BIDDING DOCUMENT

FOR

THE PROCUREMENT OF

Construction and maintenance of civil works (aluminium partition and maintenance) at NEA bhojur Dcs.

Sealed Quotation

Issued by:

NEA, Bhojpur Distribution Center Bhojpur Bhojpur Municipality Bhojpur

Sealed Quotation Number

NEA-BHOJPUR-2081/82-SQ-03

Issued On

23-01-2025

Abbreviations

BD	Bidding Document
BDF	Bidding Forms
BDS	Bid Data Sheet
BOQ	Bill of Quantities
COF	Contract Forms
DP	Development Partners
ELI	Eligibility
EQC	Evaluation and Qualification Criteria
EXP	Experience
FIN	Financial
GCC	General Conditions of Contract
GoN	Government of Nepal
ICC	International Chamber of Commerce
ITB	Instructions to Bidders
JV	Joint Venture
LIT	Litigation
NCB	National Competitive Bidding
PAN	Permanent Account Number
PPA	Public Procurement Act
РРМО	Public Procurement Monitoring Office
PPR	Public Procurement Regulations
PL	Profit & Loss
SBD	Standard Bidding Document
SCC	Special Conditions of Contract
TS	Technical Specifications
VAT	Value Added Tax
WRQ	Works Requirements

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Invitation for Sealed Quotation

Name of the Office:NEA, Bhojpur Distribution Center

Address of the Office: Bhojpur Bhojpur Municipality Bhojpur

Sealed Quotation No:NEA-BHOJPUR-2081/82-SQ-03

Date of Publication : 23-01-2025

- 1. The NEA, Bhojpur Distribution Center invites sealed quotations from registered contractors for the construction of Aluminium Partition works at nea bhojpur dcs.
- 2. The Estimated amount for the works is(in NRs.): 923,107.52

- (Exclusive of VAT and Contingencies)
- 3. Eligible Bidders may obtain further information and inspect the Sealed quotation Forms at the office of NEA, Bhojpur Distribution Center at Bhojpur Bhojpur Municipality Bhojpur or by reaching out to them at Telephone 029420660 or by dropping a mail at bhojpur@nea.org.np [or may visit PPMO website www.bolpatra.gov.np.]
- 4. Sealed Quotation Forms may be purchased by eligible Bidders on the submission of a written application and upon payment of a non-refundable fee of 1000.0 NRs.

Or

Bidder who chooses to submit their bid electronically shall deposit the cost of bidding document in the account specified below:

Name of the Bank:	Nepal Bank Ltd.
Name of the Office:	NEA, Bhojpur Distribution Center
Office Code no:	
Office Account no:	17500100511726000199

Rajaswa (revenue) Shirshak no:

- 5. Sealed bids must be submitted to the above office by hand or through e-GP system i.e www.bopatra.gov.np/egp on or before 07-02-2025 12:00 hours . Bids received after this deadline will be rejected.
- 6. Sealed Quotations shall be opened in the presence of Bidders' representatives who choose to attend at 07-02-2025 13:00 hours at the office of NEA, Bhojpur Distribution Center, Bids must be valid for a period of 45 days after bid opening and must be accompanied by a bid security amounting to a minimum of NRs.26100 which shall be valid for 30 days beyond the validity period of the bid i.e 75 days.
- 7. If the last date of purchasing and /or submission falls on a government holiday, then the next working day shall be considered as the last date. In such case the validity period of the bid security shall remain the same as specified for the original last date of bid submission.

[Note : As mentioned in clause 49ka of PPR 2064 clause 49ka ,add more relevant information as per required]

Section - II Instruction to Bidders

Section I. Instruction to Bidders(ITB)

1.	Scope of Works	1.1 The Employer stated in the BDS for the construction of works as detailed in attached specifications, drawings and the bill of quantities provided herein. The name of <i>Employer, name of project and contract identification number of Contracts</i> are provided in the BDS .
2.	Eligible Bidder	2.1 This Invitation for Bids is open to all registered contractors with eligibility criteria specified in section III Eligibility Criteria. A bidder declared blacklisted and ineligible by the GoN, Public Procurement Monitoring Office (PPMO) and/or the DP in case of DP funded project, shall be ineligible to bid for a contract during the period of time determined by the GoN, PPMO and/or the DP.
		2.2 In case of a natural person or firm/institution/company which is already declared blacklisted and ineligible by the GoN, any other new or existing firm/institution/company owned partially or fully by such Natural person or Owner or Board of director of blacklisted firm/institution/company; shall not be eligible bidder.
		2.3 Firms shall be excluded if the corruption case is being filed to Court against the Natural Person or Board of Director of the firm/institution /company or any partner of JV, such Natural Person or Board of Director of the firm/institution /company or any partner of JV shall not be eligible to participate in procurement process till the concerned Court has not issued the decision of clearance against the Corruption Charges
3.	One Bid per Bidder	3.1 Each Bidder shall submit only one quotation. A Bidder who submits more than one quotation shall cause all the quotations with the Bidder's participation to be disqualified.
4.	Cost of Bidding	4.1 The Bidder shall bear all costs associated with the preparation and submission of his bid and the Employer shall in no case be liable for those costs.
5.	Site Visit	5.1 The Bidder at his own cost, responsibility and risk may visit the site of the works and acquire all necessary information for preparing the bid and entering into a contract for construction of the works.
6.	Content of Quotation Form	 6.1 The Quotation Form comprise the documents listed below: Section I: Instructions to Bidders Section II: Bid Data Sheet Section III : Eligibility Criteria Section IV: Bidding Forms Section V: Works Requirements Section VI: Bill of Quantities Section VII: General Conditions of Contract (GCC) Section VIII: Special Conditions of Contract (SCC) Section IX: Contract Forms

7.	Clarification	7.1 A prospective Bidder may obtain clarification on the Quotation Form from the Employer on or before 5 days prior to the deadline for submission of quotation.
8.	Language of Bid	81. All documents relating to the bid shall be in English /Nepali.
9.	Documents Comprising Bid	 The bid by the Bidder shall comprise the following: Letter of Bid Eligibility Information/Document Bid Security and Priced Bill of Quantities
10.	Bid Prices	10.1 The contract shall be for the whole works described in scope of works based on the priced Bill of Quantities submitted by the Bidder. The Bidder shall fill in rates and prices for all items of the works in Nepali Rupees. Items for which no rate or price is entered shall be deemed covered by the other rates and prices in the Bill of Quantities and shall not be paid separately by the Employer. All duties, taxes and other levies payable by the contractor under the contract shall be included in the rates, prices and total Bid Price submitted by the Bidder.
11.	Bid Validity	11.1 Bids shall remain valid for the period specified in the BDS after the bid submission deadline date prescribed by the Employer. A bid valid for a shorter period shall be rejected by the Employer as nonresponsive.
12.	Bid Security	12.1 The Bidder shall furnish as part of its bid, in original form, a bid security as specified in the BDS. In case of e-submission of bid, the Bidder shall upload scanned copy of Bid security letter at the time of electronic submission of the bid. The Bidder accepts that the scanned copy of the Bid security shall, for all purposes, be equal to the original. The details of original Bid Security and the scanned copy submitted with e-bid should be the same otherwise the bid shall be non-responsive.
		 12.2 The bid security shall be, at the Bidder's option, in any of the following forms: (a) an unconditional bank guarantee from Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law or; (b) a cash deposit voucher in the Employer's Account as specified in BDS. In the case of a bank guarantee, the bid security shall be submitted either using the Bid Security Form included in Section III (Bidding Forms) or in another Form acceptable to the employer. The form must include the complete name of the Bidder. The bid security shall be valid for minimum thirty (30) days beyond the original validity period of the bid 12.3 Any bid not accompanied by an enforceable and substantially compliant bid security shall be rejected by the Employer as nonresponsive. In case of e-Submission, if the scanned copy of an acceptable Bid Security letter is not uploaded with the electronic Bid then Bid shall be rejected. 12.4 The bid security shall be forfeited if: (a) a Bidder requests for withdrawal during the period of bid validity specified by the Bidder on the Letter of Bid, after bid submission deadline. (b) a Bidder changes the prices or substance of the bid while providing information; (c) a Bidder fails to:

	 (i) furnish a performance security in accordance with clause 25 and 26; (ii) sign the Contract in accordance within the period stipulated in Letter of Acceptance; or (iii) accept the correction of arithmetical errors pursuant to clause 21.1
13. Format and Signing of Bids	13.1 The bid shall be typed or written in indelible ink and shall be signed by an authorized person. Any entries or amendments including alternations, additions or corrections made shall be initialed by the same authorized person.
14. Sealing and Marking of Bids	 14.1 Bidders may submit their bids by hand copy or by electronically. When so specified in the BDS, bidders shall have the option of submitting their bids electronically. Procedures for submission, sealing and marking are as follows: (a) Bidders submitting bids by hand copy: The Bidder shall submit his bid in sealed envelopes. The envelope shall be addressed to the Employer specified in the Invitation for Quotation and shall bear the name and identification number of the quotation. (b) Bidders submitting Bids electronically shall follow the electronic bid submission procedure specified in the BDS
15. Deadline for Submission of Bids	15.1 Bids shall be delivered to the Employer at the address no later than the time and date specified in BDS.
16. Late Bids	16.1 Any bid received by the Employer after the deadline shall not be accepted and shall be returned unopened to the Bidder upon request.
17.Modification And Withdrawal of Bids	17.1 Bids once submitted shall not be withdrawn or modified.
18. Bid Opening	18.1 The Employer shall open the bids in the presence of the Bidders' representatives who choose to attend at the time and in the place as specified in the BDS . The Employer shall prepare and provide minutes of the bid opening including the information disclosed to those present.
19. Process to be Confidential	19.1 Information relating to the examination, evaluation and comparison of bids and recommendations for the award of a contract shall not be disclosed to Bidders or any other persons not officially concerned with such process until the award to the successful Bidder has been announced. Any efforts by the Bidder to influence the Employer in the bid evaluation, bid comparison or contract award decisions may result in rejection of Bidder's bid.
20.Examination of Bids	201. Prior to the detailed evaluation of Bids, the Employer shall determine whether each bid (a) meets the eligibility criteria defined in Clause 2; (b) has been properly signed; (c) is accompanied by the required securities; and (d) is substantially responsive to the requirements of the Bidding documents.
21. Evaluation and Comparison of Bids	21.1 In evaluating the Bids, the Employer shall determine for each bid the evaluated Bid Price by adjusting any corrections for errors. Bids shall be checked by the Employer for any arithmetic errors. Errors shall be corrected by the Employer as follows:

		 (a) only for unit price Contracts, if there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected, unless in the opinion of the Employer there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price shall be corrected; (b) if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and (c) If there is a discrepancy between the bid price in the Summary of Bill of Quantities and the bid amount in item (c) of the Letter of Bid, the bid price in the Summary of Bill of Quantities will prevail and the bid amount in item (c) of the Letter of Bid will be corrected. (d) if there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) ,(b) and (c) above. 21.2 In case of e-submission of bid, upon notification from the employer, the bidder shall also submit the original of documents for acceptance of the e-submitted bid. If a Bidder does not provide original of document of its bid by the date and time set in the Employer's request for clarification, its bid may be rejected. 21.3 If the Bidder that submitted the lowest evaluated bid does not accept the correction of errors, its bid shall be disqualified and its bid security shall be forfeited. 21.4 If the corruption case is being filed to Court against the Natural Person or Board of Director of the firm/institution /company or any partner of JV such bidder's bid shall be excluded during the evaluation.
22.	Award of Contract	 22.1 The Employer shall decide the award of the contract to the Bidder whose bid is within the approved estimate and who has offered the lowest evaluated Bid Price within bid validity period provided that such Bidder has been determined to be eligible in accordance with the provisions of Clauses 2. 22.2 if the bid for an Unit Rate Contract, which results in the lowest Evaluated Bid Price is seriously unbalanced or front loaded or extremely low in the opinion of the Employer, the Employer may require the Bidder to produce detailed price analysis 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 analysis, 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 as mentioned in BDS to protect the Employer against financial loss in the event of default of the successful Bidder under the Contract or may consider the bid as non-responsive.
23.	Employer's Right to Accept any Bid and to Reject any or all Bids	23.1 The Employer reserves the right to accept or reject any bid or to cancel the bidding process and reject all bids, at any time prior to the award of the contract, without assigning any reasons whatsoever and without thereby incurring any liability to the affected Bidder or Bidders.
24.	Notification of Award and	24.1 The Bidder whose bid is accepted and all other participating bidders shall be notified of the award by the Employer.

Signing of Agreement	24.2 The notification (hereafter called the "Letter of Acceptance") to the successful Bidder shall state the sum that the Employer shall pay the Bidder in consideration of the execution, completion, and maintenance of the works as described by the contract. Within 7 days of receipt of the Letter of Acceptance, the successful Bidder shall deliver the Performance Security pursuant Clause 25and sign the Agreement. 24.3 Inability of the Bidder to make an Agreement within the above stated period shall result in cancellation of the Contract Award and forfeiture of the Bidder's Bid Security, upon which the Contract shall then be awarded to the next successive successful Bidder.
25.Performance Security	 251. Within seven (7) days of the receipt of Letter of Acceptance from the Employer, the successful Bidder shall furnish the performance security as under mentioned from Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law in Nepal in accordance with the conditions of Contract using Sample Form for the Performance Security included in Section IX (Contract Forms), or another form acceptable to the Employer. i) If bid price of the bidder selected for acceptance is up to 15 (fifteen) percent below the approved cost estimate, the performance security amount shall be 5 (five) percent of the bid price. ii) For the bid price of the bidder selected for acceptance is more than 15 (fifteen) percent below of the cost estimate, the performance security amount shall be determined as follows: Performance Security Amount = [(0.85 x Cost Estimate – Bid Price) x 0.5] + 5% of Bid Price.
26.Additional Securities	26.1 The Bidder may be required to provide additional Performance Security if the Employer determines that the rate quoted by the Bidder in the Bill of Quantities, front loaded or unbalanced. In such case, the Employer shall instruct the Bidder to provide additional 8% security for signing of the Contract Agreement. Bidder's failure to do provide additional security shall result in forfeiture of the Bid Security and award of the Contract to the next lowest evaluated Bidder.
27.Corrupt or Fraudulent Practices	27.1 The Employer shall reject a bid for award if it determines that the Bidder recommended for award of contract has engaged in corrupt or fraudulent practices in competing for the contract in question.
28.Conduct of Bidders	 28.1The Bidder shall be responsible to fulfill his obligations as per the requirement of the Contract Agreement, Bidding documents, GoN's Procurement Act and Regulations. 28.2 The Bidder shall not carry out or cause to carry out the following acts with an intention to influence the implementation of the procurement process or the procurement agreement : a) give or propose improper inducement directly or indirectly, b) distortion or misrepresentation of facts c) engaging or being involved in corrupt or fraudulent practice d) Interference in participation of other prospective bidders. e) coercion or threatening directly or indirectly to cause harm to the person or the property of any person to be involved in the procurement proceedings,

	 f) collusive practice among bidders before or after submission of bids for distribution of works among bidders or fixing artificial/uncompetitive bid price with an intention to deprive the Employer the benefit of open competitive bid price g) contacting the Employer with an intention to influence the Employer with regards to the bid or interference of any kind in examination and evaluation of the bids during the period after opening of bids up to the notification of award of contract
29.Blacklisting Bidder	 29.1 Without prejudice to any other right of the Employer under this Contract, GoN, Public Procurement Monitoring Office may blacklist a bidder for his conduct up to three years on the following grounds and seriousness of the act committed by the bidder: a) if it is proved that the bidder committed acts pursuant to the Sub-Clause 28.2, b) if it is proved later that the bidder/contractor had committed substantial defect in implementation of the contract or had not substantially fulfilled his obligations under the contract or the completed work is not of the specified quality as per the contract, c) if convicted by a court of law in a criminal offence which disqualifies the bidder from participating in the contract. d) if it is proved that the contract agreement signed by the bidder was based on false or misrepresentation of bidder's qualification information, 29.2 A firm declared blacklisted and ineligible by the GON shall be ineligible to bid for a contract during the period of time determined by the PPMO.
30. Provision of PPA and PPR	If any provision of this document is inconsistent with Public Procurement Act (PPA), 2063 or Public Procurement Regulations (PPR), 2064, the provision of this documents shall be void to the extent of such inconsistency and the provision of PPA and PPR shall prevail.

Section - II Bid Data Sheet

Bid Data Sheet		
ITB 1	The scope of work is : WORKS SEALED QUOTATION	
ITB 1	The number of the Invitation for Bids is : NEA-BHOJPUR-2081/82-SQ-03	
ITB 1	The Employer is : NEA, Bhojpur Distribution Center	
ITB 11	The bid validity period shall be: 45 days.	
ITB 12.1	The Bidder shall furnish a bid security, from 'A' class commercial bank with a minimum of 26100, which shall be valid for 30 days beyond the validity period of the bid.	
ITB 12.2	Cash Deposit Account for Bid Security :	
	Bank Name: Nabil Bank Ltd.	
	Bank Address: Bhojpur	
	Account Name: NEA, BHOJPUR DISTRIBUTION CENTER	
	Account Number: 00201017505438	
ITB 14.1	Bidders shall have the option of submitting their bids electronically.	
	 i. The bidder is required to register in the e-GP systemhttps://www.bolpatra.gov.np/egpfollowing the procedure specified in e-GP guideline. ii. Interested bidders may either purchase the bidding document from the employer's office as specified in the Invitation for Bid (IFB) or bidders may download the IFB and bidding document from e-GP system. iii. The registered bidders need to maintain their profile data required during preparation of bids. iv. In order to submit their bids electronically the cost of the bidding document shall be deposited in the account specified in IFB. In addition, electronic scanned copy (.pdf format) of the bank deposit voucher/cash receipt should also be submitted along with the bid. v. The bidder can prepare their bids using data and documents maintained in bidder's profile and forms/format provided in bidding document by Employer. The bidder may submit bids as a single entity. vi. Bidders should update their profile data and documents required during preparation and submission of their bids. The required forms and documents shall be part of technical bids. Letter of Bid (Mandatory) Bid Sccurity/Bank Guarantee (Mandatory) Company registration (Mandatory) Tax clearances certificate or evidence of tax return submission (Mandatory) Completed BoQ (Mandatory) Bank Voucher for cost of bid document (Mandatory) Additional documents specified in Bidding Document (If required) Note : The documents specified as "Mandatory" should be included in e-submission. vii. For eryfring the authentic user, the system will send one time password in the registered email address of the bidder. System will validate the OTP and allow bidder to submitten bid. ix. The Bidder / Bid shall meet the following requirements and conditions for e-submission of bids : The e-submitted bids must be readable through PDF reader. The e-submitted bids must be readable	
ITB 15	The deadline for Sealed Quotation submission is:07-02-2025 12:00 Address:Bhojpur Bhojpur Municipality Bhojpur	

ITB 18	The bid opening shall take place at : Address :NEA, Bhojpur Distribution Center Bhojpur Bhojpur Municipality, Bhojpur Koshi Pradesh Nepal Date and Time:07-02-2025 13:00 a) e-GP system allows to download the bid response document only after bid opening date and time are met.
	b)The Employer shall conduct the opening of bid at the address on the same date and time as specified in bidding document in the presence of Bidders' representatives who choose to attend

Section - III Eligibility Criteria

Eligibility Requirements All Bidders shall submit following documents as pre- requisites for eligibility:

- 1 Firm/Company Registration Certificate
- 2 Business Registration Certificate (License)
- 3 PAN/VAT Registration Certificate
- 4 Tax Clearance Certificate/ Extension Letter/Tax return submission evidence for the F/Y
- 5 Power of Attorney
- 6 Letter of Bid
- 7 insert addition document if required

Notes to Bidders :

The information to be filled in by Bidders in the following pages shall be used for purposes of eligibility as provided for in Clause 2of the Instructions to Bidders. This information shall not be incorporated in the Contract. Attach additional pages as necessary.

Section - IV Bidding Forms

Letter of Bid

The Bidder must accomplish the Letter of Bid in its letterhead clearly showing the Bidder's complete
name and address.

Date:
Name of the contract:
Invitation for Bid No.:

To: We, the undersigned, declare that:

- (a) We have examined and have no reservations to the Bidding Documents.
- (b) We offer to execute in conformity with the Bidding Documents the following Works:
- (c) The total price of our Bid, excluding any discounts offered in item (d) below is:....
- (d) The discounts offered and the methodology for their application are:.....
- (e) Our bid shall be valid for a period of 45 days from the date fixed for the bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- (f) If our bid is accepted, we commit to obtain a performance security in accordance with the Bidding Document;
- (g) We understand that this bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed;
- (h) We declare that, we have not been black listed and no conflict of interest in the proposed procurement proceedings and we have not been punished for an offense relating to the concerned profession or business.
- (i) We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive; and
- (j) If awarded the contract, the person named below shall act as Contractor's Representative:
- (k) We agree to permit the Employer/DP or its representative to inspect our accounts and records and other documents relating to the bid submission and to have them audited by auditors appointed by the Employer.

Name: In the capacity of Signed Duly authorized to sign the Bid for and on behalf of Date

Bid Security

Bank Guarantee

Bank's Name, and Address of Issuing Branch or Office (On Letter head of the Commercial bank or any Financial Institution eligible to issue Bank Guarantee as per prevailing Law)

Beneficiary: name and address of Employer..... Date:..... Bid Security No.:....

Furthermore, we understand that, according to your conditions, bids must be supported by a bid guarantee.

- (a) does not accept the correction of errors in accordance with the Instructions to Bidders (hereinafter "the ITB"); or
- (b) having been notified of the acceptance of its Bid by the Employer during the period of bid validity, (i) fails or refuses to execute the Contract Agreement, or (ii) fails or refuses to furnish the performance security, in accordance with the ITB.
- (c) is involved in fraud and corruption in accordance with the ITB

This guarantee will remain in force up to and including the datenumber......days after the deadline for submission of Bids as such deadline is stated in the instructions to Bidders or as it may be extended by the Employer, notice of which extension(s) to the Bank is hereby waived. Any demand in respect of this guarantee should reach the Bank not letter than the above date.

This Bank guarantee shall not be withdrawn or released merely upon return of the original guarantee by the Bidder unless notified by you for the release of the guarantee.

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 758. . . .Bank's seal and authorized signature(s) . . .

Note:

The bid security of	has been counter guaranteed by the Bank	on
	(Applicable for Bid Security of F	-oreign Banks).

Section - V Works Requirements

Scope of Work

Specifications

Notes on the Specifications

A set of precise and clear specifications is a prerequisite for Bidders to respond realistically and competitively to the requirements of the Employer without qualifying or conditioning their Bids. The specifications must be drafted to permit the widest possible competition and, at the sametime, present a clear statement of the required standards of workmanship, materials, and performance of the goods and services to be procured. Only if this is done will the objectives of economy, efficiency and fairness in procurement be realized, responsiveness of Bids be ensured, and the subsequent task of bid evaluation facilitated. The specifications should require that all goods and materials to be incorporated in the Works be new, unused, of the most recent or current models, and incorporate all recent improvements in design and materials unless provided otherwise in the Contract.

Samples of specifications from previous similar projects are useful in this respect. The use of metric units is encouraged by the Funding Agency in case of funding assisted projects. Most specifications are normally written specially by the Employer or Project Manager to suit the Contract Works in hand. The available standard specification of works of Ministry of Physical Infrastructure and Transport, DoLIDAR and Other line Ministries can be adopted for respective civil construction works.

There are considerable advantages in standardizing General Specifications for repetitive Works in recognized public sectors, such as highways, urban housing, irrigation, and water supply, in the same country or region where similar conditions prevail. The General Specifications should cover all classes of workmanship, materials, and equipment commonly involved in construction, however it may not necessarily be adequate to be used in a particular Works Contract and may necessitate preparation of Particular (Special) Specifications to amend and or supplement the provision of the General Specifications to meet the requirement of the particular Works.

Care must be taken in drafting specifications to ensure that they are not restrictive. In the specification of standards for goods, materials, and workmanship, recognized international standards should be used as much as possible. Where other particular standards are used, whether national standards of Nepal or other standards, the specifications should state that goods, materials, and workmanship that meet other authoritative standards, and which ensure substantially equal or higher quality than the standards mentioned, will also be acceptable.

Employers should decide whether technical solutions to specified parts of the Works are to be permitted. Alternatives are appropriate in cases where obvious (and potentially less costly) alternatives are possible to the technical solutions indicated in the Procurement Documents for certain elements of the Works, taking into consideration the comparative specialized advantage of potential bidders. For example:

The Employer should provide a description of the selected parts of the Works with appropriate references to Drawings, Specifications, Bill of Quantities, and Design or Performance criteria, stating that the alternative solutions if applicable shall be at least structurally and functionally equivalent to the basic design parameters and specifications.

Such alternative solutions shall be accompanied by all information necessary for a complete evaluation by the Employer, including drawings, design calculations, technical specifications, breakdown of prices, proposed construction methodology, and other relevant details.

Sample Clause: Equivalency of Standards and Codes Wherever reference is made in the Contract to specific standards and codes to be met by the goods and materials to be furnished, and work performed or tested, the provisions of the latest current edition or revision of the relevant standards and codes in effect shall apply, unless otherwise expressly stated in the Contract. Where such standards and codes are national, or relate to a particular country or region other authoritative standards that ensure a substantially equal or higher quality than the standards and codes specified will be accepted subject to the Project Manager's prior review and written consent. Differences between the standards specified and the proposed alternative standards shall be fully described in writing by the Contractor and submitted to the Project Manager at least 30 days prior to the date when the Contractor desires the Project Manager's consent. In the event the Project Manager determines that such proposed deviations do not ensure substantially equal or higher quality, the Contractor shall comply with the standards specified in the documents.

These Notes for Preparing Specifications are intended only as information for the Employer or the person drafting the Procurement Documents. They should not be included in the final documents.

SECTION- Works Requirements

This Section contains the Specification, the Drawings, and supplementary information that describe the Works to be procured.

Scope of Work

[Aluminium partition work.]

Specifications

Notes on the Specifications

A set of precise and clear specifications is a prerequisite for Bidders to respond realistically and competitively to the requirements of the Employer without qualifying or conditioning their Bids. The specifications must be drafted to permit the widest possible competition and, at the same time, present a clear statement of the required standards of workmanship, materials, and performance of the goods and services to be procured. Only if this is done will the objectives of economy, efficiency and fairness in procurement be realized, responsiveness of Bids be ensured, and the subsequent task of bid evaluation facilitated. The specifications should require that all goods and materials to be incorporated in the Works be new, unused, of the most recent or current models, and incorporate all recent improvements in design and materials unless provided otherwise in the Contract.

Samples of specifications from previous similar projects are useful in this respect. The use of metric units is encouraged by the Funding Agency in case of funding assisted projects. Most specifications are normally written specially by the Employer or Project Manager to suit the Contract Works in hand. The available standard specification of works of Ministry of Physical Infrastructure and Transport, DoLIDAR and Other line Ministries can be adopted for respective civil construction works.

There are considerable advantages in standardizing General Specifications for repetitive Works in recognized public sectors, such as highways, urban housing, irrigation, and water supply, in the same country or region where similar conditions prevail. The General Specifications should cover all classes of workmanship, materials, and equipment commonly involved in construction, however it may not necessarily be adequate to be used in a particular Works Contract and may necessitate preparation of Particular (Special) Specifications to amend and or supplement the provision of the General Specifications to meet the requirement of the particular Works.

Care must be taken in drafting specifications to ensure that they are not restrictive. In the specification of standards for goods, materials, and workmanship, recognized international standards should be used as much as possible. Where other particular standards are used, whether national standards of Nepal or other standards, the specifications should state that goods, materials, and workmanship that meet other authoritative standards, and which ensure substantially equal or higher quality than the standards mentioned, will also be acceptable.

Employers should decide whether technical solutions to specified parts of the Works are to be permitted. Alternatives are appropriate in cases where obvious (and potentially less costly) alternatives are possible to the technical solutions indicated in the Procurement Documents for certain elements of the Works, taking into consideration the comparative specialized advantage of potential bidders. For example:

The Employer should provide a description of the selected parts of the Works with appropriate references to Drawings, Specifications, Bill of Quantities, and Design or Performance criteria, stating that the alternative solutions if applicable shall be at least structurally and functionally equivalent to the basic design parameters and specifications.

Such alternative solutions shall be accompanied by all information necessary for a complete evaluation by the Employer, including drawings, design calculations, technical specifications, breakdown of prices,

proposed construction methodology, and other relevant details. Sample Clause: Equivalency of Standards and Codes

Wherever reference is made in the Contract to specific standards and codes to be met by the goods and materials to be furnished, and work performed or tested, the provisions of the latest current edition or revision of the relevant standards and codes in effect shall apply, unless otherwise expressly stated in the Contract. Where such standards and codes are national, or relate to a particular country or region, other authoritative standards that ensure a substantially equal or higher quality than the standards and codes specified will be accepted subject to the Project Manager's prior review and written consent. Differences between the standards specified and the proposed alternative standards shall be fully described in writing by the Contractor and submitted to the Project Manager at least 30 days prior to the date when the Contractor desires the Project Manager's consent. In the event the Project Manager determines that such proposed deviations do not ensure substantially equal or higher quality, the Contractor shall comply with the standards specified in the documents. These Notes for Preparing Specifications are intended only as information for the Employer or the person drafting the Procurement Documents. They should not be included in the final documents.

[Insert Specifications]

Section-I

A. SPECIFICATION FOR MATERIALS AND CIVIL WORKS

1.1 STANDARD AND REFERENCES

All equipment, materials, fabrication and tests under these Specifications shall conform to the latest applicable standards, manuals and Specifications contained in the following list or, to equivalent applicable standards, manuals and Specifications, established and approved in the country of manufacturer, and approved as equal by Employer.

ACI	American Concrete Institute
AISC	American Institute of Steel Construction
ANSI	American National Standard Institute
ASCE	American Society of Civil Engineers
ASTM	American Society for Testing Materials
AWS	American Welding Society
JIS	Japanese Industrial Standards
DIN	Deutsches Institute für Normung

Any details not specifically covered by these standards and specifications shall be subject to approval of Employer. In the event of contradictory requirements between the standards and these Specification requirements, the terms of the Specifications shall apply.

Unless specifically mentioned, reference to standards and specifications or to equipment and materials of the particular manufacture shall be considered as followed by "or equivalent". The Contractor may propose equivalent specifications, materials or equipment, which shall be equal in every respect to that specified. If the Contractor, for any reason, proposes equivalents to or, deviates from, the above standard, he shall state the exact nature of the change and shall submit complete specifications of the materials, as well as copies of pertinent standards, for the approval of Employer and decision of Employer in the matter of quality shall be final.

1.2 SCOPE OF WORKS

The following works shall be carried out at site so as to complete the civil and architectural works in all respects, as required for the proper functioning of civil works:

- Aluminium partition works

A final layout for site installation for related works shall be prepared by the Contractor and approved by Employer before any construction work takes place at site.

- Site clearing and stripping for related works
- Site grading for related works
- Brick mesonary works
- PCC Works
- RCC Works
- Steel, Iron and CGI sheet works
- Painting works
- Aluminium works
- Sanitary works
- Electrical Works etc.
- All associated and necessary civil and architectural works to complete the specified scope of work
- 1.2.1 Working Schedule

A binding graphical working schedule with an explanatory report shall be submitted before the construction period. The working schedule and any amendments to it during the construction period will require Employer's approval.

1.3 GENERAL NOTES FOR CONTRACTOR AND DEFINITIONS

- 1.1 The work shall be carried out according to the specifications whether specifically mentioned in it or not. No extra in any form shall be paid unless it is definitely stated as an item in the Bill of Quantities. Whenever the specifications are not given or ambiguous, the relevant International Standards and further amendments or decision of the Employer/Engineer shall be considered as final and binding.
- 1.2 The work shall be related to the drawings which the contractor is presumed to have studied. All the engineering construction drawings as required for construction shall be prepared by the Contractor and submitted to the employer for approval. Nothing extra will be paid for preparation of construction drawing and any item because of its shape, location or other difficult circumstances, even if the schedule makes no distinction as long as the item is shown in the drawing.

1.3 The source of materials stated in the specifications are those from which materials are generally available. However, materials not conforming to the specifications shall be rejected even if they come from the stated sources. The contractor should satisfy himself that sufficient quantity of material of acceptable specification is available from the stated or other sources.

Where terms "Resident Engineer/Employer ", "Representative", "Contractor", "Works" etc. are used, they shall have the meaning defined in the Conditions of Contract or defined in the subsequent specification.

1.4 The requirements of specifications for the materials shall be fulfilled by the Contractor without extra charge including transportation or any other taxes involved that is the item rates quoted shall be deemed to have taken these into account.

2. GENERAL OFFICIAL ACCESSORIES

2.1 OFFICE ACCOMMODATION

The contractor shall provide at his own expense adequate temporary accommodation and toilet facilities for his worker as well as working office space for his staffs and Employer/ Engineer on duty for construction supervision and keep the same in good order. This may be done to suit site conditions with the approval of the Employer / Engineer. The above mentioned temporary structures shall be removed on the completion of works at contractors own cost.

2.2 DRAWING, INSTRUCTION, MEASUREMENTS

All the work shall be done according to the drawings and instructions of the Employer/ Engineer and the Contractor shall arrange to test materials and/ or portions of the works at his own cost in order to prove their soundness and sufficiency. If after any such test and in the opinion of the Employer/ Engineer any work or portion of work is found to be defective or unsound, the Contractor shall pull down and re-execute the same at his own cost. Defective materials shall be removed from the site.

2.3 PREPARING AND CLEARING THE SITE

The site described and shown on the plans shall be cleared of all old furniture, obstructions, loose stones and materials, rubbish of all kinds as well as brush-wood. All holes or hollows whether originally existing or produced shall be well rammed and leveled off as directed.

2.4 MEASURING MATERIALS

Materials requiring measuring shall be measured separately in boxes of appropriate sizes before being mixed. They should be calibrated and marked with red if necessary in presence of the Employer/Engineer.

2.5 TEMPORARY PROTECTION

All trenches, walls, newly laid concrete or other work requiring protection from weather or accidental injury shall be protected by means of tarpaulin or in any other way so as to keep the work safe. Nothing extra shall be paid for this matter.

2.6 QUALITY OF WORK

Materials, tools and plants and workmanship shall be the best of several kinds obtainable in the market and as approved by the Employer/ Engineer.

2.7 LEAVE CLEAN

On completion, all works must be cleaned, rubbish removed and the works and land cleaned of surplus materials, debris and other accumulations and everything left in clean and orderly condition.

2.8 SAMPLES

Samples of each class of work required shall be submitted by the Contractor for the approval of the Employer/ Engineer and after such approval these samples shall be deposited at a place chosen by the Employer/ Engineer. The Contractor will be required to perform all works under the contract in accordance with these approved samples.

2.9 PROVISIONAL ITEMS

All provisional items in the schedule shall be carried out at the discretion of the Employer/Engineer, and may or may not form part of the contract. In case, the provisional items are carried out by the Contractor the rates shall be settled as for extra items as stated in the conditions of contract.

2.10 STORAGE

Safe, dry and proper storage shall be provided for all materials, particularly for cement. The capacity of the cement storage shall be equal to one-fourth of the total quantity to be used but may not exceed 200 tones at the site of work.

Alternately, if the Contractor is unable to provide the laboratory, the testing of construction materials shall be done in another laboratory with prior approval of the employer.

3. MATERIALS

3.1 GENERAL

The materials supplied and used in the works shall comply with the requirements of these Specifications. They shall be new, except as may be provided elsewhere in the Contract or permitted by the Employer/ Engineer in writing. The materials shall be manufactured, handled and used in a workmanlike manner to ensure completed work in accordance with the Contract. Where an Indian Standard is specified, the latest version of the standard quoted shall be considered to apply.

3.2 SOURCES

The source of materials should be selected and notified to the Employer/ Engineer and approved by him. The use of any one kind or class of material from more than one source is prohibited, except by written permission of the Employer/ Engineer. Such permission, if granted, will set

forth the conditions under which the change may be made. The source or kind of materials shall not be changed at any time without written permission of the Employer/ Engineer. If the product from any source proves unacceptable at any time, the Contractor shall make such arrangements as may be necessary to assure acceptable material, either by alterations in plant operations or by a change of source. Claims for increased costs which may be occasioned by such alterations or changes will not be given consideration, unless the source of the unacceptable material was designated in the Contract as a source of material.

When any manufactured product, either new or used, is furnished by the owner, the location at which such material will be delivered to the Contractor will be designated in the contract. In such cases the contractor shall haul the materials from the designated delivery point to point of use, and compensation for such hauling will be considered to be included in the Contract unit price for placing the materials in the finished work.

3.3 INSPECTION AND ACCEPTANCE OF MATERIALS

Final inspection and acceptance of materials will be made only at the site of the work. The Employer/ Engineer reserves the right to sample, inspect and test materials throughout the duration of the work, and to reject any materials which are found to be unsatisfactory at the time of use.

A preliminary inspection of materials may be made at the source for the convenience of the Contractor, but the presence of Employer/ Engineer at the source shall not relieve the Contractor of the responsibility of furnishing materials which comply with these specifications. The Employer/ Engineer shall have free entry at all times to those parts of any plant which concern the manufacture or production of the materials ordered.

3.4 SAMPLES AND TESTS

The Contractor shall submit sample of all materials for the approval of the Employer/ Engineer prior to commencement of work. The Contractor shall give immediate notification of the placing of orders for shipment of materials to permit testing. He shall furnish without charge all samples required and he shall afford such facilities as the Employer/ Engineer requires for collecting and forwarding such samples.

The Contractor shall not make use of or incorporate into the work the materials represented by the samples until the tests have been made and the materials are found to comply with the requirements of the specifications, except that any materials which have a satisfactory record of compliance with the Specifications may, at the discretion of the Employer/ Engineer, be used until the tests are completed. If the material fails to pass the tests, no further use thereof shall be made until the Contractor has taken steps satisfactory to the Employer/ Engineer to correct the deficiencies.

When required by the Employer/ Engineer preliminary samples of the character and quantity prescribed shall be submitted by the Contractor or producer for examination and shall be tested in accordance with the methods referred to in this Specification. The acceptance of a preliminary sample, however, shall not be construed as acceptance of materials from the same source delivered later. Only the materials actually delivered for the work will be considered, and their

acceptance or rejection will be based on the results of the tests and inspections prescribed in these Specifications.

3.5 DEFECTIVE MATERIALS

All materials which do not conform to the requirements of the Contract will be rejected whether in place or not. They shall be removed immediately or taken away from the site immediately thereafter. No rejected material, the defects of which have been subsequently corrected, shall be used in the work unless approval in writing has been given by the Employer/ Engineer. Upon failure of the Contractor to comply promptly with any order of the Employer/ Engineer given under this Clause, the Employer/ Engineer shall have authority to cause the removal and replacement of rejected material and to deduct the cost thereof from any monies due to the Contractor.

3.6 TRADE NAMES AND ALTERNATIVES

For convenience in designation in the Contract, certain articles or materials to be incorporated in the work may be designated under a trade name or the name of a manufacturer and his catalogue information. The use of an alternative article or material which is of equal quality and of the required characteristics for the purpose intended will be permitted, subject to the following requirements:

- a) The burden of proof as to the quality and suitability of alternatives shall be upon the Contractor and he shall furnish all information as required by the Employer/ Engineer. The Employer/ Engineer shall be the sole judge as to the quality and suitability of all alternative articles or materials and his decision shall be final.
- b) Whenever the specifications permit the substitution of a similar or equivalent material or article, no tests or action relating to the approval of such substitute material will be made until the request for substitution is made in writing by the Contractor accompanied by complete data as to the quality of the material or article proposed. Such request shall be made in ample time to permit approval without delaying the work.

3.7 CONTRACT DOCUMENTS

The Contractor is bound to execute and realize the Project works covered under these contract documents.

These contract documents to cover the said work shall along with that is normally understood therein comprise of

- a) These Tender Documents.
- b) All Tender and Working Drawings issued by the owner prepared by this Employer/ Engineer.
- c) All site instructions made in the site order book or log book by the Employer/ Engineer.
- d) All instructions given to the contractor by the Employer/ Engineer be in the form of sketches, directions along with requests for additional data, shop drawings, measurements details etc. from the contractor related of this work.

- e) All shop drawings and samples approved by the Employer/ Engineer.
- f) All manufacturer's specifications, data brochures information etc. approved by the Employer/ Engineer.
- g) All aspects of work checked and approved by the Employer/ Engineer either on, or off, the project site.
- h) All samples and guidelines that the Employer/ Engineer shall instruct the Contractor to follow. In particular covering all works where the contractor shall follow the existing designs, decoration, methods of construction, finishes proportions, elevations etc. of the existing building.

4.2 EARTH WORK

Earthwork in excavation in trenches, raft foundation etc. in soil including dressing of sides, ramming of bottom, lift up to 2.0m. stacking of excavated materials at least 2 m clear from the edge of excavation and then returning the stacked soil in 0.15m layer when required in plinth, under floors, sides of foundations, laying and depositing the layer by watering and ramming and then disposing of all surplus excavated soil as directed within a lead of 200 m.

4.2.1 EXCAVATIONS

The foundation rafts etc. shall be excavated to the dimensions shown on the drawings and to depth, at which in the opinion of the Employer/ Engineer stratum of good hard soil is observed.

The excavation shall be carefully carried out to the levels, shapes and dimensions as shown in the drawings or as directed by the Employer/ Engineer to receive the concrete work. Should any of the excavation be taken down below the specified levels, the Contractor shall fill in such excavation at his own expense with concrete well rammed in position until it is brought upto the proper levels. Filling in with excavated materials will not be allowed for this purpose. No extra charge will be given for the lift of the excavated materials upto 2.0m. The excavated earth shall be stacked at least 4m from the edge of foundation. The Contractor, at his own cost, shall dispose off all surplus excavated soil as directed by the Employer/ Engineer within a lead of 200m.

If foundations are made broader or longer than directed, the extra length and breadth shall be filled in after the foundations are built with earth rammed hard, by the Contractor at his own cost. The Contractor shall at his own expense and without extra charge, make provision for all extra excavation in slope, pumping, dredging or bailing out water and these trenches shall be kept free from water while the foundation work is in progress. The Contractor shall also at his own cost remove such portions of boulders or rocks, as are required to make the bottom of the trench horizontal and level. Nothing extra shall be admissible for pumping and/or bailing out water unless otherwise taken separately in the Bill of Quantities.

The trenches, rafts shall be inspected by the Employer/ Engineer before the concrete is laid therein, when the trench level shall be recorded. The filling in of side of trench excavations can be done in not more than 0.15m layers. Each layer shall be well watered and rammed hard before adding the next layer. Such fillings shall be brought up to the ground level with out extra charge and shall form part of the item of excavation.

4.2.2 TIMBERING OF TRENCHES FOR FOUNDATION AND OTHER WORK

When foundations are to be taken deep, the sides of the trenches shall be protected by erecting timber shoring and strutting. Timbering shall be close or open depending on the nature of the soil and work. The arrangement of timbering, sizes and spacing of members shall be as directed by the Employer/ Engineer. Nothing extra on this account shall be admissible unless otherwise taken separately in the Bill of Quantities.

4.2.3 TRIMMING AND LEVELING

The bottom of all foundation should be trimmed and leveled in accordance with the drawings.

4.2.4 DISPOSAL

Disposal of the surplus earth shall be done within the site as directed by the Employer/ Engineer. Nothing extra shall be paid for such disposal within the lead of 200m. The earth excavated shall be used for filling and terracing.

4.2.5 MEASUREMENT

Measurement shall be the product of the exact length and width of the lowest step of the footings according to the drawing or the Employer/ Engineer's instructions and the depth measured vertically. Where the ground is not level, average depth shall be taken. Rate shall be inclusive of all the works described above.

4.3.1 MEASUREMENT

The measurement shall be taken for the consolidated thickness of earth/sand and paid in cubic meter. Pit or stack measurement shall not be done for payment. Quantity of earth fill under this item shall be calculated as the sum total of earth filling required in trenches around foundations, over raft, under floors or any other filling less the total quantity involved in foundation excavation. It shall include excavation of earth/sand, transportation, screening if necessary, filling and the cost of labor etc. all complete.

5. CONCRETE WORK

5.1 Plain Cement Concrete (P.C.C.) WORKS

Providing and laying plain cement concrete excluding cost of form work complete as required

i) PCC 1:3:6 (1cement: 3 sand: 6 stone aggregate)

ii) PCC 1:2:4 (1cement: 2 sand: 4 stone aggregate)

5.1.1 MATERIALS

Cement, sand and stone aggregate shall conform to the specifications as under plain Cement Concrete work for RCC works.

5.1.2 MIXING

All proportions shall be by volume except cement which shall be proportioned by weight and as specified. Mixing shall be done in a mechanical mixer as per specifications of reinforced cement concrete work. However, in special cases, hand mixing may be allowed by the Employer/ Engineer when the following procedure shall be adopted. The several materials shall be accurately gauged in boxes and thoroughly mixed on a water tight platform of adequate size, being turned over at least thrice till the color is uniform and then twice wet. Water shall be added gradually and not more than necessary or specified by Employer/ Engineer that much concrete shall be mixed which can be used within half an hour. Each stack shall however be not larger than consuming one bag of cement. All such stacks shall be placed distinct from each other.

5.1.3 LAYING

Concrete shall be laid in horizontal layers of not more than 0.15 m thick and gently rammed.

5.1.4 CURING

After laying, the concrete shall be kept wet for seven days constantly by ponding. If cast in hot weather, it shall be covered with gunny bags which shall be kept constantly wet. Other work on concrete shall not start until 3 days after laying of concrete. Concrete curing shall be done strictly for seven days. Any failure of keeping the concrete work in constant wet condition, the work will be done by Employer/ Engineer and cost of above work shall be deducted from Contractor's bill.

5.1.5 MEASUREMENT

Measurement shall be in cubic metre of exact length, breadth and depth. This shall be exclusive of any form work required to complete the item. Rate shall include all materials and labour.

6. Reinforced Cement Concrete (RCC) GENERAL

Providing and laying PCC for RCC work with stone aggregate 20 mm and down gauge well graded excluding the cost of formwork and the cost of the reinforcement

i) M 15

6.1 MATERIALS

The materials used in the works shall be of the qualities and kinds specified. Materials delivered to the works shall be equal to the approved samples which shall be deposited with the Employer/ Engineer at least 30 days before it is required for use in work. The quantity of all necessary materials should be checked by the Employer/ Engineer for any casting. Delivery shall be made sufficiently in advance of constructional requirements to enable further samples to be selected and tested if so desired by the Employer/ Engineer. No material shall be used in the works until approved. Materials failing to comply with the approved samples and specification shall be immediately removed from the works at the Contractor's Cost.

6.1.1 WATER

Water used in mixing concrete shall be free from injurious amounts of oils, acids, alkalis, organic materials or other deleterious substances. It should be clean as drinking water.

6.1.2 CEMENT

The cement shall be ordinary Portland cement of approved brand and manufacture and shall comply in all respects with the I.S. 269-1967 for ordinary Portland Cement. It shall be delivered on the site in packages with an unbroken seal fixed by the manufacturer and plainly marked with the name of brand and the manufacture. It shall be stored in a dry place, in regular piles not exceeding six bags high and in such a manner that it will be efficiently protected from moisture

and contamination, and that the consignments can be used up in the order in which they are received. Set cement shall be immediately removed from the work and replaced by the Contractor at his own expense. If desired, tests shall be made by taking samples of cement from stores or elsewhere from the works. The selection of samples and procedure for testing shall comply with appropriate I.S. specification.

6.1.3 AGGREGATE

All aggregates shall conform to I.S. 383 - 1970. Aggregate shall, where possible, be derived from a source that normally produces aggregate satisfactory for concrete, and if requested by the Employer/ Engineer, the Contractor shall supply evidence to this effect. If instructed to do so, the contractor shall supply samples of the aggregate for the purpose of making preliminary concrete test cubes as herein-after specified.

Aggregate shall consist of naturally occurring sand and gravel or stone crushed or uncrushed, or a combination thereof. They shall be hard, strong, dense, durable, clean and free from veins and adherent coating. As far as possible, flaky and elongated pieces should be avoided.

Aggregate shall not contain any harmful materials, such as iron pyrites, coal, mica, shale or similar laminated materials, clay, alkali, soft fragments, organic impurities etc. in such quantity as to affect the strength or durability of the concrete or in addition to the above for reinforced concrete, any material which attack the reinforcement. Aggregate which are chemically reactive with the alkalis of cement are harmful, as cracking of concrete may take place. These aggregate shall be protected from spilling oils, mobiles, diesels over it on site.

6.1.4 FINE AGGREGATES (SAND)

The fine aggregate shall be natural sand or sand derived by crushing suitable gravel or stone and shall be free from coagulated lumps. Sand derived from a stone unsuitable for coarse aggregate shall not be used as the fine aggregate.

The fine aggregate shall conform to the requirements of I.S. 383 - 1970. Fine aggregate shall not contain more than 3% of material removable by decantation test, nor more than 1% dry lumps. The total of coal, clay lumps, shale, soft fragments and other deleterious substance shall not be more than 5%.

The percentage of clay lumps shall be determined by examining the various fractions that remain after the material has been tested for grading. Any particles that can be broken with fingers shall be classified as clay lumps and the total percentage of clay lumps shall be determined on the basis of the total original weight of the sample. The fine aggregate shall be well graded from fine to coarse and shall meet the following gradation requirements:

Table - 1 GRADATION FOR FINE AGGREGATE

Sieve designation Percentage by weight passing

Sieve Designation	10mm	No.4	No.16	No.30	No.50	No.100
Fine Aggregate	100	95-100	45-80	25-55	10-30	2-10

Blending will be permitted in order to meet the gradation requirements for the fine aggregate.

6.1.5 COARSE AGGREGATE

The coarse aggregate shall be crushed stone aggregate. The pieces of aggregates shall be angular. Friable, flaky and laminated pieces, mica, shale shall only be present in such quantities as not to affect adversely the strength and durability of the concrete as ascertained by tests on concrete cubes. After twenty four hours immersion in water, a previous dried sample shall not have gained in weight more than 5% and not more than 10% if it is to be used in plain concrete or elsewhere as described. The coarse aggregate shall conform to the requirements of I.S. 383 - 1970. The percentage of wear at 500 revolutions of Los Angeles Rattler Test shall not be more than 50%. The coarse aggregate shall meet the gradation of Table-2. Moreover it should confirm previous specification on coarse aggregate.

Table - 2 GRADATION FOR COARSE AGGREGATE.

Sieve Designation	50mm	40mm	25mm	20mm	10mm	No.4	No.8
40mm & down	100	90-100	20-25	0-15	0-5		
20mm & down			100	90-100	20-25	0-10	0-5

Percentage by weight passing

All R.C.C. work shall be carried out in strict accordance with this specification, I.S. Specifications and the working drawings. Any discrepancies in the dimensions on the drawings or any points not clear to the Contractor shall be brought to the notice of the Employer/ Engineer or clarified in advance before proceeding with the work.

The Contractor shall allow for all wastage in all materials. He shall also allow for all tests of concrete materials and if required produce manufacturer's certificate for cement and steel unless issued by the Owner.

- 1) All form work should be get checked for leveling and dimensions as well as all necessary supporting spouts from the Employer/ Engineer.
- 2) Only after getting the formwork checked, reinforcement should be placed properly as according to the drawing and detailing.
- 3) The date and time of any casting of concrete should be informed to the Engineer/Employer's 2 days in advance.

No concrete work shall be cast in the absence of the Employer/ Engineer. The Contractor shall personally check that both the formwork and reinforcement have been correctly placed and fixed and satisfy himself that all work preparatory to casting is completely ready, before requesting the Employer/ Engineer for final inspection and approval.

6.1.6 ADMIXTURES

The use of admixtures to improve the workability is allowed only if there is proved evidence that neither the strength nor the other requisite qualities of concrete and/or steel accessories grout, etc. are impaired by their use. The use of admixtures containing calcium chloride, fluorides, nitrates and sulphates is prohibited. The decision of the Employer/ Engineer on all matters relating to the use of admixtures shall be final.

Admixtures shall be stored in suitable waterproof building. Any material which has deteriorated or which has been contaminated whether during transit to the site, at the site or otherwise, shall not be used in the work and shall be immediately removed from the site and replaced at the expense of the contractor.

6.1.7 MIX DESIGN

Concrete mixes for various specified design strengths shall be worked out by the Contractor. The mix proportions shall be selected to ensure that the workability of the fresh concrete is suitable for the conditions of handling and placing, so that after compaction it surrounds all reinforcement or tendons and ducts and completely fills the formwork. When the concrete is hardened its quality shall be such as to comply with the strength, durability and other requirements taking into account the conditions to which it will be exposed.

Any standard method of mix design may be used. For determining the "required average strength" the specified minimum shall be taken as one in ten. Unless the Contractor can prove from his past experience that he is capable of achieving a high degree of control a "FAIR" control should be assumed in the initial mix design. Before arriving at the average strength values due regard shall be given to the criteria acceptance of site concrete.

The mixes designed by the Contractor shall be used on works only after obtaining a written approval of the Employer/ Engineer. It is to be understood that the mix design shall be entirely the responsibility of the Contractor and such approval by the Employer/ Engineer shall not relieve him of his responsibility in respect thereof. Sand shall be of an approved quality, clean, sharp and free from injurious amount of dust, mica, shells, soft and flaky particles, shale, alkali, organic matter, loam or other deleterious substances. The sand shall be taken from a source approved by the Employer/Engineer and if required by him it shall be thoroughly washed, screened and graded by the contractor at no extra cost and to the satisfaction of the Employer/ Engineer.

The whole of the ingredients of the coarse aggregate shall consist of hard stones and shall contain no soft or elongated pieces. If it is considered necessary, the Employer/ Engineer may instruct it to be washed, screened and graded at no extra cost.

6.1.8 MEASUREMENT AND PROPORTIONING OF CONCRETE MATERIALS

The aggregate shall be measured by volume in a gauge box of correct and approved size based on the weight of the material or by other approved accurate means. The gauge box or other container shall be filled with the aggregate without compacting to a predetermined uniform depth, accurate allowance being made for bulking due to moisture content of the fine aggregate, if required on site.

The cement shall be measured by weight, one or more complete bags containing 50 kgs. being used for a single batch of concrete and as the size of the mixer shall permit this to be done. One weighing machine shall be placed in standby condition on casting day and if the

Employer/Engineer feel that any concrete bag contains less than 50 kg, he can measure the weight of it and will direct the Contractor to fulfil necessary weight of cement from contractor's side.

The normal proportions of cement and aggregate shall comply with the quantities specified below for the concrete described for each part of the work. The specified quantities shall be altered if instructed after examination of the aggregate materials in samples or in bulk in order to obtain the dense concrete with approved materials. Any such alterations within the range of 1 part of fine

aggregate to $1\frac{1}{2}$ parts of coarse aggregate and 1 part of fine aggregate to $2\frac{1}{2}$ parts of coarse aggregate shall be made without any alteration in the charge made by the Contractor.

6.2 **PROPERTIES OF CONCRETE**

The minimum cement content of the mixture shall be as below in specified in clause no 6.2.1

6.2.1 CONCRETE PROPORTIONS

The minimum cement content of mixture shall be as below:

Grade	Minimum cement content in Kg/cu.m.
M 15	300
M 20	400
M 25	550

6.2.2 WATER CEMENT (W/C) RATIO

In general, w/c ratio of the concrete mix shall be kept minimum during casting. Generally one bag of cement concrete mix shall use 35.6 litres of water or as necessary. As moisture content of fine and coarse aggregate varies, for workability of concrete mix, the Employer/ Engineer may vary the water quantity and once the water quantity to be placed for one bag of cement concrete mix, is fixed by the Employer/ Engineer, the Contractor shall follow it strictly. As information to the Contractor, the Employer/ Engineer will depute one checking supervisor to the mixing batch, the quantity of water used shall be varied to suit the moisture content of the aggregate, and shall be just sufficient to produce a dense concrete, consistent with practical workability.

6.2.3 CONCRETE GRADE AND STRENGTH

The compressive strength (cube strength) for Portland cement concrete shall be in accordance with I.S. 456-2000.

Grade

Preliminary Test at 7 days

Work Test at 28 days

M15	110 Kg/cm2	170 Kg/cm2
M20	135 Kg/cm2	210 Kg/cm2
M25	185 Kg/cm2	285 Kg/cm2

6.2.4 CONTROL OF CONCRETE

(i) Preliminary Tests

The Contractor shall be called upon to submit representative samples of materials to be used for concrete in order that they may be tested at a laboratory and the suitability of materials established. All expenses in connection with the above materials, tests shall be done by the Contractor.

(ii) Works Cube Tests

During the progress of the work, 15 cm cubes shall be made as per I.S. 456-2000 as necessary and tested in accordance with I.S. 516-1959.

6.2.5 MEASUREMENT OF CONSISTENCY

The consistency shall be determined by making trial mixtures with dried aggregate. The consistency of the trial mixture of approved consistency shall be measured as instructed.

The slump of approved trial mixture shall be measured and this slump shall not be exceeded throughout all batches of concrete made from the same materials mixed in the same proportions as the trial mixtures and used in these parts of the works as instructed. In no case, the slump shall exceed 50mm. for concrete in slabs, or exceed 25 mm. for consolidated by mechanical vibration. The slump test shall be made on concrete actually being placed in the works at the commencement of each grade of concrete placing and such other times as instructed.

The apparatus used for the slump test shall be standard cone. When cone is filled, it shall be raised vertically clear of the concrete and the measurement of the slump shall be measured. Care shall be taken to prevent vibration of the sample being tested. If the Employer/ Engineer requires the use of other means for testing the consistency of the concrete it shall be done as instructed without any extra charge. For this standard I.S. Method shall be followed.

6.2.6 CONCRETE MIXING

The cement and aggregates shall be thoroughly mixed together in the specified proportions by volume or weight in a batch type mechanical mixer, unless another type of mixer is approved. The water shall be admitted to drum of the mixer only when all the cement and aggregates constituting one batch be in the drum. The concrete shall be mixed until the mixer is of uniform color and in no case for less than one minute. If the drum rotates at lower speeds, the minimum period shall be increased inversely proportional to that speed. The period of mixing shall be measured from time when all the materials and water are in the drum. The entire contents of the

drum shall be discharged before materials for the succeeding batch are fed into the drum. Materials spilled from the skip or other container shall not be used. No partly set or frozen concrete shall be used in the work. Partly set concrete shall not be remixed with the cement or aggregate of the next batch.

6.2.7 DISTRIBUTION OF CONCRETE

The concrete shall be distributed from the mixers to the position of placing in the works by approved means that do not cause segregation or otherwise impair the quality of the concrete. While transporting concrete over slabs and over beams by any suitable means, the contractor shall conform that the tied bar i.e. upper bar and lower bar shall not get distorted or displaced from its original place.

6.2.8 PREPARATIONS FOR PLACING CONCRETE

Before the concrete is placed, the shuttering shall be tied - up and any water accumulated therein shall be removed. All saw dust, chips, nails, and other debris shall be washed out or otherwise removed from within the formwork. The reinforcement shall then be inspected for accuracy of fixing. Immediately before placing the concrete, the formwork shall, except in frosty weather, be well wetted and inspection opening closed.

6.2.9 PLACING CONCRETE

The interval between adding the water to the dry mix and completion of the concrete placing operation shall not exceed 20 minutes nor, when an approved admixture that accelerates the initial setting of the cement be used, exceed ten minutes or as directed by the Employer/ Engineer.

Except where otherwise approved for slabs and large sections concrete shall be placed in the formwork by shovels or other approved implements and shall not be dropped from height more than 1.5 m nor handled in a manner to cause segregation. Accumulations of hardened concrete dropping on the reinforcement shall be avoided. Concrete shall be sorted along the formwork to that position.

Each layer of concrete while being placed shall be compacted by approved methods of ramming or mechanical vibrations to form a dense surface free from honey combing and tolerably free from water marks and air holes or other blemishes. The concrete shall be tamped against the face of the formwork so as to produce dense fair surface. The number and type of mechanical vibrations shall be approved before compacting by vibration. Placing and compaction of concrete shall be done in such a manner as not to disturb concrete already placed, and reinforcement projecting from concrete already placed shall not be vibrated or jarred. For concreting reinforced concrete walls and other structures having least lateral dimensions of 13mm. or under, each layer of concrete while being placed shall be properly compacted by approved methods of mechanical vibrations produced by internal or external mechanical vibration.

The laying of concrete over slabs should be uniform thick of required thickness after vibration. This can be conformed by dipping wooden pegs of required length. The level of all slabs should be in level unless otherwise specified and directed by the Employer/ Engineer. If required, the Employer/ Engineer will check the thickness and give order to the contractor to fill up the newly vibrated slab concrete surface. Any slab thickness after construction, if found less thickness than specified, the contractor will be responsible for above job.

Any water accumulating on the surface of the newly placed concrete shall be removed by approved means and no further concrete shall be placed thereon until such water is removed. No fresh concrete shall be brought into contact with the concrete containing cement of different type. Unless otherwise approved or instructed, concrete shall be placed in a single operation to the full depth of slabs, beams, and members similar thereto and shall be placed in horizontal layers not exceeding 0.50m deep in walls, columns until completion of the part of the work between construction joints as specified hereafter or of a part of approved extent. At the completion of a specified or approved part of a construction, joints of the form and in the position herein after specified shall be made. If a temporary cessation of concrete placing be unavoidable elsewhere, a construction joint shall likewise be made.

6.3 PLACING CONCRETE IN EXTREME WEATHER

Work shall be done according to clause 20.1.6 of I.S. 456-2000.

6.4 VIBRATION

6.4.1 APPEARANCE

The concrete that is to be compacted by vibration should appear anything from earth dry to slightly glistening. The mix should have the appearance of lacking in fines.

6.4.2 VIBRATORS

The contractor must use vibrator on beams and slabs to compact the newly laid concrete. Generally two types of vibrator shall be used.

a) NEEDLE OR IMMERSION TYPE OF VIBRATOR

Casting fall beams and columns shall be compacted by means of needle type of vibrator. 4" dia needle type vibrator shall be used over beam section more than 350mm x 400mm and rest of section need only 2" dia needle type vibrator.

b) FLAT BOTTOM VIBRATOR FOR SLABS

The contractor shall require flat bottom type of vibrator to compact all concrete over slabs. No immersion type of vibrator will be allowed to compact the concrete over slab.

Moreover, the contractor shall require at least two number of vibrator for one casting and other should kept in standby position. In case vibrator got damaged or not in working condition during casting, the vibrator shall be immediately replaced. If the contractor shall fail to replace another vibrator during casting, no further casting of concrete will be permitted. The contractor shall in that case, immediately remove the remaining concrete mix from the site of work.

6.4.3 PLACING

Segregation is likely to take place when the concrete is tipped into the form work and this should be avoided. The concrete mix should not contain surplus water and sand which will develop segregation under influence of vibratory compaction. The distribution of new concrete should be uniform over the whole section and the surface kept horizontal all the time thus ensuring the movement of concrete is downward only. Vibrators shall not be used as a spreading or distributing agent.

The vibrators shall be of rotary out of balance immersion type or the electro-magnetic type and operate at a frequency of not less than 4,000 cycles per minute. The vibration shall be of such a power - input as to produce an acceleration of 1 to 3 m/sec in the mass of the compacted concrete. The vibrators shall be provided for continuous operation.

6.4.4 DISPOSITION OF VIBRATORS

Internal vibrators shall be disposed within the mix, when placed, so as to maintain the whole of the concrete under treatment in an adequate state of agitation such that de-aeration and effective compaction may be attained at a rate commensurate with the supply of concrete from the mixers. Insertion of vibrators at about 450 mm centre to centre is considered sufficient.

6.4.5 PERIOD OF VIBRATION

Vibration shall continue during the whole period occupied by placing the concrete, the vibration being adjusted so that the centre of vibration approximates to centre of the mass being compacted at the time of placing. The concrete should not be over vibrated and the period of insertion of internal vibrator should be about 15 seconds at any point.

6.4.6 COMPACTNESS

The concrete shall be judged to be compacted when the mortar fills the spaces between the coarse aggregate so as to form a glistening and even surface except for slight irregularities where the coarse aggregate breaks this smooth surface. When this condition has been attained, the vibrators shall be withdrawn slowly.

The vibrator must not be placed against the steel or the formwork, the minimum distance being 8 mm. It must be placed in such a position that formwork, reinforcement and recently laid concrete are subjected to the minimum amount of vibration.

6.4.7 CONSTRUCTION JOINTS

Construction joints shall be made in the positions hereinafter specified or elsewhere as approved. Such joints shall be truly vertical or horizontal as the case may be, except that in an inclined or curved members the joint shall be strictly at right angles to the axis of the member.

Construction joints shall be made horizontally at the top of the foundations and horizontally 8 mm. below the lowest beam soffit at the head of columns. Concrete in the ribs and slabs of small tee, all beams shall be placed in one operation, but, for large beams concrete in the rib upto a level 2.5 mm. below the slab soffit shall be placed first. Concrete in haunches or splays on the beams or braces and concrete in the head of adjoining portion of the columns shall be placed at the same time as that in the beams or braces. Concrete in splays at the junction of walls and slabs shall be placed at the same time as that in the slab. Construction joints in the length of a beam shall be avoided where practicable, but where joints are unavoidable they shall be made as previously approved by the Employer/ Engineer. Construction joints in slabs shall be made parallel to the main reinforcement, and where required at right angles to the main reinforcement, they shall be made at a place previously approved by the Employer/ Engineer.

Before placing new concrete against concrete already set, the face of the old concrete shall be cleaned and scum removed. The face shall be roughened and any loose aggregate removed there from. Immediately before placing the new concrete the face of the old concrete shall be thoroughly wetted and a coating of neat cement grout applied. The new concrete shall be well

rammed against the prepared face before the grout sets. Construction joints will not be paid separately.

6.4.8 PROTECTION AND CURING OF CONCRETE

Immediately after placing or finishing, concrete surface not covered by forms shall be protected from loss of surface moisture for at least seven days when the average daily temperature is at least 21°C, where Portland cement has been used. Protection from loss of surface water shall be done by any of the following methods where applicable to the type of work involved:

- i) By water covering.
- ii) By covering of surfaces with water impervious paper.
- iii) By application of approved impervious membrane.

Surfaces from which forms have been removed before the curing period has elapsed shall be protected as specified for surfaces not covered by forms. Membrane curing shall not be used on surfaces required to receive additional concrete or concrete fill, or on cement finish costs that are to receive dust proofing or hardening treatments, or during hot weather.

Water curing shall be performed by keeping the concrete surface wet by ponding, by continuous spraying or by covering the surface with an approved water-saturated covering such as 2.5 mm. of sand or sawdust, or by one or more layers of burlap. The exposed concrete surfaces shall be saturated with water throughout the full stipulated curing period. Where forms remain in place during the curing period, they shall be kept sufficiently wetted with clean water to reduce cracks and to prevent joints from opening in the forms.

The impervious membrane curing Boundary shall be an approved non-bituminous, colourless, liquid sealing Boundary in atomized form so as to preserve the natural color of the concrete. The curing Boundary shall be applied as soon as surface water has disappeared from concrete surfaces with approved pressure spraying equipment in accordance with the manufacturer's directions and in sufficient thickness to form an effective water seal. No compounds shall be used which will adversely affect the subsequent installation of finished flooring.

Joints of sheet membrane used for curing shall be lapped at least 150mm and sealed with water proof tape as recommended by the manufacturer. Polyethylene sheet shall be considered the water-impervious paper for purposes of interpretation of this item. No liquid curing compound may be used without specific written approval of the Employer/ Engineer regarding type, manufacturer, location and extent of use and application procedures.

6.4.9 FINISHES

The concrete surface shall in general be smooth finish. However, immediately after stripping form work, minor defects and honey combed areas shall be patched and holes filled before the concrete is thoroughly dry, patch areas shall be chipped away to 2.5 mm depth, with regular edges perpendicular to the surface. Area to be patched shall be thoroughly wet including the areas at least 150 mm. wide entirely surrounding them, just prior to placing the patching mortar. Mortar shall be of the same material and proportions as used for the concrete, without coarse aggregate. A sufficient quantity of white cement shall be substituted for part of the ordinary cement so that

the patching mortar, when dry, will match the surrounding concrete. Water in the mix shall be kept to a minimum and mortar shall be retempered without adding water and shall be allowed to stand for one hour prior to use during which time it shall be mixed to prevent setting. The mortar shall be thoroughly compacted into place, screeded so as to leave the patch slightly higher than surrounding surfaces, left undisturbed for one to two hours to permit initial shrinkage and finished to match the adjoining work. Where patches exceed 2.5 mm. deep, they shall be trimmed and wet as specified, after which the opening shall be filled to within 2.5 mm. of the surface. After sufficient shrinkage time has elapsed, the patching shall proceed as described above.

Patches shall be kept wet for five days. Tie holes left by the withdrawal of rods, or holes left by removal of ends of ties shall be filled solidly with mortar. For holes passing entirely through the wall, plunger-type grease gun or other device to force mortar through the wall, starting at the back face, shall be used. When a hole is completely filled, excess mortar shall be struck off with a cloth flush with the surface. Holes not passing entirely through walls shall be filled solidly with mortar. Any excess mortar shall be struck off with a cloth on the wall surface. The surface of non-shuttered faces concrete work other than slabs shall be smoothed with a wooden float (or if approved with a steel trowel) to give a finish equal to that of the rubbed down shuttered faces. Concealed concrete faces shall be left as it is except that honeycombed surfaces shall be made good.

The top faces of slabs not intended to be surfaced shall be leveled and floated to a smooth finish at the levels or falls shown on the drawings or elsewhere.

The floating shall not be executed to the extent of bringing excess fine material to the surface. Ribbed surfaces of slabs shall where instructed be formed at the time of taming and leveling. Indentation in slab or stair surfaces shall be formed by approved implements giving the depth and patterns instructed. The top faces of slabs intended to be covered with screed, granolithic or similar surfacing shall be left with a spade finish.

The soffits of slabs and faces of walls intended to be rendered shall be roughened by approved means to form a key. Concrete surfaces to take finishes other than those specifically referred to herein shall be prepared in an approved manner to suit the finish as instructed.

6.5 TESTS ON STRUCTURE

The Employer/ Engineer shall instruct that a loading test be made on the works or any part thereof if in his opinion such a test be deemed necessary for one or more of the following reasons:

- a) The site made concrete test cubes failing to attain the specified strength.
- b) Over loading during construction of the works or part thereof.
- c) The shuttering being prematurely removed.
- d) Concrete improperly cured.
- e) Any other circumstances attributable to alleged negligence on the part of the Contractor which in the opinion of the Employer/ Engineer may result in the works or part thereof being less than the expected strength.

f) Any reason other than the foregoing

The test shall be made at the contractor's own cost. If the test be instructed to be made for one or more of the reasons from (a) to (e) inclusive, and If the test be instructed to be made for the reason (f), the contractor shall make the test and shall be reimbursed for all cost relating thereof irrespective of the result of the test.

For the purpose of the load test on floors, roofs and similar structures and their supports, the test load shall be equivalent to 1 and 2/3 times the superimposed load for which the works or part thereof to be tested have been designed. The test load shall not be applied within 90 days (or 28 days if rapid hardening Portland cement be used) of the completing of placing of the concrete in the part of the works to be tested, and the latter shall not be supported during the test by shuttering or other nonpermanent support. Means shall be taken to ensure that in the event of a failure under the test temporary support of the loaded member shall be immediately available. The test shall proceed strictly as instructed. For the loading test on floors, roofs or similar structures the result shall be deemed satisfactory if upon removal of the test load the residual deflection does not exceed one - quarter of the maximum deflection after 24 hours loading. If the residual deflection exceeds this amount the test loading shall be repeated, and the result shall be deemed to be satisfactory if the residual deflection after removal of the second test load does not exceed one-quarter of the maximum deflection after second test.

If the result of the loading test be not satisfactory, the Employer/ Engineer shall instruct that part of the works concerned shall be taken down or removed and reconstructed to comply with this specification, or that such other remedial measures shall be taken as to make the works secure. If the test be instructed to be made for one or more of the reasons (a) to (e) inclusive as herein before specified, the Contractor shall take down or remove and reconstruct the defective work or shall take the remedial measures instructed at his own cost.

6.5.1 MEASUREMENT

In calculating the contents of any R.C.C. member, for measurement proposes the dimensions adopted shall be structural concrete members exclusive of any finish,

8. FORMWORK

8.1 CENTERING AND SHUTTERING

Centering and shuttering of plywood and steel formwork in slabs, walls, beams etc. including propping, strutting etc. and removal of forms including applying form oil to shuttering.

8.2 DESIGN

Formwork shall be designed and constructed for removal so that the concrete can be properly placed and thoroughly compacted. Formwork shall be firmly supported and adequately strutted, braced, or tied. It shall be capable of adjustment to the lines and dimensions of the finished concrete and it shall be sufficiently strong to resist without distortion, the pressure of concrete during its placing and compaction, and other loads to which it may be subjected. It shall not be liable to suffer distortion under the influence of the weather. When concrete is to be vibrated, special care shall be taken to ensure that the formwork will remain stable and the joints tight. The safety and adequacy of centering and shuttering shall be the sole responsibility of the Contractor.

The Contractor shall if required supply to the Employer/ Engineer drawings and calculations for the formwork he proposes to use, for the concrete work.

8.3 MATERIAL FOR FORMWORK

All surface of the formwork shall be of plywood or steel plate which shall give uniform concrete surface after removal. No wooden planks or other means of form work shall be acceptable. For struts and props the Contractor shall use sal wood 75mm x 100mm props or Iron lifting type strut over form base i.e. it shall not get depressed at the time of loading or casting. Any strut, if found defective shall be replaced as directed by Employer/ Engineer.

8.4 DEFLECTION AND CAMBER

The Contractor shall make allowance for any settlement or deflection of the formwork that is likely to arise during Construction, so that the hardened concrete conforms accurately to the specified line and level. The Contractor shall also make allowance in the formwork for any camber specified by the Employer/ Engineer to allow for the elastic deflection of structural members and deflection due to creep of the concrete. In the absence of any specified camber, the soffit of all beams and slabs shall be given a camber equal to 1/240 of the span length to ensure that the structure has the prescribed shape after removal of the forms

8.5 SUPPORTS

Formwork shall be constructed so that the formwork to the sides of members can be removed without disturbing the soffit formwork or its supports. Props and supports shall be designed to allow the formwork to be adjusted accurately to line and level and to be erected and removed in an approved sequence without damage to the concrete. Supports shall be carried out which is sufficiently strong to afford the necessary support without damage to any portion of the structure. This may mean in some cases that it be carried down to the foundations or other suitable base. Props and bracing shall be provided for the temporary support of composite construction where separately specified.

8.6 JOINTS AND EDGES

All joints in the formwork shall be close-fitting to prevent leakage of cement slurry from the concrete. At construction joints, formwork shall be tightly secured against previously cast or hardened concrete to prevent the formation of stepping or ridges in the concrete. Formwork shall be constructed to provide straight and true angles, arises or edges. Where cambers are shown on the Drawings, the fillets shall be accurately cut to size to provide a smooth and continuous chamfer. Formwork panels shall have true edges to permit accurate alignment at sides and provide a clean line at construction joints in the concrete which shall be fixed with their joints either vertical or horizontal, unless otherwise specified.

8.7 SUNDRIES

Formwork shall be provided to the top surface of concrete where the slope or the nature of the work requires it. Provision shall be made for forming holes and chases for services and for building in pipes, conduits and other fixings, as shown on the drawings. The material and position of any ties passing through the concrete shall be as directed by the Employer/ Engineer. Except where corrosion of a metal tie is unimportant, it shall be possible to remove a tie so that no part of it remaining embedded in the concrete shall be nearer to the finished surface of the concrete than

the specified thickness of cover to the reinforcement. Any holes left after the removal of ties shall be filled with concrete or mortar of approved mix

8.8 CLEANING AND TREATMENT OF FORMWORK

Spaces to be occupied by concrete shall be free from all rubbish, chipping, shavings, sawdust, dirt and tying wire etc., before concrete is placed. The formwork to be in contact with the concrete shall be cleaned and treated with a suitable non-staining form oil or other approved material. Care shall be taken that oil or composition is kept away from contact with the reinforcement or with concrete at any construction joints. Surface retarding agents shall not be used except with the permission of the Employer/ Engineer. Formwork shall be thoroughly cleaned after each use. Damaged or distorted formwork shall not be used

8.9 PAINTING ON FORMWORK

The concrete repellent painting on all contact surface of the formwork shall be of approved non bituminous colourless form oil so as to preserve the natural color of the concrete. The repellent compound shall be applied so as to effect quick removal of form work. It shall be applied as per the manufacture's direction. No compound shall be used which will adversely affect the concrete work or surface. No form repellent compound may be used without specific written approval of the Employer/ Engineer regarding type, manufactures, location and extent of use and application procedures.

8.10 REMOVAL OF FORMWORK

All formwork shall be removed without shock or vibration that might damage the concrete. Before the soffit and props are removed the surface of the concrete shall be exposed where necessary in order to ensure that the concrete has hardened sufficiently. In no circumstances shall formwork be struck of until the concrete reaches cube strength of at least three times the stress to which the concrete may be subjected at the time of striking. The formwork to vertical surfaces such as walls, columns and sides of beams may be removed after 24 hours in normal weather conditions although care must be taken to avoid damage to the concrete, especially to arises and features. In cold weather a longer period may be necessary before striking. Suitable curing methods should immediately follow the removal of the formwork. The following minimum times shall elapse before removal of formwork:

The times given for the removal of props are based on the assumption that the total live load plus dead weight to be supported at the time of removal is not more than one half the total design load. For horizontal members where the loading is a higher proportion of the total design load these times may need to be increased.

8.11 MEASUREMENT

Measurement for payment shall be done of the area on which centering shuttering has been done. It shall include the application of the form oil and removal of the formwork as well.

11. IRON AND STEEL WORK

All rust and scales shall be removed by scraping or by brushing with steel wire brushes. All dust and dirt shall be wiped away from the surface. If the surface is wet, it shall be dried before the priming coat is applied. All tubular iron should be used according to IS 4923: (1997)- Steel Tubes for Structural Purposes.

- 1. Vertical Pole should be class 75*75*3.2mm for main gate
- 2. Boundary post should be medium class 49.5*49.5*2.9mm.

11.1 MEASUREMENT

The rate shall include the cost of all labour and materials involved in all the operations described above.

Section - VII Drawings

Note:

- 1. It is customary to bind the drawings in a separate volume, which is often larger than other volumes of the contract documents. The size will be dictated by the scale of the drawings, which must not be reduced to the extent that details are reduced illegible.
- 2. A simplified map showing the location of the Site in relation to the local geography, indicating major roads, posts, airports, and railroads, is helpful.
- 3. The construction drawings, even if not fully developed, must show sufficient details to enable bidders to understand the type and complexity of the work involved and the price the Bill of Quantities.

DRAWING

Section - VIII Bill of Quantities

Notes for Unit Rate Contracts:

Objectives

The objectives of the Bill of Quantities are

- (a) To provide sufficient information on the quantities of Works to be performed to enable Bids to be prepared efficiently and accurately; and
- (b) When a Contract has been entered into, to provide a priced Bill of Quantities for use in the periodic valuation of Works executed.

In order to attain these objectives, Works should be itemized in the Bill of Quantities in sufficient detail to distinguish between the different classes of Works, or between Works of the same nature carried out in different locations or in other circumstances which may give rise to different considerations of cost. Consistent with these requirements, the layout and content of the Bill of Quantities should be as simple and brief as possible.

Content

The Bill of Quantities should be divided generally into the following sections:

- (a) Preamble;
- (b) Work Items (grouped into parts);
- (c) Day works Schedule;
- d) Provisional Sums; and
- (d) Summary.

Preamble

The Preamble should indicate the inclusiveness of the unit prices, and should state the methods of measurement which have been adopted in the preparation of the Bill of Quantities and which are to be used for the measurement of any part of the works.

Work Items

The items in the Bill of Quantities should be grouped into sections to distinguish between those parts of the Works which by nature, location, access, timing, or any other special characteristics may give rise to different methods of construction, or phasing of the Works, or considerations of cost. General items common to all parts of the works may be grouped as a separate section in the Bill of Quantities.

Day work Schedule

A Day work Schedule should be included only if the probability of unforeseen work, outside the items included in the Bill of Quantities, is high. To facilitate checking by the Employer of the realism of rates quoted by the Bidders, the Day work Schedule should normally comprise the following:

- (a) A list of the various classes of labour, materials, and Constructional Plant for which basic day work rates or prices are to be inserted by the Bidder, together with a statement of the conditions under which the Contractor will be paid for work executed on a day work basis.
- (b) Nominal quantities for each item of Day work, to be priced by each Bidder at Day work rates as bid. The rate to be entered by the Bidder against each basic Day work item should include the Contractor's profit, overheads, supervision, and other charges.

Provisional Sums

A general provision for physical contingencies (quantity overruns) may be made by including a provisional sum in the Summary Bill of Quantities. Similarly, a contingency allowance for possible price increases should be provided as a provisional sum in the Summary Bill of Quantities. The inclusion of such provisional sums often facilitates budgetary approval by avoiding the need to request periodic supplementary approvals as the future need arises. Where such provisional sums or contingency allowances are used, the Contract Data should state the manner in which they will be used, and under whose authority (usually the Project Manager's).

Summary

The Summary should contain a tabulation of the separate parts of the Bill of Quantities carried forward, with provisional sums for Day work, for physical (quantity) contingencies, and for price contingencies (upward price adjustment) where applicable.

These Notes for Preparing Specifications are intended only as information for the Employer or the person drafting the Bidding documents. They should not be included in the final documents.

Preamble of Bill of Quantities

A. General

- 1. The Bill of Quantities shall be read in conjunction with the Instructions to Bidders, General and Special Conditions of Contract, Technical Specifications, and Drawings.
- 2. The quantities given in the Bill of Quantities are estimated and provisional, and are given to provide a common basis for bidding. The basis of payment will be the actual quantities of work ordered and carried out, as measured by the Contractor and verified by the Project Manager and valued at the rates and prices bid in the priced Bill of Quantities, where applicable, and otherwise at such rates and prices as the Project Manager may fix within the terms of the Contract.
- 3. For any item for which measurement is based on records made before or during construction the records shall be prepared and agreed between the Engineer and the Contractor. Should the Contractor carry out such work without the prior agreement of the Engineer, the Engineer may request the Contractor to carry out investigations to confirm the extent of the work and the quantity of work certified for payment shall be solely at the Engineer's discretion. The cost of any such investigation shall be borne by the Contractor.
- 4. The rates and prices bid in the priced Bill of Quantities shall, except as otherwise provided under the Contract, include all construction equipment, labour, supervision, materials, erection, maintenance, insurance, profit, taxes, and duties, together with all general risks, liabilities, and obligations set out or implied in the Contract.
- 5. A rate or price shall be entered against each item in the priced Bill of Quantities, whether quantities are stated or not. The cost of items against which the Contractor has failed to enter a rate or price shall be deemed to be covered by other rates and prices entered in the Bill of Quantities.
- 6. The whole cost of complying with the provisions of the Contract shall be included in the Items provided in the priced Bill of Quantities, and where no Items are provided, the cost shall be deemed to be distributed among the rates and prices entered for the related Items of Work.
- 7. General directions and descriptions of work and materials are not necessarily repeated nor summarized in the Bill of Quantities. References to the relevant sections of the Contract documentation shall be made before entering prices against each item in the priced Bill of Quantities. The Specification Clause references where given in the item description of the Bills of Quantities are for the convenience of bidders and generally refer to the principal relevant-specification clause but do not necessarily represent the whole of the specification requirements for the work required within the item. The presence of a Specification clause reference shall not in any way reduce the Bidders obligation to complete work in accordance with all the requirements of the Specification.
- 8. Provisional Sums included and so designated in the Bill of Quantities shall be expended in whole or in part at the direction and discretion of the Project Manager in accordance with the Conditions of Contract.
- 9. The method of measurement of completed work for payment shall be in accordance with the Specifications.
- 10. The abbreviations and symbols used in this Bill of Quantities are: *[Insert as applicable]*

B. Day work Schedule

a) General

1. Work shall not be executed on a day work basis except by written order of the Project Manager. Bidders shall enter basic rates for day work items in the Schedules. These rates shall apply to any quantity of day work ordered by the Project Manager. Nominal quantities have been indicated against each item of day work, and the extended total for day work shall, be carried forward as a Provisional Sum to the Summary Total Bid Amount. Unless otherwise adjusted, payments for day work shall be subject to price adjustment in accordance with the provisions in the Conditions of Contract.

b) Day work Labour

- 1. In calculating payments due to the Contractor for the execution of day works, the hours for labour will be reckoned from the time of arrival of the labour at the job site to execute the particular item of day work to the time of departure from the job site, but excluding meal breaks and rest periods. Only the time of classes of labour directly doing work ordered by the Project Manager and are competent to perform such work will be measured. The time of gangers (charge hands) actually doing work with the gangs will also be measured but not the time of foremen or other supervisory personnel.
- 2. The Contractor shall be entitled to payment in respect of the total time that labour is employed on day work, calculated at the basis rates entered by it in the "SCHEDULE OF DAY WORK RATES: 1. LABOUR ". The rates for labour shall be deemed to cover all costs to the Contractor including (but not limited to) i) the amount of wages paid to such labour, transportation time, overtime, subsistence allowances, ii) any sums paid to or on behalf of such labour for social benefits in accordance with Nepal law, iii) Contractor's profit, overheads, superintendence, liabilities and insurance and iv) charges incidental to the foregoing.

c) Day work Equipment

- The Contractor shall be entitled to payments in respect of Constructional Plant already on site and employed on day work at the basis rental rates entered by him in the "SCHEDULE OF DAY WORK RATES:2 EQUIPMENT". The said rates shall be deemed to include due and complete allowance for depreciation, interest, indemnity and insurance, repairs, maintenance, supplies, fuel, lubricant, and other consumables and all overhead, profit and administrative costs related to the use of such equipment. The cost of drivers, operators and assistants also shall be included in the rate of the equipment and no separately payment shall be made for it.
- 2. In calculating the payment due to the Contractor for Constructional Plant employed on day work, only the actual number of working hours will be eligible for payment, except that where applicable and agreed with the Project Manager, the travelling time from the part of the Site where the Construction Plant was located when ordered by the Project Manager to be employed on day work and the time for return journey there to shall be included for payment.

d) Day work Materials

- 1. The Contractor shall be entitled to payment in respect of materials used for day work (except for materials for which the cost is included in the percentage addition to labour costs as detailed heretofore), at the rates entered by him in the "SCHEDULE OF DAY WORK RATES: 3 MATERIALS" and shall be deemed to include overhead charges and profit as follows;
 - (i) the rates for materials shall be calculated on the basis of the invoiced price, freight, insurance, handling expenses, damage, losses, etc. and shall provide for delivery to store for stockpiling at the Site.
 - (ii) the cost of hauling materials for use on work ordered to be carried out as day work, from the store or stockpile on the Site to the place where it is to be used also shall be include in the same rate.

Provisional Sums

A general provision for physical contingencies (quantity overruns) may be made by including a provisional sum in the Summary Bill of Quantities. Similarly, a contingency allowance for possible price increases should be provided as a provisional sum in the Summary Bill of Quantities. The inclusion of such provisional sums often facilitates budgetary approval by avoiding the need to request periodic

supplementary approvals as the future need arises. Where such provisional sums or contingency allowances are used, the SCC should state the manner in which they will be used, and under whose authority (usually the Project Manager's).

The estimated cost of specialized work to be carried out, or of special goods to be supplied, by other contractors should be indicated in the relevant part of the Bill of Quantities as a particular provisional sum with an appropriate brief description. A separate procurement procedure is normally carried out by the Employer to select such specialized contractors. To provide an element of competition among the Bidders in respect of any facilities, amenities, attendance, etc., to be provided by the successful Bidder as prime Contractor for the use and convenience of the specialist contractors, each related provisional sum should be followed by an item in the Bill of Quantities inviting the Bidder to quote a sum for such amenities, facilities, attendance, etc.

Bill of Quantities

1 Pr	1 Provisional Sum						
	Procument Item Details						
Sl. No.	Item Description	Unit	Quantity	ntity Unit Rate (NPR) Amou		int (NPR)	
1			0.0	0.0		(0.00
2 Co	onstruction work						
2.1	Building completion work						
2.1.1	Painting and glazing work						
		Pro	ocument Item D	etails			
SI. No.	Item Description	Unit	Quantity	Bidder's Rate (NPR)	Bidder's	Rate (in words)	Total Amount (NPR)
	Formwork & Centering and shuttering with approved materials such as wooden/Plywood shuttering for all R.C.C.works of such as wooden shuttering for all R.C.C. works of any shape size and at any level with necessary propping, scaffolding, staging, supporting, Cutting holes for utilization works etc. all complete as per direction of Engineer	sq.mtr.	4.14				
	Straightening, cleaning, cutting and bending of tore steel reinforcement bar of different diameter for R.C.C: work including fixing in position all completeas per the site inchargedrawing, specification and instruction of Engineer	МТ	0.03				
3	12 mm thick cement plastering work for wall in 1:6 cement mortar of good finish including cleaning and wetting the surface and curing the work all complete	sq.mtr.	41.08				
	Supply & fitting of natuaral anodizing aluminium partition section 5 mm clear glass with 9 mm board 101.6mm with door	sq.mtr.	60.44				
5	Supply & fitting of false ceiling by gypsum board 12mm thick	sq.mtr.	34.00				
	Providing and fixing tubular iron pipe with all necessary fittings fixing accessories, gusset, shoe plate, cleats, nut bolt or welded together and application of double coat of enamel paint over one coat of primer as per drawing and instruction of Engineer.		370.37				
7	Providing and application of 2mm white putty plaster	sq.mtr.	34.00				

	Procument Item Details					
Sl. No.	Item Description	Unit	Quantity	Bidder's Rate (NPR)	Bidder's Rate (in words)	Total Amount (NPR)
8	Plane cement concrete in 1:3:6 ratio (M10/40) under wall, floor & column foundation etc. including protection of sides, laying compacting, curing with all complete as per instruction of site engineer	cu.mtr.	0.08			
9	"Structural concrete in any form, size shape and level for all R.C.C. works including columns, beams, lintels with cement, sand and crushed aggregate in 1:1.5:3 ratio (M20/20) including Mixing, laying, compacting, finishing and curing all complete"	cu.mtr.	0.24			
10	Brick masonry work in (1:4) cement sand mortar with approved quality first class chimney made bricks in perfect line and level including wetting the bricks, packing the joints and curing with necessary scafolding work, including supplying of all materials, labour, lead and lift, Work all complete as per the drawing, specification and instruction of site in charge	cu.mtr.	0.71			
11	Providing and application of two coat of Plastic emulsion paint over one coat of primer as per specification, drawing and instruction of Engineer	sq.mtr.	75.08			
12	Providing and fixing iron grill (3x20) mm 15kg/sqm including alluminium paints all complete as per drawing, specification and instruction of Engineer.	sq.mtr.	4.67			
13	Providing, placing and fixing coloured CGI Sheet 28 guage(0.28 mm) heavy as per drawing, specification and instruction of Engineer. Morang Rate	sq.mtr.	23.68			
14	SANITARY WORKS (Detail Requirement is listed in specification)	job	1.00			
15	ELECTRICAL WORKS (Detail Requirement is listed in specification)	job	1.00			
		То	tal of Procume	nt Items		
Tota	ll Item Price					
VAT	[
Gra	nd Total					

Section - IV General Conditions of Contract

Section VII. General Conditions of Contract (GCC)

1.	General Provision	S	
1.1	Definitions		Contract as defined below, the words and expressions defined shall have lowing meanings assigned to them, except where the context requires ise:
The Contract		1.1.1	" Contract " means the Agreement signed between the Employer and the contractor and the other documents listed in the Special Conditions of Contract (SCC).
		1.1.2	"Specification" means the document as listed in the SCC, and any variation to such document.
		1.1.3	" Drawings " means the Employer's drawings of the Works as listed in the SCC, and any variation to such drawings.
		1.1.4	" Bill of Quantities " means the priced and completed bill of quantities forming part of the Tender.
		1.1.5	" Bid or Quotation " means the contractor's priced offer to the Employer for the execution and completion of the Works and the remedying of any defects therein in accordance with the provisions of the Contract, as accepted by the Letter of Acceptance.
		1.1.6	"Letter of Acceptance" means the formal acceptance by the Employer of the bid or Tender.
	Persons	1.1.7	"Employer" means the person named in the Agreement and the legal successors in title to this person, but not (except with the consent of the contractor) any assignee.
		1.1.8	"Contractor" means the person named in the Agreement and the legal successors in title to this person, but not (except with the consent of the Employer) any assignee.
		1.1.9	"Party" means either Employer or the contractor.
	Date, Times and Periods	1.1.10	" Commencement Date " means the date stated in the SCC after the date the Agreement comes into effect or any other date agreed between the Parties.
		1.1.11	" Day " means a calendar day.

	.1.12 "Time for Completion" means the time for completing the Works as stated in the SCC (or as extended under Sub-Clause 6.3), calculated from the Commencement Date.		
Money and Payments	 1.13 "Cost" means all expenditure properly incurred (or to be incurred) by the contractor, whether on or off the Site, including overheads and similar charges, but does not include profit. 1.14 "Contract Price" means the sum stated in the Letter of Acceptance as payable to the contractor and adjusted with any Variation Orders and Other Adjustments upon completion of the works and the remedying of any defects therein in accordance with the provisions of the Contract. 1.15 "Retention Money" means the aggregate of all monies retained by the Employer pursuant to Sub-Clause 10.3 		
Other Definitions	 1.16 "Contractor's Equipment" means all apparatus, machinery, vehicles, facilities and other things required for the execution of the Works but does not include Materials or Plant. 1.17 "Country" means Nepal. 1.18 "Employer's Liabilities" means those matters listed in Sub-Clause 5.1. 1.19 "Materials" means things of all kinds (other than Plant) intended to form or forming part of the permanent work. 		
	 .1.20 "Plant" means the machinery and apparatus intended to form or forming part of the Permanent Works. .1.21 "Site" means the places provided by the Employer where the Works are to be executed, and any other places specified in the Contract as forming part of the Site. .1.22 "Variation" means any change which is a result of unforeseen circumstances that arise as a result of instruction by the Employer/ Engineer under Sub-Clause 9.1. .1.23 "Works" means all the work and design (if any) to be performed by the contractor including temporary work and any Variation. .1.24 "Permanent Works" means the permanent works to be executed (Including Plant) in accordance with the Contract. .1.25 "Temporary Works" means all temporary works of every kind (other than contractor's Equipment) required in or about the execution and completion of the Works and the remedying of any defects therein. 		
1.2 Interpretation	Vords importing persons or parties shall include firms and organisations. Words mporting singular or one gender shall include plural or the other gender where he context requires.		
1.3 Priority of Documents	The documents forming the Contract shall to be taken as mutually explanatory of one another. If an ambiguity or discrepancy is found in the documents, the Employer shall issue any necessary instructions to the contractor, and the priority of the documents shall be in accordance with the order as listed in the SCC .		
1.4 Law	he law of the Contract is stated in the Law of Nepal.		

1.5C	ommunications	Where provision is made for the giving or issue of any notice, instruction, or other communication by any person, unless otherwise specified such communication shall be written in the language stated in the SCC as shall not be unreasonably withheld or delayed.
		If a notice given pursuant to Sub Clause 1.5 fails to be delivered due to failure to trace the address of the party then the notice shall be published as public notice in a National daily newspaper and when the notice is so published then the notice shall be considered to be delivered to the concerned party.
1.6	Statutory Obligations	The contractor shall comply with the laws of Nepal where activities are performed. The contractor shall give all notices and pay all fees and other charges in respect of the Works.
2.	The Employer	
2.1	Provision of Site	The Employer shall provide the Site and right of access thereto at the times stated in the SCC.
2.2	Permits and Licenses	The Employer shall, if requested by the contractor, assist him in applying for permits, licences or approvals which are required for the Works.
2.3	Employer's Instructions	The contractor shall comply with all instructions given by the Employer in respect of the Works including the suspension of all or part of the Works.
2.4	Approvals	No approval or consent or absence of comment by the Employer or the Employer's representative shall affect the contractor's obligations.
3.	Employer's Repres	sentatives
3.1	Authorised Person	One of the Employer's personnel shall have authority to act for him. This authorised person shall be as stated in the SCC, or as otherwise notified by the Employer to the contractor.
3.2	Employer's Representative	The Employer may also appoint a firm or individual to carry out certain duties. The appointee may be named in the SCC, or notified by the Employer to the contractor from time to time. The Employer shall notify the contractor of the delegated duties and authority of this Employer's representative.
4.	The Contractor	
4.1	General Obligations	The contractor shall carry out the Works properly and in accordance with the Contract. The contractor shall provide all supervision, labour, Materials, Plant and contractor's Equipment which may be required. All Materials and Plant on Site shall be deemed to be the property of the Employer. During continuance of the of the contract, the contractor and his sub-contractors shall abide at all times by all labour laws, including child labour related enactments, and rules made there under.
		A child who has not attained the age of fourteen years shall not be employed in any work as a labourer.

4.2	Contractor's Representative	The contractor shall submit to the Employer for consent the name and particulars of the person authorised to receive instructions on behalf of the contractor.
4.3	Subcontracting	The contractor shall not subcontract the Works.
4.4	Performance Security	As stated in the SCC , the Contractor shall deliver to the Employer no later than the date specified in the Letter of Acceptance.
5.	Employer's Liabilit	ties
5.1	Employer's Liabilities	 In this Contract, Employer's Liabilities mean: a. war, hostilities (whether war be declared or not), invasion, act of foreign enemies, within the Country, b. rebellion, terrorism, revolution, insurrection, military or usurped power, or civil war, within the Country, c. riot, commotion or disorder by persons other than the contractor's personnel and other employees, affecting the Site and/or the Works. d. use or occupation by the Employer of any part of the Works, except as may be specified in the Contract, e. design of any part of the Works by the Employer's personnel or by others for whom the Employer is responsible, f. any operation of the forces of nature affecting the Site and/or the Works, which was unforeseeable or against which an experienced contractor could not reasonably have been expected to take precautions g. a suspension under Sub-Clause 2.3 unless it is attributable to the contractor's failure, h. any failure of the Employer, i. physical obstructions or physical conditions, other than climatic conditions, encountered on the Site during the performance of the Works, which obstructions or conditions were not reasonably foreseeable by an experienced contractor and which the contractor immediately notified to the Employer, j. any delay or disruption caused by any Variation, k. any change to the law of the Contract after the date of the contractor's offer as stated in the Agreement, l. losses arising out of the Employer's right to have the permanent work executed on, over, under, in or through any land, and to occupy this land for the permanent work, and m. damage which is an unavoidable result of the contractor's obligations to execute the Works and to remedy any defects.
6.	Time for Completi	on
6.1	Execution of the Works	The contractor shall commence the Works on the Commencement Date and shall proceed expeditiously and without delay and shall complete the Works within the Time for Completion.
6.2	Programme	The contractor shall submit to the Employer a programme for the Works within the time stated in the SCC

9.1	Right to Vary	The Employer may instruct Variations.
9.	Variations and Cla	ims
8.2	Uncovering and Testing	The Employer may give instruction as to the uncovering and/or testing of any work. Unless as a result of any uncovering and/or testing it is established that the contractor's design, materials, plant or workmanship are not in accordance with the Contract, the Contractor shall be paid for such uncovering and/or testing as a Variation in accordance with Sub-Clause 9.2.
		Failure to remedy any defects or complete outstanding work within a reasonable time of the Employer's notice shall entitle the Employer to carry out all necessary work at the Contractor's cost.
8.1	Remedying Defects	The Employer may at any time prior to the expiry of the period stated in the SCC, notify the Contractor of any defects or outstanding work. The Contractor shall remedy at no cost to the Employer any defects due to the Contractor's design, materials, plant or workmanship not being in accordance with the Contract.
8.	Remedying Defect	S
7.2	Taking-Over Notice	The Employer shall notify the Contractor when he considers that the Contractor has completed the Works stating the date accordingly. Alternatively, the Employer may notify the Contractor that the Works, although not fully complete, are ready for taking over, stating the date accordingly. The Employer shall take over the Works upon the issue of this notice. The Contractor shall promptly complete any outstanding work and, subject to Clause 8, clear the Site.
7.1	Completion	The contractor may notify the Employer when he considers that the Works are complete. In addition to the other provisions, before acceptance of the completed works, Employer shall verify and assure that such works are within the set objective, quality and appropriate to operate and use.
7.	Taking-Over	
6.4	Liquidated Damages for Delay	If the contractor fails to complete the Works within the Time for Completion, the contractor's liability to the Employer for such failure shall be to pay the amount stated in the SCC for each day for which he fails to complete the Works.
6.3	Extension of Time	The contractor shall be entitled to an extension to the Time for Completion if he is or shall be delayed by any of the Employer's Liabilities. The contractor shall submit an application to the Employer for extension of time, stating the causes for delay, 21 days before the expiry of the Contract completion date. On receipt of an application from the contractor, within 21 days , the Employer shall consider all supporting details provided by the contractor and shall decide extend the Time for Completion as appropriate.
6.3	Extension of	The contractor shall be entitled to an extension to the Time for Completion if be

9.2	Valuation of Variations	 Variations shall be valued as follows: a. where appropriate, at rates in the Contract, or b. in the absence of appropriate rates, the rates in the Contract shall be used as the basis for valuation or c. at appropriate new rates, as may be agreed or which the Employer considers appropriate.
9.4	Right to Claim	If the contractor incurs cost as a result of any of the Employer's Liabilities, the contractor shall be entitled to the amount of such cost. If as a result of any of the Employer's Liabilities, it is necessary to change the Works, this shall be dealt with as a Variation.
9.5	Variation and Claim Procedure	The contractor shall submit the Employer an itemised make-up of the value of Variations and claims within 7 days of the instruction or of the event giving rise to the claim. The Employer shall check and if possible agree the value. In the absence of agreement, the Employer shall determine the value.
10.	Contract Price and	l Payment
10.1	Valuation of the Works	The Contract Bill of Quantities and the approved Variation quantities shall be used to calculate the valuation of the works completed .The Contractor shall be paid for the quantity of work done at the rate in the Bill of Quantities or rate agreed pursuant to clause 9.2 for varied works.
10.2	Payments Certificates	The Contractor shall submit to the Employer monthly statements of the estimated value of the works completed less the cumulative amount certified previously. The Employer shall check the Contractor's monthly statement and certify the amount to be paid to the Contractor
10.3	Payments	The Employer shall pay to the contractor the amount certified less retention at the rate stated in the SCC within 30 days of the date of each certificate.
10.4	Payment of Retention	One half of the retention shall be repaid by the Employer to the contractor within 30 days upon expiry of Defects Liability Period and the Employer has certified that the notified defects have been corrected.
		The remainder of the retention shall be paid by the Employer to the contractor within 7 days after submission of evidence document from the concerned Internal Revenue Office that the contractor has submitted his Income Returns
10.5	Advance Payment	10.5.1 The Employer shall make advance payment to the Contractor of the amounts stated in the SCC in two equal installments by the date stated in the SCC, against provision by the Contractor of an unconditional bank guarantee from Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law in Nepal in a form acceptable to the Employer in amounts equal to the advance payment. The guarantee shall remain effective until the advance payment has been repaid, but the amount of the guarantee shall be progressively reduced by the amounts repaid by the Contractor. Interest shall not be charged on the advance payment.

	 10.5.2 The Contractor is to use the advance payment only to pay for Equipment, Plant, Materials, and mobilization expenses required specifically for execution of the Contract. The Contractor shall demonstrate that advance payment has been used in this way by supplying copies of invoices or other documents to the Project Manager. 10.5.3 The advance payment shall be repaid by deducting proportionate amounts, as stated in SCC, from payments otherwise due Contractor, following the schedule of completed percentages of the Works on a payment basis. No account shall be taken of the advance payment or its repayment in assessing valuations of work done, Variations, price adjustments, Compensation Events, Bonuses, or Liquidated Damages.
10.6 Local Taxation & Value Added Tax	a. The prices quoted by the Contractor shall include all taxes that may be levied in accordance to the laws and regulations in being in Nepal.
	b. The Contractor shall pay VAT in the concerned VAT office within time frame specified in VAT regulation.
11. Termination of Contract and Payment	 11.1 The Employer may terminate the Contract at any time if the contractor; a. does not commence the work as per the Contract, b. abandons the work without completing, c. fails to achieve progress as per the Contract. 11.2 The Employer or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract. 11.3 Fundamental breaches of Contract shall include, but shall not be limited to, the following: (a) The Contractor uses the advance payment for matters other than the contractual obligations, (b) the Contractor stops work for 30 days when no stoppage of work is shown on the current Program and the stoppage has not been authorized by the Project Manager; (c) the Project Manager instructs the Contractor to delay the progress of the Works, and the instruction is not withdrawn within 30 days; (d) the Employer or the Contractor is made bankrupt or goes into liquidation other than for a reconstruction or amalgamation. (e) a payment certified by the Project Manager is not paid by the Employer to the Contractor within 90 days of the date of the Project Manager's certificate; (f) the Project Manager gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Project Manager; (g) The Contractor fails to update the Program as per the contract and demonstrate acceleration of the works within a reasonable period of time determined by the Project Manager; (h) the Contractor does not maintain a Security, which is required; (i) the Contractor has delayed the completion of the Works by the number of

	1
	 days for which the maximum amount of liquidated damages can be paid, as defined in the SCC 6.4; and (j) If the Contractor, in the judgment of the Employer has engaged in corrupt or fraudulent practices in competing for or in executing the Contract. 11.5 Notwithstanding the above, the Employer may terminate the Contract for convenience. 11.6 If the Contract is terminated, the Contractor shall stop work immediately, make the Site safe and secure, and leave the Site as soon as reasonably possible.
	 11.7 If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Project Manager shall issue a certificate for the value of the work done and Materials ordered less advance payments received up to the date of the issue of the certificate. Additional Liquidated Damages shall not apply. If the total amount due to the Employer exceeds any payment due to the Contractor, the difference shall be a debt payable to the Employer. 11.8 If the Contract is terminated for the Employer's convenience or because of a fundamental breach of Contract by the Employer, the Project Manager shall issue a certificate for the value of the work done, Materials ordered, the reasonable cost of removal of Equipment, repatriation of the Contractor's personnel employed solely on the Works, and the Contractor's costs of protecting and securing the Works, and less advance payments received up to the date of the certificate. 11.9 If the Contract is terminated because of fundamental breach of Contract or for any other fault by the Contractor, the performance security shall be forfeited by the Employer. In such case, amount to complete the remaining works as per the Contract shall be recovered from the Contractor as Government dues.
12. Risk and Responsi	bility
12.1 Contractor's Care of the Works	The contractor shall take full responsibility for the care of the Works from the Commencement Date until the date of the Employer's notice under Sub-Clause 7.2. Responsibility shall then pass to the Employer. If any loss or damage occurs to the Works during the above period, the contractor shall rectify such loss or damage so that the Works conform to the Contract.
12.2 Force Majeure	If a Party is or shall be prevented from performing any of its obligations by Force Majeure, the Party affected shall notify the other Party immediately. If necessary, the contractor shall suspend the execution of the Works and, to the extent agreed with the Employer, demobilise the contractor's Equipment. If the event continues for a period of 90 days, either Party may then give notice of termination which shall take effect 30 days after the giving of the notice.
	After termination, the contractor shall be entitled to payment of the unpaid balance of the value of the Works executed and of the Materials and Plant reasonably delivered to the Site, adjusted by the following:
	a. any sums to which the contractor is entitled under Sub-Clause 9.4,

13. Resolution of Disp	 b. the Cost of his suspension and demobilisation, c. any sums to which the Employer is entitled. The net balance due shall be paid or repaid within 30 days of the notice of termination. 							
13.2 Amicable Settlement	The Employer and the Contractor shall attempt to settle amicably by direct negotiation any disagreement or dispute arising between them under or in connection with the Contract.							
14.Conduct of Bidders	 14.1 The Bidder shall be responsible to fulfill his obligations as per the requirement of the Contract Agreement, Bidding documents, GoN's Procurement Act and Regulations. 14.2 The Bidder shall not carry out or cause to carry out the following acts with an intention to influence the implementation of the procurement process or the procurement agreement : a) give or propose improper inducement directly or indirectly, b) distortion or misrepresentation of facts c) engaging or being involved in corrupt or fraudulent practice d) interference in participation of other prospective bidders. e) coercion or threatening directly or indirectly to cause harm to the person or the property of any person to be involved in the procurement proceedings, f) collusive practice among bidders before or after submission of bids for distribution of works among bidders or fixing artificial/uncompetitive bid price. g) contacting the Employer with an intention to influence the Employer with regards to the bid or interference of any kind in examination and evaluation of the bids during the period after opening of bids up to the notification of award of contract 							
15. Blacklisting Bidder	 15.1 Without prejudice to any other right of the Employer under this Contract, GoN, Public Procurement Monitoring Office may blacklist a bidder for his conduct up to three years on the following grounds and seriousness of the act committed by the bidder: a) if it is proved that the bidder committed acts pursuant to the Sub-Clause 14.2, b) if it is proved later that the bidder/contractor had committed substantial defect in implementation of the contract or had not substantially fulfilled his obligations under the contract, c) if convicted by a court of law in a criminal offence which disqualifies the bidder from participating in the contract. 							

	based on false or misrepresentation of bidder's qualification information, e) other acts mentioned in the Bidding Data							
	15.2 A firm declared blacklisted and ineligible by the GON shall be ineligible to bid for a contract during the period of time determined by the PPMO.							
16. Provision of PPA and PPR	If any provision of this document are inconsistent with Public Procurement Act (PPA), 2063 or Public Procurement Regulations (PPR), 2064, the provision of this documents shall be void to the extent of such inconsistency and the provision of PPA and PPR shall prevail.							

Section - V Special Conditions of Contract

Section VIII - Special Conditions of Contract (SCC)

[Note: with	orms part of the Agreement the exception of the items for which the Purchaser's requirements have been inserted, the Bidder shall complete the formation before submitting his Sealed Quotation.]
1.1.1	Documents forming the Contract listed in the order of priority: 1. The Agreement 2. Special Conditions of Contract 3. General Conditions of Contract 4. The Technical Specifications 5. The Drawings 6. The Bill of Quantities
1.1.12	The indented completion date for the works shall be 45.
1.5	The language of the contract is ENGLISH/NEPALI.
2.1	The Site Possession Date(s) shall be: February 18, 2025
3.1	The Authorised person is : Bdcs Approver
3.2	Name and Address of Employer's representative is : Bdcs Approver, Bhojpur Bhojpur Koshi Pradesh Bhojpur Municipality
4.4	The Performance Security amount is: : 5% i) If bid price of the bidder selected for acceptance is up to 15 (fifteen) percent below the approved cost estimate, the performance security amount shall be 5 (five) percent of the bid price. ii) For the bid price of the bidder selected for acceptance is more than 15 (fifteen) percent below of the cost estimate, the performance security amount shall be determined as follows: Performance Security Amount = [(0.85 x Cost Estimate –Bid Price) x 0.5] + 5% of Bid Price. The Bid Price and Cost Estimate shall be inclusive of Value Added Tax
6.2	Time for the submission of programme : 7 days.
6.4	Liquidated Damages for Delay is 0.05% of the Contract Price per day up to a maximum of 10% of sum stated in the Agreement.
8.1	Period for notifying defects is 365 days calculated from the date stated in the notice under Sub-Clause 7.2.
10.5.1	The Advance Payments shall NOT be applicable
10.5.3	Deductions from Payment Certificates will commence in the first certificate in which the Value of works executed exceeds 30% of the Contract Price. Deduction will be at the rate of 10% of the respective Monthly Interim Payment Certificate until such time as the advance payment has been repaid; provided that the advance payment shall be completely repaid prior to the end of 80 % of the approved contract price.

Section - IX Contract Forms

Contract Forms

This Section contains forms which, once completed, will form part of the Contract. The forms for Performance Security and Advance Payment Security, when required, shall only be completed by the successful Bidder after contract award.

Letter of Acceptance

[on letterhead paper of the Employer]

Date:

To: name and address of the Contractor

Subject: Notification of Award

This is to notify that your Quotation dateddatedatefor execution of the......name of the contract and identification number, as given in the SCCfor the Contract price of Nepalese Rupees [insert amount in figures and words in Nepalese Rupees], as corrected in accordance with the Instructions to Bidders is hereby accepted in accordance with the Instruction to Bidders.

You are hereby instructed to contact this office to sign the formal contract agreement within 7 days

with Performance Security of[specify the performance security amount computed as per

ITB 22.2 and 25.1] consisting of a Bank Guarantee in the format included in Section IX (Contract Forms) of this Bidding Document.

The Employer shall forfeit the bid security, in case you fail to furnish the Performance Security and to sign the contract within specified period.

Authorized Signature:

Name and Title of Signatory:

Contract Agreement

THIS AGREEMENT made theday of between...... name of the Employer (hereinafter "the Employer"), of the onename of the Contractor part, and(hereinafter "the Contractor"), of the other part: WHEREAS the Employer desires that the Works known as name of the Contractshould be executed by the Contractor, and has accepted a Quotation by the Contractor for the execution and completion of these Works and the remedying of any defects in the sum of NRs[insert amount of contract price in words and figures including taxes] (hereinafter "the Contract Price"). The Employer and the Contractor agree as follows: 1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to. 2. The following documents shall be deemed to form and be read and construed as part of this Agreement. (a) the Letter of Acceptance; (b) the Letter of Bid; (c) the Addenda Nos insert addenda numbers if any (d) the Special Conditions of Contract; (e) the General Conditions of Contract; (f) Bills of Quantities (BOQ); (g) the Specification; (h) the Drawings; (i) the Activity Schedules; and (j).....[Specify if there are any other document] 3. In consideration of the payments to be made by the Employer to the Contractor as indicated in this

3. In consideration of the payments to be made by the Employer to the Contractor as indicated in this Agreement, the Contractor hereby covenants with the Employer to execute the Works and to remedy defects therein in conformity 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 and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of Nepal on the day, month and year indicated above.

Signed by for and on behalf the Contractor in the presence of Signed by..... for and on behalf of the Employer in the presence of

Witness, Name Signature, Address, Date

Witness, Name, Signature, Address, Date

Performance Security

Bank's Name, and Address of Issuing Branch or Office (On Letter head of the Commercial bank or any Financial Institution eligible to issue Bank Guarantee as per prevailing Law)

	Bank's	Name,	and	Address	of	Issuing	Branch	or	Office	Beneficiary:
		. Name	and A	Address of	Em	nployer				
Date:										

Performance Guarantee No.:....

We have been informed that *[insert name of the Contractor]* (hereinafter called "the Contractor") has been notified by you to sign the Contract No. *[insert reference number of the Contract]* 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, a performance guarantee is required.

This guarantee shall expire, no later than the......Day ofDay of**, and any demand for payment under it must be received by us at this office on or before that date.

Seal of Bank and Signature(s)

Note:

All italicized text is for guidance on how to prepare this demand guarantee and shall be deleted from the final document.

* The Guarantor shall insert an amount representing the percentage of the Contract Price specified in the Contract in Nepalese Rupees.

** Insert the date thirty days after the date specified for the Defect Liability Period. The Employer should note that in the event of an extension of the time for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months], in response to the Employer's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee".

Advance Payment Security

Bank's Name, and Address of Issuing Branch or Office (On Letter head of the Commercial bank or any Financial Institution eligible to issue Bank Guarantee as per prevailing Law)

......Bank's Name, and Address of Issuing Branch or Office..... Beneficiary:Name and address of employer Date : Advance Payment Guarantee No.....

Furthermore, we understand that, according to the Conditions of the Contract, an advance payment in the sum......name of the currency and amount in figures*...(.... amount in words) is to be made against an advance payment guarantee.

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Contractor as indicated in copies of interim statements or payment certificates which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of a copy of the interim payment certificate indicating that eighty (80) percent of the Contract Price has been certified for payment, or on the day of**, whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

Note:

All italicized text is for guidance on how to prepare this demand guarantee and shall be deleted from the final document. *The Guarantor shall insert an amount representing the amount of the advance payment in Nepalese Rupees of the advance payment as specified in the Contract.

** Insert the date Thirty days after the expected completion date. The Employer should note that in the event of an extension of the time for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months], in response to the Employer's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee".