)	
Similar works on high-rise/occupied buildings (Quantitative)(Doc Required)	8
02 Completed Projects (8)	
01 Completed Project (4)	
2. Financial Capacity	

Completed project(s) having contract value of PKR 500 million or above (Quantitative)(Doc Required)	9
03 Completed Projects (9)	
02 Completed Projects (6)	
01 Completed Project (3)	
Average annual turnover during last 3 financial years (Quantitative)(Doc Required)	6
PKR 750 million average annual turnover (6)	
PKR 500 million average annual turnover (4)	
PKR 250 million average annual turnover (2)	
3. Plant, Machinery & Specialized Equipment	
Tower crane/material lifting arrangement (Quantitative)(Doc Required)	2
Scaffolding system (Quantitative)(Doc Required)	2
Suspended platforms/cradles (Quantitative)(Doc Required)	3
Material lifting equipment (Quantitative)(Doc Required)	2
Specialized demolition equipment (Quantitative)(Doc Required)	2
Concrete repair/rehabilitation equipment (Quantitative)(Doc Required)	2
Safety/monitoring equipment (Quantitative)(Doc Required)	2
4. Key Personnel	

Project Manager (Quantitative)(Doc Required) 15 Years of total Experience (6) 10 Years of total Experience (4) 5 Years of total Experience (2)	6
Construction Manager (Quantitative)(Doc Required) 10 years of total experience (4) 05 years of total experience (2)	4
Structural Engineer (Quantitative)(Doc Required) 15 years total experience (3) 10 years total experience (2) 5 years total experience (1)	3
Site Engineer(s) (Quantitative)(Doc Required) 6 years experience (2) 3 years experience (1)	2
Quantity Surveyor (with minimum 02 years of experience) (Quantitative)(Doc Required)	1
HSE/Safety Officers (qualified HSE professional) (Quantitative)(Doc Required)	2

Supervisory/technical staff (minimum two years experience) (Quantitative)(Doc Required)	2
5. HSE Management & Safety Capability	
Established HSE Management System (Quantitative)(Doc Required)	4
if documented HSE management system has been implemented on 2 or more projects (4)	
if documented HSE management system has been implemented on 1 project (2)	
Qualified HSE professionals (Quantitative)(Doc Required)	3
03 Qualified HSE professionals (3)	
02 Qualified HSE professionals (2)	
01 Qualified HSE professionals (1)	
Emergency Response Plan specifically covers high-rise/occupied-building works (Quantitative)(Doc Required)	3
Work-at-height safety experience (Quantitative)(Doc Required)	3
03 completed projects involving work at height (3)	
02 completed projects involving work at height (2)	
01 completed project involving work at height (1)	

Risk Assessment & Mitigation (Quantitative)(Doc Required) 02 similar projects where documented risk assessment was implemented (4) 01 similar project where documented risk assessment was implemented (2)	4
International HSE certifications (Quantitative)(Doc Required) 3 proposed safety professionals holding NEBOSH/IOSH/OSHA or equivalent (3) 2 proposed safety professionals holding NEBOSH/IOSH/OSHA or equivalent (2) 1 proposed safety professional holding NEBOSH/IOSH/OSHA or equivalent (1)	3

Jobs/Lots

Jobs Without Lots :

Job	Delivery Schedule	Quantity	Bid Security
FACADE FACELIFT AND RESTORATION WORK	Address: Maintenance & Project/Technical Department, 12 Floor, PNSC Building, M.T Khan Road, Karachi Schedule: 912 Days Quantity: 1/Qty	1/Qty	17267550 PKR

Work Specifications and Market Rates

Jobs Without Lots :

Job: FACADE FACELIFT AND RESTORATION WORK

Specifications / Requirements:

Sr. No	Ref. No.	Description	Unit	Qty	Rate		Amount
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1	PHASE-1 (1)	Erection of steel pipe folding all around the building in 30" offset double pipe braced with horizontal pipes from podium level to final roof level including platform slab panels for safe working of labor for removal of ACP cladding panels and other activities till end of project. (Approx 15000 Pipes 20ft long and 20000 pipes 6ft long & approx 80000 Joints)(for Minimum 24 Months Till end of Job) to entire satisfaction of Client and Consultant, complete in all respect. Beside erection of scaffolding for removal of precast RCC panels, contractor shall also prepare deck at working level & below the working level (Using 1000Nos 2ft X 4ft Steel Planks made of 3mm steel plate & 1.5" X1.5" /3mm Angle) for working platform & Supporting Shield any accidental mishandling of precast RCC panels, to avoid falling to ground. This deck	%Job	1	120000000	(Rupees One Hundred Twenty Million only)	120000000
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2	PHASE-1 (2)	Providing Fixing Launching, erecting 200 ft Clear Boom length & 280ft High Tower Crane for lifting Precast RCC Panels and lowering to ground with minimum effective lifting capacity of 1.5 M.T for a period of 15 Months Complete in all respect including Driver and supervisors and support staff. With working hours as allowed by Client to start and end of work, to complete satisfaction of Client & Consultant.	%Months	18	4000000	(Rupees Seventy Two Million only)	72000000
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3	PHASE-1 (3a)	Contractor is required to Prepare Tower Crane Base in Basement Floor as per consultant supplied drawings and as additionally directed by engineers durring the course of working, follwing items to be carried: Drill and grout 1-1/8" dia holes for anchoring of 1" dia steel dowels /J Bolts for the preparation of Tower Crane Base in existing Basment Raft Slab at deignated location using specified grouting two components chemical complete in all respect.	%Nos.	1024	3000	(Rupees Three Million Seventy Two Thousand only)	3072000
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4	PHASE-1 (3b)	Contractor is required to Prepare Tower Crane Base in Basement Floor as per consultant supplied drawings and as additionally directed by engineers durring the course of working, follwing items to be carried: Supply 60 Grade Steel including cutting bending & binding with 20 Guage Binding wire Raft Reinforcement as per design and drawings provided complete in all respect.	%MATIC TON (M.T)	5	375000	(Rupees One Million Eight Hundred Seventy Five Thousand only)	1875000
5	PHASE-1 (3c)	Contractor is required to Prepare Tower Crane Base in Basement Floor as per consultant supplied drawings and as additionally directed by engineers durring the course of working, follwing items to be carried: Supply and fix Tower Crane Base, 6000Psi Concrete as per drawings and specification.	%Cft	1024	1250	(Rupees One Million Two Hundred Eighty Thousand only)	1280000

6	PHASE-1 (4)	Fixing of Tower Crane Base Studds / J Bolts as per Design and as additionally directed by Crane Supplier. Studds to be supplied by the Crane Supplier.	%Nos.	16	12875	(Rupees Two Hundred Six Thousand only)	206000
7	PHASE-1 (5a)	Construction of Supporting Columns for the proposed cutting of Podium Slab: Supply 60 Grade Steel including cutting bending & binding with 20 Guage Binding wire and fabrcation as per design and drawings provided complete in all respect.	%MATIC TON (M.T)	1	375000	(Rupees Three Hundred Seventy Five Thousand only)	375000
8	PHASE-1 (5b)	Construction of Supporting Columns for the proposed cutting of Podium Slab: Supply and fill compact, 6000Psi Concrete in Supporting Podium Columns including complete formwork as per drawings and specification.	%Cft	240	1250	(Rupees Three Hundred Thousand only)	300000

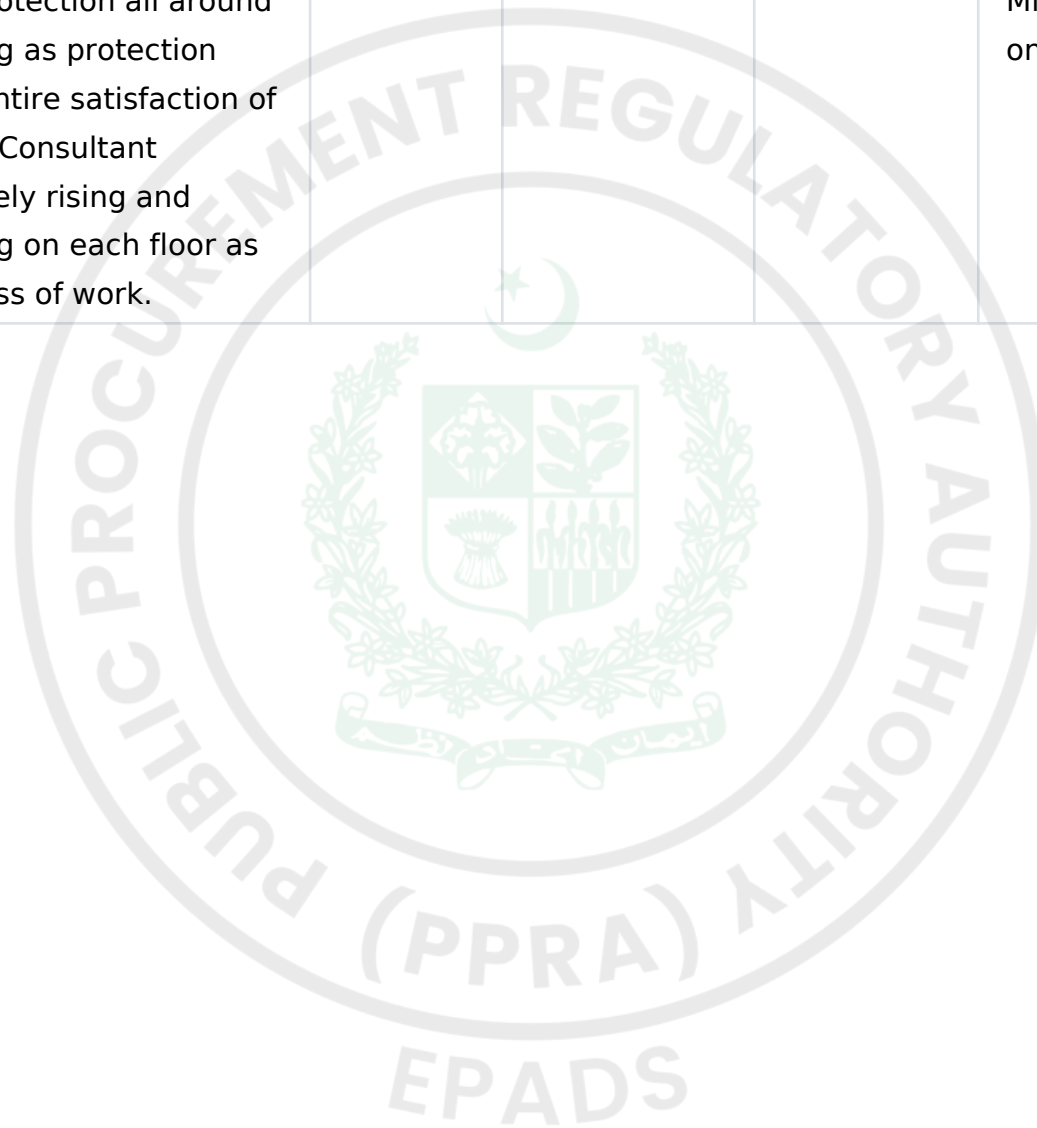
9	PHASE-2 (1)	Removal of ACP Panels without damaging the face, from all around the building, from all floors and staking of the removed panels safely as per client instruction, however contractor may submit his work method statement to the Client / Consultant to satisfy this way of working to speed up the work and bring the ACP sheet panels with minimum damage.	%Sft	140000	28	(Rupees Three Million Nine Hundred Twenty Thousand only)	3920000
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10	PHASE-2 (2)	Dismantling and removal of precast RCC panels with minimum distortion from first floor level to Sixteen floor level from all around the building, and chiseling cutting and detatching from corbel bracket, wrapping with special belts and chains for safe removal through tower crane. This job needs indeapth understanding of working and contractor shall be required to submit his method statement for the safe removal of such precast RCC panels, that his team has gained the same method of working which has been approved by the Client and Consultant, for changing or deviating form the method submitted Contractor shall be required to submit a fresh method stament which will be mutually agreed and approved by Client & Consultant for the requested method.	%Nos.	1536	12000	(Rupees Eighteen Million Four Hundred Thirty Two Thousand only)	18432000
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11	PHASE-2 (3)	Dismantling and removal of Roof top Cantilever RCC Slab from all four corners of the building, wrapping with special belts and chains for safe removal through tower crane. This job needs indepth understanding of working and contractor shall be required to submit his method statement for the safe removal of such RCC slabs, that his team has gained the same method of working which has been approved by the Client and Consultant, for changing or deviating form the method submitted Contractor shall be required to submit a fresh method stament which will be mutually agreed and approved by Client & Consultant for the requested method.	%Jobs	4	400000	(Rupees One Million Six Hundred Thousand only)	1600000
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12	PHASE-2 (4)	Dismantling and removal of RCC Podium Slab & Beams from from Ground level for erection of tower crane. This job needs indeapth understanding of working and contractor shall be required to submit his method statement for the safe removal of such precast RCC panels, that his team has gained the same method of working which has been approved by the Client and Consultant, for changing or deviating form the method submitted Contractor shall be required to submit a fresh method stament which will be mutually agreed and approved by Client & Consultant for the requested method.	%Jobs	1	300000	(Rupees Three Hundred Thousand only)	300000
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13	PHASE-2 (5)	Providing and fixing of GI Sheet for Existing Glass Window protection all around the building as protection shield to entire satisfaction of Client and Consultant progressively rising and maintaining on each floor as per progress of work.	%Sft	40000	1000	(Rupees Forty Million only)	40000000
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14	PHASE-3 (1)	Restoration of Broken cantilever slab at floor level and at window lintel level using 1:2:2 concrete and steel reinforcement with smooth troweled finish surface, complete in all respect as per site requirement and as encountered at site, contractor shall be required to keep informed the client & consultant the physical condition of these cantilever slabs condition in description and by photo graphic manner for decisions from time to time, location to location & floor by Floor, complete in all respect to entire satisfaction of client & consultant.	%Sft	18800	1000	(Rupees Eighteen Million Eight Hundred Thousand only)	18800000
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15	PHASE-3 (2)	Cutting & Restoration of Cantilever Slab, window sill slab on all floors for proposed new elevation with 1:2:2 Concrete and steel reinforcement with smooth troweled finish surface, complete in all respect as per site requirement and as encountered at site, contractor shall be required to keep informed the client & consultant the physical condition of these cantilever slabs condition in description and by photo graphic manner for decisions from time to time, location to location & floor by Floor, complete in all respect to entire satisfaction of client & consultant.	%Sft	6600	1000	Rupees Six Million Six Hundred Thousand only)	6600000
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16	PHASE-3 (3)	Providing, Lifting, Placing Erecting 4"thick Block Masonry wherever required at any floor using 1:4 in mortar as per site requirement and as additionally director by engineer. complete in all respect as per site requirement and as encountered at site specially from First floor to Fourth Floor, contractor shall be required to keep informed the client & consultant the physical condition of these Block Masonry existing condition in description and by photo graphic manner for decisions from time to time, location to location & floor by Floor, complete in all respect to entire satisfaction of client & consultant.	%Sft	15200	500	Rupees Seven Million Six Hundred Thousand only)	7600000
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17	PHASE-3 (4)	Plaster the Block Masonry from exterior face in 1:4 cement sand Mortar ratio at any floor and location as per site requirement and as additionally directed by engineer and cure for three days. complete in all respect as per site requirement and as encountered at site, contractor shall be required to keep informed the client & consultant the physical condition of the Block Masonary Plaster existing condition in description and by photo graphic manner for decisions from time to time, location to location & floor by Floor, complete in all respect to entire satisfaction of client & consultant.	%Sft	15200	200	(Rupees Three Million Forty Thousand only)	3040000
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18	PHASE-3 (5a)	Paint Work and Water Proofing: Internal Paint	%Sft	15200	200	(Rupees Three Million Forty Thousand only)	3040000
19	PHASE-3 (5b)	Paint Work and Water Proofing: External Paint	%Sft	24000	400	(Rupees Nine Million Six Hundred Thousand only)	9600000
20	PHASE-3 (5c)	Paint Work and Water Proofing: Water Proofing by Grey Seal PU900 or Equivalent.	%Sft	19200	250	(Rupees Four Million Eight Hundred Thousand only)	4800000

21	PHASE-3 (6a)	Reconstruction of Roof Cantilever Slab: Supply 60 Grade Steel including cutting bending & binding with 20 Guage Binding wire and fabrcation as per design and drawings provided complete in all respect.	%MATIC TON (M.T)	5	375000	(Rupees One Million Eight Hundred Seventy Five Thousand only)	1875000
22	PHASE-3 (6b)	Reconstruction of Roof Cantilever Slab: Supply and fill compact, 6000Psi Concrete in roof top Cantilever Slab including complete formwork as per drawings and specification.	%Cft	800	2250	(Rupees One Million Eight Hundred Thousand only)	1800000

23	PHASE-3 (7a)	Reconstruction of Podium Slab & Beams: Supply 60 Grade Steel including cutting bending & binding with 20 Guage Binding wire and fabrcation as per design and drawings provided complete in all respect. For construction of Podium Slab at the end of removal of Tower Crane and make good.	%MATIC TON (M.T)	4	375000	(Rupees One Million Five Hundred Thousand only)	1500000
24	PHASE-3 (7b)	Reconstruction of Podium Slab & Beams: Supply, fill and compact, 6000Psi Concrete in Podium Slab and Beams including complete formwork as per drawings and specification.	%Cft	450	1250	(Rupees Five Hundred Sixty Two Thousand Five Hundred only)	562500
25	PHASE-3 (8)	Removal of RCC Raft constructed for support of Tower crane at the end of work, complete in all respect to entire satisfaction of client	%Job	1	450000	(Rupees Four Hundred Fifty Thousand only)	450000

26	PHASE-3 (9)	Restoration of Basement floor as its original condition as per client instruction complete in all respect.	%Job	1	100000	(Rupees One Hundred Thousand only)	100000
27	PHASE-3 (10)	Restoration of Podium Flooring in the end of work with matching Mossaic Tiles complete in all respect with grinding & polishing.	%Job	1	250000	(Rupees Two Hundred Fifty Thousand only)	250000
28	PHASE-4 (1)	Architectural Work Facade Treatment: Providing and fixing of Anchor Bolts in column and Cantilever Slabs for holding of facade Panel supports as per design and details provided at all levels and floor around the entire building, complete in all respect as per site requirement and as encountered at site. (Approx 10,000)	%Nos.	10000	1200	(Rupees Twelve Million only)	12000000

29	PHASE-4 (2)	Providing and fixing of SS square pipe 50mm X50m by 1.5mm Thick Horizontal support for new designed facade panels as per design & detail provided. Also provide Marine Epoxy Protective Coating over SS Channels & Sections approved by consultant	%Rft	27500	1800	(Rupees Forty Nine Million Five Hundred Thousand only)	49500000
30	PHASE-4 (3)	Providing and fixing jointing vertical profile of SS square pipe 50mm X 50mm by 1.5mm thickness for holding of proposed panels as per design and detail provided. Also provide Marine Epoxy Protective Coating over SS Channels & Sections approved by consultant	%Rft	27500	1800	(Rupees Forty Nine Million Five Hundred Thousand only)	49500000

31	PHASE-4 (4)	Installation of fire retardant A2 aluminum composite cladding Panels in given size, color and design with sizes cut to meet the Architectural Panels Beauty as shown on drawings and cutting the crners and bend as per site requirements, 4mm total thickness and 0.5mm sheets both sides at a fixed basic price of Rs. 1750 per sft (to be included in the quoted rate and deducted in building). The installation to include fabrication, cutting, bending, folding and grooving etc., over rigidly fixing sub-framing of heavy duty aluminum/SS profiles with stainless steel screw/anchors. "No. M.S component will be used" on to the already cement plastered building facade including all necessary trims, copings, skills, corner units, clips, flashings, fillers rivets, bolts/nuts, tapping screws, water proofing silicone	%Sft	154594.5945	2775	(Rupees Four Hundred Twenty-Nine Million only)	428999999.7375
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						GRAND TOTAL:	Rs863,377,499.74
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Scope of Work

The Works comprise the facelift, rehabilitation and restoration of the façade of the existing PNSC building, including:

Temporary works and access arrangements, including scaffolding, tower crane, lifting arrangements, temporary supports and protection of existing windows and building elements.

Dismantling and removal of existing ACP panels, precast RCC panels, cantilever slabs, podium slabs/beams and other identified façade/structural elements, including disposal of debris.

Structural rehabilitation and restoration, including repair and reconstruction of cantilever slabs, window sill slabs, podium slabs and beams, block masonry, plastering, reinforcement steel and concrete works.

Painting and waterproofing, including internal/external painting, surface treatment and application of approved waterproofing systems.

Architectural façade treatment, including installation of anchor bolts, stainless-steel horizontal and vertical support profiles, and fire-retardant A2-rated Aluminium Composite Cladding Panels, complete with all necessary fixing accessories, joints, sealants and finishing.

Reinstatement and making good, including restoration of basement and podium flooring and all areas affected by the Works.

Testing, quality control and completion, including submission of samples/shop drawings and method statements, inspections, rectification of defects, cleaning, removal of temporary works and final handover.

Price Schedule

For Individual Jobs

#	Job Title	Quantity	Unit Price (PKR)	Total Price (PKR)	Delivery Location	Delivery Period / Year	Country of Origin
1							
2							

For Lots

#	Lot Title	Total Lot Price (PKR)	Country of Origin
1	[Lot 1 Title]		





General Conditions of Contract

Red Book:

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The Conditions of Contract are the “General Conditions” which form part of the “Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer (“Red book”) Second edition 2017” published by the Federation Internationale Des Ingenieurs – Conseils (FIDIC) and the following “Particular Conditions” which shall complement the General Conditions of the Contract.

The successful Bidder, upon contract award, shall be required to furnish two (02) copies of aforementioned “General Conditions” for incorporation in the Works Contract.

International Federation of Consulting Engineers (FIDIC) FIDIC

Bookshop – Box- 311 – CH – 1215 Geneva 15, Switzerland

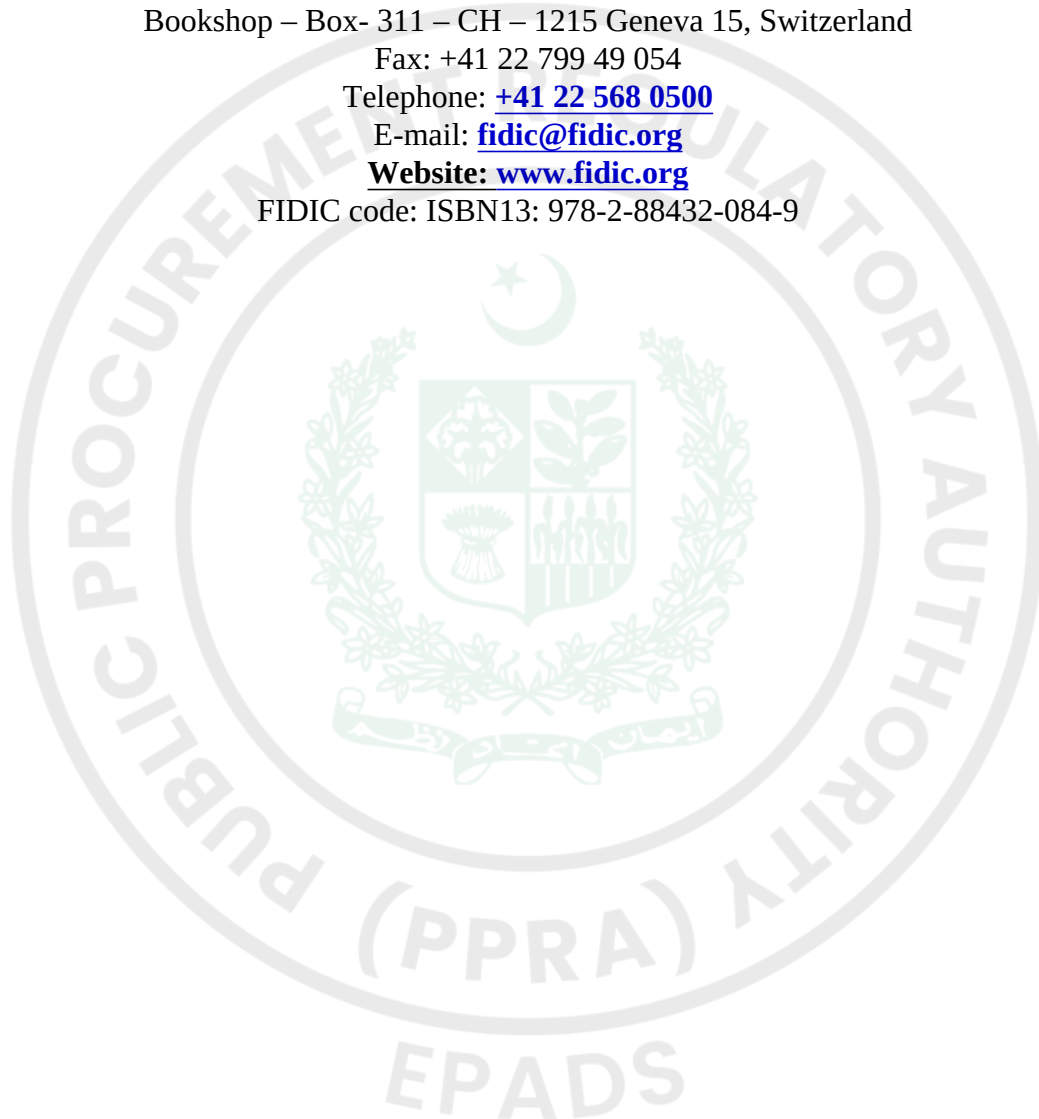
Fax: +41 22 799 49 054

Telephone: [+41 22 568 0500](tel:+41225680500)

E-mail: fidic@fidic.org

Website: www.fidic.org

FIDIC code: ISBN13: 978-2-88432-084-9





Special Conditions of Contract

PARTICULAR CONDITIONS OF CONTRACT (PCC)

Particular Conditions

(Mandatory Provisions not to be amended/substituted)

The Particular Conditions (PCC) complement the General Conditions (GCC) to specify dates, contractual requirements, and special circumstances related to the Works. The PCC consists of two parts, Part A - Contract Data and Part B - Special Provisions. The provisions to be found in the Special Provisions (Particular Conditions - Part B) take precedence over the equivalent provisions found under the same Sub-Clause number(s) in the General Conditions, and the provisions of the Contract Data (Particular Conditions - Part A) take precedence over the Special Provisions (Particular Conditions - Part B).

PART A - Contract Data

Sub-Clause 1.1.27

Defects Notification Period (DNP): **365 Days**

Sub-Clause 1.1.31

Employer's name & address: **Pakistan National Shipping Corporation (Maintenance & Project / Technical Department), MANAGER Maintenance & Project/Technical Department, 12 Floor, PNSC Building, M.T Khan Road, Karachi**

Sub-Clause 1.1.35

Engineer's name & address: **ENGR. MUHAMMAD HASSAN**

MANAGER M&P (TECH), 12 FLOOR , PNSC BUILDING, M.T KHAN ROAD, KARACHI

Sub-Clause 1.1.84

Time for Completion: **912 days** for whole of the works

Sub-Clause 1.3 (a)(ii)

Agreed method of electronic transmission: **Not Agreed**

Sub-Clause 1.3 (d)

Address of Employer for Communications: **Maintenance & Project/Technical Department, 12 Floor, PNSC Building, M.T Khan Road, Karachi**

Address of Engineer for Communications:

MANAGER M&P (TECH), 12 FLOOR , PNSC BUILDING, M.T KHAN ROAD, KARACHI

Address of Contractor for Communications: -----

Sub-Clause 1.4

Contract shall be governed by the law of: **Islamic Republic of Pakistan**

Ruling language: **English**

Language for communications: **English**

Sub-Clause 2.1

After receiving the Letter of Acceptance, the Contractor shall be given right of access to all or part of the Site within: **14 days** after Commencement Date

Sub-Clause 2.4

Employer's financial arrangements:

The Works shall be financed through funds allocated by Pakistan National Shipping Corporation (PNSC) under its approved maintenance budget.

Sub-Clause 3.2 (e)(ii)

Engineer's Duties and Authority: **Variation resulting in an increase of the Accepted Contract Amount in excess of one percent (1%) subject to accumulative Variations not exceeding five percent (5%) of the Accepted Contract Amount**

Sub-Clause 4.2

Performance Security (as percentage of the Accepted Contract Amount in Currencies): 5.00%

Form of Performance Guarantee: **Pay Order, Bank Guarantee**

Sub-Clause 4.2.1

List of Insurance Companies:

Insurance Companies that are Minimum "A+" Credit Ranking issued by IFRS / PACRA / JCR-VIS

Sub-Clause 4.7.2

period for notification of errors in the items of reference: **Twenty Eight (28) days**

Sub-Clause 4.19

Period of payment for temporary utilities: **Each Month**

Sub-Clause 5.1 (a)

Maximum allowable accumulated value of work subcontracted (as a percentage of the Accepted Contract Amount): **30 %**

Sub-Clause 5.1 (b)

Parts of the Works for which subcontracting is not permitted: **50**

No part of the Works is specifically prohibited from being subcontracted, provided that any subcontracting is carried out in accordance with Sub-Clause 5.1 and is subject to the prior written approval of the Engineer/Employer.

Sub-Clause 6.5

Normal working hours on the Site: **10**

Sub-Clause 8.3

Number of additional paper copies of programmes: **3**

Sub-Clause 8.8 & 14.15(b)

Delay Damages payable for each day of delay **0.10%** of the Accepted Contract Amount for delay in completion of whole of the Works

Sub-Clause 8.8

Maximum amount of Delay Damages **10.00 %** of the Accepted Contract Amount

Sub-Clause 8.14

Applicability of Incentives for Early Completion **No**

Sub-Clause 12.3

Percentage profit (Not more than 10%): **Nil**

Sub-Clause 13.4.(b)(ii)

Percentage rate to be applied to Provisional Sums for overhead charges and profit: **Twenty Five percent (25%)**

Sub-Clause 14.2

Total Advance Payment: **Fifteen percent (15%) of the Accepted Contract Amount excluding Provisional Sums payable in the currencies and proportions in which the Accepted Contract Amount is payable**

Sub-Clause 14.2.1

Advance Payment Insurance **Allowed**

Insurance Companies that are Minimum “A+” Credit Ranking issued by IFRS / PACRA / JCR–VIS

Sub-Clause 14.2.3

Percentage deductions for the repayment of the Advance Payment: Deduction shall be made at the amortization rate of 17.5 % of the value of the Works executed of each IPC as provided in paragraph (i) of Sub-Clause GCC 14.3, starting from 2nd IPC provided that the advance payment shall be completely repaid prior to the time when 90% of the Accepted Contract Amount less Provisional Sums has been certified for payment. It may be more than 17.5% in the last instalment to ensure full repayment.

Sub-Clause 14.3

Period of payment **One Month**

Sub-Clause 14.3(b)

Number of additional paper copies of Statements: **3**

Sub-Clause 14.3 (iii)

Percentage of retention: **Seven percent (7%)**

Sub-Clause 14.3 (iii)

Limit of Retention Money (as a percentage of the Accepted Contract Amount): **Five percent (5%)**

Sub-Clause 14.5(b)(i)

Plant and Materials for payment when shipped: **Plant and Materials under Bill of “Imported Plant and Materials”**

Sub-Clause 14.5(c)(i)

Plant and Materials for payment when delivered to the Site: **Plant and Non Perishable Materials**

Sub-Clause 14.6.2

Minimum amount of Interim Payment Certificate (IPC): **Yes**

The Minimum Amount IPC is The Engineer shall, within 28 days after receiving a Statement and supporting documents submitted by the Contractor in accordance with Sub-Clause 14.3, issue to the Employer an Interim Payment Certificate stating the amount which the Engineer fairly determines to be due, with supporting particulars. The Interim Payment Certificate shall indicate the amounts certified for payment, including any applicable deductions, retention, advance payment recovery, amounts due under the Contract, and any other adjustments permitted under the Contract.

[Employer to give value not exceeding one fifth of the average expected value of Interim Payment Certificate]

Sub-Clause 14.7(a)

Period of payment of Advance Payment to the Contractor: **14 days**

Sub-Clause 14.7b(i)

Period for the Employer to make interim payments to the Contractor under Sub-Clause 14.6: **30 days**

Sub-Clause 14.7b(ii)

Period for the Employer to make interim payments to the Contractor under Sub-Clause 14.13 (Final Payment): **30 days**

Sub-Clause 14.7(c)

Period for the Employer to make final payment to the Contractor: **30 days**

Sub-Clause 14.8

Financing charges for delayed payment Local Currency (PKR):

6-Month KIBOR (Offer) +3% per annum.

Foreign Currency:

USD

6-Month SOFR (Secured Overnight Financing Rate for USD) +1% per annum.

EURO

6-Month EURIBOR (EURO Interbank Offered Rate for EURO) +1% per annum.

Others

Appropriate rates +1% (for other foreign currencies, Ref. Schedule-A, A-4 to Bid).

Sub-Clause 14.11.1(b)

Number of additional paper copies of draft Final Statements: **3**

[insert number of copies say six (06)]

Sub-Clause 14.15

Currencies of payment of Contract Price: **as stated in the Table Schedule of Adjustment Data of Schedule A (if Given)**

Sub-Clause 14.15(a)(i)

Proportions or amounts of Local and Foreign currencies: **as stated in the Table Schedule of Adjustment Data of Schedule A (if Given)**

Sub-Clause 14.15(c)

Currencies and proportions for payment of Delay Damages: **as stated in the Table Schedule of Adjustment Data of Schedule A (if Given)**

Sub-Clause 14.15(f)

rates of exchange: **as stated in the Table IV of Schedule A (If Given)**

Sub-Clause 17.2(d)

Forces of nature, the risks of which are allocated to the Contractor: **Nil**

Sub-Clause 19.1

Permitted deductible limits:

- i) insurance required for the Works: **Ten percent (10%) of loss amount on each & every loss**
- ii) insurance required for Goods: **Nil**
- iii) insurance required for liability for breach of professional duty: **Nil**
- iv) insurance required against liability for fitness for purpose (if any is required): **Nil**
- v) insurance required for injury to persons and damage to property: **Nil**
- vi) insurance required for injury to employees: **Nil**
- vii) other insurances required by Laws and by local practice : **Nil**

Periods for submission of insurance:

- a) evidence of insurance: Not later than the Commencement Date
- b) relevant policies: Within twenty eight (28) day from the Commencement Date

Sub-Clause 19.2.1(b)

Additional amount to be insured (as a percentage of the replacement value): 15% of the replacement value (Accepted Contract Amount)

Sub-Clause 19.2.2

Extent of insurance required for Goods: From Ex-Works (i.e., works, factory, warehouse, etc) to delivery at the Site

Amount of insurance required for Goods: Full replacement value

Sub-Clause 19.2.3(a)

Amount of insurance required for liability for breach of professional duty: Full replacement value of the Works to be designed by the Contractor

Sub-Clause 19.2.3(b)

Insurance required against liability for fitness for purpose: **Yes**

Sub-Clause 19.2.3

Period of insurance required for liability for breach of professional duty: Until the date of issuance of Performance Certificate

Sub-Clause 19.2.4

Amount of insurance required for injury to persons and damage to property: Injury to person and Fatal case: in accordance with Workmen Compensation Act

Damage to Property: The Amount of Insurance Required for Person Injury is The Amount of Insurance Required for Person Injury is PKR 5,000,000 per occurrence without limit to the number of incidents

The Amount of Insurance Required for Damage to Property is The Amount of Insurance Required for Damage to Property is PKR 10,000,000 per occurrence as per assessment of the adjoining property(ies) other than the Works without limit to the number of incidents as per his assessment of the adjoining property(ies) other than the Works] without limit to the number of incidents

Sub-Clause 19.2.6

Other insurances required by Laws and by local practice: All insurances as applicable, to the extent of execution of the project, under Federal and Provincial laws of Islamic Republic of Pakistan

Sub-Clause 21.1

Time for appointment of the DAAB: Within 28 days from the Commencement Date.

In case the Accepted Contract Amount is lesser than PKR one (01) billion, appointment of the DAAB shall be made when Dispute arises between the Parties.

Sub-Clause 21.1

The DAAB shall comprise 1

[insert either “a sole Member” or “Three Members”]

[For a Contract estimated to cost above PKR 2.5billion, the DAAB shall comprise of three members. For a Contract estimated to cost between PKR1billion and PKR2.5billion, the DAAB may comprise of three members or a sole member. For a Contract estimated to cost less than PKR1billion, a sole member is recommended.]

Sub-Clause 21.1

List of proposed members of DAAB

- proposed by Employer

Within 28 days from the Commencement Date. In case the Accepted Contract Amount is lesser than PKR one (01) billion, appointment of the DAAB shall be made when Dispute arises between the Parties.

- proposed by Contractor

[to be inserted at the time of signing of the Contract]

1. _____

2. _____

3. _____

Sub-Clause 21.2

Appointing entity (official) for DAAB members Managing Director Public Procurement Regulatory Authority (PPRA) or Chairman Pakistan Engineering Council (PEC) from the list of PEC approved arbitrators published at its website

Sub-Clause 21.6

Rules of Arbitration: PEC Rules of Conciliation and Arbitration or Pakistan Arbitration Act of 1940, if the former is inactive.

The place of Arbitration shall be in the Employer's country: **Karachi, Pakistan**

[Insert name of city]

Particular Conditions

PartB - Special Provisions

1.1 Definitions

1.1.76 "Specification"

Following is added at the end:

"and consists of two parts i.e.,

- i) "Part A - Specific Provisions"; and
- ii) "Part B - Technical Provisions".

1.2 Interpretation

"and" is deleted from the end of sub-paragraph (i) and added at the end of sub-paragraph (j).

Sub-paragraph (k) is added:

"(k) The word "tender" is synonymous with "bid" the word tenderer with "bidder", the words "tender documents" with "bidding documents" and "Schedule of Prices" with "Bill of Quantities", as applicable."

1.5 Priority of Documents The documents listed at (a) through (k) of this Sub-Clause are deleted and substituted with the following:

- (a) the Contract Agreement;
- (b) the Letter of Acceptance;
- (c) the Letter of Bid;
- (d) the Particular Conditions Part A - Contract Data;
- (e) the Particular Conditions Part B - SpecialProvisions;
- (f) the General Conditions;
- (g) the Specification Part A - SpecificProvisions;
- (h) the Specification Part B- Technical Provisions;
- (i) the Drawings;

- (j) the completed Schedules to Bid including Bill of Materials;
- (k) the JV Undertaking (if the Contractor is a JV); and
- (l) any other documents forming part of the Contract.

The addenda/corrigenda, if any, shall be deemed to have been incorporated at the appropriate places in the documents forming the Contract.

1.6 Contract Agreement

In the last line of the 1st paragraph the text “shall be borne by the Employer” is substituted by “shall be reimbursed by the Employer to the Contractor”.

3.1 The Engineer

In sub-paragraph (a) the text “as defined in the Pakistan Engineering Council Act, 1975 (Act No.V of 1976)” are added after the words “professional engineer”.

3.2 Engineer’s Duties and Authority

The Engineer shall obtain the consent in writing of the Employer before taking action under the following Sub-Clauses of these Conditions:

- (a) Consenting to the subcontracting of any part of the Works under Sub-Clause 5.1 [Subcontractors]
- (b) Any action under Sub-Clauses 8.9 [Employer’s Suspension] and 8.12 [Prolonged Suspension]
- (c) Issuance of “Taking Over Certificate” under Sub-Clause 10.1 [Taking Over the Works and Sections].
- (d) Issuing the “Performance Certificate” under Sub-Clause 11.9 [Performance Certificate].
- (e) Sub-Clause 13.1 [Right to Vary]: instructing a Variation, except;
 - (i) in an emergency situation as determined by the Engineer, or
 - (ii) if such a Variation would increase the Accepted Contract Amount by less than the percentage specified in the Contract Data.
- (f) Sub-Clause 13.3 [Variation Procedure]: approving a proposal for Variation submitted by the Contractor in accordance with Sub-Clause 13.3.2 [Variation by Request for Proposal] or 13.2 [Value Engineering].
- (g) Certifying release of second half of the Retention Money under Sub-Clause 14.9 [Release of Retention Money].
- (h) Issuing Final Payment Certificate under Sub-Clause 14.13 [Issue of FPC].
- (i)

Issue of FPC Sub Clauses

The Engineer shall issue the Final Payment Certificate within 28 days after the date on which the Contractor submits the Final Statement and written discharge in accordance with Sub-Clause 14.11 [Application for Final Payment Certificate].

*[insert Sub-Clause number (not Sub-Clause 3.7 [Agreement or Determination])]

Any such requirement shall not be applied to any action by the Engineer under Sub-Clause 3.7 [Agreement or Determination], as stated in Sub-Clause 3.2 [Engineer’s Duties and Authority] of the General Conditions. Notwithstanding the obligation, as set out above, to obtain approval, if, in the opinion of the Engineer, an emergency occurs affecting the safety of life or of the Works or of adjoining property, he may, without relieving the Contractor of any of his duties and responsibility under the Contract, instruct the Contractor to execute all such work or to do all such things as may, in the opinion of the Engineer, be necessary to abate or reduce the risk. The Contractor shall forthwith comply, despite the absence of approval of the Employer, with any such instruction of the Engineer. The Engineer shall determine an addition to the Contract Price, in respect of such instruction, in accordance with Clause 13 and shall notify the Contractor accordingly, with a copy to the Employer.

Following is added after the words “the Employer’s consent is required” in 4th paragraph:

“stating that the Employer’s consent has been obtained for that specified authority”

4.2 Performance Security

4.2.1 Contractor’s Obligations

The entity issuing the Performance Security and its form shall be as under:

The Performance Security shall be, at the option of the Contractor, issued in the prescribed form included in the Bidding Documents, by (a) a Scheduled Bank in Pakistan or (b) a foreign bank duly counter-guaranteed by a Scheduled Bank in Pakistan or (c) an Insurance Company listed in the Contract Data and rated by PACRA/VIS or ratings as provided in Table below:

Accepted Contract Amount (In Eq. PKR million)	Minimum Rating of Insurance Companies
---	---------------------------------------

Up to 1000	A (+)
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1001 to no limit	AA
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In case of Joint Venture, the Performance Security shall be in the name of the Joint Venture or in the name of Lead/either firm of the JV or in ratio of shares of the individual JV partners.

Following paragraph is added at the end of this Sub-Clause:

“The amount of Performance Security shall be reduced to 50% following issue of the Taking-Over Certificate for the whole of the Works under Clause 10 of Conditions of Contract.”

4.3 Contractor’s Representative

In second paragraph the text “professional engineer as defined in the Pakistan Engineering Council Act, 1975 (Act No. V of 1976) (having temporary licence in case of foreign engineer under Section 12 of the Pakistan Engineering Council Act, 1975 (Act No. V of 1976)” are added after the words “qualified, experienced”.

In the 3rd paragraph the words “28 days” are substituted by “14 days”. In 2nd line of 4th paragraph the text “or appoint a replacement” is substituted by “except appointment of a suitable temporary replacement is deployed at the Site”

4.4 Contractor’s Documents

4.4.2 As-Built Records

First paragraph is deleted and the text in the last paragraph is substituted with the following:

“The Contractor shall furnish to the Engineer 6 copies, one reproducible and one electronic copy (provided the Engineer has made available to the Contractor editable form of the Drawings) of all Drawings amended to conform to the Works as built. In case the Engineer does not make available to the Contractor editable form of the Drawings, the Contractor shall furnish to the Engineer as-built data for incorporation in the Drawings. Upon receipt of PDF versions of the as-built drawings prepared by the Engineer, the Contractor shall furnish to the Engineer 6 copies and one reproducible of these Drawings.

The price of such Drawings shall be deemed to be included in the Contract Price.”

Following Sub-Clause is added:

4.4.4 Shop Drawings

The Contractor shall submit to the Engineer for review 3 copies of all shop and erection drawings applicable to this Contract as per provision of relevant Sub-Clause of the Contract.

Review and approval by the Engineer shall not exceed 21 days and be construed as a complete check but will indicate only that the general method of construction and detailing is satisfactory and the Engineer’s review or approval shall not relieve the Contractor of any of his responsibilities under the Contract.

4.8 Health and Safety Obligations

The following text is added at the end of this Sub-Clause:

In the event of work being carried out outside the normal working hours and in the event of work being carried out at night, the Contractor shall at his own cost, provide and maintain such good and sufficient light as will enable the work to proceed satisfactorily and without danger. The approaches to the Site and the Works where the night work is being carried out shall be sufficiently lighted. All arrangement adopted for

such lighting shall be to the satisfaction of the Engineer.

4.20 Progress Reports

At the end of sub-paragraph (g) the word “and” is deleted and at the end of sub-paragraph (h) the full stop (.) is replaced with “;”, and the following new sub-paragraphs are added as:

- (i) planned programme for the execution of the Works for next 56 days to enable the Engineer to determine its programme of inspection and testing;
- (j) monthly summary of daily job record indicating weather conditions, deployment of Contractor’s Equipment, labour employment, local material procurement and material import, if any; and
- (k) salient contractual and project information.

5.1 Subcontractors

Add the following text at the end of paragraph (ii):

“under Schedule to Bid”

The following is added at the end of the last paragraph of Sub-Clause 5.1:

“All subcontracts relating to the Works shall include provisions which entitle the Employer to require the subcontract to be assigned to the Employer under sub-paragraph (a) of Sub-Clause 15.2.3 [After Termination].

The Contractor shall give reasonable opportunity to contractors from Islamic Republic of Pakistan for subcontracts for the Works, and endeavour to employ such contractors as Subcontractors.”

5.2 Nominated Subcontractors

5.2.2 Objection to Nomination

In sub-paragraph (c), “and” is deleted from the end of (i);

“.” at the end of (ii) is replaced with: “, and”.

The following is then added as (iii):

“(iii) be paid only if and when the Contractor has received from the Employer payments for sums due under the Subcontract referred to under Sub-Clause 5.2.3 [Payment to nominated Subcontractors].”

6.1 Engagement of Staff and Labour

The following paragraph is added at the end of the Sub-Clause:

“The Contractor shall, to the extent practicable and reasonable, employ staff (not less than 50%) and labour (not less than 85%) with appropriate qualifications and experience from sources within the Islamic Republic of Pakistan.”

6.7 Health and Safety of Personnel

The existing text is substituted with the following:

“In order to provide for the safety, health and welfare of persons, and for prevention of damage of any kind, all operations for the purposes of or in connection with the Contract shall be carried out in compliance with the Safety Requirements of the Government of Pakistan with such modifications thereto as the Engineer may authorize or direct and the Contractor shall take or cause to be taken such further measures and comply with such further requirements as the Engineer may determine to be reasonably necessary for such purpose. The Contractor shall also provide all other medical services and appoint a health and safety officer at Site if stated in the Specifications. In case of any fatality or serious accident, the Contractor shall, in addition, notify the Engineer immediately by the quickest available means.”

6.8 Contractor’s Superintendence

Insert at the end of sub-paragraph (a) of this Sub-Clause:

"or, if not, the Contractor shall make competent interpreters available during all working hours, in a number sufficient for those persons to properly perform their superintendence duties"

The following text is added at the end of this Sub-Clause:

"The Contractor's authorized representative and his other engineers working at site shall possess valid registration with the Pakistan Engineering Council.

The Contractor's authorized representative at Site shall be authorized to exercise adequate administrative and financial powers on behalf of the Contractor so as to achieve completion of the Works as per the Contract."

6.12 Key Personnel

The following is inserted at the end of the last paragraph:

"If any of the Key Personnel are not fluent in this language, the Contractor shall make competent interpreters available during all working hours in a number deemed sufficient by the Engineer."

The following Sub-Clauses 6.13 to 6.26 are added at the end of Sub-Clause 6.12:

6.13 Foreign Personnel

The Contractor may bring in to the Country any foreign personnel who are necessary for the execution of the Works to the extent allowed by the applicable Laws. The Contractor shall ensure that these personnel are provided with the required residence visas and work permits. The Employer will, if requested by the Contractor, use all reasonable endeavours in a timely and expeditious manner to assist the Contractor in obtaining any local, state, national, or government permission required for bringing in the Contractor's personnel.

The Contractor shall be responsible for the return of these personnel to the place where they were recruited or to their domicile. In the event of the death in the Country of any of these personnel or members of their families, the Contractor shall similarly be responsible for making the appropriate arrangements for their return or burial.

6.14 Supply of Foodstuffs

The Contractor shall arrange for the provision of a sufficient supply of suitable food as may be stated in the Specification at reasonable prices for the Contractor's Personnel for the purposes of or in connection with the Contract.

6.15 Supply of Water

The Contractor shall, having regard to local conditions, provide on the Site an adequate supply of drinking and other water for the use of the Contractor's Personnel.

6.16 Measures against Insect and Pest Nuisance

The Contractor shall at all times take the necessary precautions to protect the Contractor's Personnel employed on the Site from insect and pest nuisance, and to reduce the danger to their health. The Contractor shall comply with all the regulations of the local health authorities, including use of appropriate insecticide.

6.17 Alcoholic Liquor or Drugs

The Contractor shall not, otherwise than in accordance with the Laws of the Country, import, sell, give, barter or otherwise dispose of any alcoholic liquor or drugs, or permit or allow importation, sale, gift, barter or disposal thereto by Contractor's Personnel.

6.18 Arms and Ammunition

The Contractor shall not give, barter, or otherwise dispose of, to any person, any arms or ammunition of any kind, or allow Contractor's Personnel to do so.

6.19 Festivals and Religious Customs

The Contractor shall respect the Country's recognized festivals, days of rest and religious or other customs.

6.20 Funeral Arrangements

The Contractor shall be responsible, to the extent required by local regulations, for making any funeral arrangements for any of its local employees who may die while engaged upon the Works.

6.21 Forced Labour

The Contractor, including its Subcontractors, shall not employ or engage forced labour which consists of any work or service, not voluntarily performed, that is exacted from an individual under threat of force or penalty, and includes any kind of involuntary or compulsory labour, such as indentured labour, bonded labour or similar labour-contracting arrangements.

6.22 Child Labour

The Contractor, including its Subcontractors, shall not employ or engage child labour in accordance with relevant law(s) in force in Islamic Republic of Pakistan.

6.23 Employment Records of Workers

The Contractor shall keep complete and accurate records of the employment of labour at the Site. The records shall include the names, ages, genders, hours worked and wages paid to all workers. These records shall be summarized on a monthly basis and submitted to the Engineer. These records shall be included in the details to be submitted by the Contractor under Sub-Clause 6.10 [Contractor's Records].

6.24 Workers' Organizations

The Contractor shall comply with the relevant labour laws of Pakistan which recognize workers' rights to form and to join workers' organizations/Trade Union of their choosing and to bargain collectively without interference.

6.25 Non-Discrimination and Equal Opportunity

The Contractor shall not make decisions relating to the employment or treatment of Contractor's Personnel on the basis of personal characteristics unrelated to inherent job requirements. The Contractor shall base the employment of Contractor's Personnel on the principle of equal opportunity and fair treatment, and shall not discriminate with respect to any aspects of the employment relationship, including recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment, access to training, job assignment, promotion, termination of employment or retirement, and disciplinary practices.

Special measures of protection or assistance to remedy past discrimination or selection for a particular job based on the inherent requirements of the job shall not be deemed discrimination. The Contractor shall provide protection and assistance as necessary to ensure nondiscrimination and equal opportunity, including for specific groups such as women, persons with disabilities, migrant workers and children (of working age in accordance with Sub-Clause 6.22).

6.26 Epidemics

In the event of any out-break of illness of epidemic nature, the Contractor shall comply with and carry out such regulations, orders and requirements as may be made by the Government or the local medical or

sanitary authorities for the purpose of overcoming the same.

7.7 Ownership of Plant and Materials

The following is added before the first paragraph:

“Except as otherwise provided in the Contract,”

The following is added at the end of the Sub-Clause:

"No Plant and/or Materials that is the property of the Employer shall be removed from the Site. If it becomes necessary to:

(i) remove any item of such Plant from the Site for the purpose of repair, the Contractor shall give a Notice, with reasons, to the Engineer requesting consent to remove the defective or damaged item off the Site. This Notice shall clearly identify the item of defective or damaged Plant, and shall give details of: the defect or damage to be repaired; the place to which defective or damaged item of Plant is to be taken for repair; the transportation to be used (and insurance cover for such transportation); the proposed inspections and testing off the Site; and the planned duration required before the repaired item of Plant shall be returned to the Site. The Contractor shall also provide any further details that the Employer may reasonably require; or

(ii) replace any item(s) of such Plant and/or Materials, the Contractor shall give a Notice, with reasons, to the Engineer clearly identifying the item(s) of Plant and/or Materials to be replaced, and giving details of the due date of delivery to the Site of the replacement item(s).

Where any item of Plant and/or Materials has become the property of the Employer under this Sub-Clause before it has been delivered to the Site, the Contractor shall ensure that such an item is not moved except for its delivery to the Site.

The Contractor shall indemnify and hold the Employer harmless against and from the consequences of any defect in title or encumbrance or charge (except any reasonable restriction arising from the intellectual property rights of the manufacturer or producer) on any item of Plant and/or Materials that has become the property of the Employer under this Sub-Clause."

The following Sub-Clause 7.9 is added after Sub Clause 7.8:

7.9 Use of Pakistani Materials and Services

The Contractor shall, so far as may be consistent with the Contract, make the maximum use of materials, supplies, plant and equipment indigenous to or produced or fabricated in Pakistan and services available in Pakistan provided such materials, supplies, plant, equipment and services shall be of required standard.

8.1 Commencement of Works

The following is added before the first paragraph:

“After signing of the Contract Agreement by both Parties,” and thereafter the word “The” is replaced with the word “the”.

8.5 Extension of Time for Completion

The following is added after paragraph (c):

“for last five years”.

The following Sub-Clause 8.14 is added after Sub-Clause 8.13:

8.14 Incentives For Early Completion

If Contract Data does not state applicability of incentives for early completion, this Sub-Clause shall not apply.

The Contractor shall be entitled subject to Sub-Clause 20.2 [Claims for Payment and/or EOT] to bonus payment if the Works and/or each Section is completed earlier than the Time for Completion for the Works or Section (as the case may be). The amount of bonus for early completion of the Works and/or each Section shall be up to a limit and at a rate to 50% of the relevant limit and rate of delay damages prescribed in

Contract Data and shall be paid for every day which shall elapse between the relevant Date of Completion of the Works or Section and the relevant Time for Completion.

For the purposes of calculating any bonus payment, the applicable Time for Completion stated in the Contract Data is fixed and no adjustments of this time by reason of granting an EOT will be allowed.

The following Sub-Clause 11.12 is added after Sub-Clause 11.11:

11.12 Supervisory Assistance During DNP

If provided under the Schedule of Prices, the Contractor shall provide supervisory assistance to the Employer during the DNP for the Works. Such supervisory assistance shall be as described in the Specification for the purpose of supporting the Employer's operation and maintenance of the Plant for the period specified in the Schedule of Prices after the Date of Completion.

12.2 Method of Measurement

The following paragraph is added at the end of the Sub-Clause:

“Summary of measured quantity for payment shall be delineated item-wise under four heads namely; “Schedule of Prices Quantity”, “Quantity Executed To-date”, “Quantity Certified Previously” and “Net Quantity Executed under this Certificate”.

12.3 Valuation of the Works

The following text is added at the end of fifth paragraph of the Sub-Clause:

“Sum of overhead charges and profit for sub-paragraph (a) shall be Twenty Five percent (25%)”.

13.4 Provisional Sums

The following paragraph is inserted as the penultimate paragraph:

“The Provisional Sum shall be used to cover the Employer's share of the DAAB members' fees and expenses, in accordance with Clause 21. No prior instruction of the Engineer shall be required with respect to the work of the DAAB. The Contractor shall submit the DAAB members' invoices and the satisfactory evidence of having paid 100% of such invoices as part of the substantiation of those Statements submitted under Sub-Clause 14.3.

13.6 Adjustments for Changes in Laws

The following paragraphs are added at the end of the Sub-Clause:

“Notwithstanding the foregoing, the Contractor shall not be entitled to an extension of time if the relevant delay has already been taken into account in the determination of a previous extension of time and such Cost shall not be separately paid if the same shall already have been taken into account in the indexing of any inputs to the Table of Adjustment Data in accordance with the provisions of Sub-Clause 13.7 [Adjustments for Changes in Cost].”

14.1 The Contract Price

The following is added at the end of the Sub-Clause:

“Notwithstanding the provisions of subparagraph (b), Contractor's Equipment, including essential spare parts, imported by the Contractor for the sole purpose of executing the Contract shall be temporarily exempt from the payment of import duties and taxes upon initial importation, provided the Contractor shall post with the customs authorities at the port of entry an approved re-export bond or bank guarantee, valid until the Time for Completion plus six months, in an amount equal to the full import duties and taxes which would be payable on the assessed imported value of such Contractor's Equipment and spare parts, and callable in the event the Contractor's Equipment is not re-exported from the Country on completion of the Contract. A copy of the bond or bank guarantee endorsed by the customs authorities shall be provided by the Contractor to the

Employer upon the importation of individual items of Contractor's Equipment and spare parts. Upon re-export of individual items of Contractor's Equipment or spare parts, or upon the completion of the Contract, the Contractor shall prepare, for approval by the customs authorities, an assessment of the residual value of the Contractor's Equipment and spare part to be re-exported, based on the depreciation scale(s) and other criteria used by the customs authorities for such purposes under the provisions of the applicable Laws. Import duties and taxes shall be due and payable to the customs authorities by the Contractor on (a) the difference between the initial imported value and the residual value of the Contractor's Equipment and spare parts to re-exported; and (b) on the initial imported value of the Contractor's Equipment and spare parts remaining in the Country after completion of the Contract. Upon payment of such dues within 28 days of being invoiced, the bond or bank guarantee shall be reduced or released accordingly; otherwise the security shall be called in the full amount remaining.”

[The Employer may change or delete this Sub-Clause as per Project requirements]

14.2 Advance Payment

14.2.1 Advance Payment Guarantee

The entity issuing the Advance Payment Guarantee and its form shall be as under:

The Advance Payment Guarantee shall be in the form of Guarantee issued by (a) a Scheduled Bank in Pakistan or (b) a foreign bank duly counter-guaranteed by a Scheduled Bank in Pakistan or (c) an Insurance Company listed in the Contract Data and rated by PACRA/VIS of rating as provided in Table below:

Accepted Contract Amount (In Eq. million PKR) Minimum Rating of Insurance Companies

Up to 1000 A (+)

1001 to no limit AA

In case of Joint Venture, the Advance Payment Guarantee(s) shall be in the name of the Joint Venture or in the name of Lead/either firm of the JV or in ratio of shares of the individual JV partners.

14.6 Issue of IPC

14.6.1 The IPC

In the first line of the 1st paragraph the words “28 days” are substituted by “14 days”.

14.7 Payment

The words “or through crossed cheque in favour of the Contractor or JV partners. The Payment to JV partners shall be made at the request of the Joint Ventures in the ratio of their shares specified by them” are added at the end of the Sub-Clause.

14.8 Delayed Payment

In the first paragraph, third line, the words “compounded monthly” are deleted.

The text of 2nd paragraph is deleted and substituted with the following:

“The Employer shall pay to the Contractor compensation at the rate stated in the Contract Data.”

14.9 Release of Retention Money

The following is added at the end of Sub-Clause 14.9:

“Unless otherwise stated in the Contract, when the Taking-Over Certificate has been issued for the Works and the first half of the Retention Money has been certified for payment by the Engineer, the Contractor shall be entitled to substitute a guarantee, in the form annexed to the Particular Conditions or in another form approved by the Employer and issued by a schedule bank selected by the Contractor, for the second half of the Retention Money. The Contractor shall ensure that the guarantee is in the amounts and currencies of the second half of the Retention Money and is valid and enforceable until the Contractor has executed and completed the Works and remedied any defects, as specified for the Performance Security. On receipt by the Employer of the required guarantee, the Engineer shall certify, and the Employer shall pay the second half of

the Retention Money. The release of the second half of the Retention Money against a guarantee shall then be in lieu of the release after the latest of the expiry dates of the Defects Notification Periods. The Employer shall return the guarantee to the Contractor within 21 days after receiving a copy of the Performance Certificate.

If the Performance Security required under Sub-Clause 4.2 is in the form of a demand guarantee, and the amount guaranteed under them when the Taking-Over Certificate is issued is more than half of the Retention Money, then the Retention Money guarantee will not be required. If the amount guaranteed under the Performance Security when the Taking-Over Certificate is issued is less than half of the Retention Money, the Retention Money guarantee will only be required for the difference between half of the Retention Money and the amount guaranteed under the Performance Security.

15.2 Termination for Contractor's Default

15.2.1 Notice

Following text is added at the end of sub-paragraph (h) of this Sub-Clause:

"For the purposes of this Contract, corrupt and fraudulent practices have been defined in Public Procurement Rules 2004."

15.2.3 After Termination

The word "and" at the end of sub-paragraph (ii) of paragraph (b) is deleted the following paragraph is added after sub-paragraph (iii):

"(iv) all Employer-Supplied Materials and/or Employer's Equipment made available to the Contractor in accordance with Sub-Clause 2.6 [Employer-Supplied Materials and Employer's Equipment], and"

15.4 Payment after Termination

The following text is added at the end of this Sub-Clause:

"The Employer shall be entitled to sell any of the Contractor's Equipment, Temporary Works and unused materials and apply the proceeds of sale towards payment of any debt due from the Contractor to the Employer under this Clause including any outstanding payments to the Subcontractors.

16.2 Termination by Contractor

16.2.1 Notice

The sub-paragraph (j) is deleted in its entirety.

At the end of sub-paragraph (i) ";" or" is replaced with "." and at the end of sub-paragraph (h) ";" is replaced with ";" or".

In sub-paragraph (f) "84 days" are replaced with "180 days" and text "for reasons not attributable to the Contractor" is added at the end.

16.3 Contractor's Obligations After Termination

Sub-paragraph (c) is deleted and replaced with:

"(c) deliver to the Engineer all Employer-Supplied Materials and/or Employer's Equipment made available to the Contractor in accordance with Sub-Clause 2.6 [Employer-Supplied Materials and Employer's Equipment]; and

(d) remove all other Goods from the Site, except as necessary for safety, and leave the Site."

17.1 Responsibility for Care of the Works

After the two instances of "Goods" in the last paragraph, the words "Employer-Supplied Materials and/or Employer's Equipment" are added.

The following Sub-Clause 17.7 is added after Sub-Clause 17.6:

17.7 Use of Employer's Accommodation/Facilities

The Contractor shall take full responsibility for the care of the items of the Employer's facilities and/or accommodation, if any, as detailed in the Specification, from the date of use and/or occupation by the Contractor until the date on which such use and/or occupation is re-vested in the Employer.

If any loss or damage happens to any of the above items during a time while the Contractor is responsible for its care, arising from any cause other than a cause for which the Employer is responsible or liable, the Contractor shall promptly rectify the loss or damage at the Contractor's risk and cost.

18.1 Exceptional Events

The words "or disorder" are replaced with "disorder or sabotage" in sub-paragraph (c) of the Clause.

18.4 Consequences of an Exceptional Event

The following is added at the end of sub-paragraph (b) after deleting the "":

“, including the costs of rectifying or replacing the Works and/or Goods damaged or destroyed by Exceptional Events, to the extent they are not indemnified through the insurance policy referred to in Sub-Clause 19.2 [Insurance to be provided by the Contractor].”

18.5 Optional Termination

In sub-paragraph (c), the words “and necessarily” are added after the words “was reasonably”.

19.1 General Requirements

Following text is added at the end of first paragraph:

“The Contractor shall immediately after the date of the Letter of Acceptance submit the draft of insurance policies for the Employer's consent.”

Following text is added at the end of third paragraph:

“The Contractor shall, within the respective periods stated in the Contract Data submit to the Engineer and the Employer a) evidence that the insurances described in this Clause have been effected, and b) copies of policies of the insurances described in Sub-Clauses 19.2.1, 19.2.4 and 19.2.5.”

19.2 Insurance to be provided by the Contractor

19.2.5 Injury to employees

The words “sickness, disease” are deleted in the third line of first paragraph.

The following Sub-Clause is added after Sub-Clause 19.2.6:

19.2.7 Insurance Company

“The Contractor shall be obliged to place all insurances described in this Clause with insurers listed in the Contract Data and rated by PACRA/VISOfrating as provided in Table below:

Accepted Contract Amount (In Eq. million PKR)	Minimum Rating of Insurance Companies
---	---------------------------------------

Up to 1000	A (+)
------------	-------

1001 to no limit	AA
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21.6 Arbitration

The word “international” is deleted in the sixth line of first paragraph. The text of sub-paragraph (a) is substituted with the following:

“the Dispute shall be finally settled under the Rules of Arbitration, specified in the Contract Data;”

The following Clauses are added after Clause 21

22 Custom Duty

[Employer may incorporate provisions where applicable. However, in order to make the bid more balanced, the payment of Customs Duties should be the responsibility of the Employer.]

23 Taxes

The Contractor, Subcontractors and their employees shall be liable to pay income tax, withholding tax, super tax and other taxes on income arising out of the Contract. The rates and prices as stated in the contract shall be deemed to cover all such taxes.

24 Integrity Part

If it is found and established at any stage that the Contractor or any of his Subcontractors, agents or servants have violated or involved in violation of the Integrity Pact signed by the Contractor 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 Subcontractors, agent or servants;

(b) terminate the Contract; and

(c) 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 Subcontractors, agent or servants.

The termination under sub-paragraph(b) of this Sub-Clause shall proceed in the manner prescribed under Sub-Clause 15.1 to 15.4 and the payment under Sub-Clause 15.4 shall be made after having deducted the amounts due to the Employer under sub-paragraph(a) and (c) of this Sub-Clause.

Appendix General Conditions of Dispute Avoidance/Adjudication Agreement

12 Disputes Under DAAB Agreement

In the first paragraph, third, fourth and fifth line, the text “under the Rules of Arbitration of the International Chamber of Commerce 2017.....shall apply” is substituted with “under the Arbitration Act 1940 by sole arbitrator appointed by the Managing Director Public Procurement Regulatory Authority or Chairman Pakistan Engineering Council.”



Bid Securing Declaration

FORM OF BID SECURING DECLARATION

Date:

No.:

Alternative No.: **P106762**

To: **Pakistan National Shipping Corporation (Maintenance & Project / Technical Department), MANAGER Maintenance & Project/Technical Department, 12 Floor, PNSC Building, M.T Khan Road, Karachi**

We, the undersigned, declare that:

We understand that, according to your conditions, Bids must be supported by a Bid-Securing Declaration.

We accept that we will be blacklisted and henceforth cross debarred for participating in respective category of public procurement proceedings for a period of (not more than) six months, if fail to abide with a bid securing declaration, however without indulging in corrupt and fraudulent practices, if we are in breach of our obligation(s) under the Bid conditions, because we:

- (a) have withdrawn our Bid during the period of Bid validity specified in the Letter of Bid; or
- (b) having been notified of the acceptance of our Bid by the Procuring agency/Employer during the period of Bid validity, (i) fail or refuse to sign the Contract; or (ii) fail or refuse to furnish the Performance Security (or guarantee), if required, in accordance with the ITB.

We understand this Bid Securing Declaration shall expire if we are not the successful Bidder, upon the earlier of (i) our receipt of your notification to us of the name of the successful Bidder; or (ii) twenty-eight days after the expiration of our Bid.

Name of the Bidder*

Name of the person duly authorized to sign the Bid on behalf of the Bidder** _____

Title of the person signing the Bid _____

Signature of the person named above _____

Date signed _____ day of _____, _____

*: In the case of the Bid submitted by joint venture specify the name of the Joint Venture as Bidder

**: Person signing the Bid shall have the power of attorney given by the Bidder attached to the Bid

[Note: In case of a Joint Venture, the Bid-Securing Declaration must be in the name of all members to the Joint Venture that submits the Bid.]



Contract Form

FORM OF CONTRACT AGREEMENT

THIS CONTRACT AGREEMENT (hereinafter called the “Agreement”) made on the _____ day of _____ (month) 20____ between **Pakistan National Shipping Corporation (Maintenance & Project / Technical Department), MANAGER Maintenance & Project/Technical Department, 12 Floor, PNSC Building, M.T Khan Road, Karachi** (hereinafter called the “Employer”) of the one part and _____ (hereinafter called the “Contractor”) of the other part.

WHEREAS the Employer is desirous that certain Works, viz., **TENDER FOR FACADE FACELIFT & RESTORATION WORK OF PNSC BUILDING (P106762)** should be executed by the Contractor and has accepted a Bid by the Contractor for the execution and completion of such Works and the remedying of any defects therein.

NOW this Agreement witnessed 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 hereinafter referred to.
2. The following documents, in the order of priority, after incorporating addenda, if any, except those parts relating to Instructions to Bidders shall be deemed to form and be read and construed as part of this Agreement:
 - a) This Contract Agreement;
 - b) The Letter of Acceptance;
 - c) The Letter of Bid;
 - d) The Particular Conditions Part A - Contract Data;
 - e) The Particular Conditions Part B - SpecialProvisions;
 - f) The General Conditions;
 - g) The Specifications Part A - SpecificProvisions;
 - h) The Specifications Part B- Technical Provisions;
 - i) The Drawings;
 - j) The Completed Schedules to Bid including Schedule of Prices;
 - k) the JV Undertaking (if the Contractor is a JV); and
 - l) [Employer to insert any other documents forming part of the Contract]

The addenda/corrigenda,if any, (Excluding part relating to Instructions to Bidders alongwith Bidding Data) shall be deemed to have been incorporated at the appropriate places in the “Documents forming the Contract”.

3. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy defects therein in conformity and in all respects with the provisions of the Contract.
4. The Employer hereby covenants to pay the Contractor, in consideration of the execution and completion of the Works as per provisions of the Contract, 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 on the day, month and year first before written in accordance with their respective laws.

Signature of the Contactor Signature of Employer

(Seal) (Seal)

Signed, Sealed and Delivered in the presence of:

Witness Witness

(Name, Title and Address) (Name, Title and Address)



DAAB Agreement

[All italicised text and any text within square brackets (except sub-clause headings) in this form of agreement is for use in preparing the form and should be deleted from the final product].

Name and details of the Contract TENDER FOR FACADE FACELIFT & RESTORATION WORK OF PNSC BUILDING

This Agreement made the _____ day of _____ [month], _____ [year], between

Name and contact details of the Employer **Pakistan National Shipping Corporation (Maintenance & Project / Technical Department), MANAGER**

**Maintenance & Project/Technical Department, 12 Floor, PNSC Building, M.T Khan Road, Karachi
+92-331-370-4992**

muhammad.hassan@pns.com.pk

Name and contact details of the Contractor _____ (name)

_____ (address)

_____ (telephone)

_____ (email / other contact details);

Name and contact details of the DAAB Member _____ (name)

_____ (address)

_____ (telephone)

_____ (email / other contact details);

("DAAB Agreement")

Whereas:

A. the Employer and the Contractor have entered (or intend to enter) into the Contract;

B. under the Contract, the "DAAB" or "Dispute Avoidance/Adjudication Board" means the sole member or three members (as stated in the Contract Data of the Contract) so named in the Contract, or appointed under Sub-Clause 21.1 [Constitution of the DAAB] or Sub-Clause 21.2 [Failure to Appoint DAAB Members] of the Conditions of Contract;

C. the Employer and the Contractor desire jointly to appoint the above-named DAAB Member to act on the DAAB as:

a. the sole member of the DAAB, and where this is the case, all references to the "Other Members" do not apply; or

b. one of three members / chairman [delete the one which is not applicable] of the DAAB and, where this is the case, the other two persons are:

_____ (name) _____ (name)

_____ (address) _____ (address)

_____ (telephone) _____ (telephone)

_____ (email/ other contact details) _____ (email/other contact details)

the “**Other Members**”; and

D. the DAAB Member accepts this appointment.

The Employer, Contractor and DAAB Member jointly agree as follows:

1. The conditions of this DAAB Agreement comprise:

(a) Clause 21 [Disputes and Arbitration] of the Conditions of Contract, and any other provisions of the Contract that are applicable to the DAAB’s Activities; and

(b) the “General Conditions of Dispute Avoidance/Adjudication Agreement”, which is appended to the General Conditions of the “Conditions of Contract for Construction” Second Edition 2017 published by FIDIC (“GCs”), as amended and/or added to by the following provisions.

2. [Details of amendments to the GCs, if any. For example:

In the procedural rules annexed to the GCs, Rule _ is deleted and replaced by: “ ... “]

3. The DAAB Member shall be paid in accordance with Clause 9 of the GCs. The currency of payment shall be _____.

In respect of Sub-Clauses 9.1 and 9.2 of the GCs, the amounts of the DAAB Member’s monthly fee and daily fee shall be:

monthly fee _____ per month, and

daily fee of _____ per day

(or as otherwise set under Sub-Clause 9.3 of the GCs).

4. In consideration of the above fees, and other payments to be made to the DAAB Member in accordance with the GCs, the DAAB Member undertakes to act as DAAB Member in accordance with the terms of this DAAB Agreement.

5. The Employer and the Contractor shall be jointly and severally liable for the DAAB Member’s fees and other payments to be made to the DAAB Member in accordance with the GCs.

6. This DAAB Agreement shall be governed by the law of _____ (if not stated, the law that governs the Contract under Sub-Clause 1.4 of the Conditions of Contract).

SIGNED by: _____ SIGNED by: _____ SIGNED by: _____

Print name: _____ Print name: _____ DAAB Member

Title: _____ Title: _____ Title: _____

for and on behalf of the

Employer for and on behalf of the

Contractor

in the presence of in the presence of in the presence of

Witness: _____ Witness: _____ Witness: _____

Name: _____ Name: _____ Name: _____

Address: _____ Address: _____ Address: _____

Date: _____ Date: _____ Date: _____

EPADS

FORM OF MOBILIZATION ADVANCE GUARANTEE/ BOND

Guarantee No. _____ Date _____

WHEREAS _____ (hereinafter called the 'Employer')

has entered into a Contract for _____

(Particulars of Contract)

with _____ (hereinafter called the "Contractor").

AND WHEREAS, the Employer has agreed to advance to the Contractor, at the Contractor's request, an amount of Pak Rupees _____ (PKR _____) which amount shall be advanced to the Contractor as per provisions of the Contract.

AND WHEREAS, the Employer has asked the Contractor to furnish Guarantee to secure the mobilization advance for the performance of his obligations under the said Contract.

AND WHEREAS, _____

(hereinafter called the "Guarantor") at the request of the Contractor and in consideration of the Employer 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 Employer for payment not exceeding the aforementioned amount.

Notice in writing of any default, on the part of the Contractor, of which the Employer at his discretion of making decision, shall be given by the Employer 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 remain in force until the advance is fully adjusted against payments from the Interim Payment Certificates of the Contractor or until _____ whichever is earlier.

(Date)

The Guarantor's liability under this Guarantee shall not in any case exceed the sum of PKR _____ (Pak Rupees _____).

This Guarantee shall remain valid up to the aforesaid date and shall be null and void after the aforesaid date or earlier if the advance made to the Contractor is fully adjusted against payments from Interim Payment Certificates of the Contractor provided that the Guarantor

agrees that the aforesaid period of validity shall be deemed to be extended if on the above mentioned date the advance payment is not fully adjusted.

Guarantor
(Scheduled Bank/ Insurance Company)

Signature _____

Name _____

Title _____

WITNESS:

1. _____

Corporate Secretary (Seal) Corporate Guarantor (Seal)
2. _____

Name, Title & Address



Retention Money Security Demand Guarantee

_____ [Guarantor letterhead or SWIFT identifier code]

Beneficiary: _____ [Insert name and Address of Employer]

Date: _____ [Insert date of issue]

RETENTION MONEY GUARANTEE No.: [Insert guarantee reference number]

Guarantor: [Insert name and address of place of issue, unless indicated in the letterhead]

We have been informed that _____ [insert name of Contractor, which in the case of a joint venture shall be the name of the joint venture] (hereinafter called "the Contractor") has entered into Contract No. _____ [insert reference number of the contract] dated _____ with the Employer, for the execution of _____ [insert name of contract and brief description of Works] (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, the Employer retains moneys up to the limit set forth in the Contract ("the Retention Money"), and that when the Taking-Over Certificate has been issued under the Contract and the first half of the Retention Money has been certified for payment, payment of [insert the second half of the Retention Money or if the amount guaranteed under the Performance Guarantee when the Taking-Over Certificate is issued is less than half of the Retention Money, the difference between half of the Retention Money and the amount guaranteed under the Performance Security and, if required, the ES Performance Security] is to be made against a Retention Money guarantee.

At the request of the Applicant, we, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ [insert amount in figures] () [amount in words] upon receipt by us of the Employer's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract, without your needing to prove or show grounds for your demand or the sum specified therein.

A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Employer's bank stating that the second half of the Retention Money as referred to above has been credited to the contractor on its account number _____ at _____ [insert name and address of Contractor's bank].

This guarantee shall expire no later than the day of, 2..., and any demand for payment under it must be received by us at the office indicated above on or before that date.

[signature(s)]

Note: *All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.*



Integrity Pact

Integrity Pact

DECLARATION OF FEES, COMMISSION AND BROKERAGE ETC. PAYABLE BY THE SUPPLIERS OF GOODS, SERVICES & WORKS IN CONTRACTS WORTH RS.10.00 MILLION OR MORE

Contract

Number: Contract

Value: Contract Title:

Dated:

[Name of Supplier] 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 Pakistan or any administrative subdivision or agency thereof or any other entity owned or controlled by it (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, fee 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 consultations 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, representative or warranty.

[Name of Supplier] accepts full responsibility and strict liability for making and false declaration, not making full disclosure, misrepresenting fact 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 right 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 times 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 Employer:

Signature:

[Seal]

Name of Bidder/Contractor:

Signature:

[Seal]



Performance Guarantee Form

FORM OF PERFORMANCE SECURITY

Guarantee No. _____

Executed on _____

Expiry date _____

Name _____ of _____ Guarantor _____ with _____ address: _____

Name _____ of _____ Principal _____ (Contractor) _____ with
address: _____

Penal Sum of Security (express in words and figures) _____

Letter of Acceptance No. _____ Dated _____

KNOW ALL MEN BY THESE PRESENTS, that in pursuance of the terms of the Bidding Documents and above said Letter of Acceptance (hereinafter called the Documents) and at the request of the said Principal we, the Guarantor above named, are held and firmly bound unto the **Pakistan National Shipping Corporation (Maintenance & Project / Technical Department), MANAGER Maintenance & Project/Technical Department, 12 Floor, PNSC Building, M.T Khan Road, Karachi** (hereinafter called the Employer) in the penal sum of the amount stated above for the payment of which sum well and truly to be made to the said Employer, 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 accepted the Employer's above said Letter of Acceptance for _____

(Name of Contract) for the **TENDER FOR FACADE FACELIFT & RESTORATION WORK OF PNSC BUILDING (P106762)**

_____ (Name of Project).

NOW THEREFORE, if the Principal (Contractor) shall well and truly perform and fulfill all the undertakings, covenants, terms and conditions of the said Documents during the original terms of the said Documents and any extensions thereof that may be granted by the Employer, with or without notice to the Guarantor, which notice is, hereby, waived and shall also well and truly perform and fulfill all the undertakings, covenants terms and conditions of the Contract and of any and all modifications of said Documents that may hereafter be made, notice of which modifications to the Guarantor being hereby waived, then, this obligation to be void; otherwise to remain in full force and virtue till all requirements of Clause 11, Defects After Taking Over, of Conditions of Contract are fulfilled.

Our total liability under this Guarantee is limited to the sum stated above and it is a condition of any liability attaching to us under this Guarantee that the claim for payment in writing shall be received by us within the validity period of this Guarantee, failing which we shall be discharged of our liability, if any, under this Guarantee.

We, _____ (the Guarantor), waiving all objections and defense under the Contract, do hereby irrevocably and independently guarantee to pay to the Employer without delay upon the Employer's first written demand without cavil or arguments and without requiring the

Employer to prove or to show grounds or reasons for such demand any sum or sums up to the amount stated above, against the Employer's written declaration that the Principal has refused or failed to perform the obligations under the Contract which payment will be effected by the Guarantor to Employer's designated Bank & Account Number.

PROVIDED ALSO THAT the Employer shall decide, whether the Principal (Contractor) has duly performed his obligations under the Contract or has defaulted in fulfilling said obligations and the Guarantor shall pay without objection any sum or sums up to the amount stated above upon first written demand from the Employer forthwith and without any reference to the Principal or any other person.

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

Guarantor

(Schedule Bank/ Insurance Company)

Signature: _____

Name: _____

Title: _____

Corporate Guarantor (Seal)

WITNESS:

1.

2.

Name, Title & Address



Annexure

Adjustment Data

SBD Document (Read-Only)

See Form Under Additional Forms and Documents: **Adjustment Data** (page number: 111)

Appendix B - Technical Specification

Information (Read-Only)

See Form Under Additional Forms and Documents: **Appendix B - Technical Specification** (page number: 114)

Appendix C - BOQ

Financial Submission (Vendor)

Document Required

See Form Under Additional Forms and Documents: **Appendix C - BOQ** (page number: 180)

Drawing 1

Information (Read-Only)

See Form Under Additional Forms and Documents: **Drawing 1** (page number: 183)

Drawing 2

Information (Read-Only)

See Form Under Additional Forms and Documents: **Drawing 2** (page number: 184)

Drawing 3

Information (Read-Only)

See Form Under Additional Forms and Documents: **Drawing 3** (page number: 185)

Drawing 4

Information (Read-Only)

See Form Under Additional Forms and Documents: **Drawing 4** (page number: 186)

Drawing 5

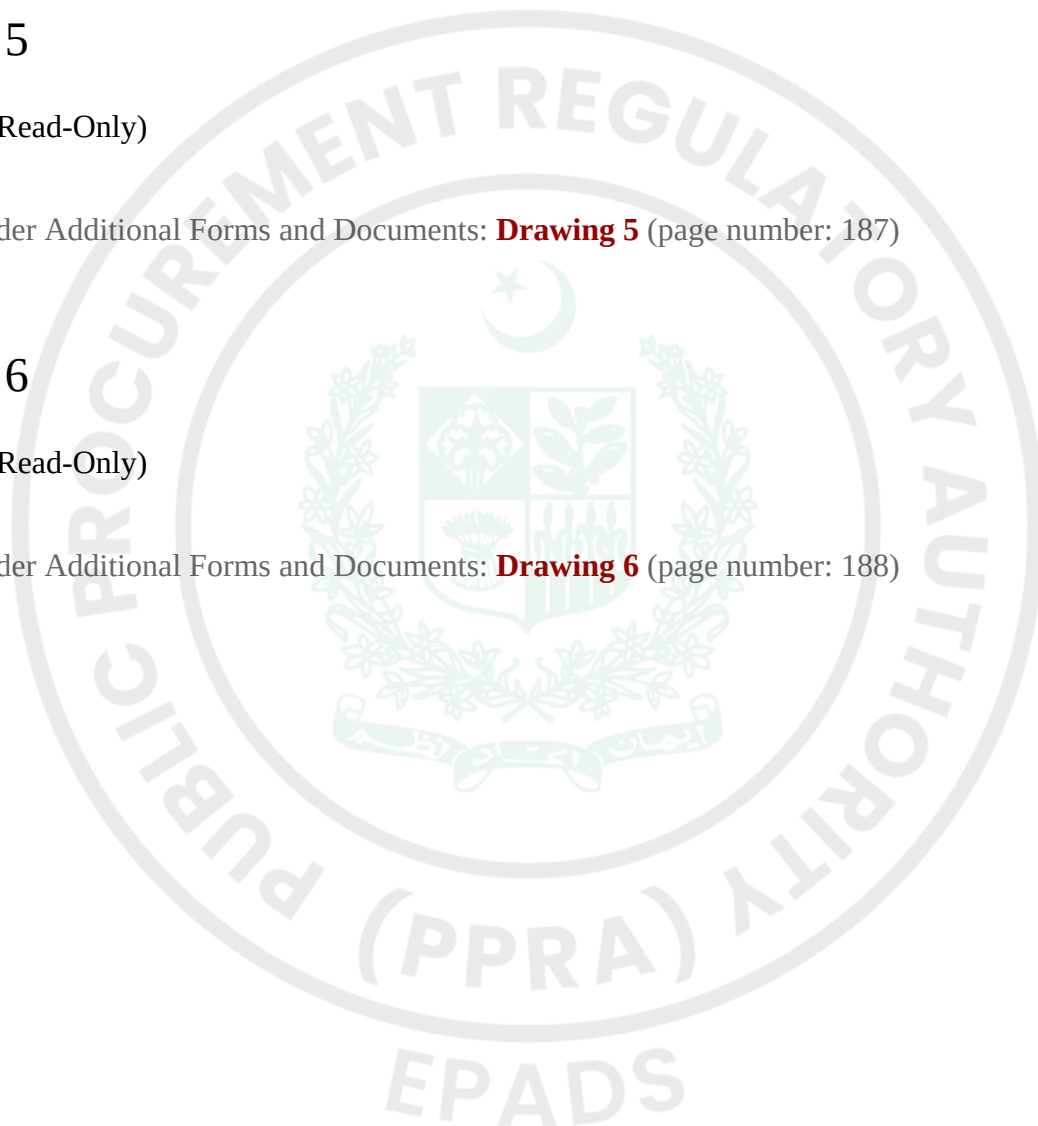
Information (Read-Only)

See Form Under Additional Forms and Documents: **Drawing 5** (page number: 187)

Drawing 6

Information (Read-Only)

See Form Under Additional Forms and Documents: **Drawing 6** (page number: 188)





Procurement Forms

Past Construction Experiences

See Form Under Additional Forms and Documents: **Past Construction Experiences** (page number: 189)

Contractor's Key Personnel Representative and Their Schedules

See Form Under Additional Forms and Documents: **Contractor's Key Personnel Representative and Their Schedules** (page number: 195)

Financial Resources

See Form Under Additional Forms and Documents: **Financial Resources** (page number: 199)

Past Experience and Completed Contracts

See Form Under Additional Forms and Documents: **Past Experience and Completed Contracts** (page number: 200)

Historical Contract Non-Performance, and Pending Litigation and Litigation History

See Form Under Additional Forms and Documents: **Historical Contract Non-Performance, and Pending Litigation and Litigation History** (page number: 201)

Current Contracts and Their Progress

See Form Under Additional Forms and Documents: **Current Contracts and Their Progress** (page number: 203)

Financial Capacity and Net Worth Evaluation Form

See Form Under Additional Forms and Documents: **Financial Capacity and Net Worth Evaluation Form** (page number: 204)

Average Annual Turnover

See Form Under Additional Forms and Documents: **Average Annual Turnover** (page number: 206)



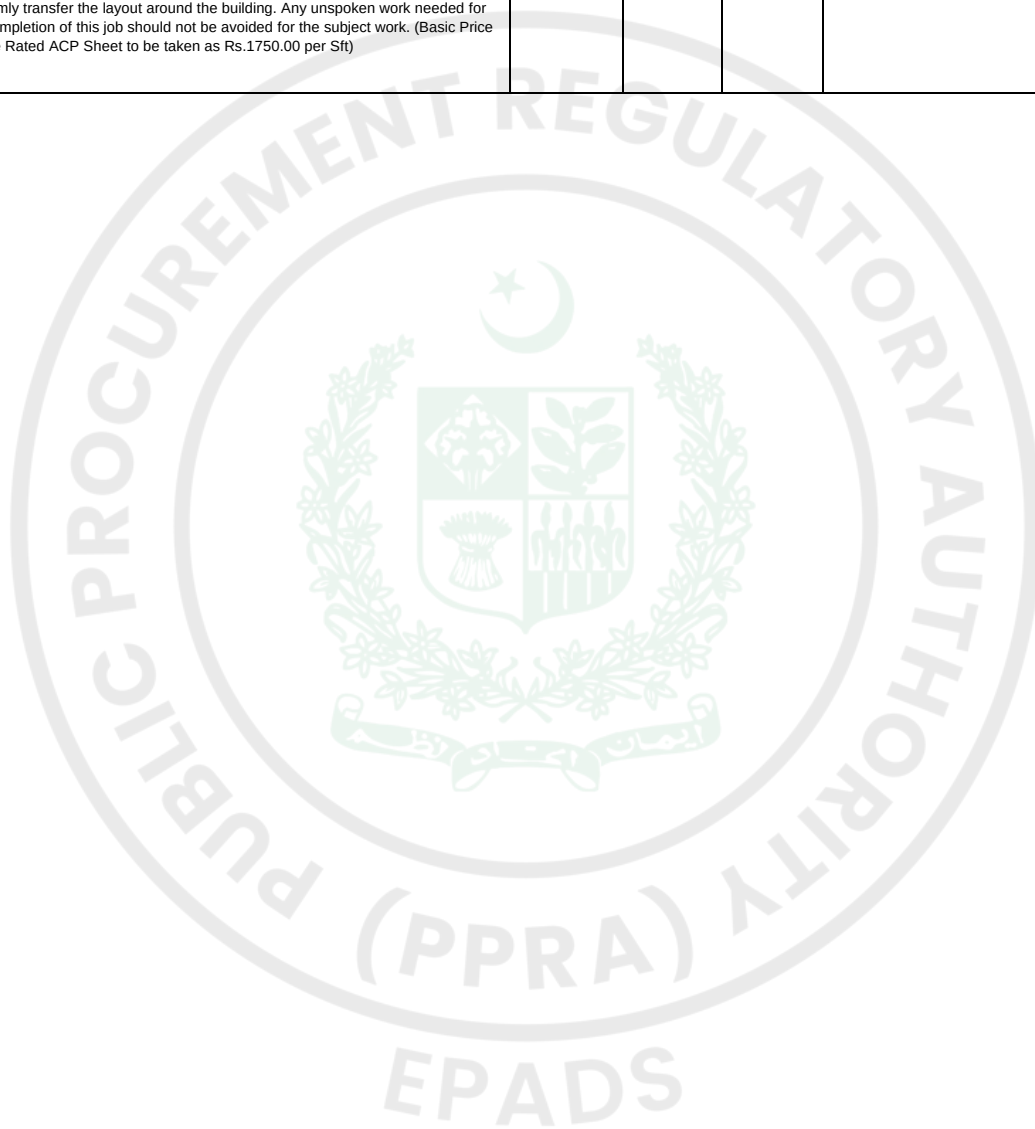


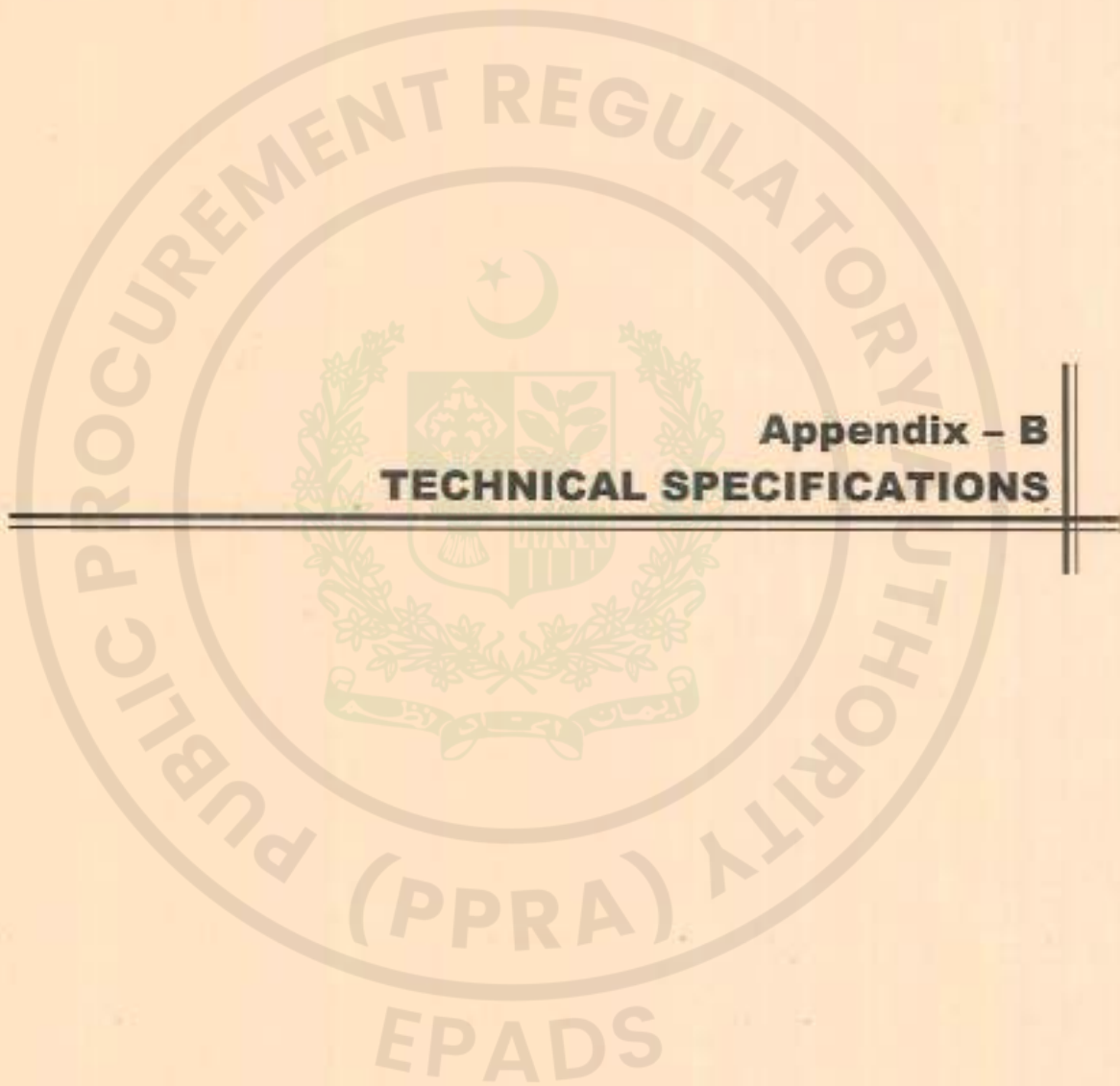
Additional Forms and Documents

Ref. No.	Description	Unit	Qty	Rate		Amount
PHASE-1 (1)	Erection of steel pipe folding all around the building in 30° offset double pipe braced with horizontal pipes from podium level to final roof level including platform slab panels for safe working of labor for removal of ACP cladding panels and other activities till end of project. (Approx 15000 Pipes 20ft long and 20000 pipes 6ft long & approx 80000 Joints)(for Minimum 24 Months Till end of Job) to entire satisfaction of Client and Consultant, complete in all respect. Beside erection of scaffolding for removal of precast RCC panels, contractor shall also prepare deck at working level & below the working level (Using 1000Nos 2ft X 4ft Steel Planks made of 3mm steel plate & 1.5" X1.5" /3mm Angle) for working platform & Supporting Shield any accidental mishandling of precast RCC panels, to avoid falling to ground. This deck shall be moved to upper levels as per progress of work, around the building. All these vertical Scaffolding pipes be rested on 1" thick two Nos wooden planks of strong wood and be started with load distributing pipe foot base plate of 6mm thickness with 12" X 12" size as shown in drawings for erection of scaffolding.	%Job	1	120,000,000	(Rupees One Hundred Twenty Million only)	120,000,000
PHASE-1 (2)	Providing Fixing Launching, erecting 200 ft Clear Boom length & 280ft High Tower Crane for lifting Precast RCC Panels and lowering to ground with minimum effective lifting capacity of 1.5 M.T for a period of 15 Months Complete in all respect including Driver and supervisors and support staff. With working hours as allowed by Client to start and end of work, to complete satisfaction of Client & Consultant.	%Months	18	4,000,000	(Rupees Seventy Two Million only)	72,000,000
PHASE-1 (3a)	Contractor is required to Prepare Tower Crane Base in Basement Floor as per consultant supplied drawings and as additionally directed by engineers during the course of working, following items to be carried: Drill and grout 1-1/8" dia holes for anchoring of 1" dia steel dowels /J Bolts for the preparation of Tower Crane Base in existing Basement Raft Slab at designated location using specified grouting two components chemical complete in all respect.	%Nos.	1,024	3,000	(Rupees Three Million Seventy Two Thousand only)	3,072,000
PHASE-1 (3b)	Contractor is required to Prepare Tower Crane Base in Basement Floor as per consultant supplied drawings and as additionally directed by engineers during the course of working, following items to be carried: Supply 60 Grade Steel including cutting bending & binding with 20 Gauge Binding wire Raft Reinforcement as per design and drawings provided complete in all respect.	%MATIC TON (M.T)	5	375,000	(Rupees One Million Eight Hundred Seventy Five Thousand only)	1,875,000
PHASE-1 (3c)	Contractor is required to Prepare Tower Crane Base in Basement Floor as per consultant supplied drawings and as additionally directed by engineers during the course of working, following items to be carried: Supply and fix Tower Crane Base, 6000Psi Concrete as per drawings and specification.	%Cft	1,024	1,250	(Rupees One Million Two Hundred Eighty Thousand only)	1,280,000
PHASE-1 (4)	Fixing of Tower Crane Base Studs / J Bolts as per Design and as additionally directed by Crane Supplier. Studs to be supplied by the Crane Supplier.	%Nos.	16	12,875	(Rupees Two Hundred Six Thousand only)	206,000
PHASE-1 (5a)	Construction of Supporting Columns for the proposed cutting of Podium Slab: Supply 60 Grade Steel including cutting bending & binding with 20 Gauge Binding wire and fabrication as per design and drawings provided complete in all respect.	%MATIC TON (M.T)	1	375,000	(Rupees Three Hundred Seventy Five Thousand only)	375,000
PHASE-1 (5b)	Construction of Supporting Columns for the proposed cutting of Podium Slab: Supply and fill compact, 6000Psi Concrete in Supporting Podium Columns including complete formwork as per drawings and specification.	%Cft	240	1,250	(Rupees Three Hundred Thousand only)	300,000
PHASE-2 (1)	Removal of ACP Panels without damaging the face, from all around the building, from all floors and staking of the removed panels safely as per client instruction, however contractor may submit his work method statement to the Client / Consultant to satisfy this way of working to speed up the work and bring the ACP sheet panels with minimum damage.	%Sft	140,000	28	(Rupees Three Million Nine Hundred Twenty Thousand only)	3,920,000
PHASE-2 (2)	Dismantling and removal of precast RCC panels with minimum distortion from first floor level to Sixteen floor level from all around the building, and chiseling cutting and detaching from corbel bracket, wrapping with special belts and chains for safe removal through tower crane. This job needs indepth understanding of working and contractor shall be required to submit his method statement for the safe removal of such precast RCC panels, that his team has gained the same method of working which has been approved by the Client and Consultant, for changing or deviating from the method submitted Contractor shall be required to submit a fresh method statement which will be mutually agreed and approved by Client & Consultant for the requested method.	%Nos.	1,536	12,000	(Rupees Eighteen Million Four Hundred Thirty Two Thousand only)	18,432,000
PHASE-2 (3)	Dismantling and removal of Roof top Cantilever RCC Slab from all four corners of the building, wrapping with special belts and chains for safe removal through tower crane. This job needs indepth understanding of working and contractor shall be required to submit his method statement for the safe removal of such RCC slabs, that his team has gained the same method of working which has been approved by the Client and Consultant, for changing or deviating from the method submitted Contractor shall be required to submit a fresh method statement which will be mutually agreed and approved by Client & Consultant for the requested method.	%Jobs	4	400,000	(Rupees One Million Six Hundred Thousand only)	1,600,000
PHASE-2 (4)	Dismantling and removal of RCC Podium Slab & Beams from from Ground level for erection of tower crane. This job needs indepth understanding of working and contractor shall be required to submit his method statement for the safe removal of such precast RCC panels, that his team has gained the same method of working which has been approved by the Client and Consultant, for changing or deviating from the method submitted Contractor shall be required to submit a fresh method statement which will be mutually agreed and approved by Client & Consultant for the requested method.	%Jobs	1	300,000	(Rupees Three Hundred Thousand only)	300,000
PHASE-2 (5)	Providing and fixing of GI Sheet for Existing Glass Window protection all around the building as protection shield to entire satisfaction of Client and Consultant progressively rising and maintaining on each floor as per progress of work.	%Sft	40,000	1,000	(Rupees Forty Million only)	40,000,000

PHASE-3 (1)	Restoration of Broken cantilever slab at floor level and at window lintel level using 1:2:2 concrete and steel reinforcement with smooth troweled finish surface, complete in all respect as per site requirement and as encountered at site, contractor shall be required to keep informed the client & consultant the physical condition of these cantilever slabs condition in description and by photo graphic manner for decisions from time to time, location to location & floor by Floor, complete in all respect to entire satisfaction of client & consultant.	%Sft	18,800	1,000	(Rupees Eighteen Million Eight Hundred Thousand only)	18,800,000
PHASE-3 (2)	Cutting & Restoration of Cantilever Slab, window sill slab on all floors for proposed new elevation with 1:2:2 Concrete and steel reinforcement with smooth troweled finish surface, complete in all respect as per site requirement and as encountered at site, contractor shall be required to keep informed the client & consultant the physical condition of these cantilever slabs condition in description and by photo graphic manner for decisions from time to time, location to location & floor by Floor, complete in all respect to entire satisfaction of client & consultant.	%Sft	6,600	1,000	Rupees Six Million Six Hundred Thousand only)	6,600,000
PHASE-3 (3)	Providing, Lifting, Placing Erecting 4"thick Block Masonry wherever required at any floor using 1:4 in mortar as per site requirement and as additionally directed by engineer. complete in all respect as per site requirement and as encountered at site specially from First floor to Fourth Floor, contractor shall be required to keep informed the client & consultant the physical condition of these Block Masonry existing condition in description and by photo graphic manner for decisions from time to time, location to location & floor by Floor, complete in all respect to entire satisfaction of client & consultant.	%Sft	15,200	500	Rupees Seven Million Six Hundred Thousand only)	7,600,000
PHASE-3 (4)	Plaster the Block Masonry from exterior face in 1:4 cement sand Mortar ratio at any floor and location as per site requirement and as additionally directed by engineer and cure for three days. complete in all respect as per site requirement and as encountered at site, contractor shall be required to keep informed the client & consultant the physical condition of the Block Masonary Plaster existing condition in description and by photo graphic manner for decisions from time to time, location to location & floor by Floor, complete in all respect to entire satisfaction of client & consultant.	%Sft	15,200	200	(Rupees Three Million Forty Thousand only)	3,040,000
PHASE-3 (5a)	Paint Work and Water Proofing: Internal Paint	%Sft	15,200	200	(Rupees Three Million Forty Thousand only)	3,040,000
PHASE-3 (5b)	Paint Work and Water Proofing: External Paint	%Sft	24,000	400	(Rupees Nine Million Six Hundred Thousand only)	9,600,000
PHASE-3 (5c)	Paint Work and Water Proofing: Water Proofing by Grey Seal PU900 or Equivalent.	%Sft	19,200	250	(Rupees Four Million Eight Hundred Thousand only)	4,800,000
PHASE-3 (6a)	Reconstruction of Roof Cantilever Slab: Supply 60 Grade Steel including cutting bending & binding with 20 Gauge Binding wire and fabrication as per design and drawings provided complete in all respect.	%MATIC TON (M.T)	5	375,000	(Rupees One Million Eight Hundred Seventy Five Thousand only)	1,875,000
PHASE-3 (6b)	Reconstruction of Roof Cantilever Slab: Supply and fill compact, 6000Psi Concrete in roof top Cantilever Slab including complete formwork as per drawings and specification.	%Cft	800	2,250	(Rupees One Million Eight Hundred Thousand only)	1,800,000
PHASE-3 (7a)	Reconstruction of Podium Slab & Beams: Supply 60 Grade Steel including cutting bending & binding with 20 Gauge Binding wire and fabrication as per design and drawings provided complete in all respect. For construction of Podium Slab at the end of removal of Tower Crane and make good.	%MATIC TON (M.T)	4	375,000	(Rupees One Million Five Hundred Thousand only)	1,500,000
PHASE-3 (7b)	Reconstruction of Podium Slab & Beams: Supply, fill and compact, 6000Psi Concrete in Podium Slab and Beams including complete formwork as per drawings and specification.	%Cft	450	1,250	(Rupees Five Hundred Sixty Two Thousand Five Hundred only)	562,500
PHASE-3 (8)	Removal of RCC Raft constructed for support of Tower crane at the end of work, complete in all respect to entire satisfaction of client	%Job	1	450,000	(Rupees Four Hundred Fifty Thousand only)	450,000
PHASE-3 (9)	Restoration of Basement floor as its original condition as per client instruction complete in all respect.	%Job	1	100,000	(Rupees One Hundred Thousand only)	100,000
PHASE-3 (10)	Restoration of Podium Flooring in the end of work with matching Mossaic Tiles complete in all respect with grinding & polishing.	%Job	1	250,000	(Rupees Two Hundred Fifty Thousand only)	250,000
PHASE-4 (1)	Architectural Work Facade Treatment: Providing and fixing of Anchor Bolts in column and Cantilever Slabs for holding of facade Panel supports as per design and details provided at all levels and floor around the entire building, complete in all respect as per site requirement and as encountered at site. (Approx 10,000)	%Nos.	10,000	1,200	(Rupees Twelve Million only)	12,000,000
PHASE-4 (2)	Providing and fixing of SS square pipe 50mm X50mm by 1.5mm Thick Horizontal support for new designed facade panels as per design & detail provided. Also provide Marine Epoxy Protective Coating over SS Channels & Sections approved by consultant	%Rft	27,500	1,800	(Rupees Forty Nine Million Five Hundred Thousand only)	49,500,000
PHASE-4 (3)	Providing and fixing jointing vertical profile of SS square pipe 50mm X 50mm by 1.5mm thickness for holding of proposed panels as per design and detail provided. Also provide Marine Epoxy Protective Coating over SS Channels & Sections approved by consultant	%Rft	27,500	1,800	(Rupees Forty Nine Million Five Hundred Thousand only)	49,500,000

PHASE-4 (4)	Installation of fire retardant A2 aluminum composite cladding Panels in given size, color and design with sizes cut to meet the Architectural Panels Beauty as shown on drawings and cutting the crners and bend as per site requirements, 4mm total thickness and 0.5mm sheets both sides at a fixed basic price of Rs. 1750 per sft (to be included in the quoted rate and deducted in building). The installation to include fabrication, cutting, bending, folding and grooving etc., over rigidly fixing sub-framing of heavy duty aluminum/SS profiles with stainless steel screw/anchors. "No. M.S component will be used" on to the already cement plastered building facade including all necessary trims, copings, skills, corner units, clips, flashings, fillers rivets, bolts/nuts, tapping screws, water proofing silicone sealants SILANDE/MF 889 Imported china or equivalent in grooves to completely seal the installation and complete the cladding works as per drawing and the satisfaction of the Architect/Engineer. Price to include the cost of working at any height complying with all HSE measures and mock ups. Prior to final installation a complete mock up of approx. 10 sq. meters is to be installed and approved by the Consultant. Exprienced Skilled workers & Staff shall be needed to be engaged for this work to uniformly transfer the layout around the building. Any unspoken work needed for the completion of this job should not be avoided for the subject work. (Basic Price of Fire Rated ACP Sheet to be taken as Rs.1750.00 per Sft)	%Sft	154,594.59	2,775	(Rupees Four Hundred Twenty-Nine Million only)	429,000,000
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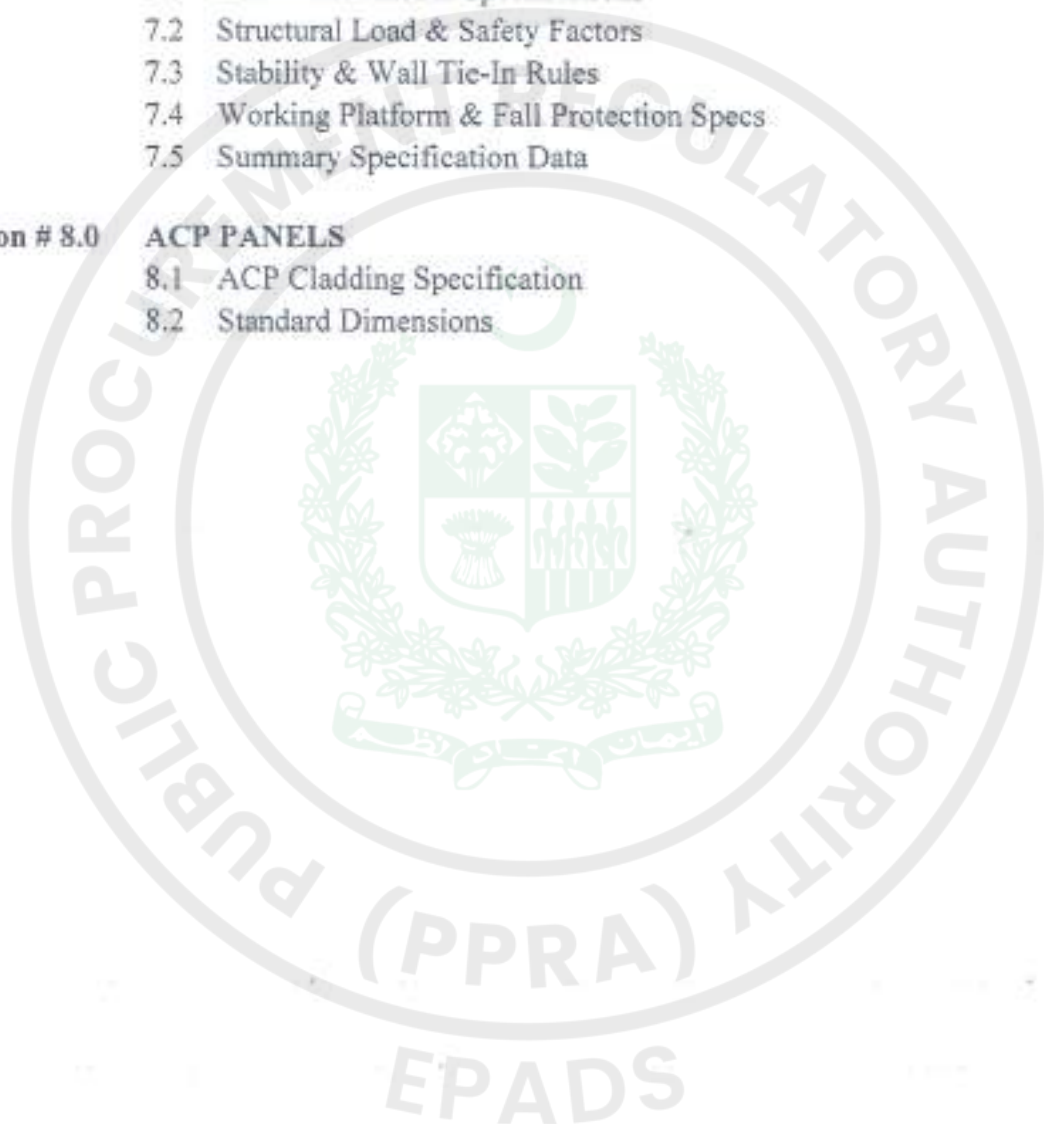
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SECTION # 1.0 GENERAL

- 1.1 This General Specification is to be taken as applying to all the works in this Contract unless otherwise specifically mentioned elsewhere. Figured dimensions on the working drawings shall be followed in preference to the scale.
- 1.2 Until and unless specified otherwise, all goods and materials are to be Pakistan manufactured and to be of the best quality new and un-used and where not otherwise specified shall be according to latest engineering practice and conforming to Pakistan Standards (PS) or British Standard Specifications (BSS) or Standard of American Society of Testing Materials (ASTM). The Engineer or the Consultants may also supplement such specifications during the progress of work based on standard International Practice.
- 1.3 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's Representative for which the Contractor shall 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.
- 1.4 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, especially of pipes, fittings, valves, meters, cement, source of sand, aggregates, steel, and all fittings to be embedded. Whenever required samples shall be submitted at least three weeks before it is proposed to use the materials. Until and unless specified otherwise, whenever materials are ordered to be forwarded to a testing laboratory approved by the Engineer for checking / testing, the Contractor will bear the cost of fees for such tests. The Contractor shall indicate the name and address of factory from where he intends to get pipes manufactured and submits manufacturer's catalogues for valves, fittings, and water meters with his tender.
- 1.5 The Contractor must take all steps necessary to prevent damage or interference with all services such as road, 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 Employer. The Contractor shall be responsible for any damage caused to such services or constructions and settle and make payment for all claims in respect of such damage.

- 1.6 The Contractor shall protect from damage or injury by covering all work, internally and externally needing protection including new concrete, brickwork, surface renderings, floors, etc., to the satisfaction of the Engineer.
- 1.7 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 standard construction practices preferably the British Codes of Practices.
- 1.8 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.
- 1.9 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 within seven days. The Contractor shall provide and maintain at his own expense, during the performance of the work, an office in the vicinity of work, where he or his authorized representative shall be present at all times. Orders or directions, written or oral, from the Engineer or his Representative delivered at such office shall be considered as delivered to the Contractor.
- 1.10 The Contractor shall construct near to his site office a suitable site office for Consultants and department staff. This office shall comprise of a room of size 5m x 4m with attached wash room and provided with suitable furniture. The Contractor shall provide maintenance service for Consultants office including lighting and water for wash room and daily cleaning. The Contractor shall submit a detail drawing of office along with list of furniture and fitting in his tender.
- 1.11 **PAYMENT**
Contractor shall not be entitled to any separate or additional payment on account of these entire general requirements and any other arrangement or action unless otherwise provide in the BOQ Contractor has to undertake, under the direction of the Engineer, for a proper carrying out of the works and meeting all obligations of the Contract.

SECTION # 2.0 CONCRETE

2.1 Description

This work consists of furnishing placing, curing, finishing including transport of cement concrete made from approved type of Cement, water, fine and coarse aggregates all in accordance with the requirements in these specifications and conforming to the lines, grades, and typical sections shown on the Drawings or called for in the special Provisions and to the approval of the Engineer.

Classes of Concrete

The class of concrete recognized in these specifications shall be designated: A, B, C, D1, D2, D3, Y and Lean Concrete. The Class of concrete to be used shall be as called for on the Drawings or as directed by the Engineer or specified in the Special Provisions. The following requirements shall govern unless otherwise shown on the Drawings.

Class A1 Concrete shall be used everywhere, for non-reinforced and reinforced concrete structures, except as noted below or directed by the Engineer. Concrete placed under water shall be Class A2 with a minimum cement content of three hundred fifty (350) kg per cubic meter of concrete with a slump between ten (10) and fifteen (15) cm. Concrete placed for piles shall be class A3 with a minimum cement content of four hundred (400) Kg per cubic meter.

Class B Concrete shall be used only where specified.

Class C Concrete shall be used for cribbing, or as otherwise directed by the Engineer or specified in the Special Provisions or on the Drawings.

Class D1, D2 or D3, concrete shall be used for pre-stressed and post-tensioned elements, as indicated on drawings.

Class Y concrete shall be used as a filler in steel grid bridge floors, in thin reinforced sections, or as otherwise specified in the Special Provisions.

Lean Concrete shall be used in thin layers underneath footings and when called for on the Drawings or directed by the Engineer.

The concrete of the various classes shall satisfy the requirements shown in following table.

Portland Cement Concrete Requirements

Class of Concrete	Min. Cement Kg / Cubic Meter	Max. Size of Coarse Aggregate (mm)	28 days Compressive Strength (Min.) (Cylinder) (Kg/Sq. cm.)	Consistency Consistency (Range in Slump)	Maximum Permissible Water – Cement Ratio
				Vibrated (mm)	
A ₁	300	20	210	25-75	0.58
A ₂	350	25	245	100-150	0.58
A ₃	400	38	280	100-150	0.58
B	250	51	170	25-75	0.65
C	275	38	210	25-75	0.58
D ₁	450	25	350	50-100	0.40
D ₂	500	25	425	50-100	0.40
D ₃	550	25	500	50-100	0.40
Y	400	13	210	25-75	0.58
Lean Concrete	175	51	100	–	–

Types of Concrete Works**Under Ground Concrete**

Concrete poured below Natural Surface Level with or without shuttering and shoring.

On Ground Concrete

Concrete poured by erecting formwork with necessary bracings on ground.

Elevated Concrete

Concrete poured by erecting props, bracing and towers to support the formwork at higher levels.

2.2 Material Requirements**Portland Cement**

Cement remaining in bulk storage at the mill, prior to shipment, for more than six (6) months or cement stored in local storage by contractor for more than three (3) months after shipment from the factory may be retested before use and shall be rejected if it fails to meet any of the specification requirements.

Portland cement shall conform to the requirements of the Standard Specifications for Portland cement, AASHTO designation M85 (ASTM Designation C150). The type of the cement to be used, unless otherwise shown on the Drawing, shall be type I.

Sampling of cement shall be in accordance with AASHTO Designation T-127.

Mill certificates shall accompany delivery of the material to the work.

Cement shall be delivered in sufficient quantities to ensure that there is no suspension of the work of concreting at any time. Different brand or different types of cement from the same mill, or the same brand or type from different mills shall not be mixed or used alternately in the same item of construction unless authorized by the Engineer, after preparing new mix design.

Fine Aggregate

The fine aggregate shall consist of sand, stone screenings or other approved inert materials with similar characteristics, or a combination thereof, having clean, hard, strong, sound, durable, uncoated grains free from injurious amount of dust, lumps, soft or flaky particles, shale alkali, organic matter, material reactive with alkalis in the cement loam or other deleterious substances, and shall not contain more than three (3) percent of material passing the No.200 sieve by washing nor more than one percent of clay lumps or one (1) percent of shale. The use of beach sand is prohibited without the written consent of the Engineer.

For exposed work, the fine aggregate shall be free from any substance that will discolour the concrete surface.

The fine aggregate shall be uniformly graded and when tested in accordance with AASHTO Designation T-11 and T-27 shall meet the following grading requirements:

GRADING OF FINE AGGREGATES

Sieve Designation	Percentage Passing by Weight
3/8 inch	100
No. 4	95-100
No. 16	45-85
No. 50	10-30
No. 100	2-10
No. 200	0-3

In case if fine aggregates fail under Fineness Modulus or Gradation however material passing No. 4 in combined aggregate, qualifies for these requirements, then the material can be accepted.

Fine aggregates shall be of such quality that mortar specimens, prepared with standard Portland cement and tested in accordance with AASHTO Designation T-71, shall develop a compressive strength at 7 days of not less than 90 percent of the strength developed by a mortar prepared in the same manner with the same cement and graded sand having a fineness modulus of 2.3 to 3.1. Natural aggregates if required shall be thoroughly and uniformly washed before use. Sand equivalent (t-176) shall be 75 min.

For the purpose of determining the degree of uniformity, a fineness modulus determination shall be made upon representative samples submitted by the Contractor from such sources as he proposes to use. Fine aggregate from any one source having a variation in fineness modulus of greater than 0.20 either way from the fineness modulus of mix design samples submitted by the Contractor may be rejected till new trial mixes are prepared and tested by the contractor.

Testing of the aggregate is specified under the head of "Testing of Aggregates" given in this specification.

Coarse Aggregate

The coarse aggregate shall consist of crushed or broken stone, gravel or other approved inert materials with similar characteristics, or a combination thereof, having clean, hard, strong, sound, durable uncoated particles, free from injurious amount of soft, friable, thin elongated, or laminated pieces, alkali, organic or other deleterious matter and conforming to the requirements of these Specifications.

The coarse aggregate shall be of uniform grading with maximum sizes as required for the various classes of concrete as shown in table given below and when tested in accordance with AASHTO Designation T-11 & T-27 shall meet the following grading requirements.

GRADING OF COARSE AGGREGATES

Designated Sizes	Percentage by Weight Passing Laboratory Sieves Having Square Openings, in Inches							
	2 ½	2	1 ½	1	¾	½	¾	No. 4
½ - in. to No. 4	—	—	—	—	100	90-100	40-70	0-15*
¾ - in. to No. 4	—	—	—	100	90-100	—	20-55	0-10*
1 - in. to No. 4	—	—	100	95-100	—	25-60	—	0-10*
1½ - in. to No. 4	—	100	95-100	—	35-70	—	10-30	0-5
2 - in. to No. 4	100	95-100	—	35-70	—	10-30	—	0-5
1½ - in. ¾ - in.	—	100	90-100	20-55	0-15	—	0-5	—
2 - in. to 1 - in.	100	90-100	35-70	0-15	—	0-5	—	—

* Not more than five (5) percent shall pass No.8 sieve.

Coarse aggregate shall contain not more than one (1) percent by weight of material passing the No.200 sieve by washing and not more than five (5) percent of soft fragments.

It shall have an abrasion loss of not more than forty (40) percent at five hundred (500) revolutions, when tested in accordance with AASHTO T-96.

When tested in accordance with AASHTO T-104, for five cycles, the loss with the sodium sulphate soundness test shall be not more than 12 percent.

Natural aggregates shall be thoroughly washed before use. Testing of coarse aggregate is specified under the head of "Testing of Aggregates" given in this specification.

The aggregate shall be non-alkali / silica reactive where the concrete is to be poured under water or exposed to humid conditions. In case the Contractor proposes to use the aggregate having the alkaline / siliceous characteristics with the intention to use it with Blast Furnace Slag Cement, he will undertake to carry out the job without any extra cost and shall arrange to conduct the necessary tests as directed by the Engineer.



Combined Aggregate

The coarse and fine aggregate shall be combined in the proportions according to the approved trial mixes for each class of concrete.

Rubble or Cyclopean Concrete

Rubble or cyclopean concrete shall consist of tough, sound, and durable rock. The stone shall be free from coatings, seams, or flaws of any character. In general, the percentage of wear shall not exceed fifty (50) when tested in accordance with the Standard Method of Testing for Abrasion of Coarse Aggregate by the use of the "Los Angeles Machine", ASTM C535.

Storage of Cement and Aggregates

- a) All cement shall be stored, immediately upon arrival on the site of the work, in weather-proof building, which will protect the cement from dampness. The floor shall be raised from the ground. The buildings shall be placed in locations approved by the Engineer. Provisions for storage shall be ample, and the shipments of cement as received shall be separately stored in such a manner as to provide easy access for identification and inspection of each shipment. Storage buildings shall have capacity of a sufficient quantity of cement for at least thirty (30) days use. Bulk cement, if used, shall be transferred to elevated air tight and weather-proof bins. However, if approved, sacked cement on small jobs may be stored in the open, upon a raised platform provided that ample waterproof covering is ensured. Stored cement shall meet the test requirements at any time after storage when retest is ordered by the Engineer. At the time of use all cement shall be free flowing and free of lumps. Cement bags shall be weighed at random to check for variation.

Copies of cement records shall be furnished to the Engineer showing such detail as, the quantity used during the day run or at each part of the work. Cement held in storage for a period of over sixty (60) days, or cement which, for any reason the Engineer may suspect of being damaged, shall be subject to a retest before being used in the work.

- b) The handling and storing of concrete aggregates shall be such as to prevent segregation or the inclusion of foreign materials. The Engineer may require that aggregates be stored on separate platforms at satisfactory locations.

In order to secure greater uniformity of the concrete mix, the Engineer may require that the coarse aggregate be separated into two or more sizes. Different sizes of aggregate shall be stored in separate bins or in separate stock piles to prevent the material at the edges of the piles from becoming intermixed.

If aggregates are stored on the ground the bottom layer of aggregate shall not be disturbed or used without re-cleaning and as approved by the Engineer.

Water

The water for curing, for washing aggregates and for mixing shall be subject to the approval of the Engineer. It shall be free from oil and shall contain no more than one thousand (1,000) parts per million of chlorides nor more than one thousand three hundreds (1,300) parts per million of sulfates (SO_4). In no case shall the water contain an amount of impurities that will cause a change in the setting time of Portland cement of more than twenty five (25) percent nor a reduction in the compressive strength of mortar at fourteen (14) days of more than five (5) percent when compared to the result obtained with distilled water.

In non-reinforced concrete work, the water for curing, for washing aggregates, and for mixing shall be free from oil and shall not contain more than two thousands (2,000) parts per million of chlorides nor more than one thousand five hundreds (1,500) parts per million of sulfates as SO_4 .

In addition to the above requirements, water for curing concrete shall not contain any impurities in a sufficient amount to cause discolouration of the concrete or produce etching of the surface.

When required by the Engineer, the quality of the mixing water shall be determined by the Standard Method of Test for Quality of Water to be used in concrete, AASHTO Methods of Sampling and Testing, Designation: T 26.

Admixtures

Admixtures shall only be allowed to be used with permission from the Engineer. If air-entraining agents, water reducing agents, set retarders or strength accelerators are permitted to be used, they shall not be used in greater dosages than those recommended by the manufacturer, or permitted by the Engineer, and shall conform to the requirements for each of the agents specified by the manufacturer.

2.3 Construction Requirements

The manufacturing, transport, handling and placing of concrete shall conform with the requirements given hereinafter.

Unless otherwise specified, ordinary Portland cement shall be used for all types of concrete. For underground concrete work sulphate resisting cement shall be used.

Proportioning of Concrete

All concrete shall be proportioned by weighing, except as specified herein. The proportions by weight of cement, fine aggregates, coarse aggregates and water necessary to produce concrete of the required strength and consistency shall be approved by the Engineer. Such approval may be withdrawn at any time, and changes in the proportions may be required for the purpose of required workability, density, impermeability, durability and strength.

Based on the approved mix proportions, the Contractor shall prepare lists showing the number of kilograms of the various material to be used in the batch size adopted. The required consistency shall also be shown. Such lists are subject to approval by the Engineer, and shall be posted at the mixer. The amount of water in the mix is the total amount of free water, including the free water held by the aggregates.

No concrete shall be placed in the works until the results of the twenty eight (28) days test indicate that the design proportions are satisfactory as per requirements under "Testing of Compressive Strength". Adjustment of the proportions shall be subject to the following provisions:

- a) Adjustment for variation in workability – If it is found impossible to obtain concrete of the desired workability with the proportions originally approved, the Engineer shall make such changes as are necessary.
- b) Adjustment for new materials – No change in the source or character of the material shall be made without due notice to the Engineer and no new materials shall be used until the Engineer has accepted such materials and has approved new proportions based on trial mixes.

The Contractor's attention is drawn to the time required to prepare and test trial batches and the Contractor shall be responsible for production of trial batches at a sufficiently early date so that the progress of the work is not delayed.

Consistency

Concrete shall have a consistency such that it will be workable in the required position. It shall be of such a consistency that it will flow around reinforcement steel but individual particles of the coarse aggregate when isolated shall show a coating of mortar containing its proportionate amount of sand. The consistency of concrete shall be determined to be as dry as it is practicable to satisfy the requirements for transportation and placing of the concrete as described hereinafter.



Consistency of concrete shall be determined as specified in AASHTO T-119. The Consistency of concrete at the time of delivery shall be as shown in given table or as designated by the Engineer.

Mixing Concrete

a) Mixing General

The concrete shall be mixed only in the quantity required for immediate use. Concrete that has developed an initial set shall be rejected.

Concrete shall be thoroughly mixed in a mixer of an approved size and type that will ensure a uniform distribution of the materials throughout the mass.

All concrete shall be mixed in mechanically operated mixers. Mixing plant and equipment for transporting and placing concrete should be arranged with an ample auxiliary installation to provide a minimum supply of concrete in case of breakdown of machinery or in case the normal supply of concrete should be disrupted. The auxiliary supply of concrete shall be sufficient to complete the casting of a section up to a construction joint.

Equipment having components made of aluminium or magnesium alloys, which would have contacted with plastic concrete during mixing, transporting or pumping of Portland cement concrete, shall not be used.

Concrete mixers shall be equipped with adequate water storage and a device for accurately measuring and automatically controlling the quantity of water used.

Materials shall be measured by weighing, except as otherwise specified or where other methods are specifically authorized by the Engineer. The apparatus provided for weighing the aggregates and cement shall ensure accurate measurement of each ingredient.

The accuracy of all weighing devices except that for water shall be such that successive quantities can be measured to within one (1) percent of the desired value. Cement in standard packages (bags) approved by the Engineer need not be weighed. The water measuring device shall be accurate to plus or minus half percent $\pm 0.50\%$. All measuring devices shall be subject to the approval of the Engineer. Scales and measuring devices shall be tested at the expense of the Contractor as frequently as the Engineer may deem necessary to ensure their accuracy.

Weighing equipment shall be isolated so that vibration or movement of other operating equipment does not affect the accuracy of reading. When the entire

plant is running, the scale reading at cut-off shall not vary from the weight designated by the Engineer more than one (1) percent for cement, one and half (1-1/2) percent for any size of aggregate, or one (1) percent for the total aggregates in any batch.

Where volumetric measurements are authorized by the Engineer, the weight proportions shall be converted to equivalent volumetric proportions. In such cases, suitable allowances shall be made for variations in the moisture condition of the aggregates, including the bulking effect in the fine aggregates. Boxes or similar containers of the exact volume required shall be filled and struck off. Measurement by wheel barrow volumes will not be permitted.

b) Mixing at Site

Concrete mixers may be of the revolving drum or the revolving blade type and the mixing drum or blades shall be operated uniformly at the mixing speed recommended by the manufacturer. The pick-up and throw-over blades of mixer shall be restored or replaced when any part or sections is worn two and half (2.5) cms. or below than the original height of the manufacturer's design. Mixers and agitators, which have an accumulation of hard concrete or mortar, shall not be used.

When bulk cement is used and volume of the batch is one cubic meter or more, the scale and weigh hopper for Portland cement shall be separate and distinct from the aggregate hopper or hoppers. The discharge mechanism of bulk cement weigh hopper shall be interlocked against opening before the full amount of cement is in the hopper. The discharging mechanism shall also be interlocked against opening when the amount of cement in the hopper is underweight by more than one percent or overweight by more than three (3) percent of the amount specified.

When the aggregates contain more water than the quantity necessary to produce a saturated surface-dry condition, representative samples shall be taken and the moisture content determined for each kind of aggregate.

The temperature of mixed concrete, immediately before placing, shall be not more than thirty two (32) degree C. Aggregates and water shall be cooled as necessary to produce concrete within this temperatures limit. If ice is used to cool the concrete, discharge of the mixer will not be permitted until all ice is melted.

The batch shall be so charged into the mixer that some water will enter in advance of cement and aggregates. All water shall be in the drum by the end of the first quarter of the specified mixing time.

Cement shall be batched and charged into the mixer by means that will not result in loss due to the effect of wind, or in accumulation of cement on surfaces of

conveyors or hoppers, or in other conditions which reduce or vary the required quantity of cement in the concrete mixture.

The entire contents of a batch mixer shall be removed from the drum before materials for a succeeding batch are placed therein. The materials composing a batch except water shall be deposited simultaneously into the mixer.

All concrete shall be mixed for a period of not less than one and half (1-1/2) minutes after all materials, including water, are in the mixer. During the period of mixing, the mixer shall operate at the speed for which it has been designed.

Mixers shall be operated with an automatic timing device that can be locked by the Engineer. The time device and discharge mechanism shall be so interlocked that during normal operation no part of the batch will be discharged until the specified mixing time has elapsed. In case of failure of the timing device, the Contractor will be permitted to operate while it is being repaired, provided he furnishes an approved timepiece equipped with minute and second hands. If the timing device is not repaired within twenty four (24) hours, further use of the mixer will be prohibited until repairs are made.

The first batch of concrete material placed in the mixer shall contain cement, sand, and water in excess to the requirement of mix, to ensure that the drum does not extract mortar from the mix changing its design characteristics. When mixing is to stop for a period of one hour or more, the mixer shall be thoroughly cleaned.

c) Plant Mixing

At central mixing plant, batches shall be discharged from the weighing hopper into the mixer either directly by gravity or by an elevating container large enough to contain the batch. The plant shall be arranged to ensure that there is no loss of cement during transfer from weighing hopper to the mixer drum. The mixing time shall neither be less than fifty (50) second, nor more than ninety (90) seconds.

The plastisizer, accelerator or retarder or water reducing admixture, if required, shall be fed separately at the rate recommended by the manufacture, or as established by laboratory trials.

d) Transit Mixing

Truck mixers, unless otherwise authorized by the Engineer, shall be of the revolving drum type, watertight, and so constructed that the concrete can be mixed to ensure a uniform distribution of materials throughout the mass. All solid materials for the concrete shall be accurately measured and charged into the drum at the proportioning plant. The truck mixer shall be equipped with a device by



which the quantity of water added can be readily verified. The mixing water may be added directly to the batch, in case the concrete batch is poured within twenty five (25) minutes of adding water.

The maximum size of batch in truck mixers shall not exceed the maximum rated capacity of the mixer as stated by the manufacturer, and stamped in metal on the mixer. Truck mixing shall be continued for not less than fifty (50) revolutions after all ingredients, including water, are in the drum. The mixing speed shall not be less than six (6) rpm, nor more than ten (10) rpm.

Mixing shall begin within thirty (30) minutes after the cement has been added either to the water or aggregate, but when cement is charged into a mixer drum containing water or surface-wet aggregate and when the temperature is above thirty two (32) degree C, this limit shall be reduced to fifteen (15) minutes. The limitation in time between the introduction of the cement to the aggregate and the beginning of the mixing may be waived when, in the judgment of the Engineer, the aggregate is sufficiently free from moisture, so that there will be no harmful effects on the cement.

e) Partial Mixing at the Central Plant

When a truck mixer, or an agitator provided with adequate mixing blades, is used for transportation, the mixing time at the stationary plant mixer may be reduce to thirty (30) seconds and the mixing completed in a truck mixer / agitator. The mixing time in the truck mixer or agitator equipped with adequate mixing blades shall be as specified for truck mixing.

f) Stiff Concrete Mix

For mixing concrete of zero slump to be laid by pavers, gravity mixer shall not be used. Only force mixer of moving blades shall be allowed to ensure homogenous mix.

g) Hand Mixing

Hand mixing of materials shall not be allowed in any case.

Hauling and Delivery of Mixed Concrete

a) Hauling

Mixed concrete may be transported to the delivery point in truck agitators or truck mixers operating at the speed designated by the manufacturer, provided the consistency and workability of the mixed concrete upon discharge at the delivery point is suitable for adequate placement and consolidation in place.

Truck agitators shall be loaded not to exceed the manufacturer's rated capacity. They shall maintain the mixed concrete in a thoroughly mixed and uniform mass during hauling.

Bodies of non-agitating hauling equipment shall be so constructed that leakage of the concrete mix, or any part thereof, will not occur at any time, and they shall be self-cleaning during discharge.

For zero slump concrete to be laid by paver, concrete will be allowed to be hauled in open trucks. However concrete hauled in open-top vehicles shall be protected during hauling against rain, or exposure to the sun for more than twenty (20) minutes when the ambient temperature exceeds twenty five (25) degree C.

No additional water shall be incorporated into the concrete during hauling or after arrival at the delivery point.

The rate of discharge of mixed concrete from truck mixer agitators shall be controlled by the speed of rotation of the drum in the discharge direction with the discharge gate fully open.

When a truck mixer or agitator is used for transporting concrete to the delivery point, discharge shall be completed within one hour, or before two hundred fifty (250) revolutions of the drum or blades, whichever comes first, after the introduction of cement to the aggregates. Under conditions contributing to quick stiffening of the concrete, or when the temperature of the concrete is thirty (30) degree C or above, a time less than one hour will be required except when retarder is used in which case it shall be one (1) hour.

When non-agitating hauling equipment is used for transporting concrete to the delivery point, discharge shall be completed within one hour after the addition of the cement to the aggregates. Under conditions contributing to quick stiffening of the concrete, or when the temperature of the concrete is thirty (30) degree C or above, the time between the introduction of cement to the aggregates and discharge shall not exceed forty five (45) minutes.

b) Delivery

The organization supplying concrete shall have sufficient plant capacity and transportation vehicles to ensure continuous delivery at the rate required. The rate of the delivery of concrete during concreting operations shall be such as to provide for the proper handling, placing, and finishing of the concrete. The rate shall be such that the interval between batches shall not exceed twenty (20) minutes. The methods of delivering and handling the concrete shall be such as will



facilitate placing with the minimum re-handling and without damage to the structure of the concrete.

c) Retempering

The concrete shall be mixed only in such quantities as are required for immediate use and any concrete that has developed initial set shall not be used. Concrete that has partially hardened shall not be retempered or remixed.

Handling and Placing Concrete

a) General

In preparation for the placing of concrete all sawdust, chips and other construction debris and extraneous matter shall be removed from inside the formwork, and struts, stays and braces serving temporarily to hold the forms in correct shape and alignment, pending the placing of concrete at their locations, shall be removed when the concrete placing has reached an elevation rendering their services unnecessary. These temporary members shall be entirely removed from the forms and not buried in the concrete.

No concrete shall be used that does not reach its final position in the forms within the time stipulated above under Item "Hauling and Delivery of Mixed Concrete".

Concrete shall be placed so as to avoid segregation of the materials and the displacement of the reinforcement. The use of long troughs, chutes, and pipes for conveying concrete to the forms shall be permitted only on written authorization of the Engineer. In any case the Engineer will reject the use of equipment for concrete transportation that will allow segregation, loss of fines, or in any other way will have a deteriorating effect on the concrete quality.

Open troughs and chutes shall be of metal or metal lined; where steep slopes are required, the chutes shall be equipped with baffles or be in short lengths that reverse the direction of movement.

All chutes, troughs and pipes shall be kept clean and free from coatings of hardened concrete by thoroughly flushing with water after each run; water used for flushing shall be discharged clear off the structure.

When placing operations would involve dropping the concrete more than one and half (1-1/2) meters, it shall be conveyed through sheet metal or other approved pipes. As far as practicable, the pipe shall be kept buried in the newly placed concrete. After initial set of the concrete the forms shall not be jarred and no loading of any kind shall be placed on the ends of projecting reinforcement bars.

The concrete shall be placed as nearly as possible to its final position and the use of vibrators for extensive shifting of the mass of fresh concrete will not be permitted.

b) Pneumatic Placing

Pneumatic placing of concrete will be permitted only if authorized by the Engineer. The equipment shall be so arranged that no vibration will occur that might damage freshly placed concrete.

Where concrete is conveyed and placed by pneumatic means, the equipment shall be suitable in kind and adequate in capacity for the work. The machine shall be located as close as practicable to the work. The discharge lines shall be horizontal or inclined upwards from the machine.

At the conclusion of placing the concrete, the entire equipment shall be thoroughly cleaned.

c) Pumping

The placing of concrete by pumping will be permitted only if specified in the Special Provisions or if authorized by the Engineer. The equipment shall be so arranged that no vibration will occur that might damage freshly placed concrete.

Where concrete is conveyed and placed by mechanically applied pressure the equipment shall be suitable in kind and adequate in capacity for the work. The operation of the pump shall be such that a continuous stream of concrete without air pockets is obtained. When pumping is completed, the concrete remaining in the pipeline, if it is to be used, shall be ejected in such a manner that there will be no contamination of the concrete or separation of the ingredients. After this operation, the entire equipment shall be thoroughly cleaned.

d) Placing Concrete under Water

Concrete shall not be placed under water except where inevitable in which case approval must be sought from the Engineer and the work carried out under his immediate supervision. In this case the method of placing shall be as hereinafter specified.

Concrete deposited under water shall be class A concrete with a minimum cement content of three hundred fifty (350) Kg per cubic meter of concrete.

The slump of concrete shall be maintained between ten (10) and fifteen (15) cm. To prevent segregation, it shall be carefully placed in a compact mass, in its final position, by means of a tremie, a bottom-dump bucket, or other approved means, and it shall not be disturbed after being placed. Water must not be allowed to flow past the fresh concrete surface.

A tremie shall consist of a tube having a diameter of not less than 25 cm constructed in sections having flanged couplings fitted with gaskets with a hopper at the top. The tremie shall be supported so as to permit free movement of the discharge end over the entire top surface of the work and so as to permit rapid lowering when necessary to retard or stop the flow of concrete. The discharge end shall be closed at the start of work so as to prevent water entering the tube and shall be completely submerged in concrete at all times; the tremie tube shall be kept full to the bottom of the hopper. When a batch is dumped into the hopper, the flow of concrete shall be induced by slightly raising the discharge end, but always keeping it in the placed concrete. The flow shall be continuous until the work is completed.

When the concrete is placed with a bottom-dump bucket, the top of the bucket shall be open. The bottom doors shall open freely downward and outward when tripped. The bucket shall be completely filled and slowly lowered to avoid backwash. It shall not be dumped until it rests on the surface upon which the concrete is to be deposited and when discharged shall be withdrawn slowly until well above the concrete.

Dewatering may proceed when the concrete seal is sufficiently hard and strong. All laitance or other unsatisfactory material shall be removed from the exposed surface by scraping, chipping or other means, which will not injure the surface of the concrete.

e) Compaction

Concrete, during and immediately after placing shall be thoroughly compacted, except lean concrete under footings and concrete deposited under water. Concrete in walls, beams, columns, etc, shall be placed in horizontal layers not more than thirty (30) centimeters thick except as hereinafter provided. When less than a complete layer is placed in one operation, it shall be terminated in a vertical bulkhead. Each layer shall be placed and compacted before the preceding layer has taken initial set to prevent injury to the green concrete and avoid surfaces of separation between the layers. Each layer shall be compacted so as to avoid the formation of a construction joint with a preceding layer, which has not taken an initial set.

The compaction shall be done by mechanical vibration. The concrete shall be vibrated internally unless special authorization of other methods is given by the Engineer or is provided herein. Vibrators shall be of a type, design, and frequency approved by the Engineer. The intensity of vibration shall be such as visibly to affect a mass of concrete with a 3 cm slump over a radius of at least half a meter. The Contractor shall provide a sufficient number of vibrators to properly compact each batch immediately after it is placed in the forms. Vibrators shall be manipulated so as thoroughly work the concrete around the reinforcement and embedded fixtures and into the corners and angles of the forms and shall be applied at the point of placing and in the area of freshly placed concrete. The vibrators shall be inserted into and withdrawn from the concrete slowly. The vibration shall be of sufficient duration and intensity to compact the concrete thoroughly but shall not be continued at any one point to the extent that localized areas of grout are formed. Application of vibrators shall be at points uniformly spaced and not farther apart than twice the radius over which the vibration is visibly effective. Vibration shall not be applied directly to the reinforcement or to sections or layers of concrete that have hardened to the degree that the concrete ceases to be plastic under vibration. It shall not be used to make concrete flow in the forms over distances so great as to cause segregation and vibrators shall not be used to transport concrete neither in the forms nor in troughs or chutes.

Vibrations shall be supplemented by such external vibrator as is necessary to ensure smooth surfaces and dense concrete along form surfaces and in corners and locations impossible to reach with the normal vibrators.

Casting Sections and Construction Joints

a) General

The concrete in each integral part of a structure shall be placed continuously, and the Contractor will not be allowed to commence work on any such part unless sufficiently inspected and approved material for the concrete is at hand, and manpower and equipment are sufficient to complete the part without interruption in the placing of the concrete.

Construction joints shall be allowed only where specified on the plans or otherwise approved. If not detailed on the plans, or in the case of emergency, construction joints shall be placed as directed. Shear keys or inclined reinforcement shall be used where necessary to transmit shear or bond the two sections together. When shear keys or inclined reinforcement are not provided the concrete shall be roughened as directed. Joints in the concrete due to discontinuity of work shall be avoided as far as possible. Such joints, when necessary, shall be constructed to meet the approval of the Engineer.

When the placing of concrete is temporarily discontinued, the concrete after becoming firm enough to retain its shape, shall be cleaned of laitance and other objectionable material to a sufficient depth to expose sound concrete. Where a "feathered edge" might be produced at a construction joint, as in the sloped top surface of a wing wall, an inset formwork shall be used to produce an edge thickness of not less than 15 centimeters in the succeeding layer. Work shall not be discontinued within fifty (50) centimeters of the top of any face, unless provision has been made for a coping less than 50 centimeters thick, in which case, if permitted by the Engineer, the construction joint may be made at the underside of coping.

Immediately following the discontinuance of placing concrete all accumulations of mortar splashed upon the reinforcing steel and the surfaces of forms shall be removed. Dried mortar chips and dust shall not be puddle into the unset concrete. Care shall be exercised, during the cleaning of the reinforcing steel, not to injure or break the concrete steel bond near the surface of the concrete.

b) Slab Culverts

In general, the lean concrete below the foundation shall be placed and allowed to set before the reinforced concrete is started.

After the construction of masonry abutment walls, as specified in Special Provisions, the concrete bed plate and curtain walls shall be constructed monolithically. Construction joints in wing walls where unavoidable shall be horizontal and so located that no joint will be visible in the exposed face of the wing wall above the ground line.

c) Box Culverts

Vertical construction joints shall be at right angles to the axis of the culvert.

In general, the base slab or footings of box culverts shall be placed and allowed to set before the remainder of the culvert is constructed. In this case, suitable provision shall be made for bonding the sidewalls to the culvert base, preferably by means of raised longitudinal keys so constructed as to prevent, as far as possible, the percolation of water through the construction joint.

In the construction of box culverts one and quarter (1-1/4) meters or less in height, the sidewalls and top slab may be constructed as a monolithic unit. When this method of construction is used, necessary construction joints shall be vertical and at right angles to the axis of the culvert.

In the construction of box culverts more than one and quarter (1-1/4) meters in height the concrete in the walls shall be placed and allowed to set before the top slab is placed. In this case, appropriate keys shall be left in the sidewalls for anchoring the cover slab.

If possible, each wingwall shall be constructed as a monolithic unit. Construction joints, where unavoidable, shall be horizontal and so located that no joint will be visible in the exposed face of the wingwall above the ground line.

d) Girders, Slabs and Columns

For simple spans, concrete shall preferably be deposited by beginning at the center of the span and working from the center toward the ends. Concrete in girders shall be deposited uniformly for the full length of the girder and brought up evenly in horizontal layers. For continuous spans, where required by design considerations, the concrete placing sequence shall be shown on the plans or in the Special Provisions.

Concrete in girder haunches less than one (1) meter in height shall be placed at the same time as that in the girder stem, and the column or abutment tops shall be cut back to form seats for the haunches. Whenever any haunch or fillet has a vertical height of one (1) meter or more, the abutment or columns, the haunch, and the girder shall be placed in three successive stages; first, to lower side of haunch; second, to the lower side of the girder; and third to completion.

For haunched continuous girders, the girder stem (including haunch) shall be placed to the top of stem. Where the size of the pour is such that it cannot be made in one continuous operation, vertical construction joints shall preferably be located within the area of contraflexure.

Concrete in slab spans shall be placed in one continuous operation for each span unless otherwise provided. The floors and girders of through girder superstructures shall be placed in one continuous operation unless otherwise specified, in which case a special shear anchorage shall be provided to ensure monolithic action between girder and floor.

Concrete in T-beam or deck girder spans may be placed on one continuous operation or may be placed in two separate operations; each of which shall be continuous; first, to the top of the girder stems and second, to completion. In the latter case, the bond between stem and slab shall be provided by suitable shear keys or by artificially roughening the surface of the top of the girder stem. In general, suitable keys may be formed by the use of timber blocks approximately five (5) by ten (10) cm in cross-section and having a length of ten (10) cms less than the width of the girder stem. These key blocks shall be spaced along the girder stems as required, but the spacing shall be not greater than thirty (30)



center to center. The blocks shall be removed as soon as the concrete has set sufficient to retain its shape.

Concrete in box girders may be placed in two or three separate operations. In either case the bottom slab shall be placed first. Bond between the bottom slab and stem shall be positive and mechanical. If the webs are placed separately from the top slab, bond between the top slab and webs shall be secured in the same manner as for T-beams. Requirements for shear keys for T-beams shall also apply to box girders, except that keys need not be deeper than the depth to the top of bottom slab reinforcement.

Concrete in columns shall be placed in one continuous operation, unless otherwise directed. The concrete shall be allowed to set at least 24 hours before the caps are placed.

When friction collars are used to support cap forms, the concrete of columns shall have been poured at least seven (7) days earlier.

Unless otherwise permitted, no concrete shall be placed in the superstructure until the column forms have been stripped sufficiently to determine the character of the concrete in the columns. The load of the superstructure shall not be allowed to come upon the bents until the test cylinders representing the bents have obtained the minimum compressive strength but in no case in less than seven (7) days.

e) Construction Joints

Construction joints shall be made only where shown on the Drawings or called for in the pouring schedule, unless otherwise approved by the Engineer. If not detailed on the Drawings, construction joints, also in cases of emergency shall be placed to meet the approval of the Engineer. Shear keys or reinforcement shall be used, unless otherwise specified, to transmit shear or to bond the two sections together.

Before depositing new concrete on or against concrete, which has hardened, the forms shall be re-tightened. The surface of the hardened concrete shall be roughened as required by the Engineer, in a manner that will not leave loose particles of aggregate or damage concrete at the surface. It shall be thoroughly cleaned of foreign matter and laitance. When directed by the Engineer, the surface of the hardened concrete which will be in contact with new concrete shall be washed with water to ensure an excess of mortar at the juncture of the hardened and the newly deposited concrete, the cleaned and watered surfaces, including vertical and inclined surface, shall first be thoroughly covered with a coating of mortar of the same proportion of sand and cement as the class of concrete used

against which the new concrete shall be placed before the grout or mortar has attained its final set.

The placing of concrete shall be carried out continuously from joint to joint. The face edges of all joints, which are exposed, to view shall be carefully finished true to line and elevation.

f) Rubble or Cyclopean Concrete

Rubble or cyclopean concrete shall consist of Class B concrete containing large embedded stones. The stone for this class of work shall be placed carefully so as to avoid damage to the forms or to the partially set adjacent concrete. Stratified stone shall be placed upon its natural bed. Stone shall be washed and saturated with water before placing.

The total volume of the stone shall not be greater than one third of the total volume of the portion of the work in which it is placed. For walls of piers greater than sixty (60) cms in thickness, stone of such size that one man can handle it, shall be used. Each stone shall be surrounded by at least fifteen (15) cms of concrete and no stone shall be closer than thirty (30) cms to any top surface nor any closer than fifteen (15) cms to any coping. For walls or piers greater than one (1) meter in thickness, larger stone (50 Kg or more) may be used. Each stone shall be surrounded by at least thirty (30) cms of concrete, and no stone shall be closer than sixty (60) cms to any top surface nor closer than twenty (20) cms to any coping.

g) Concrete Exposed to Sea Water

Unless otherwise specifically provided, concrete for structures exposed to sea water shall be Class A. The clear distance from the face of the concrete to the nearest face of reinforcement steel shall be not less than 10 cms. The concrete shall be mixed for a period of not less than 2 minutes and the water content of the mixture shall be carefully controlled and regulated so as to produce concrete of maximum impermeability. The concrete shall be thoroughly compacted and air pockets shall be avoided. No construction joints shall be formed between levels of extreme low water and extreme high water as determined by the Engineer. Between these levels sea water shall not come in contact with the concrete for a period of not less than thirty (30) days. The original surface, as the concrete comes from the forms, shall be left undisturbed.

h) Concrete Exposed to Alkali Soils or Alkali Water

Where Concrete may be exposed to the action of alkaline water or soils, special care shall be taken to place it in accordance with specifications herein. Wherever



possible, placing shall be continuous until completion of the section or until the concrete is at least fifty (50) cms, above ground or water level. Alkaline water or soils shall not be in contact with the concrete during placement and for a period of at least seventy two (72) hours thereafter.

i) Protection of Concrete from Environmental Conditions

1. General

Precautions shall be taken as needed to protect concrete from damage due to weather or other environmental conditions during placing and curing operations.

Any concrete placed during hot weather or during cold weather shall be at the Contractor's risk and any damaged concrete shall be removed and replaced at the Contractor's expense.

ii) Rain Protection

Under conditions of rain, the placing of concrete shall not commence or shall be stopped unless adequate protection is provided to prevent damage to the surface mortar or damaging flow or wash of the concrete surface.

iii) Work in Hot Weather

The temperature of concrete shall not exceed thirty two (32) degree C at the time of laying, unless the Contractor incorporates in the mix a plasticizer, of a make and in proportion which he has shown by laboratory tests and full scale trial to be satisfactory, to eliminate detrimental effects of high temperature without introducing any other detrimental effect on quality.

The following may be used to keep the temperature of concrete below the above limitations:

- i) Chilling of concrete water by heat exchange coils or by addition of broken ice, provided that the water shall be free from ice at the time of entry into the mixer.
- ii) Cooling of coarse aggregate by watering, providing that the water content of the aggregate so cooled shall be uniform.
- iii) Reclaiming of aggregate from stock piles by the tunnel method to avoid using the surface layer of the stockpile with shade and wind protection of conveyor elevating to batching plant.

- iv) Night work provided that (i), (ii) and (iii) are proved inadequate or unsatisfactory in their results and providing also that the Engineer has no other reason for refusing permission for night work.

The Engineer shall have power to order the suspension of concrete production in case of not taking precautionary measures by the Contractor as mentioned above. Under no circumstances will the Contractor be entitled to receive any additional payment for complying with the requirements of this clause.

iv) Work in Cold Weather

Except by written approval of the Engineer, concreting operations shall not be continued when a descending air temperature in the shade and away from artificial heat falls below five (5) degree C, nor resumed until an ascending air temperature in the shade and away from artificial heat reaches two (2) degree C. In such case, the mixing water and / or aggregates shall be heated to not less than twenty one (21) degree C nor more than sixty six (66) degree C, prior to being placed in the mixer by an approved type of heating device so that the temperature of the concrete shall not be less than ten (10) degree C, nor more than twenty seven (27) degree C, at the time of placing. No materials containing frost shall be used. Cement or fine aggregates containing lumps or crusts of hardened materials shall not be used.

Concrete Surface Finishing / Rendering

a) General

Concrete surface finishes shall be classified as follows:

Bridge Deck Surface Finish
Sidewalk Surface Finish
Ordinary Surface Form Finish
Class 1 Surface Form Finish

The bridge deck surface finish shall be given to the surface of the bottom slabs of all box type underpass structures.

The requirements for sidewalk surface finish apply to the surface of the bottom slabs in box culverts, except that the acceptable variation from a three-meter straightedge shall be 10 mm, and brooming shall be omitted.

The ordinary surface form finish shall be the final finish applied to all surfaces after removal of forms, unless otherwise specified or called for on the drawings.

The Class 1 surface form finish shall be applied only where specified, or as required by the Engineer when the ordinary surface finish did not produce the required smooth, even surface of uniform texture and appearances.

b) Bridge Deck Surface Finish

A smooth riding surface of uniform texture, true to the required grade and cross-section, shall be obtained on all bridge roadway decks. The Contractor may use hand tools, or finishing machines or a combination of both, conforming to the requirements specified herein for finishing bridge roadway deck concrete.

Finishing of concrete placed in bridge decks shall consist essentially of compacting and striking off the surface of the concrete as placed and floating with longitudinal floats the surface so struck off.

The placing of concrete in bridge roadway decks will not be permitted until the Engineer is satisfied that the rate of producing concrete will be sufficient to complete the proposed placing and finishing operations within the schedule time, that experienced finishing machine operators and concrete finishers are employed to finish the deck, that fogging equipment and all necessary finishing tools and equipment are on hand at the site of the work and in satisfactory condition for use. Finishing machines shall be set up sufficiently in advance of use to permit inspection by the Engineer during the daylight hours before each pour.

The adjustment and operation of deck finishing machines shall be verified by moving the machine over the full length of the deck section to be placed and traversing the float completely across all end bulkheads before placement of concrete is begun.

Unless adequate lighting facilities are provided by the Contractor, the placing of concrete in bridge decks shall cease at such time that finishing operations can be completed during daylight hours.

Rails for the support and operation of finishing machines and headers for hand-operated strike-off devices shall be completely in place and firmly secured for the scheduled length for concrete placement before placing of concrete. Rails for finishing machines shall extend beyond both ends of the scheduled length for concrete placement to a sufficient distance that will permit the float of the finishing machine to fully clear the concrete to be placed. Rails or headers shall be adjustable for elevation and shall be set to elevations, with allowance for anticipated settlement, camber, and deflection of false work, as required to obtain a bridge roadway deck true to the required grade and cross-section. Rails or headers shall be of a type and shall be so installed that no springing or deflection will occur under the weight of the finishing equipment and shall be so located that

finishing equipment may operate without interruption over the entire bridge roadway deck to be finished.

Rails or headers shall be adjusted as necessary to correct for unanticipated settlement or deflection, which may occur during finishing operations.

Should settlement or other unanticipated events occur, which in the opinion of the Engineer would prevent pouring of bridge deck conforming to the requirements of these specifications, placing of deck concrete shall be discontinued until corrective measures satisfactory to the Engineer are provided. In the event satisfactory measures are not provided prior to initial set of the concrete in the effected area, the placing of concrete shall be discontinued and a bulkhead installed at a location determined by the Engineer. All concrete in place beyond the bulkhead shall be removed.

Unless otherwise permitted by the Engineer, bridge deck concrete shall be placed in a uniform heading approximately parallel to the bridge pier or bent caps. The rate of placing concrete shall be limited to that which can be finished before the beginning of initial set except that concrete for the deck surface shall not be placed more than three (3) meters ahead of strike off.

After the concrete has been placed, compacted, and consolidated, the surface of the concrete shall be carefully struck off by means of a hand-operated strike board operating on headers, or by a finishing machine operating on rails. A uniform deck surface true to the required grade and cross-section shall be obtained.

Following strike off, the surface of the concrete shall be floated longitudinally. In the event strike-off is performed by means of a hand-operated strike board, two (2) separate hand-operated float boards for longitudinal floating shall be provided. The first float shall be placed in operation as soon as the condition of the concrete will permit and the second float shall be operated as far back of the first float as the workability of the concrete will permit.

In the event the strike off is performed with a finishing machine, longitudinal floating of the concrete shall be performed by means of a hand-operated float board or a finishing machine equipped with a longitudinal wooden float. The longitudinal wooden float on the finishing machine shall have a length of not less than two and half (2.5) meters nor more than three and half (3.5) meters. When both strike off and longitudinal floating are to be performed by finishing machines, one machine, with operator, shall be used for strike off and a second machine, with a second operator, shall be used for longitudinal floating. Longitudinal floating may be performed with the same finishing machine that is used for strike off provided that the length of deck unit being placed is not more

than 10 meters and the strike off operation is completed for said deck unit before the condition of the concrete requires that longitudinal floating be started.

Finishing machines used for strike off having a wheel base 1.8 meters or less shall be followed by 2 separate hand-operated float boards for longitudinal floating. All the provisions in this Item pertaining to hand-operated float boards shall apply to the 2 separate float boards for longitudinal floating.

Longitudinal floats, either hand-operated or machine-operated, shall be used with the long axis of the float parallel to the center line of the bridge roadway. The float shall be operated with a combined longitudinal and transverse motion planning off the high areas and floating the material removed into the low areas. Each pass of the float shall lap the previous pass by one-half the length of the float. Floating shall be continued until a smooth riding surface is obtained.

In advance of curing operations, the surface of the concrete shall be textured by brooming with a stiff bristled broom or by other suitable devices, which will result in uniform scouring. The operation shall be performed at a time and in a manner to produce a hardened surface having a uniform texture.

Hand-operated float boards shall be from three and half (3.5) to five (5) meters long, ribbed and trussed as necessary to provide a rigid float and shall be equipped with an adjustable handle at each end. The float shall be wood, not less than two and half (2.5) cms thick and from ten (10) cm to twenty (20) cm wide. Adjusting screws spaced as not to exceed 60 cms on centers shall be provided between the float and the rib. The float board shall be maintained free of twist and true at all times.

Hand-operated float boards shall be operated from transverse finishing bridges. The finishing bridges shall span completely the roadway area being floated & a sufficient number of finishing bridges shall be provided to permit operation of the floats without undue delay. Not less than two (2) transverse finishing bridges shall be provided when hand-operated float boards are used. When a finishing machine is used for longitudinal floating, one finishing bridge equivalent to the transverse finishing bridge specified herein shall be furnished for use by the Engineer.

All finishing bridges shall be of rigid construction and shall be free of excessive wobble and springing when used by the operators of longitudinal floats and shall be easily moved.

Immediately following completion of the deck finishing operations, the concrete in the deck shall be cured as specified in "Curing Concrete" hereinafter.

The finished surface of the concrete shall be tested by means of a straightedge three (3.0) meters long. The surface shall not vary more than three (3) mm from

the lower edge of the straightedge. All high areas in the hardened surface in excess of three (3) mm as indicated by testing shall be removed by abrasive means. After grinding by abrasive mean has been performed, the surface of the concrete shall not be smooth or polished. Ground areas shall not be of uniform texture and shall present neat and approximately rectangular patterns.

Where the concrete of the bridge deck is to be covered by bituminous surfacing, earth, or other cover, two and half 2.5 cms or more in thickness, the surface of the concrete shall not vary more than nine (9) mm from the lower edge of the three (3) meter straightedge.

Bridge deck surfaces under the curbs, railings and sidewalk shall be struck off to the same plane as the roadway and left undisturbed when future widening is shown on the plans.

c) Sidewalk Surface Finish

After the concrete has been placed it shall be compacted and the concrete shall be struck off by means of a strike board, floated with a wooden or cork floating and finished with a broom. An approved edging tool shall be used on all edges and at all expansion joints. Brooming shall be transverse to the line of traffic and if water is necessary, it shall be applied to the surface immediately in advance of brooming. The surface shall not vary more than six (6) mm under a three-meter straightedge, and the finished surface shall be free of blemishes.

d) Ordinary Surface Form Finish

Ordinary surface finish shall consist of filling holes or depressions in the surface of the concrete, repairing all rock pockets, removing stains and discolouration visible from traveled ways. Ordinary surface finish shall be applied to all concrete surfaces either as a final finish or preparatory to the Class 1 finish. On surfaces, which are to be buried underground or surface, which are enclosed, such as the cells of box girders; the removal of fins will not be required.

Except as provide herein, all form bolts and any metal placed for the convenience of the Contractor shall be removed to a depth of at least two and half (2.5) cms below the surface of the concrete. All rock pockets and other unsound concrete shall be removed. The resulting holes or depression shall be cleaned and filled with mortar. Form bolts projecting into the cells of box girders need not be removed unless permanent access is provided into the cells, in which case such bolts shall be removed flush with the surface of the concrete. Mortar used to fill bolt holes shall consist of one part cement and two parts sand. Other depressions and pockets shall be filled with either packed mortar or air blown mortar as

directed by the Engineer. Mortar shall be cured in conformance with the requirements in "Curing Structure" hereinafter.

If rock pockets or holes in the opinion of the Engineer, are of such an extent or character as to affect the strength of the structure materially or to endanger the life of the steel reinforcement, he may declare the concrete defective and require the removal and replacement of the portions of the structure affected.

e) Class 1 Surface Form Finish

Class 1 surface finish shall consist of finishing the surfaces of the structure as necessary to produce even surfaces of uniform texture and appearance, free of unsightly bulges, depressions and other imperfections. The degree of care in building forms and character of materials used in form work will be a contributing factor in the amount of additional finishing required to produce even surfaces of uniform texture and appearance, free of unsightly bulges, depressions and other imperfections, and the Engineer shall be the sole judge in this respect.

After completion of the ordinary surface finish, areas which do not exhibit the required smooth, even surface of uniform texture and appearance shall be sanded with power sanders or other approved abrasive means until smooth, even surfaces of uniform texture and appearance are obtained. The use of power carborundum stones or disks will be required to remove bulges and other imperfections.

Class 1 surface finish shall not be applied until a uniform appearance can be obtained.

Class 1 surface finish may be required to be applied as the final finish for the following surfaces, unless otherwise directed by the Engineer.

- i) All form finish surfaces of bridge super-structures, except the under surfaces between girders and the inside vertical surfaces of T girders.
- ii) All surfaces of bridge piers, columns and abutments, and retaining walls above finished ground and to at least three tenths (0.3) meter below finished ground.
- iii) All surfaces of open spandrel arch rings, spandrel columns and abutment walls.
- iv) All surfaces of pedestrian under crossings, except floors and surfaces to be covered with earth.
- v) Surface above finished ground of culvert headwalls, endwalls and retaining walls.



vi) Surface inside of culvert barrels having a height of one and half (1.5) meters or more for a distance inside the barrel at least equal to the height of the culvert.

vii) All surfaces of railings.

f) Surface Rendering

All faces of concrete which are to come in contact with back fill or pavement materials shall be applied two coats of hot bitumen of approved quality, before placing any material around concrete.

Curing Concrete

a) General

All newly placed concrete shall be cured in accordance with these specifications, unless otherwise directed by the Engineer.

b) Method of Curing

The curing method shall be one or more of the following as described hereinafter:

- Water Method
- Curing Compound Method
- Reinforced Waterproof Paper Method if required by the Engineer
- Forms-in-Place Method
- Steam Method
- Polyethylene Sheeting Method

Water Method

The concrete shall be kept continuously wet by the application of water for a minimum period of seven (7) days after the concrete has been placed.

Cotton mats, burlaps, rugs, carpets, or earth or sand blankets, may be used as a curing medium to retain the moisture, the entire surface of the concrete shall be kept damp by applying water with a nozzle that so atomizes the flow that a mist and not a spray is formed, until the surface of the concrete is covered with the curing medium. The moisture from the nozzle shall not be applied under pressure directly upon the concrete in a quantity sufficient to cause a flow or wash the surface. At the expiration of the curing period the concrete surface shall be cleared of all curing mediums.

When concrete bridge decks and flat slabs are to be cured without the use of a moisture retaining medium, the entire surface of the bridge deck or slab shall be kept damp by the application of water with an atomizing nozzle as specified in the preceding paragraph until the concrete has set, after which the entire surface of the concrete shall be sprinkled continuously with water for a period of not less than seven (7) days.

Curing Compound Method

Surfaces exposed to the air may be cured by the application of an impervious membrane if approved by the Engineer.

The membrane-forming compound used shall consist of a practically colourless liquid. The use of any membrane forming compound that will alter the natural colour of the concrete or impart a slippery surface to any wearing surface shall be prohibited. The compound shall be applied with a pressure spray in such a manner as to cover the entire concrete surface with a uniform film, and shall be of such character that it will harden within 30 minutes after application. The amount of compound applied shall be ample to seal the surface of the concrete thoroughly. Power operated spraying equipment shall be equipped with an operational pressure gauge and means of controlling the pressure.

The curing compound shall be applied to the concrete following the surface finishing operation immediately after the moisture sheen begins to disappear from the surface, but before any drying shrinkage or craze cracks begin to appear. In the event of any delay in the application of curing compound, which results in any drying or cracking of the surface, application of water with an atomizing nozzle as specified under "Water Method", shall be started immediately and shall be continued until application of the compound which shall not be applied over any free standing water surface. Should the film of compound be damaged from any cause before the expiration of seven (7) days after the concrete is placed in the case of structures, the damaged portion shall be repaired immediately with additional compound.

Curing compounds shall not hard settle in storage. They shall not be diluted or altered in any manner after manufacture. At the time of use, the compound shall be in a thoroughly mixed condition. If the compound has not been used within one hundred twenty (120) days after the date of manufacture, the Engineer may require additional testing before use to determine compliance to requirements.

An anti-settling agent or combination of anti-settling agents shall be incorporated in the curing compound to prevent caking.

The curing compound shall be packaged in clean barrels or steel containers or shall be supplied from a suitable storage tank located at the job-site. On-site storage tanks shall have a permanent system designed to completely re-disperse any settled material without introducing air or any other foreign substance. Containers shall be well sealed with ring seals and lug type crimp lids. The linings of the containers shall be of a character that will resist the solvent of the curing compound. Each container shall be labeled with the manufacturer's name, specification number, batch number, number of gallons, and date of manufacture, and shall have a label warning concerning flammability. The label shall also warn that the curing compound shall be well stirred before use. When the curing compound is shipped in tanks or tank trucks, a shipping invoice shall accompany each load. The invoice shall contain the same information as that required herein for container labels.

Curing compound may be sampled by the Engineer at the source of supply and at the job-site.

Reinforced Waterproof Paper Method

The exposed finished surfaces of concrete shall be sprayed with water, using a nozzle that so atomizes the flow that a mist and not a spray is formed, until the concrete has set, after which the waterproof paper shall be placed. The paper shall remain in place for a period of not less than 72 hours.

Reinforced waterproof paper shall comply with ASTM C 171 specifications. It shall be composed of two sheets of Kraft paper cemented together with a bituminous adhesive and reinforced with fibre. The waterproof paper shall be formed into sheets of such width as to provide a complete cover of entire concrete surface.

All joints in the sheets shall be securely cement together in such a manner as to provide a waterproof joint. The joint seams shall have minimum lap of ten (10) cm.

The sheets shall be securely weighted down by placing a bank of earth on the edges of the sheets or by other means satisfactory to the Engineer.

Should any portion of the sheets be broken or damaged within seventy two (72) hours after being placed, the broken or damaged portions shall be immediately repaired with new sheets properly cemented into place.

Sections of sheets, which have lost their waterproof qualities or have been damaged to such an extent as to render them unfit for curing the concrete shall not be used.

Forms-in-Place Method

Formed surfaces of concrete may be cured by retaining the forms-in-place. The forms shall remain in place for a minimum period of seven (7) days after the concrete has been placed, except that for members over five (5) cms in least dimension, the forms shall be in place for a minimum period of five (5) days. Wooden forms shall be kept wet by watering during the curing period.

Steam Method

After placing and vibrating, the concrete shall be allowed to attain its initial set before steam is applied. During the placing of concrete and application of steam, provision shall be made to prevent surface drying by means of a coating of approved material. The optimum curing temperature shall not exceed sixty five (65) degree C.

Polyethylene Sheeting Method

The wet surface of fresh concrete shall be covered with white polyethylene sheeting as soon as possible without marring the surface and should cover all exposed surfaces of the concrete. The edges of the sheeting shall be weighted securely with a continuous window of earth or any other means satisfactory to the Engineer to provide an air-tight cover. Adjoining sheets shall overlap not less than thirty (30) cms and the laps shall be securely weighted with earth, or any other means satisfactory to the Engineer to provide an air-tight cover.

c) Curing Structures

All newly placed concrete for cast-in-place structures, other than highway bridge decks, shall be cured by the water method, the forms-in-place method, or, as permitted herein, by the curing compound method, all in accordance with the requirements in "Methods of Curing" given above.

The curing compound method may be used on concrete surfaces which are to be buried underground, and surfaces where only Ordinary Surface Finish is to be applied and on which a uniform colour is not required and which will not be visible from any public traveled way.

The top surface of highway bridge decks shall be cured by both the curing compound method, and by the water method. The curing compound shall be applied progressively during the deck finishing operation immediately after finishing operations are completed on each individual portion of the deck. The water cure shall be applied not later than four (4) hours after completion of the deck finishing or, for portions of the decks on which finishing is completed after

normal working hours, the water cure be applied not later than 8.00 a.m. the following morning.

When deemed necessary by the Engineer during periods of hot weather, water shall be applied to concrete surfaces being cured by the curing compound method or by the forms-in-place method, until the Engineer determines that a cooling effect is no longer required.

d) Curing Precast Concrete Members

Precast concrete members shall be cured for not less than seven (7) days by the water method or by steam curing for a period in which 80% of strength achieved, at the option of the Contactor. Steam curing for precast members shall conform to the following provisions.

After placement of the concrete, members shall be held for a minimum four (4) hours precasting period.

To prevent moisture loss on exposed surfaces during the presteaming period, members shall be covered immediately after casting or the exposed surfaces shall be kept wet by fog spray or wet blankets.

Enclosures for steam curing shall allow free circulation of steam about the member and shall be constructed to contain the live steam with a minimum moisture loss. The use of the tarpaulins or similar flexible covers will be permitted, provided they are kept in good repair and secured in such a manner to prevent the loss of steam and moisture.

Steam at jets shall be low pressure and in a saturated condition. Steam at jets shall not impinge directly on the concrete, test cylinders, or forms. During application of the steam, the temperature rise within the enclosure shall not exceed twenty (20) degree C per hour. The curing temperature throughout the enclosure shall not exceed sixty five (65) degree C and shall be maintained at a constant level for a sufficient time necessary to develop the required compressive strength. Control cylinders shall be covered to prevent moisture loss and shall be placed in a location where temperature is representative of the average temperature of the enclosure.

Temperature recording devices that will provide an accurate continuous permanent record of the curing temperature shall be provided. A minimum of one temperature recording device per sixty (60) meters of continuous bed length will be required for checking temperature.

Curing of precast concrete will be considered completed after a termination of the steam curing cycle.

e) Curing Precast Concrete Piles

All newly placed concrete precast piles, both conventionally reinforced and prestressed shall be cured by the "Water Method" as described in under head of "Method of Curing" given above, except that the concrete shall be kept under moisture for at least fourteen (14) days. At the option of the Contractor steam curing may be used in which case the steam curing provisions in "Curing Precast Concrete Members" shall apply except that the concrete shall be kept wet for at least seven (7) days including the holding and steaming period.

Testing of Aggregates

Samples of fine and coarse aggregate to be used shall be selected by the Engineer. It shall be the responsibility of the Contractor to designate the source or sources of aggregate and to obtain the necessary samples and submit them for testing at least thirty (30) days before actual concreting operations are to begin.

Samples of aggregates shall be obtained and tested in accordance with the following standard AASHTO methods:-

i)	Sampling aggregates	T-2
ii)	Sieve analysis	T-27
iii)	Amount of material passing the No.200 sieve	T-11
iv)	Organic impurities	T-21
v)	Mortar Strength	T-71
vi)	Sodium sulphate soundness	T-104
vii)	Friable particles	T-112
viii)	Abrasion loss	T-96
ix)	Specific Gravity	T-84
x)	Absorption	T-85
xi)	Production of Plastic Fines	T-210
xii)	Fineness Modulus	T-27
xiii)	Sand Equivalent	T-17
xiv)	Potential Reactivity of Carbonate Rocks for Concrete Aggregate (Rock Cylinder Method)	ASTM C 586
xv)	Potential Alkali Reactivity of Cement -Aggregate Combinations (Morta-Bar Method)	ASTM C 227
xvi)	Potential Reactivity of Aggregates (Chemical Methods)	ASTM C 289

No aggregate for testing during the production of concrete shall be sampled at the discharge gates of the bins feeding the weight hopper. The Contractor, at his expense, shall provide safe and suitable facilities for obtaining the samples. No concreting work on the project will be permitted until the Engineer signifies in writing his approval, following the performance of the necessary tests, on all the material involved in making concrete.

Testing of Compressive Strength

Concrete compressive strength requirements consist of a minimum strength at the age of twenty eight (28) days and the minimum strength which must be attained before various loads or stresses are applied to the concrete. The various strengths required are specified in Table "Portland Cement Concrete Requirement" given under the head of "Classes of Concrete".

The compressive strength of concrete will be determined from test cylinders, which have been fabricated from concrete sampled and tested in accordance with AASHTO T 23 and AASHTO T 22.

A set of six (6) cylinders shall be taken from each fifty (50) cubic meters of each class of concrete or fraction thereof placed each day, three (3) of the six (6) cylinders to be tested after seven (7) days and three (3) after twenty eight (28) days.

- a) The minimum average 28 days test result of all samples tested at any time shall be the specified twenty eight (28) days strength.
- b) No individual samples tested after 28 days shall show a test result lower than eighty five (85) percent of the required twenty eight (28) days.

Concrete represented by any single test cylinders that fails to comply with the requirement under (b) above will be rejected unless the Contractor at his expense, provides evidence that the strength and quality of the concrete placed in the work are acceptable. If such evidence consists of tests made on cores taken from the work, the cores shall be obtained and tested in accordance with the specifications of AASHTO T-24.

Test results of the cores shall meet the following requirements:-

- a) Average test result of the cores shall be less than the minimum required twenty eight (28) days strength.
- b) No individual core shall show a strength less than Ninety five (95) percent of the required twenty eight (28) days strength.

Should the above test results fail to comply with the requirements, concrete of that particular pour shall be rejected and removed as directed by the Engineer. Furthermore contractor shall redesign the concrete mix for approval of the Engineer.

In case, seven (7) days strength shows less than seventy (70) percent of the twenty eight (28) days strength (in case of type-I cement), Engineer may stop further work on that particular portion of concrete, unless twenty eight (28) days strength gives satisfactory results.

Trial Batches for Mix Productions

The placing of concrete shall not begin until trial batches of the mix design to be used have been produced by the Contractor and tested and approved by the Engineer. The trial mix proportions shall be such that the average strength of five (5) consecutive test cylinders shall be 20% higher than the specified twenty eight (28) days strength and no individual test cylinder shall be below the specified strength.

When concrete compressive strength is specified as a prerequisite to applying loads or stresses to a concrete structure or member, test cylinders will be cured under conditions similar to those at the casting site. The compressive strength of concrete determined for such purposes will be evaluated on the basis of individual tests.

2.4 Precast Concrete

Scope

This Sub-Section includes fabrication and installation of all precast concrete units, and related work.

Material

Cement, concrete and reinforcing steel shall conform to the applicable requirements of the IN SITU CONCRETE WORKS, except as otherwise specified herein. The Contractor shall be responsible for the design of concrete mixes and for meeting the strength requirements.

Formwork

Forms and formed surfaces shall conform to the applicable portions of the IN SITU CONCRETE WORKS, and to the following:

- a. Forms shall be made and maintained to the grade, alignment and dimensions shown in the drawings.
- b. Beds and forms shall be adequately cleaned before reuse.

Fabrication

- a. **Precast Units** shall be of the sizes and shapes indicated on the Drawings. The finished units shall be straight and true with all edges sharp, straight and square and all flat surfaces in a true plane, such as specified in the Drawing.
- b. **Tolerances:** The casting, bowing warping and dimensional tolerance for precast units shall be maintained in accordance with the following:
 1. Overall dimension for widths of each unit, plus or minus 10mm; and length, plus or minus 20mm.
 2. Bowing or warping: not to exceed 20mm in any direction.
 3. Insert locations: Plus or minus 10mm in any direction.
- c. **Reinforcement** shall be provided, where required, in precast units and shall be of sizes, and placed and secured in the forms prior to casting and shall be as shown on the Drawings.
- d. **All anchors** inserts, lifting devices (galvanized, if required) and similar items shall be and placed and secured in the forms prior to casting and shall be as shown on the drawings.
- e. **Concrete** shall be mixed, handled, conveyed, placed and finished in strict conformance with the applicable requirements of the IN SITU CONCRETE WORKS.
- f. **Curing** of precast units shall be carried out in strict conformity with the applicable requirements of the in situ concrete works.

Identification and Marking

Each precast member shall be marked to indicate its type, serial number and date of fabrication. Identification marks shall correspond to the drawings.

Handling and Storage

- a. Precast units shall be handled, transported and stored in a manner, which will avoid undue strain, cracking, other damage. Damaged or defective units shall be repaired or replaced as directed by the Engineer.
- b. Units in which the departure from true dimensions is such that they will not come together satisfactorily with adjacent units, within the limits of their allotted

positions or which produce an unacceptable irregularity in the finished units of the work, shall be rejected.

Clearing

All precast units shall be delivered to the job site in the cleanest condition possible. During installation, utmost care shall be taken to prevent staining or marring the precast units. Upon completion of the erection, the precast work shall be left clean, and free of stains and all other noticeable defects on exposed surfaces.

Installation

- a. All precast work shall be accurately set in its assigned position, carefully plumbed and aligned and securely anchored to the structure in accordance with the Drawings.
- b. The Contractor shall furnish and install all loose shims, wedges, leveling grout, plates, etc. for the units to be secured to the structure as indicated on the Drawings. The Contractor shall provide all other members as indicated for the attachment of the precast work to the structure, as noted on the Drawings.

Testing and Inspection

Testing and inspection shall be done in strict conformity with the applicable requirements of the in situ concrete work.

2.5 Measurement and Payment

Measurement

The quantity of concrete to be paid for shall be the number of cubic meters of concrete of the various classes complete in place and accepted.

In measuring the volume of concrete to be paid for, the dimension to be applied shall be those shown on the Drawings except where others ordered by the Engineer in writing.

Deductions from the theoretical volume of concrete shall be made for the volumes of draining holes, weep holes, pipes and conduits, etc., in case where their cross-sectional areas exceed 500 square centimeters.

The measurement shall not include any concrete used in the construction of cofferdams or falsework.



The volume involved in fillets, scorings, or chamfers ten square centimeters in cross-sectional area or less shall be disregarded when measuring the quantity of concrete to be paid for.

Concrete for railings, pipe culverts, etc., is not to be measured under this item, but under separate items.

Payment

The accepted quantity measured as provided above shall be paid for at the contract unit price respectively for the pay items listed below that as per shown in the Bill of Quantities which prices and payment shall be full compensation also for such works as curing, surface finishing and / or rendering as required, formation of construction joints and any such work and incidentals necessary to complete the item except works that are paid for under other pay items.

For all concrete structures or portions, thereof, no separate measurement or payment shall be made of false work, centering, formwork or any other temporary work to complete the concrete structure or portion thereof, payment for all such temporary works shall be deemed to be included in the contract price paid under various items of concrete work.



SECTION # 3.0 STEEL REINFORCEMENT

3.1 Description

This work shall consist of furnishing, fabricating and placing of steel reinforcement of the type, size, shape and grade required in accordance with these specifications, and in conformity with the requirements shown on the Drawings and Special Provisions or as directed by the Engineer.

3.2 Material Requirement

All materials shall conform to the requirements hereinafter given. Test reports from approved sources shall be submitted to the Engineer for all steel reinforcement used. These reports shall show the results of chemical and physical tests made

- i) Deformed Billet-Steel Bars (Grades 40 and 60) for Concrete Reinforcement-AASHTO M-31 (ASTM A-615)
- ii) Deformed Steel Wire for Concrete Reinforcement-AASHTO M-225 (ASTM A-496)
- iii) Welded Steel Wire Fabric for Concrete Reinforcement-AASHTO M-55 (ASTM A-185)
- iv) Steel Bar Mats for Concrete Reinforcement-AASHTO M-54 (ASTM A-184)
- v) Cold-Drawn Steel Wire for Concrete Reinforcement-AASHTO M-32 (ASTM A-82)
- vi) Welded Deformed Steel Wire Fabric for Concrete Reinforcement-AASHTO M-221 (ASTM A-497)
- vii) Structural Shapes for Concrete Reinforcement ASTM A-36

3.3 Construction Requirement

Fabrication of Bent Bars

a) Order Lists

Before materials are ordered all order lists and bending diagrams shall be furnished by the Contractor, for the approval of the Engineer. The approval of order lists and bending diagrams by the Engineer shall in no way relieve the

Contractor of responsibility for the correctness of such lists and diagrams. Any expenses incident to the revisions of material furnished in accordance with such lists and diagrams to make it comply with the drawings shall be borne by the Contractor.

b) Storing and Surface Condition of Reinforcement

Steel reinforcement shall be stored above the surface of the ground on platforms, skids, or other supports and shall be protected as far as practicable from mechanical injury and surface deterioration caused by exposure to conditions producing rust. When placed in the work, reinforcement shall be free from dirt, detrimental rust, loose scale, paint, grease, oil, or other foreign materials. Reinforcement shall be free from injurious defects such as cracks and laminations. Surface seams, surface irregularities, or mill scale will not be cause for rejection, provided the minimum dimensions, cross-section area, and tensile properties of a hand-wire brushed specimen meets the physical requirements for the size and grade of steel specified.

c) Fabrication

Bent bar reinforcement shall be cold bent to the shapes shown on the drawings or required by the Engineer. Bars shall be bent around a pin having the following diameters (D) in relation to the diameter of the bar (d):

Stirrups & column tie bars $D = 4 \times d$

Other bars having

$d < 3.5 \text{ cm (1-3/8") (No. 11 bar)}$ $D = 5 \times d$

$d > 3.5 \text{ cm (1-3/8")}$ $D = 10 \times d$

Placing and Fastening

a) Protection of Material

Steel reinforcement shall be protected at all times from injury. When steel, placed in position as shown on the Drawings, has easily removable and detrimental rust, loose scale, or dust, it shall be cleaned by a satisfactory method, approved by the Engineer.

b) Placing and Fastening

Reinforcing steel shall be accurately placed in the position shown on the Drawings and firmly held during the depositing and finishing of the concrete. Cover, the



distance between the external face of the bar and the face of the finished concrete, shall be as indicated on the Drawings. Reinforcing steel bars embedded in concrete shall not be bent after they are in place. Bars shall be tied at all intersections with 16 gauge black annealed wire except that where spacing is less than 1 ft (0.3 m) in each direction, alternate intersections need to be tied. All intersections shall be tied in the top mat of reinforcement placed on bridge decks and the top slabs of box culverts. Abrupt bends shall be avoided except where one steel bar is bent around the other.

Stirrups and ties shall always pass around the outside of main bars and be securely attached thereto. All reinforcing steel shall be securely held at the proper distance from steel forms, which remain in place by means of galvanized steel bars or chairs placed on the forms. All reinforcing steel, except as mentioned above, shall be securely held at the proper distance from the forms by means of templates, concrete blocks or galvanized steel chairs. Metal chairs shall not be used against formed surfaces, which will be exposed in the finished structure after the forms are stripped. Blocks for holding reinforcement away from contact with the forms shall be precast concrete blocks of approved shape, and dimensions and shall have 16-gauge black annealed tie wires embedded in them. The precast concrete block shall have a compressive strength equal to that specified for the class of concrete to be placed in the work. Layers of bars shall be separated by approved metal chairs or bolsters.

Any broken or damaged concrete spacer blocks shall be removed before concrete is placed. The use of pebbles, pieces of broken stone or brick, metal pipe or wooden blocks as spacers will not be permitted. Reinforcing steel when placed in the work shall be free from flake rust, dirt and foreign material and before any concrete is placed, any mortar which may be adhering to the reinforcing steel shall be removed. No concrete shall be deposited until the Engineer has inspected the placing of the reinforcing steel and given permission to place the concrete. The Contractor shall allow the Engineer four hours time after the reinforcement and forms are in place to conduct the inspection. Any bar of incorrect size, length or shape shall be removed and replaced with correct bars. Any bar located or spaced incorrectly shall be relocated or spaced correctly before permission is given to place concrete and such replacements and corrections shall be at the Contractor's expense. All concrete placed in violation of these provisions shall be rejected and removed.

c) Splicing

All reinforcement shall be furnished in the full lengths indicated on the Drawings unless otherwise permitted. Splicing of bars, except where shown on the drawings, will not be permitted without the written approval of the Engineer. Splices shall be staggered as far as possible and with a minimum separation of not less than forty

(40) times bar diameters. Not more than one third ($1/3$) of the bars may be spliced in the same cross-section, except where shown on the drawings.

Unless otherwise shown on the Drawings, bars shall be lapped with a minimum overlap of forty (40) times the bar diameter. In lapped splices, the bars shall be placed in contact and wired together. Lapped splices will not be permitted at locations where the concrete section is insufficient to provide a minimum clear distance of one bar diameter or one and one third ($1-1/3$) the maximum size of coarse aggregate between the splice and the nearest adjacent bar. Welding of reinforcing steel shall be done only if detailed on the Drawings or if authorized by the Engineer in writing. Spiral reinforcement shall be spliced by lapping at least one and one half ($1-1/2$) turns or by butt welding unless otherwise shown on the Drawings.

d) Lapping of Bar Mat

Sheet of mesh or bar-mat reinforcement shall overlap each other sufficiently to maintain a uniform strength and shall be securely fastened at the ends and edges. The overlap shall not be less than one mesh in width.

e) Covering

The minimum covering, measured from the surface of the concrete to the face of any reinforcement bar shall, unless otherwise shown on the Drawings or directed by the Engineer, be not less than 5 cms except as follows:

Top of slab	4.0 cm
Bottom of Slab	3.0 cm
Stirrups and ties in T-beams	3.5 cm

In the footings of abutments and retaining walls the minimum covering shall be 7.5 cm. In work exposed to the action of sea water the minimum covering shall be 10 cm.

3.4 Measurement and Payment

Measurement

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

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

Size mm	Weight in Kilograms per Meter	Size mm	Weight in Kilograms per Meter
6	0.222	20	2.466
8	0.395	22	2.984
10	0.616	25	3.853
12	0.888	32	6.313
13	1.042	35	7.553
16	1.578	40	9.865

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 measured for payment.

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

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 twelve (12) meters.

For bent bars, the length along centre-line of bar will be paid.

Payment

The accepted quantity measured as provided above shall be paid for at the contract unit prices respectively for the pay items listed below and shown 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.

SECTION # 4.0 FORMWORK

4.1 Description

The work shall consist of providing, erecting and removing concrete forms of sufficient strength with all necessary bracings, fasteners, etc. and in conformity with the requirements hereinafter specified.

4.2 Material Requirements

Forms shall be of wood, metal or other approved materials and shall be built mortar tight and of sufficient rigidity to prevent distortion due to the pressure of the concrete and other loads incident to the construction operations.

4.3 Construction Requirements

Formwork Design and Drawings

The Contractor shall prepare working drawings, backup calculations and material data for the form work and shutters to be submitted to the Engineer for approval unless otherwise directed.

Formwork Construction

Concrete forms shall be constructed and maintained so as to prevent warping and the opening of joints due to the shrinkage of the lumber and shall be true to the dimensions, lines and grades of the structure and with the sufficient strength, rigidity, shape and surface smoothness as to leave the finished works true to the dimensions shown on drawings or required by the Engineer and with the surface finish as specified.

Forms for exposed surfaces shall preferably be lined with metal, plywood, or other approved material, or may with the Engineer's permission, be made of dressed lumber of uniform thickness. Forms shall be filled at all sharp corners (Minimum two (2) cms triangular fillets) and shall be given a level or draft in the case of all projections, such as girders and copings, to ensure easy removal.

Form fasteners consisting of form bolts, clamps or other devices shall be used as necessary to prevent spreading of the forms during concrete placement. The use of ties consisting of twisted wire loops to hold forms in position will not be permitted. Metal ties or anchorage within the forms shall be so constructed as to permit their removal to a depth of at least five (5) cms from the face without injury to the concrete.

Fitting for metal ties shall be of such design that, upon their removal, the cavities that are left will be of the smallest possible size. The cavities shall be filled with cement mortar and the surface left sound, smooth, even, and uniform in colour. Anchor devices may be cast into the concrete for later use in supporting forms or for lifting precast members. The use of driven types of anchorages for fastening forms or form supports to concrete will not be permitted.

The inside surfaces of forms shall be cleaned of all dirt, mortar and foreign material. Forms, which will later be removed, shall be thoroughly coated with form oil prior to use. The form oil shall be a commercial quality form oil or other approved coating which will permit the ready release of the forms and will not discolour the concrete. All exposed surfaces of similar portions of a concrete structure shall be formed with the same forming material or with materials which produce similar concrete surface textures, colour and appearance.

Concrete shall not be deposited in the forms until all work in connection with constructing the forms has been completed, all materials required to be embedded in the concrete have been placed for the unit to be poured, and the Engineer has inspected and approved said forms and materials.

The rate of depositing concrete in forms shall be such as to prevent deflections of the forms or form panels in excess of the deflections permitted by these specifications. Maximum deflection allowed due to prop settlement is 5 mm and due to bending of shutters is 3 mm, when measured with 3 meter straight edge.

Forms for all concrete surfaces, which will not be completely enclosed or hidden below the permanent ground surface, shall conform to the requirements herein for forms for exposed surfaces. Interior surfaces of underground drainage structures shall be considered to be completely enclosed surfaces.

Formwork for concrete placed under water shall be watertight. When lumber is used, this shall be planed and tongued and grooved.

Forms for exposed concrete surfaces shall be designed and constructed so that the formed surface of the concrete does not undulate excessively in any direction between studs, joists, form stiffeners, form fasteners, or wales. Undulations exceeding either two (2) mm or 1/270 of the center to center distance between studs, joists, form stiffeners, form fasteners, or wales will be considered to be excessive. Should any form or forming system, even though previously approved for use, produce a concrete surface with excessive undulations, its use shall be discontinued until modifications, satisfactory to the Engineer have been made. Portions of concrete structures with surface undulations in excess of the limits herein may be rejected by the Engineer.

Forms shall be set and maintained true to the line designated until the concrete is sufficiently hardened. Forms shall remain in place for periods, which shall be



determined, as herein specified. When forms appear to be unsatisfactory in any way, either before or during the placing of concrete, the Engineer will order the work stopped until the defects have been corrected.

The shape, strength, rigidity, water-tightness, and surface smoothness of reused forms shall be maintained at all times. Any warped or bulged lumber must be resized before being reused. Forms that are unsatisfactory in any respect shall not be reused.

For narrow walls and columns, where the bottom of the form is inaccessible, the lower form boards shall be adjustable so that they may be removed for cleaning out extraneous material immediately before placing the concrete.

Removal of Formwork

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

If field operations are not controlled by beam or cylinder tests, the following periods, exclusive of days when the temperature is below five (5) degree C, for removal of forms and supports shall be used as a minimum subject to the approval of the Engineer.

Arch Center	14 Days
Centering Under Beams	14 Days
Supports under Flat Slabs	14 Days
Floor Slabs	14 Days
Vertical Wall Surfaces	24 Hours
Columns	24 Hours
Side of Beams	12 Hours
Top Slabs R.C. Box Culverts	14 Days

Side forms for cast-in-place beams, girders, columns, or other members where the forms do not resist dead load, bending shall remain in place for at least forty (40) hours after placing concrete for the members. Side forms for precast members may be removed the next day after placing concrete therein.

If high early strength cement is used or by the use of additional cement, these periods may be reduced as directed.

When field operations are controlled by cylinder tests, the removal of forms, supports and housing, and the discontinuance of heating and curing (where applicable) may begin when the concrete is found to have the required compressive strength, provided in no case shall supports be removed in less than seven (7) days after placing the concrete.



All forms shall be removed, except when no permanent access is available to the cells, the forms supporting the deck of box girders and the forms in hollow abutments or piers may remain in place. Prior to completion of forming for the deck forms, the inside of box girders shall be cleared of all loose material and swept clean.

Methods of form removal likely to cause overstressing of the concrete shall not be used. In general, the forms shall be removed from the bottom upwards. Forms and their supports shall not be removed without approval. Supports shall be removed in such a manner as to permit the concrete to uniformly and gradually take the stresses due to its own weight.

In general, arch centering or falsework shall be struck and the arch made self-supporting before the railing or coping is placed. This precaution is essential in order to avoid jamming of the expansion joints and variations in alignment. For filled spandrel arches, such portions of the spandrel walls shall be left for construction subsequent to the striking of centers, as may be necessary to avoid jamming of the expansion joints.

Centers shall be gradually and uniformly lowered in such a manner as to avoid injurious stresses in any part of the structure. In arch structures of two or more spans, the sequence of striking centers shall be approved by the Engineer.

4.4 Measurement and Payment

The formworks shall be measured at site and pay according to unit rate quoted.



SECTION # 5.0 BLOCK MASONRY

5.1 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 the operations in connection with brick masonry work complete in strict accordance with the specifications herein and the applicable drawings and subject to the terms and conditions of the Contract.

5.2 Material

Cement

Cement shall be Portland cement meeting the requirements specified under clause of section of "Concrete."

Aggregates

Aggregates used shall meet the requirements specified under clause of section of "Concrete".

Water

Water shall be as specified under clauses of the section of "Concrete".

Concrete Masonry Units

- Concrete masonry units shall be made on the project site and shall be of the size required by the drawings and / or directed by the Engineer Incharge.
- The blocs shall be solid or hollow as required and shall be carefully made so that they are true in line and face with square corners and free from all defects.
- The concrete for the blocks shall be mixed in the proportion of one (1) part of cement, three (3) parts of sand and six (6) parts of well graded coarse aggregate not exceeding ½" in size.
- Concrete blocks shall be machine moulded. The concrete shall be well worked in the moulds, vibrated tamped and pressed to ensure that the blocks are dense and free from voids.
- The blocks shall be cured by keep moist continuously for a period of at least ten

(10A) days and then shall be allowed to dry in a shady location for at least eight (8) days before being used in masonry.

- Where blocks are to be exposed to view they shall have clean, cut straight and true, edges, smooth dense faces of uniform appearance without voids, honeycombs, projections or variation in texture and shall be free from cracks, spalls, chips, ragged edges or other defects detrimental of their appearance.
- Where blocks are to be plastered the exposed surfaces shall have a coarse texture suitable for bonding the plaster as approved by the Consultants.
- The average compressive strength of any five blocks priced at random shall be not less than the strength as specified for 1:3:6 concrete under clause of the section of "Concrete".
- The average moisture content of all concrete masonry units shall not exceed 30% of the total absorption of the units.

Concrete masonry unit shall be stacked on platforms and covered or stored in any other manner approved by the Consultants to protect from contact with the soil and exposure to weather. Care shall be taken in handling to avoid chipping and breakage. Storage piles, stacks, or bins shall be so to avoid being disturbed or shall be barricaded to protect the blocks from damaged by construction operations.

5.3 Mortar for Masonry

- Cement shall be Portland as specified under Clause of the Section of "Concrete".
- Fine aggregate shall be clean, hard, durable particles free from laminated material well graded from No. 4 to 100 sieve.
- Water shall be clean and free from injurious acids, alkalis and organic impurities.
- All mortar for masonry shall be proportion of one (1) cement and four (4) sand (fine aggregate) and the ingredients shall be mixed by volume.
- Mortar shall be mixed thoroughly in a drum type batch mixer for a period of not less than three minutes, using the quantity of water required to obtain the desired workability. Hand mixing shall be subject to approval by the Engineer Incharge and if he allows the mortar materials shall be mixed in a light mortar mixing box. In no case the mixing of mortar shall be done on open platform.
- The mortar shall be subject to compressive strength test and the average

compressive strength of three numbers 2" cubes of mortar shall be not less than 1,800 lbs per sq. inch at 28 days.

- Mortar shall be used in the masonry within half an hour from addition of water into the mortar. The mortar which has already set shall not be used for the masonry.

5.4 Masonry and Jointing

- All masonry shall be laid plumb, true to the line and level and accurately spaced coursed and with each course breaking joints with the course below. Bond shall be keeping plumb, corners and reveals shall be plumb and true. Chases, grooves, reglet blocks and raked out joints shall be kept free from mortar and other debris.
- The thickness and length of various walls shall be as indicated on the drawings.
- Unless otherwise shown on the drawings or specified the spaces around forms and other built in items shall be solidly filled with mortar except that joints that are to be caulked shall be raked out $\frac{3}{4}$ inch.
- Work required to be built-in with masonry including anchors, wall plugs and accessories shall be built-in as the work progress. Wood plugs and blocking shall not be built into masonry.
- All horizontal and vertical joints shall be completely and solidly filled with mortar when and as the blocks are laid.
- The thickness of joints shall not exceed $\frac{3}{8}$ " and the joints shall be raked $\frac{1}{2}$ " "deep" when the mortar is still fresh so as to give proper bond to the plaster.
- Where masonry abuts RCC columns or walls it shall be anchored thereto by means of wire anchors of galvanized metal not less than 10 gauge or 1" wide G.I. strip 22 gauge located at every fourth horizontal joint.
- The top course of partitions under slabs beam shall not be laid until the forms have been removed and the roofing placed.
 - i) Masonry walls shall be cured for at least ten
 - ii) Days from the day it is installed.

5.5 Rock Fill and Pitching Stone

All stone used for any item of this work shall fulfill the requirements laid down below.



All stone shall be from approved quarries, sound, hard, strong, durable, inert, free from laminations, weak cleavages, and undesirable weathering and of such character that it will not disintegrate from action of air, seawater or the conditions to be met with in handling and placing. It shall be clean, free from earth, clay, refuse and adherent coatings. Suitable representative samples of material which the Contractor proposes to use in the work shall be obtained by the Contractor and delivered at his expenses to the Engineer for approval. The contractor shall not deliver any of the proposed material to the site of work until approved.

All stone shall conform to the test requirements; specific gravity 2.5 minimum density 157 lbs / cft. (solid cubic foot without voids); abrasion maximum 50%.

If during the progress of the work, it is found that the stone being furnished by the Contractor does not fully meet the requirements of the specification, the Contractor will be required to furnish and replace other stone of quality equal to that of the approved sample at no additional cost.

No approval of the quarry from which the stone is brought shall be construed as a waiver of the right of GDA / Engineer to request the Contractor to furnish stones to the requirements outlined above.

5.6 Measurement and Payment

All the items of work covered by this section of the specifications shall be measured by the standard method of measurements and paid in accordance with unit rates entered in the Bill of Quantities. No separate payment will be made for masonry anchor etc. required.



SECTION # 6.0 PAINTING AND FINISHING

6.1 Scope of Work

The work covered by this section of the specifications consists of furnishing all materials, plant, labour, equipment, appliances and performing all operations in connection with surface preparation and painting works, gates, frames, steel and wooden doors, windows, louvers, walls, ceilings and all such surfaces as shown on the Drawings and / or as directed by the Engineer. The scope of this section of specifications is covered with and detailed specifications laid down herein.

6.2 General

Except as otherwise specified, all painting shall be applied in conformity with BS CP 231 "Painting of Building as applicable to the work".

The Contractor shall repair at his own expense all damaged or defective areas of shop-painted metal work. Metal surfaces against which concrete are to be placed will be furnished shop-painted and shall be cleaned prior to being embedded in concrete.

Except as otherwise specified, all concrete and plastered surfaces are to be painted.

6.3 Materials

All materials shall be acceptable, proven top-grade products and shall meet or exceed the minimum standards of reputable manufacturers as approved by the Engineer.

Colours shall be pure, non-fading pigments, mildew-proof, sun-proof, finely ground in approved medium. Colours used on plaster and concrete surfaces shall be lime-proof. All materials shall be subject to Engineer's approval.

All emulsion paints and primers for metal work and walls will be the best available of its type. The make and shade shall be got approved by the Engineer prior to its procurement.

Approved quality of cement wash paint shall be used for painting the exteriors of the structures or other surfaces as directed by the Engineer.

The plastic emulsion paint or similar as approved by the Engineer shall be used for interior surfaces.

Un-slaked lime, gum and marine blue shall be used for white washing.

All material for bitumen painting shall consist of Bitumen P B4 Grade 10 / 20. It shall be used for foundation or wherever recommended by the Engineer.

Approved quality, Epilac enamel paint shall be used for chemicals and water resistance where specified.

DUROCEM a cement base heavy-duty waterproof coating manufactured by ICI or any equivalent approved by the Engineer shall be used for painting on the surface specified. The cement base waterproof coating for concrete shall conform to ASTM C-109, C-67, D-822 and G-23.

All materials shall be delivered to site in their original unbroken and sealed containers or packages and bear the manufacturer's name, label, brand and formula and shall be mixed and applied in accordance with directions of the manufacturer.

6.4 Surface Preparation

All oil, grease, dirt, dust, loose mill, scales and any other foreign substance shall be removed from the surface to be painted, polished and white washed by the use of a solvent and clean wiping material. Following the solvent cleaning, the surfaces shall be cleaned by scraping, chipping, wire brushing or other effective means as approved by the Engineer.

In the event the surface becomes otherwise contaminated in the interval between cleaning and painting, re-cleaning will be done by the Contractor at no additional cost.

Surfaces of stainless steel, aluminium, bronze and machined surfaces adjacent to metal work being cleaned or painted shall be protected by effective masking or other suitable means, during the cleaning and painting operations.

All the surfaces to be painted with approved quality cement wash paints shall be free from dust, dirt, fungus, lichen, algae etc. Oil paint, varnish and lime wash should always be removed by scraping and washing.

All surfaces to be bitumen painted shall be thoroughly cleaned of any accretion, dust, dirt etc. by scraping wire, brushing or as directed by the Engineer. The surface shall be primed with a coat of asphalt oil used at the rate of not less than 1 litre per 2 square meter.

No work in this Section shall be allowed until all surfaces or conditions have been inspected and approved by the Engineer or his representative.

All damaged portions of surfaces shall be repaired and all other adjustments carried out before the start of painting or finishing. No addition or alteration on surface shall be allowed after the painting and finishing work is done.

6.5 Application

All paint and coating materials shall be in a thoroughly mixed condition at the time of application. All work shall be done in a workmanlike manner, leaving the finished surface free from drips, ridges, waves, laps and brush marks. All paints shall be applied under dry and dust free conditions. Unless approved by the Engineer paint shall not be applied when the temperature of the metal or of the surrounding air is below 10 Degree Centigrade. Surfaces shall be free from moisture at the time of painting.

All primary paint shall be applied by brushing. The first coat of paint shall be applied immediately after cleaning. When paint is applied by spraying, suitable measures shall be taken to prevent segregation of the paint in the container during painting operations.

Effective means shall be adopted for removing all free oil and moisture from the air supply lines of the spraying equipment.

Each coat of paint shall be allowed to dry or harden thoroughly before the succeeding coat is applied. Surfaces to be painted that will be inaccessible after Installation shall be completely painted prior to Installation.

Two coats of cement wash shall be applied in accordance with the manufacturer's instructions or as directed by the Engineer.

Only as much material should be mixed as can be used in one hour. Over-thinning will not be permitted. After the first coat the surfaces will be soaked evenly four or five times and the second coat shall be applied after leaving for at least overnight.

All steel doors, windows and ventilators shall be painted with two coats of approved enamel paint over one coat of a red oxide primer as directed by the Engineer. Two coats of bituminous paint shall be provided on the external side of walls of manholes and under sides of the manhole covers.

Plastic emulsion paint of the approved make and shade shall be applied to interior surfaces required as per finishing schedule and as per manufacturer's instructions.

Epilac enamel paint of the approved make and shade shall be applied to surfaces required as per finishing schedule and as per instructions of the manufacturer.



For bitumen paint to be applied, the first coat shall be allowed to dry for about 6 hours before applying the second coat. During the operation of painting care should be taken to avoid air bubbles. The manufacturer's instruction and Engineer's directions shall be adhered to.

For applying Durocem the surface shall be dampened with clean water immediately ahead of application. Durocem and clean water shall be mixed as per directions of the manufacturer. A heavy first coat at 20 lbs / 100 sq.ft. (1 kg per sq.m) shall be applied. This shall be followed by a second brush coat at 10 lbs / 100 sq.ft. (0.5 kg per sq.m) after the first coat has set. When finish coat has set, it shall be floated to uniform texture with a sponge float. The work shall include cleaning the surface, sand papering and smooth finishing, scaffolding, curing etc. complete as per the approval of the Engineer.

6.6 White and Colour Washing

The surfaces shall be well cleaned and brushed before white washing. The white washing material shall be prepared from un-slaked lime. The lime shall be dissolved in a tub with sufficient quantity of water and then well mixed and strained through a clean cloth. 4 kg clean gum boiled with 12 kg of rice for each cu.m of lime shall be added to the liquid lime along with a small quantity of marine blue as directed by the Engineer.

The mixture shall be in thoroughly mixed condition in suitable consistency and suitable screened and shall be applied in three coats with a brush.

Each coat of white wash shall be allowed to dry, so that no sign of cracking shall appear on the surface and also white wash shall not come off readily on fingers when rubbed. The white wash when completed, shall form an opaque coat of uniform white colour, through which the old work does not show and shall present a smooth regular surface free from powdery matter. For colour washing approved quality of colouring matter shall be added to the liquid and thoroughly mixed by stirring.

6.7 Distempering

Distempers of approved quality and shade shall be applied on internal wall surfaces where shown in drawing or directed by the Engineer.

6.8 Submittals

Colour samples shall be submitted on 6"x 6" (150x150 mm) asbestos cement boards, showing each type of paint for Engineer's colour selections.

6.9 Product Delivery

Deliver materials in manufacturer's original unopened containers with labels intact and legible identifying brand names and contents.

6.10 Job Condition

Observe manufacturer's recommended minimum and maximum temperature but do not apply paint or finish to any surface unless ambient temperature is 10 degree C or above and less than 43 degree C. No painting shall be done above 90% relative humidity.

Place drop cloths to adequately protect all finished work.

Remove and replace all items of finished hardware, device plates, and accessories including fixtures or other removable items.

The surface shall be prepared first by filling depressions with putty, rubbing, sand papering and cleaning. A priming coat shall first be applied of petrifying liquid of approved manufacture. Distemper shall be applied with broad stiff brush of approved make. Distemper shall be applied quickly and boldly. Each coat of distemper should first be got approved by the Engineer before applying the next coat.

6.11 Measurement and Payment

Measurement of the work completed, accepted and specified herein as painting, distemping, bitumen painting and white / colour washing etc. will be made on the basis of actual area in square meter of the respective job including all preparatory work like scraping, scratching, sand papering, filling depressions with putty, priming and scaffolding etc. complete in all respect as directed by the Engineer. Payment for these items shall be made at the approved tendered rates. No payment shall be made for painting work on doors, windows, ventilators, steel grills, railings and steel ladders or any other works etc. for which the contractor shall make necessary allowance in his rates for such items.

No separate payment shall be made for the painting work required for manholes and ventilating shaft. The Contractor shall include the cost of painting work required for manholes and ventilation shaft in his lump sum price of manholes and ventilation shaft.



SECTION # 7.0 PIPE SCAFFOLDING

The American Concrete Institute (ACI) governs concrete construction and formwork rather than manufacturing specs for steel access scaffolding. ACI references scaffolding primarily in ACI 347 (Guide to Formwork for Concrete) when scaffolds double as shoring. For facade access on high-rise structures, ACI mandates compliance with OSHA (Occupational Safety and Health Administration) 29 CFR 1926 Subpart L and ANSI/ASSE A10.8.

The primary technical specifications required for high-rise facade pipe scaffolding are detailed below.

7.1 Tube Dimensional Specifications

High-rise structures demand heavy-duty, highly standardized pipes to handle severe dynamic environmental forces and structural gravity loads.

- **Outside Diameter (OD):** Exactly 48.3 mm ($\pm 0.5 \text{ mm}$ tolerance).
- **Wall Thickness:** 4.0 mm (Type 4 structural rating mandated for buildings exceeding 6 stories).
- **Material Grade:** High-tensile carbon steel conforming to ASTM A500 Grade B, EN 39, or BS 1139.
- **Surface Treatment:** Hot-dip galvanized (HDG) coating with a minimum mass of 400 g/m^2 to resist atmospheric corrosion at high elevation.

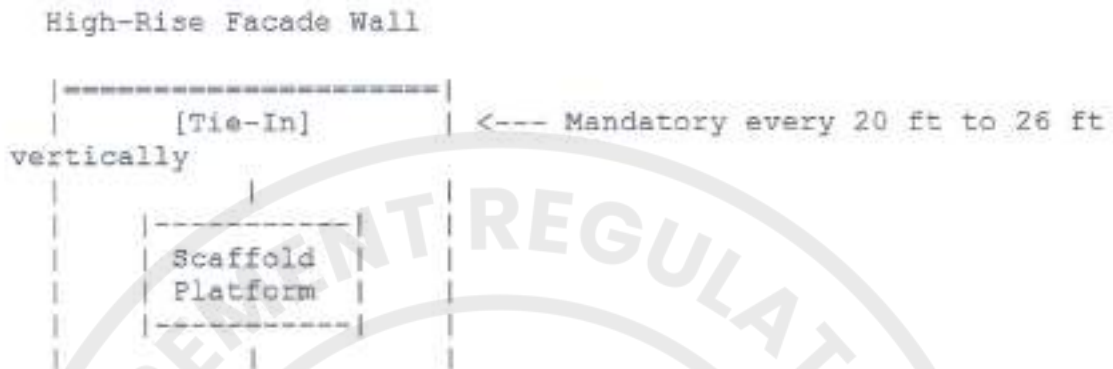
7.2 Structural Load & Safety Factors

Every component must be systematically engineered with strict structural safety overheads.

- **Safety Factor (Factor of Safety):** $4:1$ minimum. The entire system must support its dead load plus 4 times the maximum planned live load.
- **Maximum Unsupported Height (Lift):** Fixed at 2.0 meters between horizontal ledger rows to prevent buckling.
- **Safe Axial Load Capacity:** Nominal capacity of 40 kN to 60 kN per single standard (vertical pipe), assuming a standard 2.0 m lift height.

7.3 Stability & Wall Tie-In Rules

Because wind loads exponentially intensify at high-rise facade elevations, strict structural tie-backs are mandatory.



- **The 4:1 Self-Stability Limit:** Height must not exceed 4 times the minimum base width without structural ties.
- **Vertical Tie Spacing:** Tie-ins to the concrete structure must repeat every (20 feet) (6.1 m) or less for narrow scaffolds ($\leq 3\text{ ft}$) wide), and every (26 feet) (7.9 m) for wider configurations.
- **Horizontal Tie Spacing:** Tie-ins must be placed at both ends and spaced at horizontal intervals not exceeding (30 feet) (9.1 m) .

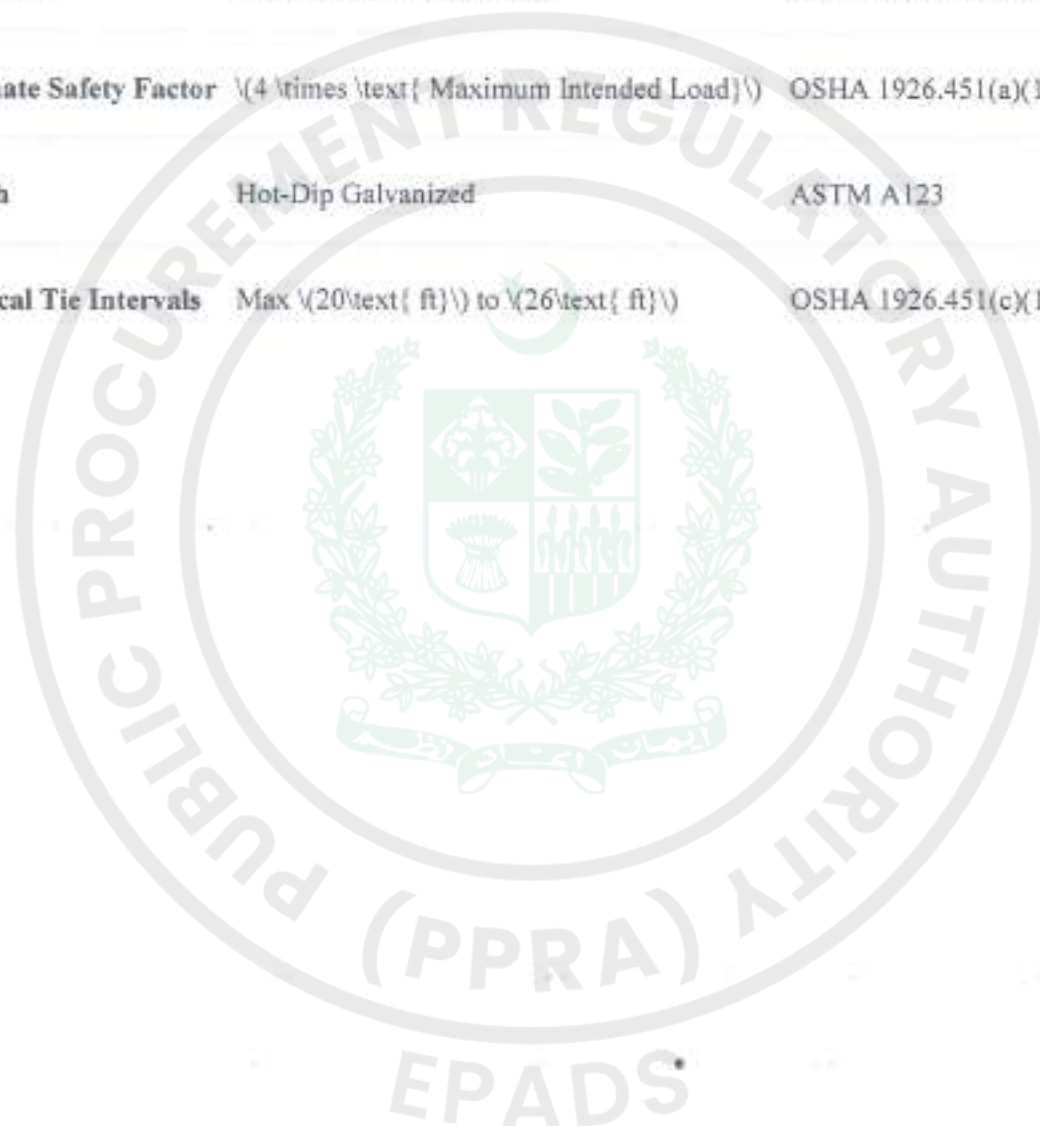
7.4 Working Platform & Fall Protection Specs

- **Plank Overlap:** Scaffold grade planks must overlap support transoms by a minimum of (12 inches) (300 mm) unless mechanically locked.
- **Guardrail Profiles:** Top rails must be secured at a height between (38 inches) (0.97 m) and (45 inches) (1.14 m) above the platform floor. Mid-rails must be centered.
- **Toe Boards:** Solid barriers of at least (3.5 inches) (89 mm) in vertical height are mandatory along all exposed edges to mitigate dropped-object hazards.



7.5 Summary Specification Data

Parameter	Technical Requirement	Reference Standard
Pipe OD & Thickness	$\sqrt{48.3 \text{ mm} \times 4.0 \text{ mm}}$	EN 39 / BS 1139 Type 4
Material	High-Tensile Carbon Steel	ASTM A500 / Grade B
Ultimate Safety Factor	$\sqrt{4 \times \text{Maximum Intended Load}}$	OSHA 1926.451(a)(1)
Finish	Hot-Dip Galvanized	ASTM A123
Vertical Tie Intervals	Max $\sqrt{20 \text{ ft}}$ to $\sqrt{26 \text{ ft}}$	OSHA 1926.451(c)(1)



SECTION # 8.0

ALUMINUM COMPOSITE PANEL (ACP) CLADDING

8.1 ACP Cladding Specification

- Supply, Fabrication and fixing in position aluminum composite panel cladding of Eurobond/Alucobond/Durabuild (colors at the choice of client) make comprising of **POLYETHYLENE CORE** sandwiched between skins of 0.50 mm thick special alloyed aluminum sheet to have overall thickness of 4 mm to masonry/concrete parapets.
- The composite panel of required shapes and profiles will be fixed to the parapet using 50mm × 25mm × 2mm Rectangular Box section as backup aluminum framework.
- The anchoring of the ACP Cladding to the RCC Beams / Slabs / Columns shall be done with 6mm thick MS brackets & clamps (hot dip galvanized to 80–100 micron thick).
- The anchoring of brackets to RCC Beams shall be done with M10 × 90 Hilti/Fischer/Commercial equivalent make anchors with a minimum anchoring depth of 75 mm in the concrete to withstand the dead load of ACP cladding as well as stresses due to wind pressure.
- The grooves between the ACP panels shall be sealed by inserting Bond Breaking Backer Rod as manufactured by Supreme Industries and by application of High Performance Structural Silicon Sealant DC 995 and 3M Tapes from inside, and DC-789 from outside as manufactured by Dow Corning or Silpruf/Ultrapruf GE Sealants.
- Gaps up to 10–15 mm between the Masonry / R.C.C. / Stone and the Peripheral Mullions and Transoms shall be sealed by inserting Bond Breaking Backer Rod as manufactured by Supreme Industries, and by application of weather silicon sealant DC 789 (Black) of Dow Corning both from inside and outside to make the cladding air/water tight.

8.2 Standard Dimensions

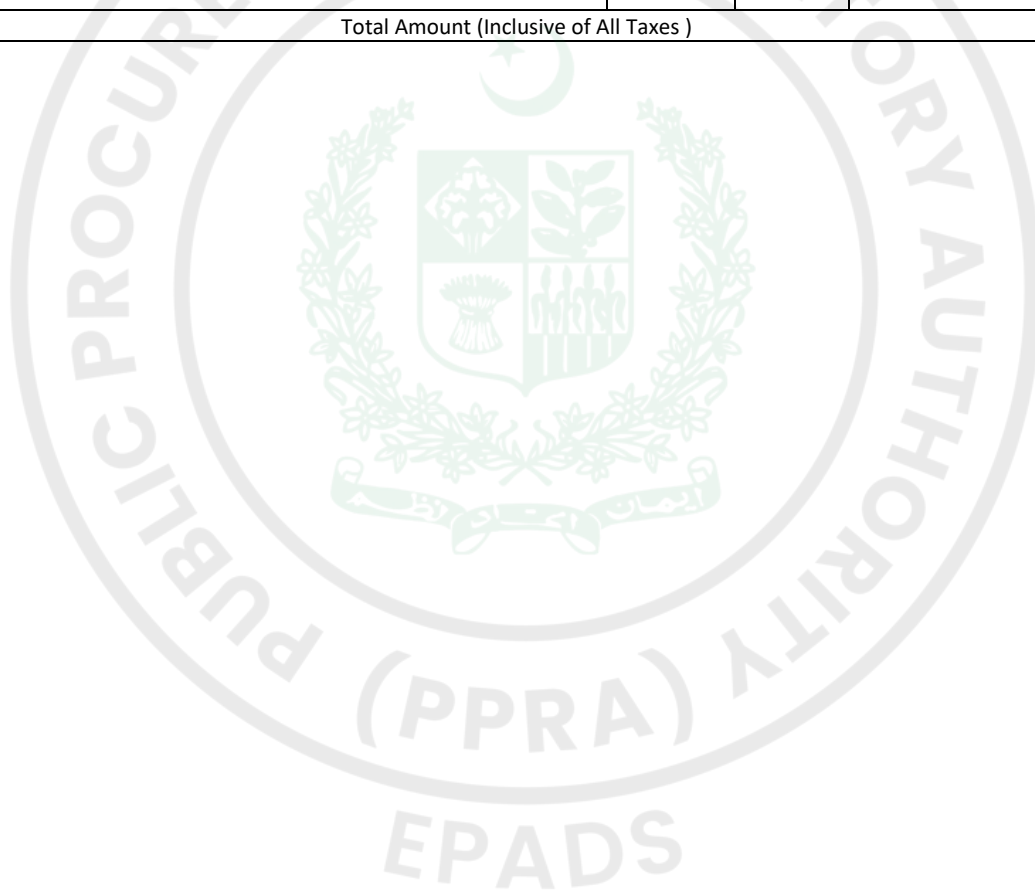
Thickness: 1mm, 2mm, 3mm, 4mm and 5mm & 6mm as per order

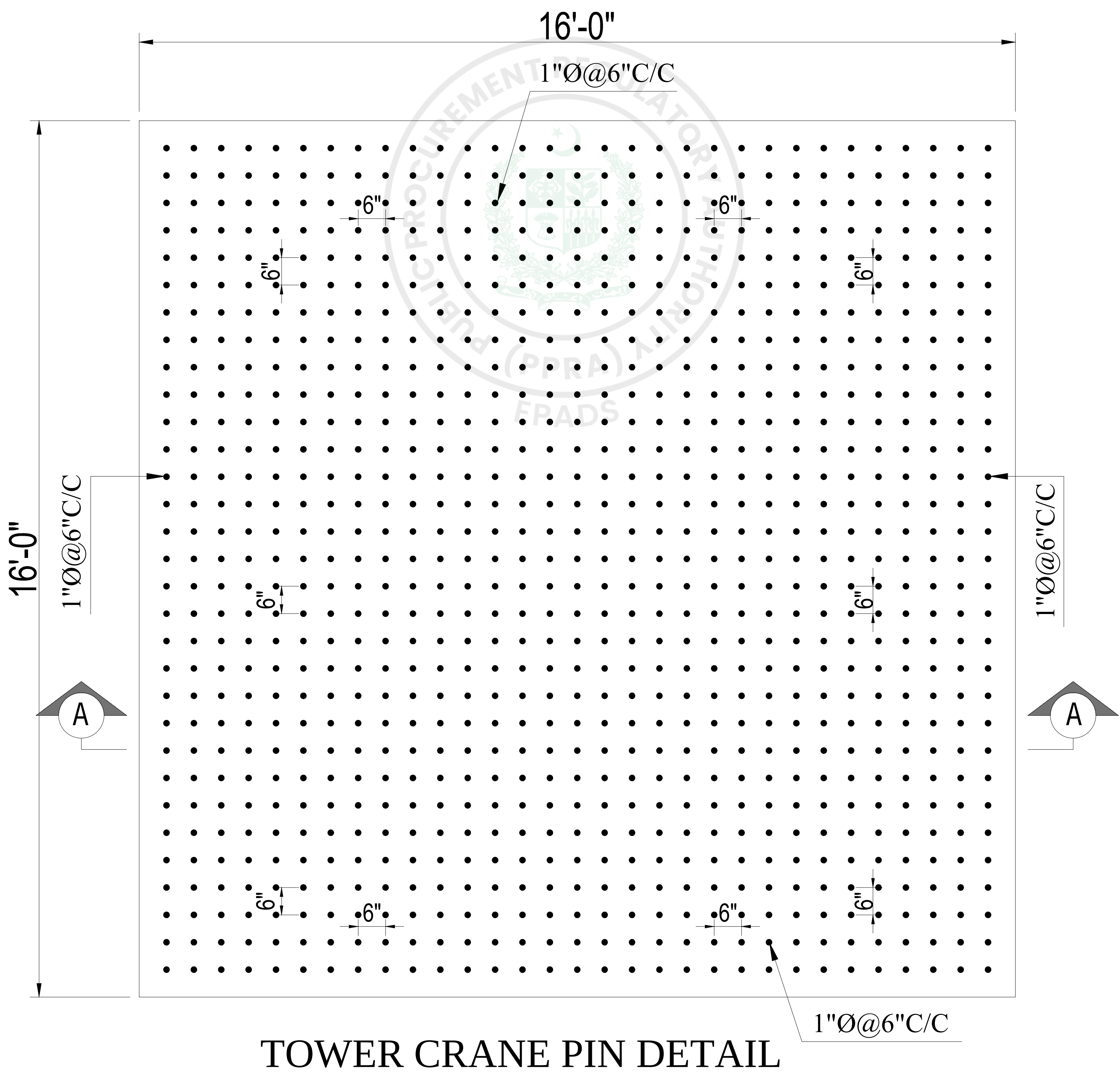
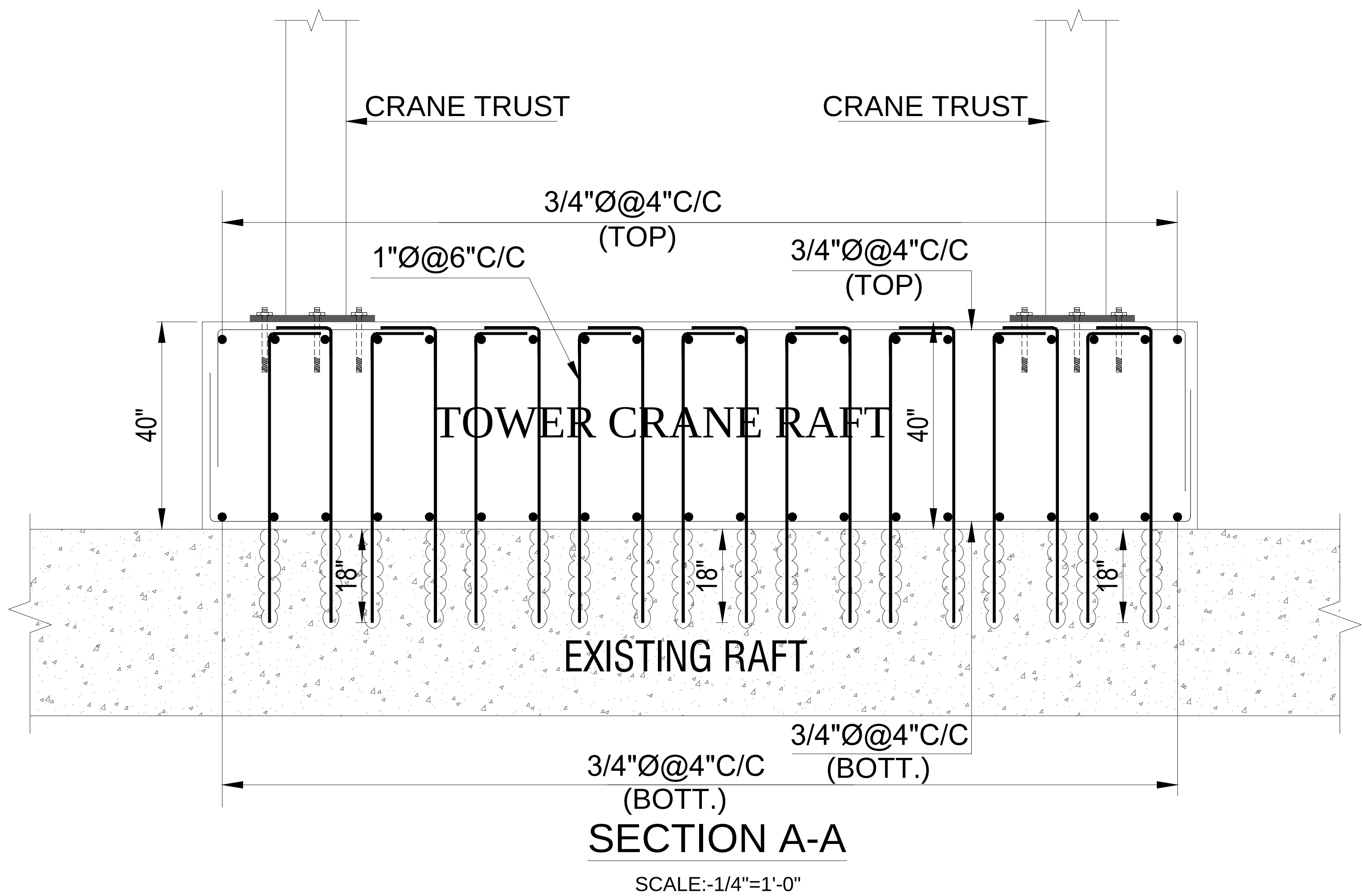
Size: 1220 mm × 2440 mm, 1220 mm × 3050 mm, 1220 mm × 3660 mm

Ref. No.	Description	Unit	Qty	Rate (Including Tax)	Amount
PHASE-1 (1)	Erection of steel pipe folding all around the building in 30° offset double pipe braced with horizontal pipes from podium level to final roof level including platform slab panels for safe working of labor for removal of ACP cladding panels and other activities till end of project. (Approx 15000 Pipes 20ft long and 20000 pipes 6ft long & approx 80000 Joints)(for Minimum 24 Months Till end of Job) to entire satisfaction of Client and Consultant, complete in all respect. Beside erection of scaffolding for removal of precast RCC panels, contractor shall also prepare deck at working level & below the working level (Using 1000Nos 2ft X 4ft Steel Planks made of 3mm steel plate & 1.5" X1.5" /3mm Angle) for working platform & Supporting Shield any accidental mishandling of precast RCC panels, to avoid falling to ground. This deck shall be moved to upper levels as per progress of work, around the building. All these vertical Scaffolding pipes be rested on 1" thick two Nos wooden planks of strong wood and be started with load distributing pipe foot base plate of 6mm thickness with 12" X 12" size as shown in drawings for erection of scaffolding.	%Job	1		
PHASE-1 (2)	Providing Fixing Launching, erecting 200 ft Clear Boom length & 280ft High Tower Crane for lifting Precast RCC Panels and lowering to ground with minimum effective lifting capacity of 1.5 M.T for a period of 15 Months Complete in all respect including Driver and supervisors and support staff. With working hours as allowed by Client to start and end of work, to complete satisfaction of Client & Consultant.	%Months	18		
PHASE-1 (3a)	Contractor is required to Prepare Tower Crane Base in Basement Floor as per consultant supplied drawings and as additionally directed by engineers during the course of working, following items to be carried: Drill and grout 1-1/8" dia holes for anchoring of 1" dia steel dowels / J Bolts for the preparation of Tower Crane Base in existing Basement Raft Slab at designated location using specified grouting two components chemical complete in all respect.	%Nos.	1,024		
PHASE-1 (3b)	Contractor is required to Prepare Tower Crane Base in Basement Floor as per consultant supplied drawings and as additionally directed by engineers during the course of working, following items to be carried: Supply 60 Grade Steel including cutting bending & binding with 20 Gauge Binding wire Raft Reinforcement as per design and drawings provided complete in all respect.	%MATIC TON (M.T)	5		
PHASE-1 (3c)	Contractor is required to Prepare Tower Crane Base in Basement Floor as per consultant supplied drawings and as additionally directed by engineers during the course of working, following items to be carried: Supply and fix Tower Crane Base, 6000Psi Concrete as per drawings and specification.	%Cft	1,024		
PHASE-1 (4)	Fixing of Tower Crane Base Studs / J Bolts as per Design and as additionally directed by Crane Supplier. Studs to be supplied by the Crane Supplier.	%Nos.	16		
PHASE-1 (5a)	Construction of Supporting Columns for the proposed cutting of Podium Slab: Supply 60 Grade Steel including cutting bending & binding with 20 Gauge Binding wire and fabrication as per design and drawings provided complete in all respect.	%MATIC TON (M.T)	1		
PHASE-1 (5b)	Construction of Supporting Columns for the proposed cutting of Podium Slab: Supply and fill compact, 6000Psi Concrete in Supporting Podium Columns including complete formwork as per drawings and specification.	%Cft	240		
PHASE-2 (1)	Removal of ACP Panels without damaging the face, from all around the building, from all floors and staking of the removed panels safely as per client instruction, however contractor may submit his work method statement to the Client / Consultant to satisfy this way of working to speed up the work and bring the ACP sheet panels with minimum damage.	%Sft	140,000		
PHASE-2 (2)	Dismantling and removal of precast RCC panels with minimum distortion from first floor level to Sixteen floor level from all around the building, and chiseling cutting and detaching from corbel bracket, wrapping with special belts and chains for safe removal through tower crane. This job needs indepth understanding of working and contractor shall be required to submit his method statement for the safe removal of such precast RCC panels, that his team has gained the same method of working which has been approved by the Client and Consultant, for changing or deviating from the method submitted Contractor shall be required to submit a fresh method statement which will be mutually agreed and approved by Client & Consultant for the requested method.	%Nos.	1,536		
PHASE-2 (3)	Dismantling and removal of Roof top Cantilever RCC Slab from all four corners of the building, wrapping with special belts and chains for safe removal through tower crane. This job needs indepth understanding of working and contractor shall be required to submit his method statement for the safe removal of such RCC slabs, that his team has gained the same method of working which has been approved by the Client and Consultant, for changing or deviating from the method submitted Contractor shall be required to submit a fresh method statement which will be mutually agreed and approved by Client & Consultant for the requested method.	%Jobs	4		

PHASE-2 (4)	Dismantling and removal of RCC Podium Slab & Beams from from Ground level for erection of tower crane. This job needs indepth understanding of working and contractor shall be required to submit his method statement for the safe removal of such precast RCC panels, that his team has gained the same method of working which has been approved by the Client and Consultant, for changing or deviating form the method submitted Contractor shall be required to submit a fresh method stament which will be mutually agreed and approved by Client & Consultant for the requested method.	%Jobs	1		
PHASE-2 (5)	Providing and fixing of GI Sheet for Existing Glass Window protection all around the building as protection shield to entire satisfaction of Client and Consultant progressively rising and maintaining on each floor as per progress of work.	%Sft	40,000		
PHASE-3 (1)	Restoration of Broken cantilever slab at floor level and at window lintel level using 1:2:2 concrete and steel reinforcement with smooth troweled finish surface, complete in all respect as per site requirement and as encountered at site, contractor shall be required to keep informed the client & consultant the physical condition of these cantilever slabs condition in description and by photo graphic manner for decissions from time to time, location to location & floor by Floor, complete in all respect to entire satisfaction of client & consultant.	%Sft	18,800		
PHASE-3 (2)	Cutting & Restoration of Cantilever Slab, window sill slab on all floors for proposed new elevation with 1:2:2 Concrete and steel reinforcement with smooth troweled finish surface, complete in all respect as per site requirement and as encountered at site, contractor shall be required to keep informed the client & consultant the physical condition of these cantilever slabs condition in description and by photo graphic manner for decissions from time to time, location to location & floor by Floor, complete in all respect to entire satisfaction of client & consultant.	%Sft	6,600		
PHASE-3 (3)	Providing, Lifting, Placing Erecting 4"thick Block Masonry wherever required at any floor using 1:4 in mortar as per site requirement and as additionally director by engineer. complete in all respect as per site requirement and as encountered at site specially from First floor to Fourth Floor, contractor shall be required to keep informed the client & consultant the physical condition of these Block Masonry existing condition in description and by photo graphic manner for decissions from time to time, location to location & floor by Floor, complete in all respect to entire satisfaction of client & consultant.	%Sft	15,200		
PHASE-3 (4)	Plaster the Block Masonry from exterior face in 1:4 cement sand Mortar ratio at any floor and location as per site requirement and as additionally directed by engineer and cure for three days. complete in all respect as per site requirement and as encountered at site, contractor shall be required to keep informed the client & consultant the physical condition of the Block Masonary Plaster existing condition in description and by photo graphic manner for decissions from time to time, location to location & floor by Floor, complete in all respect to entire satisfaction of client & consultant.	%Sft	15,200		
PHASE-3 (5a)	Paint Work and Water Proofing: Internal Paint	%Sft	15,200		
PHASE-3 (5b)	Paint Work and Water Proofing: External Paint	%Sft	24,000		
PHASE-3 (5c)	Paint Work and Water Proofing: Water Proofing by Grey Seal PU900 or Equivalent.	%Sft	19,200		
PHASE-3 (6a)	Reconstruction of Roof Cantilever Slab: Supply 60 Grade Steel including cutting bending & binding with 20 Guage Binding wire and fabrcation as per design and drawings provided complete in all respect.	%MATIC TON (M.T)	5		
PHASE-3 (6b)	Reconstruction of Roof Cantilever Slab: Supply and fill compact, 6000Psi Concrete in roof top Cantilever Slab including complete formwork as per drawings and specification.	%Cft	800		
PHASE-3 (7a)	Reconstruction of Podium Slab & Beams: Supply 60 Grade Steel including cutting bending & binding with 20 Guage Binding wire and fabrcation as per design and drawings provided complete in all respect. For construction of Podium Slab at the end of removal of Tower Crane and make good.	%MATIC TON (M.T)	4		
PHASE-3 (7b)	Reconstruction of Podium Slab & Beams: Supply, fill and compact, 6000Psi Concrete in Podium Slab and Beams including complete formwork as per drawings and specification.	%Cft	450		
PHASE-3 (8)	Removal of RCC Raft constructed for support of Tower crane at the end of work, complete in all respect to entire satisfaction of client	%Job	1		
PHASE-3 (9)	Restoration of Basement floor as its orignal condition as per client instruction complete in all respect.	%Job	1		
PHASE-3 (10)	Restoration of Podium Flooring in the end of work with matching Mossaic Tiles complete in all respect with grinding & polishing.	%Job	1		
PHASE-4 (1)	Architectural Work Facade Treatment: Providing and fixing of Anchor Bolts in column and Cantilever Slabs for holding of facade Panel supports as per design and details provided at all levels and floor around the entire building, complete in all respect as per site requirement and as encountered at site. (Approx 10,000)	%Nos.	10,000		
PHASE-4 (2)	Providing and fixing of SS square pipe 50mm X50m by 1.5mm Thick Horizontal support for new designed facade panels as per design & detail provided. Also provide Marine Epoxy Protective Coating over SS Channels & Sections approved by consultant	%Rft	27,500		

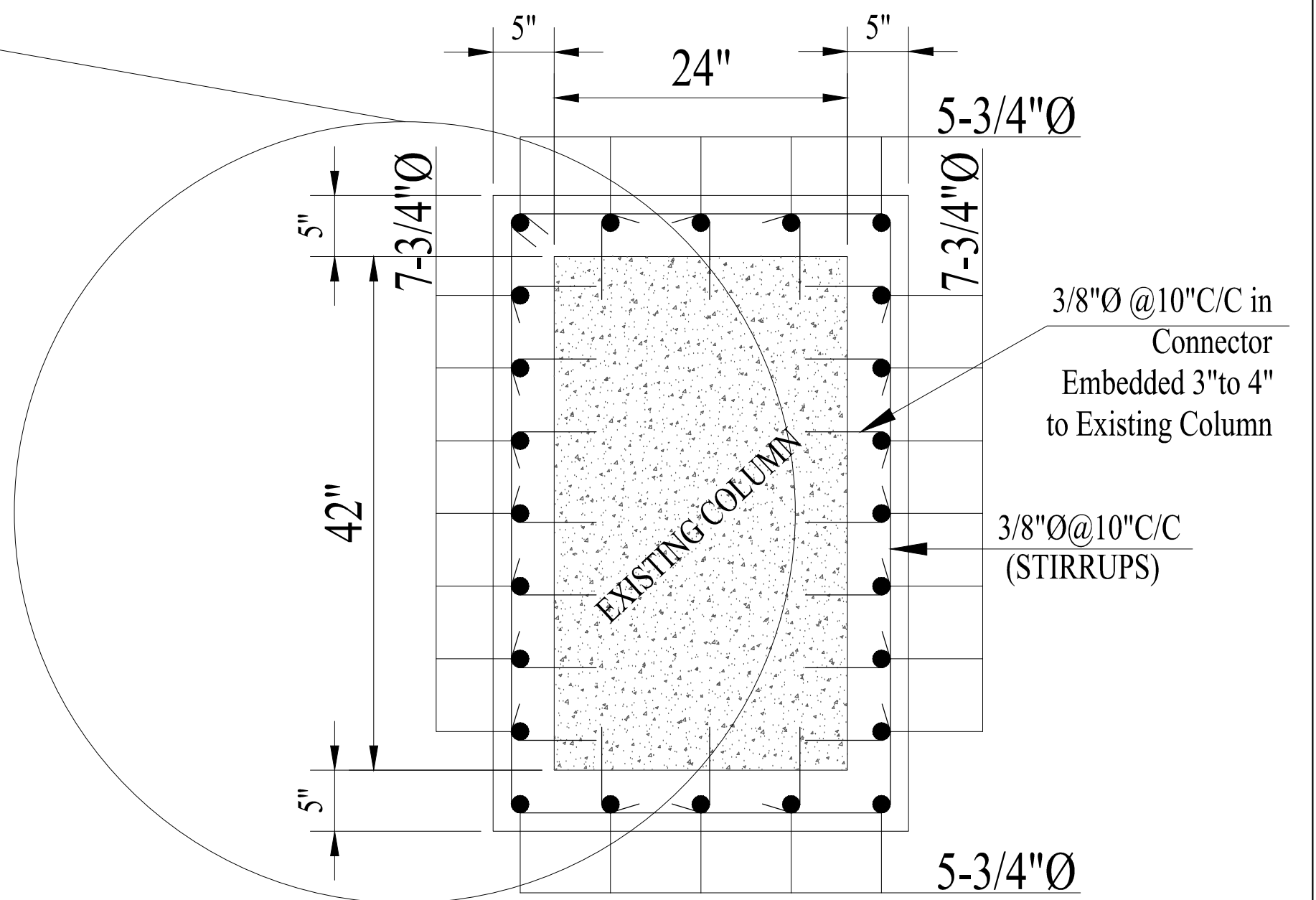
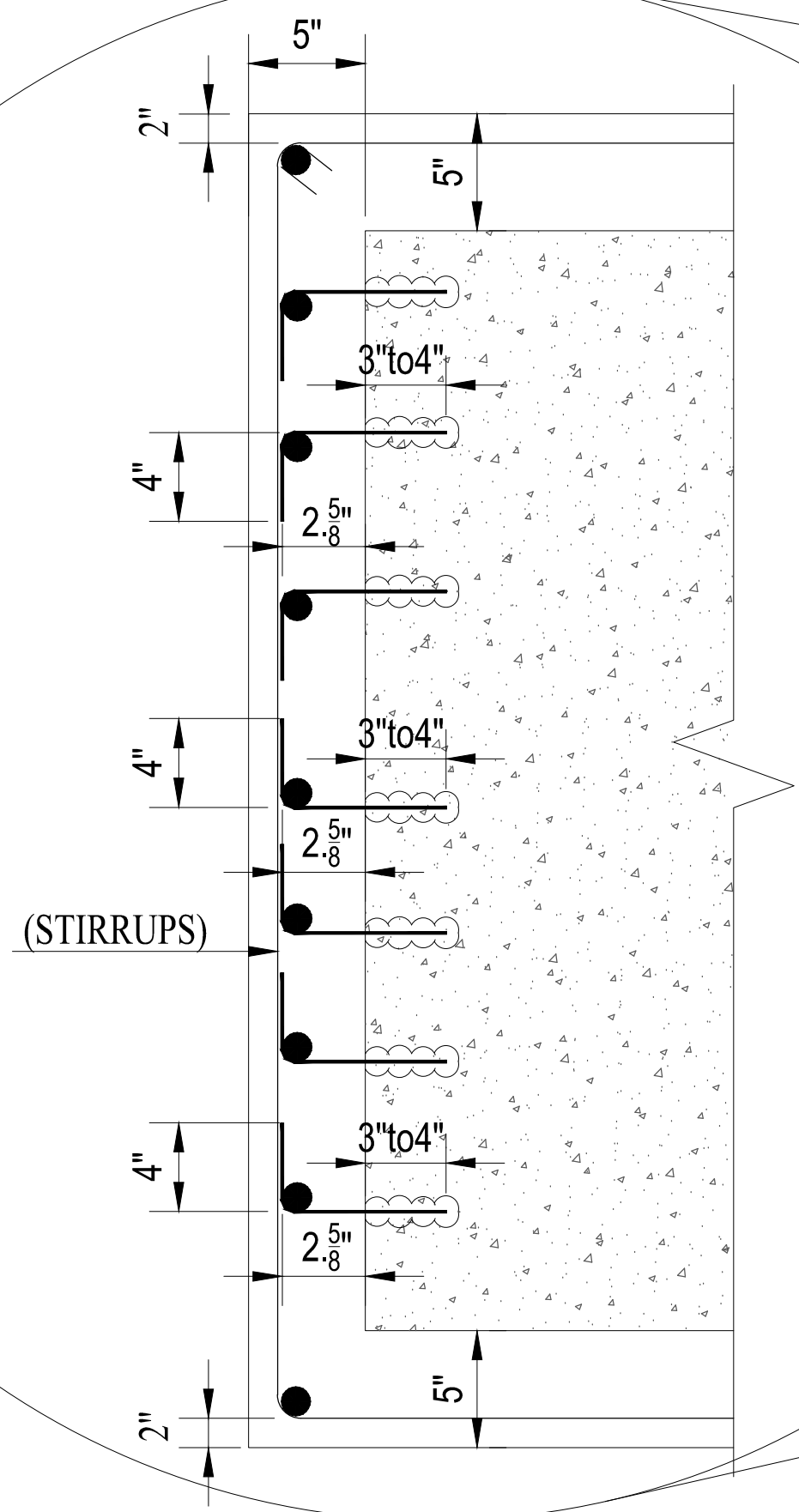
PHASE-4 (3)	Providing and fixing jointing vertical profile of SS square pipe 50mm X 50mm by 1.5mm thickness for holding of proposed panels as per design and detail provided. Also provide Marine Epoxy Protective Coating over SS Channels & Sections approved by consultant	%Rft	27,500		
PHASE-4 (4)	Installation of fire retardant A2 aluminum composite cladding Panels in given size, color and design with sizes cut to meet the Architectural Panels Beauty as shown on drawings and cutting the crners and bend as per site requirements, 4mm total thickness and 0.5mm sheets both sides at a fixed basic price of Rs. 1750 per sft (to be included in the quoted rate and deducted in building). The installation to include fabrication, cutting, bending, folding and grooving etc., over rigidly fixing sub-framing of heavy duty aluminum/SS profiles with stainless steel screw/anchors. "No. M.S component will be used" on to the already cement plastered building facade including all necessary trims, copings, skills, corner units, clips, flashings, fillers rivets, bolts/nuts, tapping screws, water proofing silicone sealants SILANDE/MF 889 Imported china or equivalent in grooves to completely seal the installation and complete the cladding works as per drawing and the satisfaction of the Architect/Engineer. Price to include the cost of working at any height complying with all HSE measures and mock ups. Prior to final installation a complete mock up of approx. 10 sq. meters is to be installed and approved by the Consultant. Exprienced Skilled workers & Staff shall be needed to be engaged for this work to uniformly transfer the layout around the building. Any unspoken work needed for the completion of this job should not be avoided for the subject work. (Basic Price of Fire Rated ACP Sheet to be taken as Rs.1750.00 per Sft)	%Sft	154,594.59		
Total Amount (Inclusive of All Taxes)					



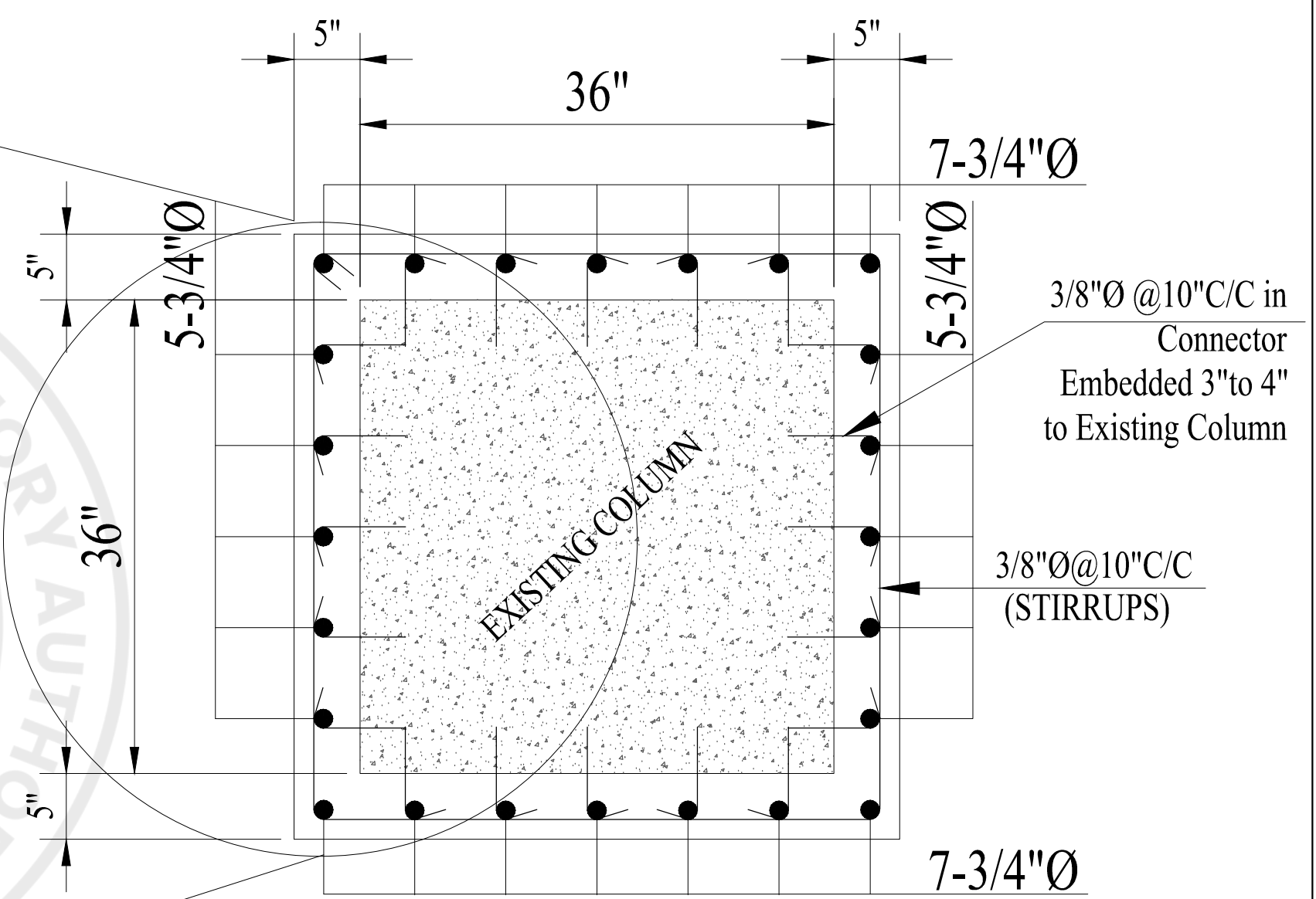
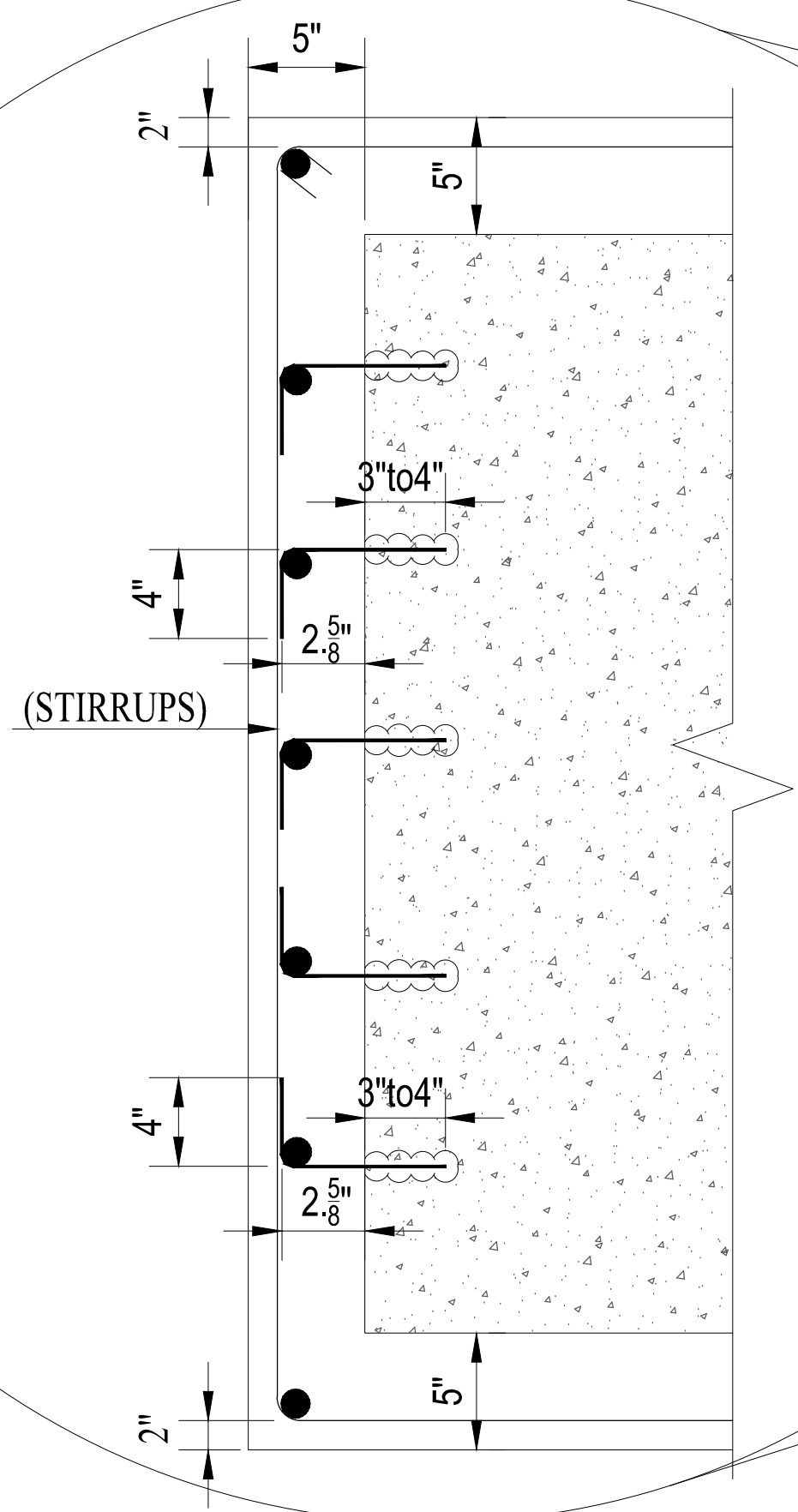


NOTE:-
FOUNDATION $f_c' = 6000$ psi (CYLINDRICAL STRENGTH)

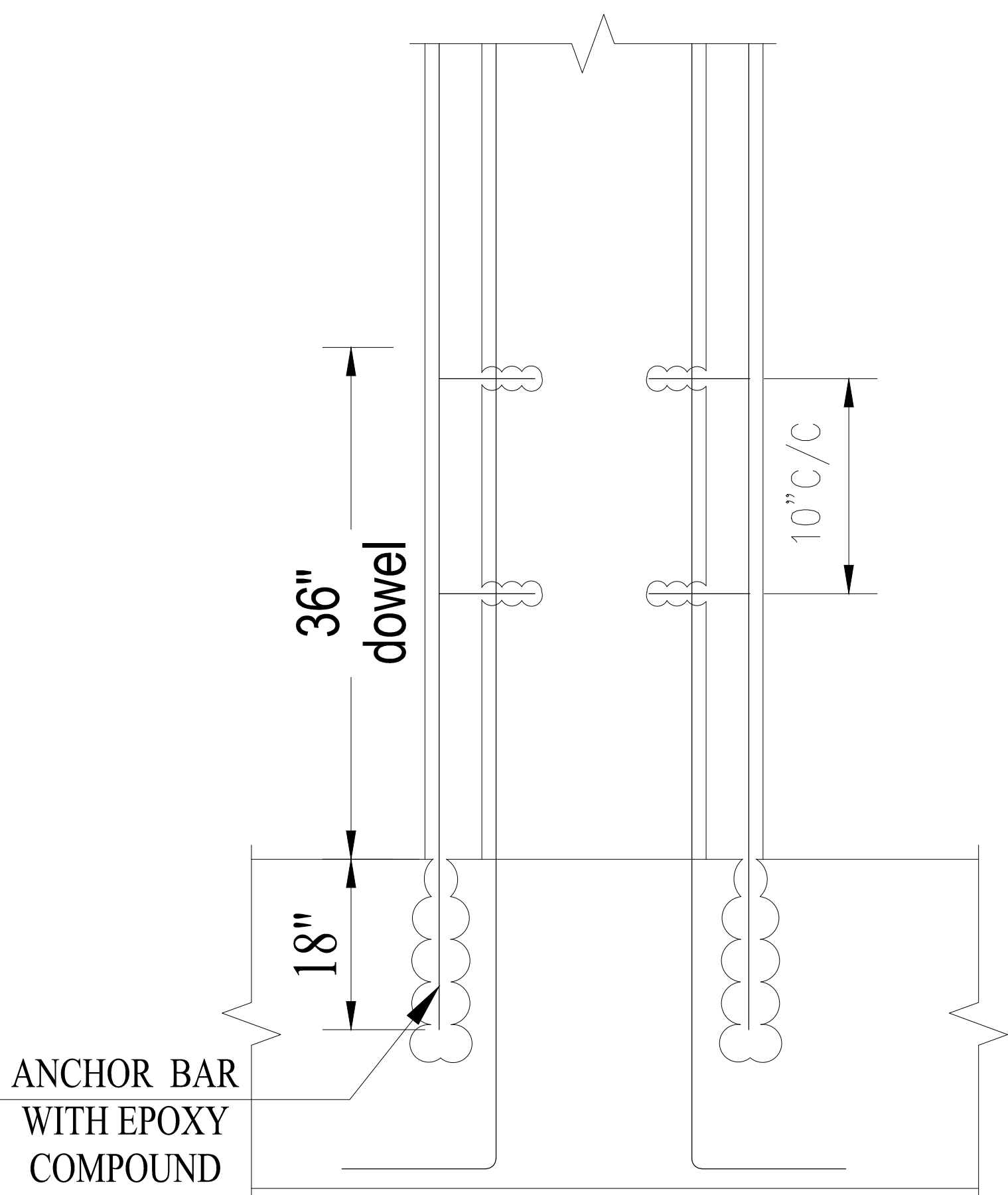
PROJECT:	
FACELIFT OF PNSC BUILDING KARACHI.	
TITLE:	
TOWER CRANE FOUNDATION DETAIL	
DESIGN BY:	DATE :
	MAY - 2026
DRAWN BY:	DRAWING NO.
	ST-01



COLUMN SECTION
24 BAR



COLUMN SECTION
24 BAR

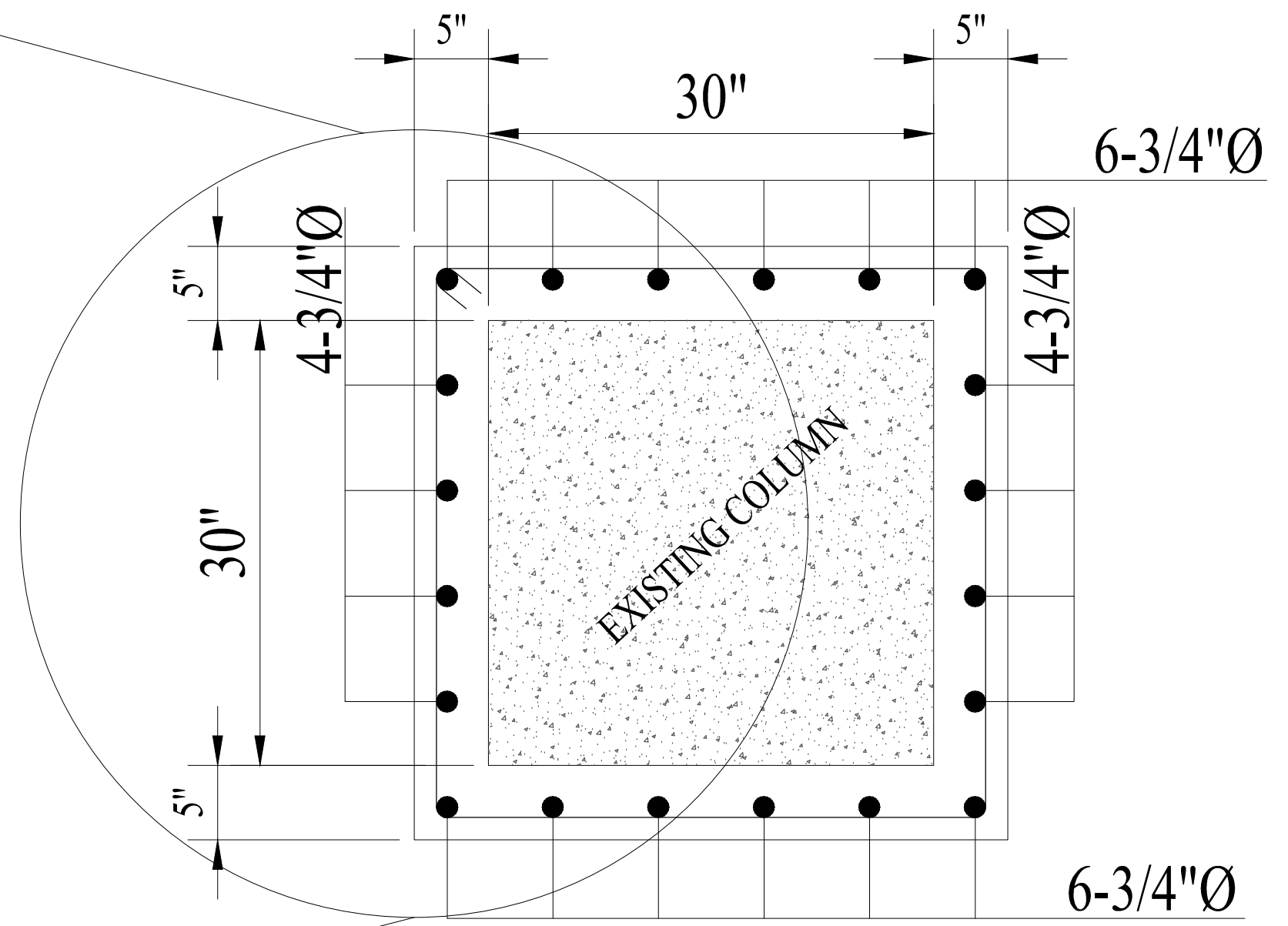
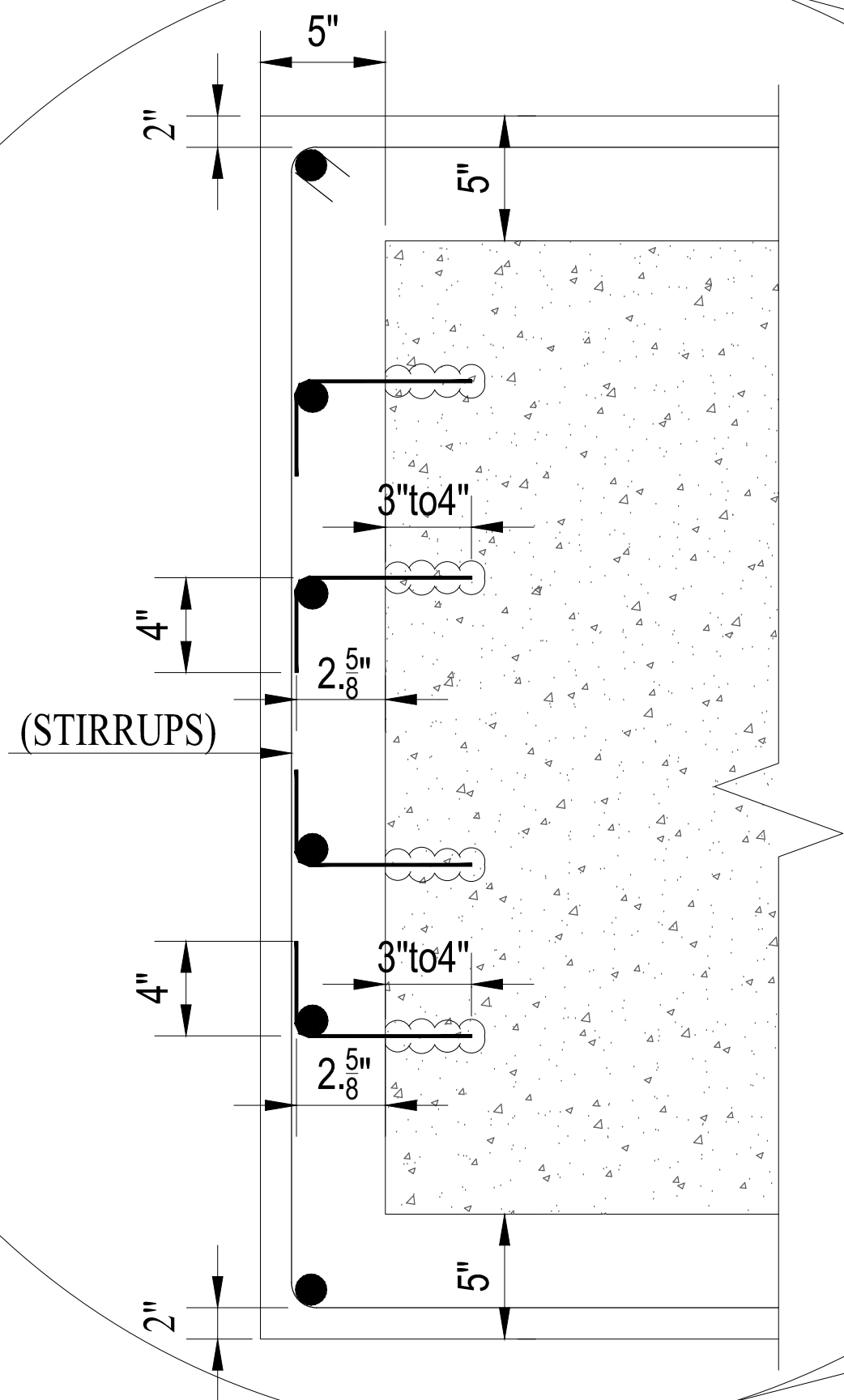


COLUMN ELEVATION
SCALE:-1/2"=1'-0"

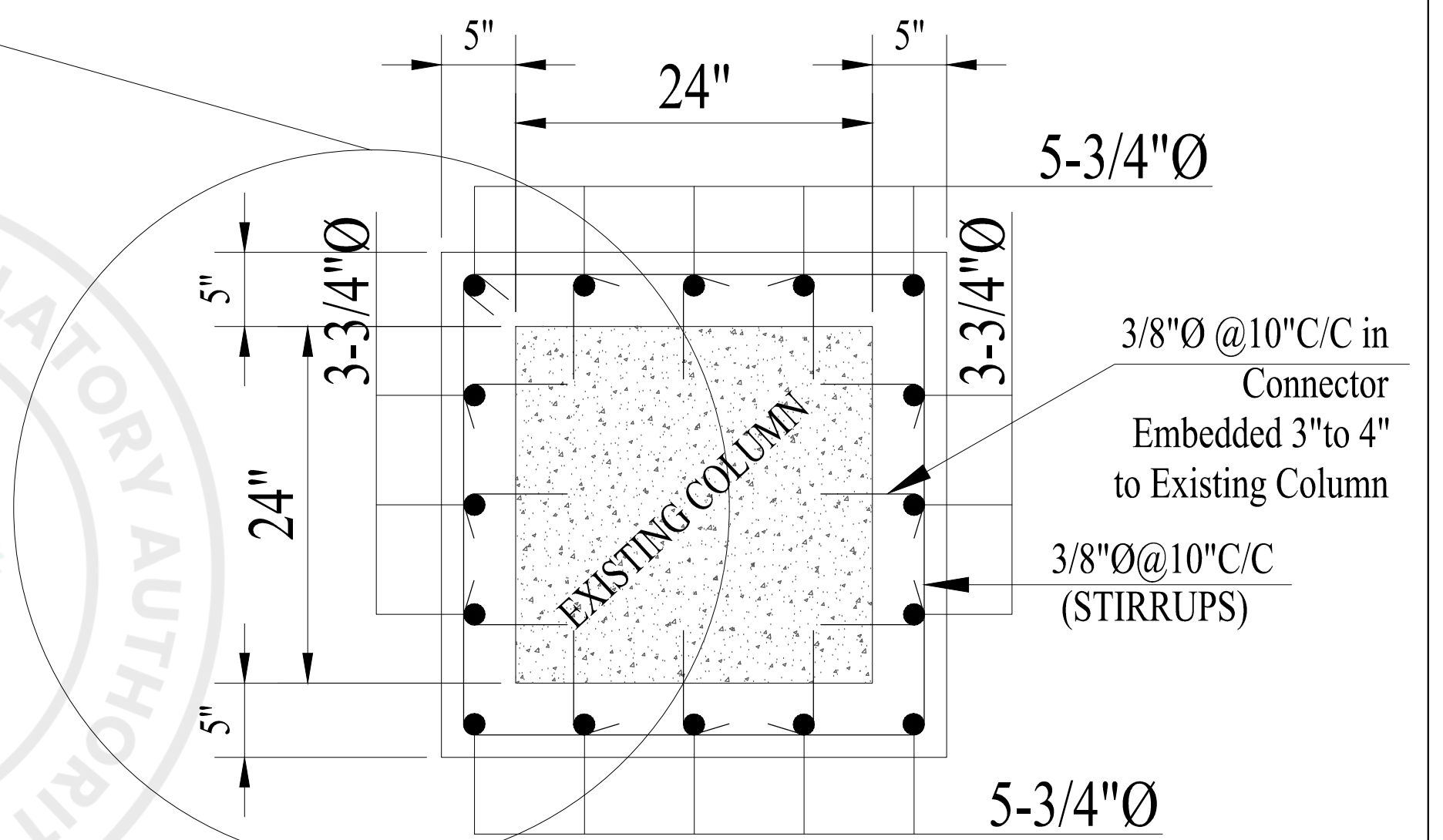
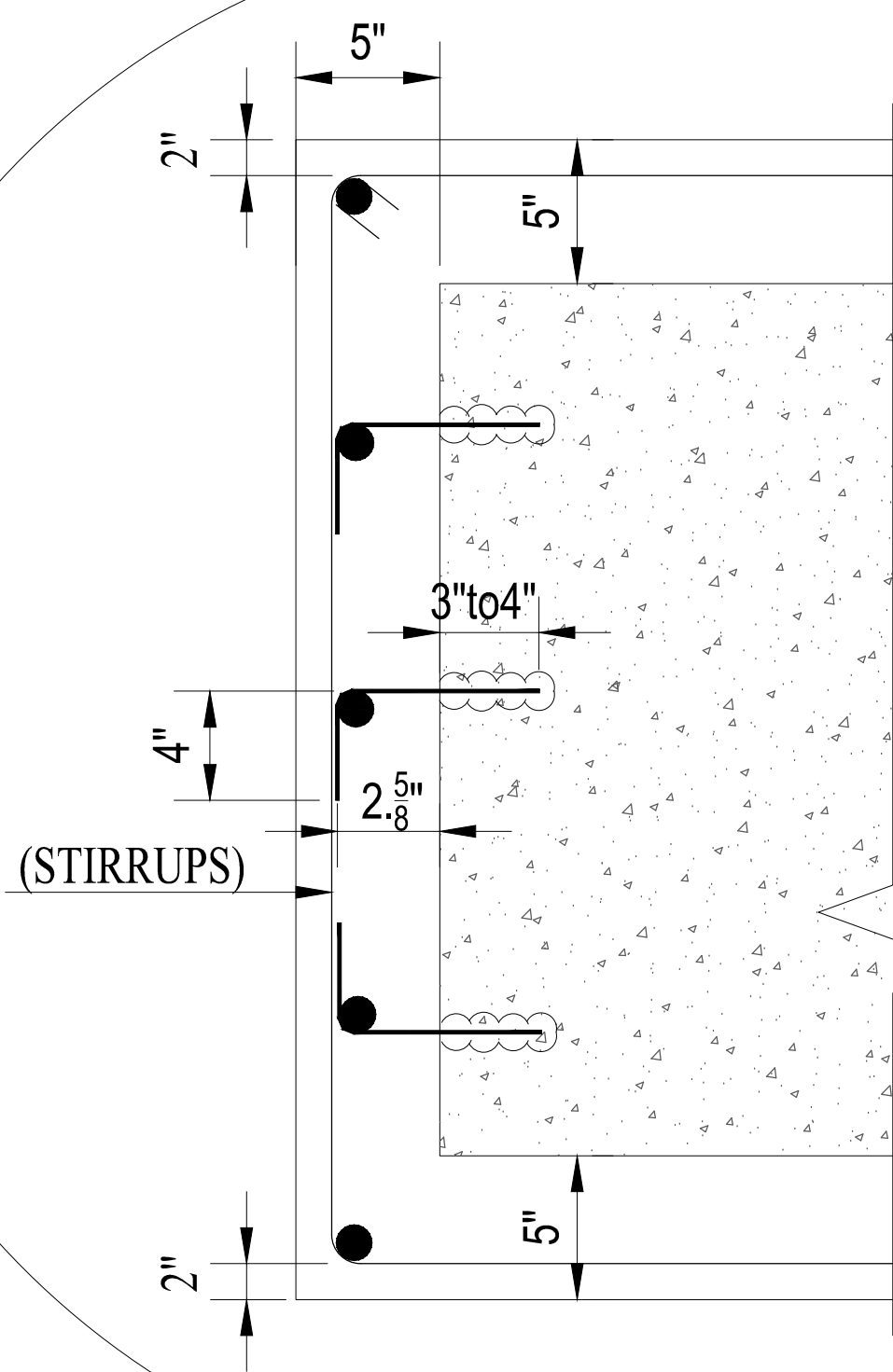
NOTE:-

$f_c' = 5000$ psi(CYLINDRICAL STRENGTH)

PROJECT:	
FACELIFT OF PNSC BUILDING KARACHI.	
TITLE:	
COLUMN JACKET DETAIL (BASEMENT & GROUND FLOOR)	
DESIGN BY:	DATE : MAY - 2026
DRAWN BY:	DRAWING NO. ST-03



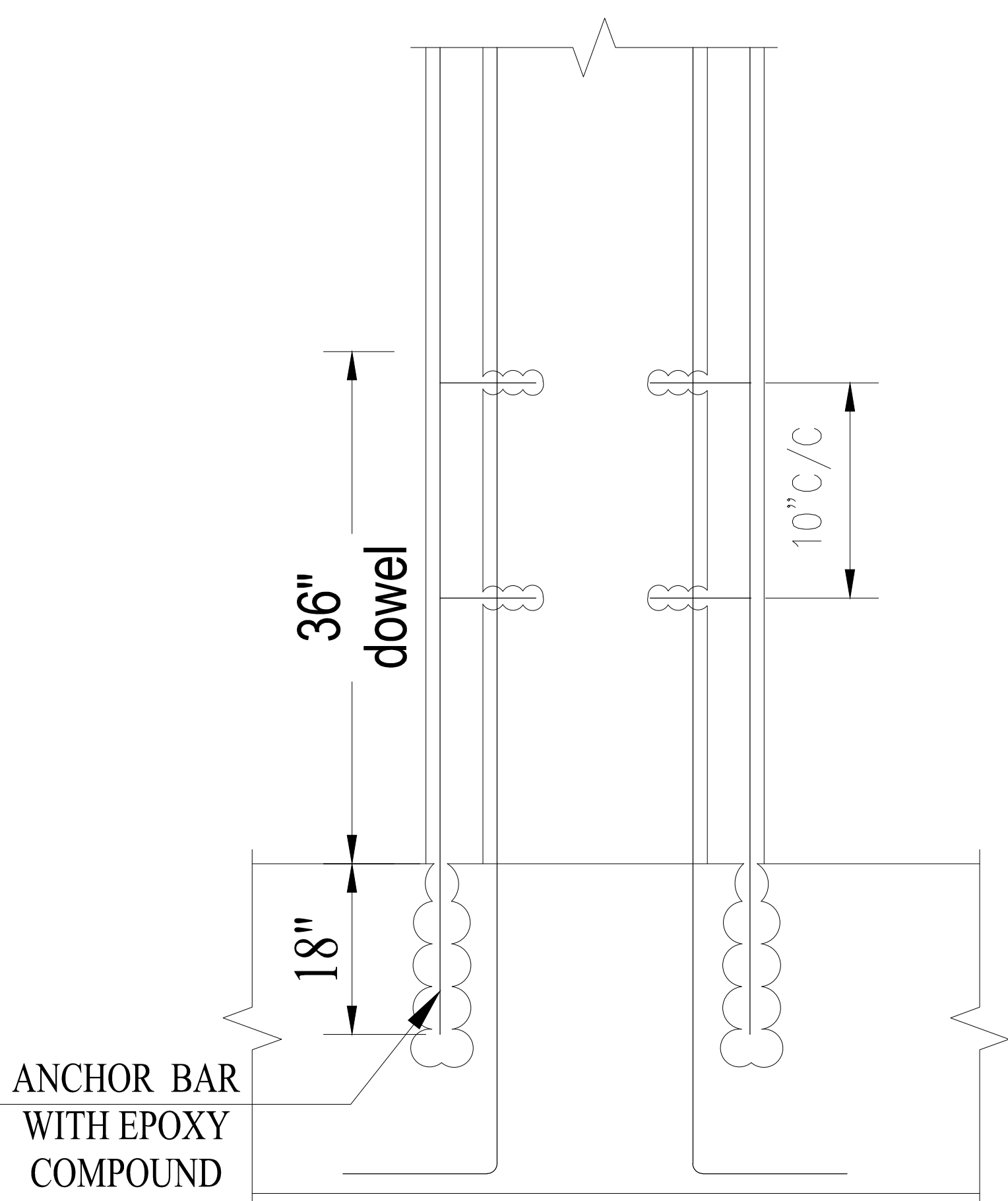
**COLUMN SECTION
20 BAR**



**COLUMN SECTION
16 BAR**

NOTE:-

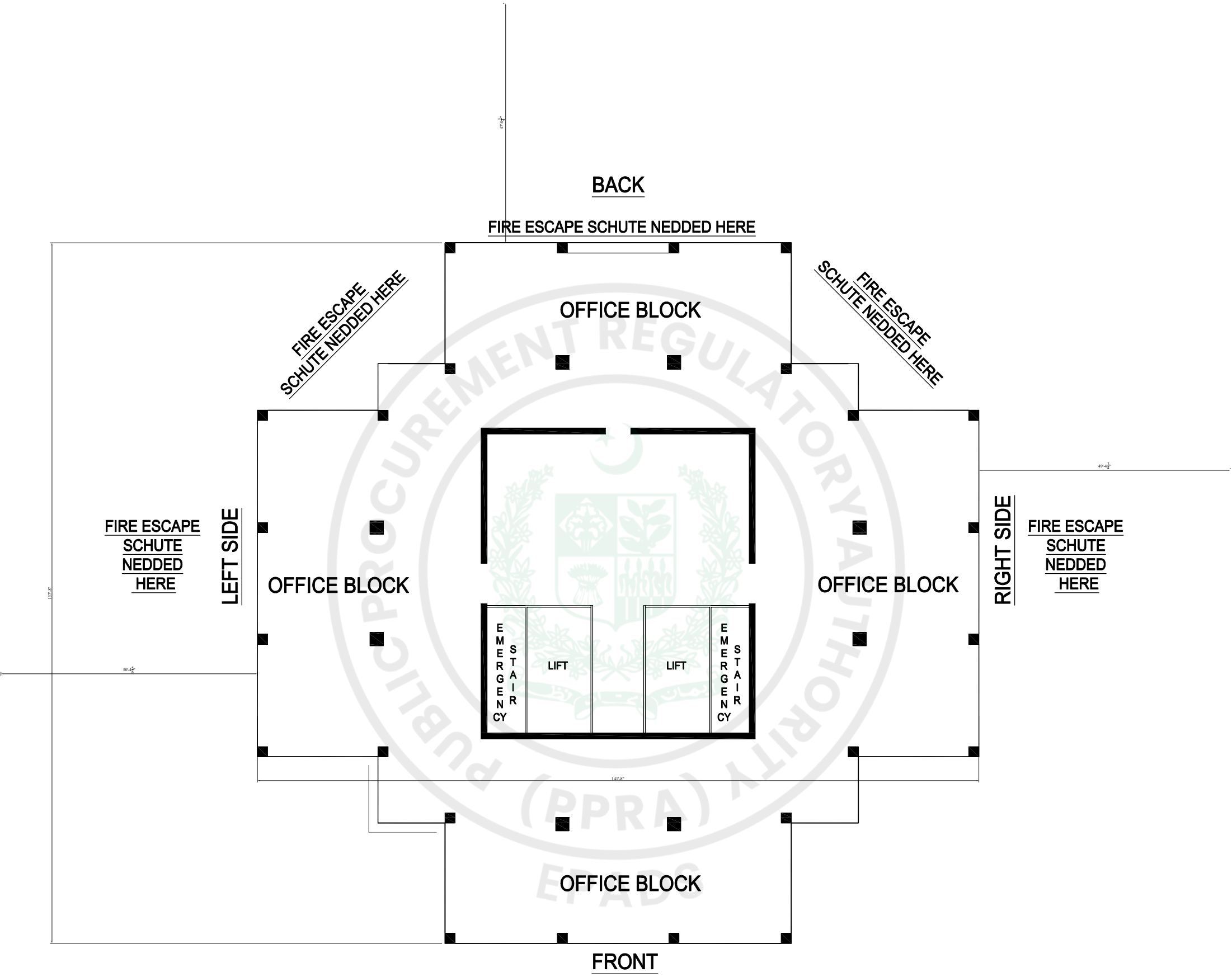
$f_c' = 5000$ psi(CYLINDRICAL STRENGTH)

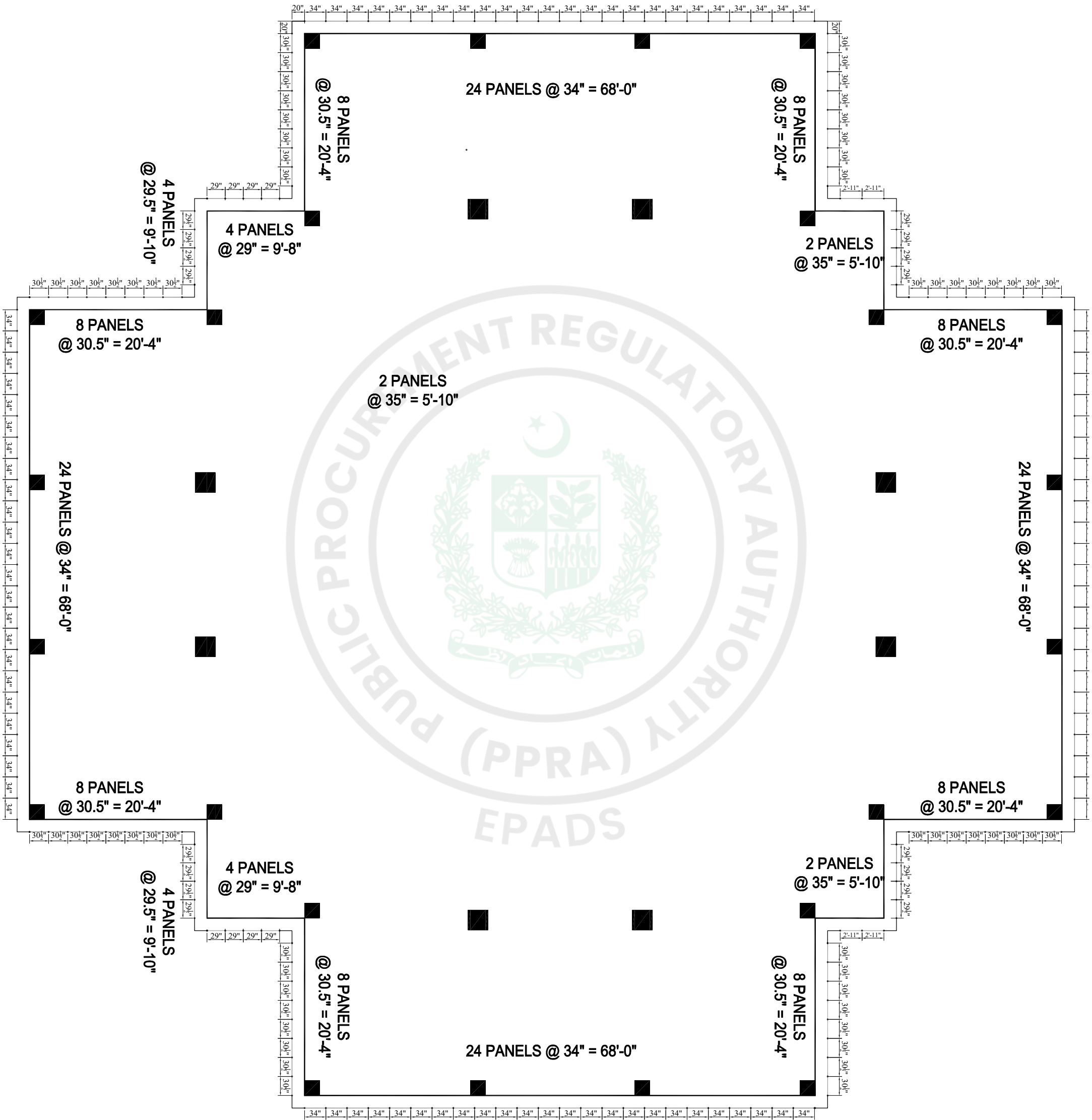


COLUMN ELEVATION

SCALE:-1/2"=1'-0"

PROJECT:	
FACELIFT OF PNSC BUILDING KARACHI.	
TITLE:	
COLUMN JACKET DETAIL (FIRST FLOOR TO 3RD FLOOR)	
DESIGN BY:	DATE : MAY - 2026
DRAWN BY:	DRAWING NO. ST-04





CONSTRUCTION EXPERIENCE

Form EXP - 4.1 General Construction Experience

Bidder's Name: _____

Date: _____

JV Member's Name _____

Bid Reference No. (if any) and title: _____

Page _____ of _____ pages

Starting Year	Ending Year	Contract Identification	Role of Bidder
		Contract name: _____ Brief Description of the Works performed by the Bidder: _____ Amount of contract: _____ Name of EMPLOYER: _____ Address: _____	
		Contract name: _____ Brief Description of the Works performed by the Bidder: _____ Amount of contract: _____ Name of EMPLOYER: _____ Address: _____	
		Contract name: _____ Brief Description of the Works performed by the Bidder: _____ Amount of contract: _____ Name of EMPLOYER: _____ Address: _____	

Form EXP - 4.2(a)
Specific Construction and Contract Management Experience

Bidder's Name: _____

Date: _____

JV Member's Name _____

Bid Reference No. (if any) and title: _____

Page _____ of _____ pages

Similar Contract No.	Information			
Contract Identification				
Award date				
Completion date				
Role in Contract	Prime Contractor ☐	Member in JV ☐	Management Contractor ☐	Sub-contractor ☐
Total Contract Amount	PKR equivalent			
If member in a JV or sub-contractor, specify participation in total Contract amount				
EMPLOYER's Name:				
Address:				
Telephone/fax number				
E-mail:				

Form EXP - 4.2(a) (cont.)
Specific Construction and Contract Management Experience (cont.)

Similar Contract No.	Information
Description of the similarity in accordance with Sub-Factor 4.2(a) of Section III:	
1. Amount	
2. Physical size of required works items	
3. Complexity	
4. Methods/Technology	
5. Construction rate for key activities	
6. Other Characteristics	

Form EXP - 4.2(b)
Construction Experience in Key Activities

Bidder's Name: _____

Date: _____

Bidder's JV Member Name: _____

Sub-contractor's Name (if any): _____

Bid Reference No. (if any) and title: _____

Page _____ of _____ pages

All Sub-contractors for key activities must complete the information and Qualification Criteria and Requirements, Sub-Factor 4.2.

1. Key Activity No One: _____

Information				
Contract Identification				
Award date				
Completion date				
Role in Contract	Prime Contractor ☐	Member in JV ☐	Management Contractor ☐	Sub-contractor ☐
Total Contract Amount	PKR equivalent			
Quantity (Volume, number or rate of production, as applicable) performed under the contract per year or part of the year	Total quantity in the contract (i)	Percentage participation (ii)	Actual Quantity Performed (i) x (ii)	
Year 1				
Year 2				
Year 3				
Year 4				
EMPLOYER's Name:				
Address:				
Telephone/fax number				

	Information
E-mail:	

2. Activity No. Two

3.

	Information
Description of the key activities in accordance with Section III:	

Form EXP - 4.2 (c)
Specific Experience in Managing ES aspects

[The following table shall be filled in for contracts performed by the Bidder, and each member of a Joint Venture]

Bidder's Name: *[insert full name]*

Date: *[insert day, month, year]*

Joint Venture Member Name: *[insert full name]*

Bid Reference No. (if any) and title: *[insert ICB/NCB number and title]*

Page *[insert page number]* of *[insert total number]* pages

1. Key Requirement no 1 in accordance with 4.2 (c): _____

Contract Identification				
Award date				
Completion date				
Role in Contract	Prime Contractor ☐	Member in JV ☐	Management Contractor ☐	Subcontractor ☐
Total Contract Amount			PKR	
Details of relevant experience				

2. Key Requirement no 2 in accordance with 4.2 (c): _____
3. Key Requirement no 3 in accordance with 4.2 (c): _____
4. [PA define key requirements]

Contractor's Representative and Key Personnel Schedule

Bidders should provide the names and details of the suitably qualified Contractor's Representative and Key Personnel to perform the Contract. The data on their experience should be supplied using the Form PER-2 below for each candidate.

Contractor' Representative and Key Personnel

1.	Title of position:	
	Name of candidate:	
	Duration of appointment:	<i>[insert the whole period (start and end dates) for which this position will be engaged]</i>
	Time commitment: for this position:	<i>[insert the number of days/week/months/ that has been scheduled for this position]</i>
	Expected time schedule for this position:	<i>[insert the expected time schedule for this position (e.g. attach high level Gantt chart)]</i>
2.	Title of position:	
	Name of candidate:	
	Duration of appointment:	<i>[insert the whole period (start and end dates) for which this position will be engaged]</i>
	Time commitment: for this position:	<i>[insert the number of days/week/months/ that has been scheduled for this position]</i>
	Expected time schedule for this position:	<i>[insert the expected time schedule for this position (e.g. attach high level Gantt chart)]</i>
3.	Title of position:	
	Name of candidate:	
	Duration of appointment:	<i>[insert the whole period (start and end dates) for which this position will be engaged]</i>
	Time commitment: for this position:	<i>[insert the number of days/week/months/ that has been scheduled for this position]</i>
	Expected time schedule for this position:	<i>[insert the expected time schedule for this position (e.g. attach high level Gantt chart)]</i>
4.	Title of position:	
	Name of candidate:	
	Duration of appointment:	<i>[insert the whole period (start and end dates) for which this position will be engaged]</i>

	Time commitment: for this position:	<i>[insert the number of days/week/months/ that has been scheduled for this position]</i>
	Expected time schedule for this position:	<i>[insert the expected time schedule for this position (e.g. attach high level Gantt chart)]</i>
5.	Title of position:	
	Name of candidate	
	Duration of appointment:	<i>[insert the whole period (start and end dates) for which this position will be engaged]</i>
	Time commitment: for this position:	<i>[insert the number of days/week/months/ that has been scheduled for this position]</i>
	Expected time schedule for this position:	<i>[insert the expected time schedule for this position (e.g. attach high level Gantt chart)]</i>
6.	Title of position: <i>[insert title]</i>	
	Name of candidate	
	Duration of appointment:	<i>[insert the whole period (start and end dates) for which this position will be engaged]</i>
	Time commitment: for this position:	<i>[insert the number of days/week/months/ that has been scheduled for this position]</i>
	Expected time schedule for this position:	<i>[insert the expected time schedule for this position (e.g. attach high level Gantt chart)]</i>

**Form PER-2:
Resume and Declaration
Contractor's Representative and Key Personnel**

Name of Bidder

Position [#1]: <i>[title of position from Form PER-1]</i>		
Personnel information	Name:	Date of birth:
	Address:	E-mail:
	Professional qualifications:	
	Academic qualifications:	
	Language proficiency: <i>[language and levels of speaking, reading and writing skills]</i>	
details		
	Address of Employer:	
	Telephone:	Contact (manager / personnel officer):
	Fax:	
	Job title:	Years with present Employer:

Summarize professional experience in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

Project	Role	Duration of involvement	Relevant experience
<i>[main project details]</i>	<i>[role and responsibilities on the project]</i>	<i>[time in role]</i>	<i>[describe the experience relevant to this position]</i>

Declaration

I, the undersigned [insert either “Contractor’s Representative” or “Key Personnel” as applicable] , certify that to the best of my knowledge and belief, the information contained in this Form PER-2 correctly describes myself, my qualifications and my experience.

I confirm that I am available as certified in the following table and throughout the expected time schedule for this position as provided in the Bid:

Commitment	Details
Commitment to duration of contract:	[insert period (start and end dates) for which this Contractor’s Representative orKey Personnel is available to work on this contract]
Time commitment:	[insert period (start and end dates) for which this Contractor’s Representative orKey Personnel is available to work on this contract]

I understand that any misrepresentation or omission in this Form may:

- (a) be taken into consideration during Bid evaluation;
- (b) result in my disqualification from participating in the Bid;
- (c) result in my dismissal from the contract.

Name of Contractor’s Representative or Key Personnel: [insert name]

Signature: _____

Date: (day month year): _____

Countersignature of authorized representative of the Bidder:

Signature: _____

Date: (day/month/year): _____

Financial Resources

Specify proposed sources of financing, such as liquid assets, unencumbered real assets, lines of credit, and other financial means, net of current commitments, available to meet the total construction cash flow demands of the subject contract or contracts as specified in Eligibility and Qualification Criteria.

No.	Source of financing	Amount (Eq. PKR)
1		
2		
3		

Past Experience / Contracts

Contracts over <i>[insert amount]</i> during the last three years:				
Procuring Agency	Value	Year	Goods/Services Supplied	Country of Destination



Historical Contract Non-Performance, and Pending Litigation and Litigation History

[The following table shall be filled in for the Applicant and for each member of a Joint Venture]

Applicant's Name: *[insert full name]*

Date: *[insert day, month, year]*

Joint Venture Member Name: *[insert full name]*

IFP No. and title: *[insert IFP number and title]*

Page *[insert page number]* of *[insert total number]* pages

☐ Not debarred due to deviation from commitment of Bid Securing Declaration- ☐ Not debarred due to non-performance			
Year	Non-performed portion of contract	Contract Identification	Total Contract Amount (current value, currency, exchange rate and PKR equivalent)
<i>[insert year]</i>	<i>[insert amount and percentage]</i>	Contract Identification: <i>[indicate complete contract name/ number, and any other identification]</i> Name of Procuring Agency: <i>[insert full name]</i> Address of Procuring Agency: <i>[insert street/city/country]</i> Reason(s) for nonperformance: <i>[indicate main reason(s)]</i>	<i>[insert amount]</i>
Pending Litigation, in accordance with Section III, Qualification Criteria and Requirements			
☐ Pending litigation in accordance with Section III, Qualification Criteria and Requirements, Sub-Factor 2.3 as indicated below.			
Year of dispute	Amount in dispute (currency)	Contract Identification	Total Contract Amount (currency), US\$ PKR Equivalent (exchange rate)

<i>[insert year]</i>	<i>[insert amount]</i>	Contract Identification: [indicate complete contract name, number, and any other identification] Name of Procuring Agency: <i>[insert full name]</i> Address of Procuring Agency: <i>[insert street/city/country]</i> Matter in dispute: <i>[indicate main issues in dispute]</i> Party who initiated the dispute: <i>[indicate "Procuring Agency" or "Supplier"]</i> Status of dispute: <i>[Indicate if it is being treated by the Adjudicator, under Arbitration or being dealt with by the Judiciary]</i>	<i>[insert amount]</i>
☐ No consistent history of court/arbitral award decisions in accordance with Section III, Qualification Criteria and Requirements, Sub-Factor 2.4. ☐ Consistent history of court/arbitral award decisions in accordance with Section III, Qualification Criteria and Requirements, Sub-Factor 2.4 as indicated below.			
Year of award	Outcome as percentage of Net Worth	Contract Identification	Total Contract Amount (currency), PKR Equivalent (exchange rate)
<i>[insert year]</i>	<i>[insert percentage]</i>	Contract Identification: [indicate complete contract name, number, and any other identification] Name of Procuring Agency: <i>[insert full name]</i> Address of Procuring Agency: <i>[insert street/city/country]</i> Matter in dispute: <i>[indicate main issues in dispute]</i> Party who initiated the dispute: <i>[indicate "Procuring Agency" or "Supplier"]</i> Court/ arbitral award decision: <i>[Indicate if the award decision was against the Applicant or any member of a joint venture.]y]</i>	<i>[insert amount]</i>

Current Contract Commitments / Works in Progress

Bidders and each member to a JV should provide information on their current commitments on all contracts that have been awarded, or for which a letter of intent or acceptance has been received, or for contracts approaching completion, but for which an unqualified, full completion certificate has yet to be issued.

Current Contract Commitments					
No.	Name of Contract	Employer's Contact Address, Tel, Fax	Value of Outstanding Work [Current Eq. PKR]	Estimated Completion Date	Average Monthly Invoicing Over Last Six Months [Eq. PKR/month]
1					
2					
3					
4					
5					

Financial Situation and Performance

[The following table shall be filled in for the Applicant and for each member of a Joint Venture]

Applicant's Name: [insert full name]

Date: [insert day, month, year]

Joint Venture Member Name: [insert full name]

IFP No. and title: [insert IFP number and title]

Page [insert page number] of [insert total number] pages

1. Financial data

Type of Financial information in (currency)	Historic information for previous [insert number] years, [insert in words] (amount in currency, currency, exchange rate*, PKR equivalent)				
	Year 1	Year 2	Year 3		
Statement of Financial Position (Information from Balance Sheet)					
Total Assets (TA)					
Total Liabilities (TL)					
Total Equity/Net Worth (NW)					
Current Assets (CA)					
Current Liabilities (CL)					
Working Capital (WC)					
Information from Income Statement					
Total Revenue (TR)					
Profits Before Taxes (PBT)					
Cash Flow Information					
Cash Flow from Operating Activities					

* Refer ITA 14 for the exchange rate

3. Financial documents

The Applicant and in case of JV, members of JV shall provide copies of financial statements for *[number]* years pursuant Section III, Qualifications Criteria and Requirements. The financial statements shall:

- (a) reflect the financial situation of the Applicant or in case of JV member, and not an affiliated entity (such as parent company or group member).
 - (b) be independently audited or certified in accordance with local legislation.
 - (c) be complete, including all notes to the financial statements.
 - (d) correspond to accounting periods already completed and audited.
- ☐ Attached are copies of financial statements¹ for the *[number]* years required above; and complying with the requirements.

¹ If the most recent set of financial statements is for a period earlier than 12 months from the date of Application, the reason for this should be justified.

Average Annual Turnover (Annual Sales Value)

[The following table shall be filled in for the Applicant and for each member of a Joint Venture]

Applicant's Name: *[insert full name]*

Date: *[insert day, month, year]*

Joint Venture Member Name: *[insert full name]*

IFP No. and title: *[insert IFP number and title]*

Page *[insert page number]* of *[insert total number]* pages

Annual Turnover Data			
Year	Amount Currency	Exchange rate* (If applicable)	PKR equivalent
<i>[indicate calendar year]</i>	<i>[insert amount and indicate currency]</i>		
		Average Annual Turnover **	

* Refer ITA for date and source of exchange rate.

** Total PKR equivalent for all years divided by the total number of years. See Section III, Qualification Criteria and Requirements, ITA.