BIDDING DOCUMENT

for

THE PROCUREMENT OF

Construction of Canal Works of Aslewa Chaurphant Irrigation Project, Satyawati-1, Aslewa, Gulmi

National Competitive Bidding (NCB)
Single-Stage: Single-Envelope Bidding Procedure

Water Resource and Irrigation Development Division Office, Gulmi

Issued to: All Eligible Bidders

IFB No.: IFB/WRIDDO_GULMI/NCB-02/2083-84
Contract No: WRIDDO_GULMI/NCB-02/2083-84

Abbreviations

BD ... . Bidding Document

BDF .... Bidding Forms

BDS .... Bid Data Sheet

BOQ ... . Bill of Quantities

COF ..... Contract Forms

DP ... . Development Partners

DoLI.. .....Department of Local Infrastructure

e-GP…….Electronic Government Procurement

ELI ... . Eligibility

EEC... .... Evaluation and Eligibility Criteria

GCC ... . General Conditions of Contract

GoN[1] ... . Government of Nepal

ICC ... . International Chamber of Commerce

IFB ……. Invitation for Bids

ITB ... . Instructions to Bidders

JV ... . Joint Venture

NCB ... . National Competitive Bidding

NRs ..... Nepalese Rupees

PAN ... . Permanent Account Number

PPA ... . Public Procurement Act, 2063

PPMO ... . Public Procurement Monitoring Office

PPR ... . Public Procurement Regulations, 2064

PS …….. Provisional Sum

SBD .... Standard Bidding Document

SCC ... . Special Conditions of Contract

TS ... . Technical Specifications

VAT ... . Value Added Tax

WRQ ... . Works Requirements

[1] "GoN" word indicates all public entities according to Public Procurement Act, 2063

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Invitation for Bids

[Government of Lumbini Province

Ministry of Urban development, Energy, Irrigation and water Supply

Water Resource and Irrigation Development Division Office, Gulmi

Invitation for Bids No: IFB/WRIDDO_GULMI/NCB-02/2083-84

Date of publication: B.S. 2083/06/12

1. ***Water Resource and Irrigation Development Division Office, Gulmi*** invites sealed bids from Nepalese eligible bidders for the construction of ***Construction of Canal Works of Aslewa Chaurphant Irrigation Project, Satyawati-1, Aslewa, Gulmi*** under National Competitive Bidding procedures. The estimated amount for the works is NRs. ***34,50,197.00(Without VAT but including P.S.)***
2. Eligible Bidders may obtain further information and inspect the Bidding Documents at the office of ***Water Resource and Irrigation Development Division Office, Gulmi (Email: irrigation.gulmi@gmail.com, Ph: 9857064516)*** or may visit Office website **https://wriddogulmi.lumbini.gov.np**
3. A complete set of Bidding Documents may be download from the office ***website https://wriddogulmi.lumbini.gov.np*** **.** The eligible bidder shall submit voucher of non-refundable fee of Rs. 3000.00 at the time of bid submission in the following account:
   Name of the Bank: **Rastriya Banijya Bank**
   Name of Office: ***Water Resource and Irrigation development Division Office, Gulmi***
   Office Code no. : **3080052015**
   Rajaswa (revenue) **Shirshak no. : 14229**
4. Pre-bid meeting shall be held at ***Water Resource and Irrigation Development Division Office, Gulmi*** at ***11:00 A.M. on B.S. 2083/06/27.***
5. Sealed bids must be submitted to the office ***Water Resource and Irrigation Development Division Office, Gulmi*** by hand/courier/post office on or before ***12:00 P.M.*** on ***2083/07/12*** Bids received after this deadline will be rejected.
6. The bids will be opened in the presence of Bidders' representatives who choose to attend at ***13:00 P.M.*** on ***2083/07/12*** at the office of ***Water Resource and Irrigation Development Division Office, Gulmi .*** Bids must be valid for a period of ***90*** from the bid submission deadline and must be accompanied by a bid security or scanned copy of the bid security in .pdf format in case of e-bid, amounting to a minimum of ***NPR. 87,000.00*** which shall be valid for 30 days beyond the validity period of the bid ***(i.e. 120 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 and bid security shall remain the same as specified for the original last date of bid submission.

Part - I Bidding Procedures

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SECTION– I: Instructions to Bidders

This section specifies the procedures to be followed by Bidders in the preparation and submission of their Bids. Information is also provided on the submission, opening, and evaluation of bids and on the award of contract.

A. General	
1. Scope of Bid	1.1 In connection with the Invitation for Bids indicated in the **Bid Data Sheet (BDS)**, the Employer, as indicated **in the BDS**, issues this Bidding Document for the procurement of Works as specified in Section V (Works Requirements). The name, identification, and number of lots (Contracts) / multiple contracts of the National Competitive Bidding (NCB) are provided **in the BDS.**
	1.2 Throughout this Bidding Document: (a) the term "in writing" means communicated in written form and delivered against receipt through e-GP system or e-mail or fax or courier; (b) except where the context requires otherwise, words indicating the singular also include the plural and words indicating the plural also include the singular; and (c) "day" means calendar day.
2. Source of Funds	2.1 GoN Funded: In accordance with its annual program and budget, approved by the GoN, the implementing agency indicated **in the BDS** plans to apply a portion of the allocated budget to eligible payments under the contract(s) for which this Bidding Document is issued. Or Public Entities' own Resource Funded: In accordance with its annual program and budget, approved by the public entity, the implementing agency indicated **in the BDS** plans to apply a portion of the allocated budget to eligible payments under the contract(s) for which this Bidding Document is issued. Or DP Funded: The GoN has applied for or received financing (hereinafter called "funds") from the Development Partner (hereinafter called "the DP") indicated **in the BDS** toward the cost of the project named in the BDS. The GoN intends to apply a portion of the funds to eligible payments under the contract(s) for which this Bidding Document is issued.
	2.2 DP Funded: Payment by the DP will be made only at the request of the GoN and upon approval by the DP in accordance with the terms and conditions of the financing agreement between the GoN and the DP (hereinafter called the "Loan/Grant Agreement"), and will be subject in all respects to the terms and conditions of that Loan/Grant Agreement. No party other than the GoN shall derive any rights from the Loan Agreement or have any claim to the funds.
3. Fraud and Corruption	3.1 Procuring Entities as well as bidders, suppliers and contractors and their sub-contractors under GoN/DP-financed contracts, shall adhere to the highest standard of ethics during the procurement and execution of such contracts.

	In pursuance of this; (a) the Employer adopts, for the purposes of this provision, the terms as defined below: (i) "corrupt practice" means the offering, giving, receiving, or soliciting, directly or indirectly, anything of value to influence improperly the actions of another party; (ii) "fraudulent practice" means any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation; (iii) "coercive practice" means impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party; (iv) "collusive practice" means an arrangement between two or more parties designed to achieve an improper purpose, including influencing improperly the actions of another party. (v) "obstructive practice" means (a) deliberately destroying, falsifying, altering, or concealing of evidence material to an investigation; (b) making false statements to investigators in order to materially impede an investigation; (c) failing to comply with requests to provide information, documents, or records in connection with an investigation; (d) threatening, harassing, or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or (e) materially impeding GoN/DP's contractual rights of audit or access to information; and (vi) "integrity violation" is any act which violates Anticorruption Policy, including (i) to (v) above and the following: abuse, conflict of interest, violations of GoN/DP sanctions, retaliation against whistleblowers or witnesses, and other violations of Anticorruption Policy, including failure to adhere to the highest ethical standard. (b) the Employer will reject a proposal for award if it determines that the Bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices or other integrity violations in competing for the contract; (c) DP will cancel the portion of the financing allocated to a contract if it determines at any time that representative(s) of the GoN or of a beneficiary of DP-financing engaged in corrupt, fraudulent, collusive, or coercive practices or other integrity violations during the procurement or the execution of that contract, without the GoN having taken timely and appropriate action satisfactory to DP to remedy the situation. (d) DP will impose remedial actions on a firm or an individual, at any time, in accordance with DP's Anticorruption Policy and related Guidelines (as amended from time to time), including declaring ineligible, either

	indefinitely or for a stated period of time, to participate in DP-financed, -administered, or -supported activities or to benefit from an DP-financed, -administered, or -supported contract, financially or otherwise, if it at any time determines that the firm or individual has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices or other integrity violations; and (e) The Contractor shall permit the GoN/DP to inspect the Contractor's accounts and records relating to the performance of the Contractor and to have them audited by auditors appointed by the GoN/DP, if so required by the GoN/DP.
	3.2 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 in corrupt or fraudulent practice or involving in such act, (d) interference in participation of other competing 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 bids or interference of any kind in examination and evaluation of the bids during the period from the time of opening of the bids until the notification of award of contract.
	3.3 PPMO, on the recommendation of the Procuring Entity may blacklist a Bidder for a period of one (1) to three (3) years for its conduct including on the following grounds and seriousness of the act committed by the bidder: (a) if convicted by a court of law in a criminal offence which disqualifies the Bidder from participating in the contract, (b) if it is established that the contract agreement signed by the Bidder was based on false or misrepresentation of Bidder's qualification information, (c) if it at any time determines that the firm has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for, or in executing, a GoN/DP-financed contract. (d) if the successful bidder fails to sign the contract. (e) if the bidder fails to inform or informs after the specified time about the saturation of the maximum number of contracts as per ITB 4.9. (f) a Bidder requests for withdrawal or modification of its bid: (i) after the Bid Submission deadline and during the period of validity

	specified by the Bidder on the Letter of Bid, in case of electronic submission; (ii) from the period twenty-four hours prior to bid submission deadline up to the period of bid validity specified by the Bidder on the Letter of Bid, in case of hard copy submission. (g) if the bidder does not provide clarifications of its Bid by the date and time set in the Employer's request for clarification pursuant to ITB 24.1. (h) a Bidder changes the prices or substance of the bid while providing information pursuant to ITB 24.1.
	3.4 A bidder declared blacklisted and ineligible by the GoN, Public Procurement Monitoring Office (PPMO), by a competent authority under the prevailing law for failure to repay a loan disbursed by a bank or financial institution, 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, the competent authority and/or the DP. 3.5 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.
	3.6 Furthermore, Bidders shall be aware of the provisions of GCC 28.3 and GCC 72.3(j).
4. Eligible Bidders	4.1 A Bidder may be a natural person, private entity, or government - owned entity—subject to ITB 4.5—or any combination of them in the form of a Joint Venture (JV) under an existing agreement, or with the intent to constitute a legally-enforceable joint venture. In the case of a JV: (a) all partners shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms. Maximum number of JV shall be as specified **in the BDS**. The eligibility criteria requirement of the parties to the JV shall be as specified in Section III Evaluation and Eligibility Criteria, and (b) the JV shall nominate a Representative who shall have the authority to conduct all business for and on behalf of any and all the parties of the JV during the bidding process and, in the event the JV is awarded the Contract, during Contract execution.
	4.2 A Bidder, and all parties constituting the Bidder, shall have the nationality of any country or eligible countries mentioned **in the BDS**. A Bidder shall be deemed to have the nationality of a country if the Bidder is a citizen or is constituted, or incorporated, and operates in conformity with the provisions of the laws of that country. This criterion shall also apply to the determination of the nationality of proposed sub-Contractors or suppliers for any part of the Contract including related services.
	4.3 A Bidder shall not have a conflict of interest. A Bidder found to have a conflict

	of interest shall be disqualified. if any of, including but not limited to, the following apply: (a) they have controlling partners in common; or (b) they receive or have received any direct or indirect subsidy from any of them; or (c) they have the same legal representative for purposes of this bid; or (d) they have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or improperly influence on the Bid of another Bidder, or influence the decisions of the Employer regarding this bidding process; or (e) a Bidder participates in more than one bid in this bidding process either individually or as a partner in a joint venture. This will result in the disqualification of all Bids in which it is involved. However, subject to any finding of a conflict of interest in terms of ITB 4.3 (a)-(d) above, this does not limit the participation of the same subcontractor in more than one bid; or (f) a Bidder or any of its affiliated entity, participated as a consultant in the preparation of the design or technical specifications of the works that are the subject of the Bid; or (g) a Bidder was affiliated with a firm or entity that has been hired (or is proposed to be hired) by the Employer as Engineer for the Contract. or (h) a Bidder that has a close business or family relationship with a professional staff of the Procuring Entity.
	4.4 A firm that is under a declaration of ineligibility by the GoN/DP in accordance with ITB 3, at the date of the deadline for bid submission or thereafter, shall be disqualified. A firm shall not be eligible to participate in any procurement activities under an DP-financed, -administered, or -supported project while under temporary suspension or debarment by DP pursuant to the DP's Anticorruption Policy (see ITB 3), whether such debarment was directly imposed by the DP, or enforced by other DPs pursuant to the Agreement for Mutual Enforcement of Debarment Decisions. A bid from a temporary suspended or debarred firm will be rejected.
	4.5 Enterprises owned by Government shall be eligible only if they can establish that they are legally and financially autonomous and operate under commercial law, and that they are not a dependent agency of the GoN.
	4.6 Bidders shall provide such evidence of their continued eligibility satisfactory to the Employer, as the Employer shall reasonably request.
	4.7 Firms shall be excluded in any of the cases, if (a) by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, Nepal prohibits any import of goods or Contracting of works or services from that country or any payments to persons or entities in that country.

	(b) DP Funded: as a matter of law or official regulation, Nepal prohibits commercial relations with that country, provided that the DP is satisfied that such exclusion does not preclude effective competition for the supply of goods or related services required; (c) DP Funded: a firm has been determined to be ineligible by the DP in relation to their guidelines or appropriate provisions on preventing and combating fraud and corruption in projects financed by them.
	4.8 The Bidder, including all parties constituting the Bidder, shall be ineligible to participate in the open competitive bidding process if it has already secured maximum number of construction contracts (in open competitive bidding) **as specified in BDS** and has not yet completed the work as stipulated in the respective contracts. 4.9 For the purpose of ITB 4.8 above, the bidder shall declare that the bidder, and all parties constituting the Bidder have not already secured maximum number of construction contracts (in open competitive bidding in procurement of works) **as specified in BDS**. If the bidder, and all parties constituting the Bidder has participated in bidding processes of many public entities and during that period the maximum number of contracts have been attained as specified saturates due to issuance of letters of acceptance by a particular public entity, the bidder shall inform in writing to all other concerned public entities, where the bidder have participated in bidding process, within three days of issuance of last letter of acceptance that saturates the maximum number of contracts as specified.
5. Eligible Materials, Equipment and Services	5.1 The materials, equipment and services to be supplied under the Contract shall have their origin in any source countries as defined in **the BDS** and all expenditures under the Contract will be limited to such materials, equipment, and services. At the Employer's request, Bidders may be required to provide evidence of the origin of materials, equipment and services.
	5.2 For purposes of ITB 5.1 above, "origin" means the place where the materials and equipment are mined, grown, produced or manufactured, and from which the services are provided. Materials and equipment are produced when, through manufacturing, processing, or substantial or major assembling of components, a commercially recognized product results that differs substantially in its basic characteristics or in purpose or utility from its components.
B. Contents of Bidding Documents	
6. Sections of Bidding Document	6.1 The Bidding Document consist of Parts I, II, and III, which include all the Sections indicated below, and should be read in conjunction with any Addenda issued in accordance with ITB 8. PART I Bidding Procedures Section I Instructions to Bidders (ITB) Section II Bid Data Sheet (BDS) Section III Evaluation and Eligibility Criteria (EEC) Section IV Bidding Forms (BDF)

	PART II Requirements Section V Works Requirements (WRQ) Section VI Bill of Quantities (BOQ) PART III Conditions of Contract and Contract Forms Section VII General Conditions of Contract (GCC) Section VIII Special Conditions of Contract (SCC) Section IX Contract Forms (COF)
	6.2 The Invitation for Bids (IFB) issued by the Employer is not part of the Bidding Document.
	6.3 The Employer is not responsible for the completeness of the Bidding Document and their Addenda, if they were not obtained directly from the source stated by the Employer in the Invitation for Bids.
	6.4 The Bidder is expected to examine all instructions, forms, terms, and specifications in the Bidding Document and to furnish with its bid all information and documentation as is required by the Bidding Documents. Failure to furnish all information or documentation required by the Bidding Document may result in the rejection of the bid.
7. Clarification of Bidding Document, Site Visit, Pre-Bid Meeting	7.1 A prospective Bidder requiring any clarification of the Bidding Document shall contact the Employer in writing at the Employer's address indicated **in the BDS** or raise any question or curiosity during the pre-bid meeting if provided for in accordance with ITB 7.4. The Employer will respond in writing to any request for clarification, provided that such request is received within the period as mentioned in ITB 7.5. The Employer shall forward copies of its response to all Bidders who have acquired the Bidding Document in accordance with ITB 6.3, including description of the inquiry but without identifying its source. Should the Employer deem it necessary to amend the Bidding Document as a result of a request for clarification, it shall do so following the procedure under ITB 8 and ITB 17.2
	7.2 The Bidder is advised to visit and examine the Site of Works and its surroundings and obtain for itself, on its own risk and responsibility, all information that may be necessary for preparing the bid and entering into a Contract for construction of the Works. The costs of visiting the Site shall be at the Bidder's own expense.
	7.3 The Bidder and any of its personnel or agents will be granted permission by the Employer to enter upon its premises and lands for the purpose of such visit, but only upon the express condition that the Bidder, its personnel, and agents will release and indemnify the Employer and its personnel and agents from and against all liability in respect thereof, and will be responsible for death or personal injury, loss of or damage to property, and any other loss, damage, costs, and expenses incurred as a result of the inspection.
	7.4 The Bidder's designated representative is invited to attend a pre-bid meeting, if provided for **in the BDS.** The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage. 7.5 The Bidder is requested, as far as possible, to submit any questions in writing, to

	reach the Employer as mentioned **in BDS**.
	7.5 The Bidder is requested, to submit any questions in writing, to reach the Employer as mentioned **in BDS**.
	7.6 Minutes of the pre-bid meeting, including the text of the questions raised, without identifying the source, and the responses given, together with any responses prepared after the meeting, will be transmitted promptly to all Bidders who have acquired the Bidding Document in accordance with ITB 6.3. Any modification to the Bidding Document that may become necessary as a result of the pre-bid meeting shall be made by the Employer exclusively through the issue of an addendum pursuant to ITB 8 and not through the minutes of the pre-bid meeting.
	7.7 Nonattendance at the pre-bid meeting will not be a cause for disqualification of a Bidder.
8. Amendment of Bidding Document	8.1 At any time prior to the deadline for submission of bids, the Employer may amend the Bidding Document by issuing addendum or several addenda.
	8.2 Any addendum issued shall be part of the Bidding Document and shall be communicated in writing to all who have obtained the Bidding Document from the Employer in accordance with ITB 6.3.
	8.3 To give prospective Bidders reasonable time in which to take an addendum into account in preparing their bids, the Employer may, at its discretion, extend the deadline for the submission of bids, pursuant to ITB 19.2. However, the time available to submit bids shall not be less than five (5) days since amendment in bidding document.
C. Preparation of Bids	
9. Cost of Bidding	9.1 The Bidder shall bear all costs associated with the preparation and submission of its Bid, and the Employer shall in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.
10. Language of Bid	10.1 The Bid, as well as all correspondence and documents relating to the bid exchanged by the Bidder and the Employer, shall be written in the language specified **in the BDS**. Supporting documents and printed literature that are part of the Bid may be in another language provided they are accompanied by an accurate translation of the relevant passages in the language specified **in the BDS**, in which case, for purposes of interpretation of the Bid, such translation shall govern.
11. Documents Comprising the Bid	11.1 The Bid shall comprise the following: (a) Letter of Bid; (b) completed Bill of Quantities (BoQ), in accordance with ITB 12 and ITB 13, or as stipulated **in the BDS**; (c) Bid Security, in accordance with ITB 16; (d) written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB 17.2; (e) documentary evidence of establishing the Bidder's eligibility;

	(f) Bids submitted by a Joint Venture shall include a copy of the Joint Venture Agreement entered into by all partners. Alternatively, a Letter of Intent to execute a Joint Venture Agreement in the event of a successful Bid shall be signed by all partners and submitted with the Bid, together with a copy of the proposed agreement. The Joint Venture agreement, or letter of intent to enter into a Joint Venture including a draft agreement shall indicate at least the parts of the Works to be executed by the respective partners; (g) Table of Price Adjustment (if applicable); and (h) any other required documents required, in the **BDS**.
	11.2 The Bidder is solely responsible for the authenticity of the submitted documents.
12. Letter of Bid and Schedules	12.1 The Letter of Bid, Schedules, and all documents listed under ITB 11, shall be prepared using the relevant forms in Section IV (Bidding Forms) and in Section VI (Bill of Quantities).The forms must be completed without any alterations to the text, and no substitutes shall be accepted. All blank spaces shall be filled in with the information requested.
13. Bid Prices and Discounts	13.1 The prices and discounts quoted by the Bidder in the Letter of Bid and in the Schedules shall conform to the requirements specified below.
	13.2 The Bidder shall submit a bid for the whole of the works described in ITB 1.1 by filling in prices for all items of the Works, as identified in Section VI (Bill of Quantities). In case of Unit Rate Contracts, the Bidder shall fill in rates and prices for all items of the Works described in the Bill of Quantities. Items against which no rate or price is entered by the Bidder will not be paid for by the Employer when executed and shall be deemed covered by the rates for other items and prices in the Bill of Quantities.
	13.3 The price to be quoted in the Letter of Bid shall be the total price of the Bid, excluding any discounts offered. Absence of the total price in the Letter of Bid may result in rejection of the Bid.
	13.4 The Bidder shall quote any discounts and the methodology for their application in the Letter of Bid, in accordance with ITB 12.1.
	13.5 If so indicated in ITB 1.1 and ITB 29.4, bids are invited for individual Contracts or for any combination of Contracts (packages). Bidders wishing to offer any price reduction for the award of more than one Contract shall specify in their bid the price reductions applicable to each package, or alternatively, to individual Contracts within the package. Price reductions or discounts shall be submitted in accordance with ITB 13.4, provided the bids for all Contracts are submitted and opened at the same time.
	13.6 Unless otherwise provided **in the BDS** and the Conditions of Contract, the prices quoted by the Bidder shall be fixed. If the prices quoted by the Bidder are subject to adjustment during the performance of the Contract in accordance with the provisions of the Conditions of Contract, the Bidder shall furnish the indices and weightings for the price adjustment formulae in the Table of Adjustment

	Data in Section IV (Bidding Forms) and the Employer may require the Bidder to justify its proposed indices and weightings.
	13.7All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, as of the date 30 days prior to the deadline for submission of bids, shall be included in the rates and prices and the total bid price submitted by the Bidder.
14. Currency of Bid and Payment	14.1 The currency of the bid and payment shall be in Nepalese Rupees.
15. Period of Validity of Bids	15.1 Bids shall remain valid for the period specified **in the BDS.** The bid validity period shall start from the bid submission deadline as prescribed by the Employer in accordance with ITB 19.1. If the prescribed bid submission deadline date falls on a government holiday, then the next working day shall be considered as the bid submission deadline date. In such case the validity period of the bids shall be considered from the original bid submission deadline date. In the case of electronic bid submission, if any technical issue arises in the handling of the e-GP system, the PPMO may extend the deadline for bid submission. However, the validity period of the bids shall still be counted from the original bid submission deadline. A bid valid for a shorter period shall be rejected by the Employer as nonresponsive.
	15.2 In exceptional circumstances, prior to the expiration of the bid validity period, the Employer may request Bidders to extend the period of validity of their Bids. The request and the responses shall be made in writing. If a bid security is requested in accordance with ITB 16, it shall also be extended 30 days beyond the deadline of the extended validity period. A Bidder may refuse the request without forfeiting its bid security. A Bidder granting the request shall not be required or permitted to modify its bid and to include any additional conditions against the provisions specified in Bid Documents.
16. Bid Security	16.1 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.
	16.2 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 IV (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, or beyond any period of extension if requested under ITB 15.2. A bid security valid for a shorter period shall be rejected by the Employer as nonresponsive.
	16.3 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.
	16.4 The public entity shall return the bid securities except those that are to be forfeited as per ITB 16.5 to the respective bidders within three (3) days after the successful bidder has furnished the required performance security and signed the Contract Agreement pursuant, to ITB 34.1 and ITB 35.1.
	16.5 The bid security shall be forfeited if: (a) a Bidder requests for withdrawal or modification of its bid, except as provided in ITB 15.2: (i) during the period of bid validity specified by the Bidder on the Bid, in case of electronic submission; (ii) from the period twenty-four hours prior to bid submission deadline up to the period of bid validity specified by the Bidder on the Letter of Bid, in case of hard copy submission. (b) a Bidder changes the prices or substance of the bid while providing information pursuant to ITB 24.1; (c) a Bidder involves in fraud and corruption pursuant to ITB 3.1; (d) the successful Bidder fails to: (i) furnish a performance security in accordance with ITB 29.5, ITB 29.8 and ITB 34.1; or (ii) sign the Contract in accordance with ITB 35.1 or (iii) accept the correction of arithmetical errors pursuant to ITB 28.1; (e) if the bidder fails to inform about the saturation of the maximum number of contracts as per ITB 4.9.
	16.6 The Bid Security of a JV shall be in the name of the JV that submits the bid. If the JV has not been legally constituted at the time of bidding, the Bid Security shall be in the names of all future partners as named in the letter of intent mentioned in ITB 4.1.
17. Format and Signing of Bid	17.1 The Bidder shall prepare one original of the documents comprising the bid as described in ITB 11 and clearly mark it ORIGINAL". In addition, the Bidder shall submit copies of the bid in the number specified **in the BDS**, and clearly mark each of them "COPY." In the event of any discrepancy between the original and the copies, the original shall prevail. In case of e-submission of bid, the Bidder shall submit his bid electronically in PDF or web forms files as specified in ITB Clause 18.1(b),
	17.2 The original and all copies of the bid shall be typed or written in indelible ink

	and shall be signed by a person duly authorized to sign on behalf of the Bidder. This authorization shall consist of a written confirmation as specified **in the BDS** and shall be attached to the bid. The name and position held by each person signing the authorization must be typed or printed below the signature. All pages of the bid, except for un amended printed literature, shall be signed or initialed by the person signing the bid.
	17.3 Any amendments such as interlineations, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the bid.
D. Submission and Opening of Bids	
18. Sealing and Marking of Bids	18.1 Unless otherwise specified **in BDS**, Bidders shall submit their bids by electronic or by mail/by hand/by courier. Procedures for submission, sealing and marking are as follows: (a) Bidders submitting bids by mail, by hand or by courier i. Bidders shall enclose the original and each copy of the Bid. These envelopes containing the original and the copies shall then be enclosed in one single envelope. ii. The inner and outer envelopes shall: (aa) bear the name and address of the Bidder; (bb) be addressed to the Employer as provided **in BDS**19.1; (cc)bear the specific identification of this bidding process indicated **in BDS** 1.1; and (dd) bear a warning not to open before the time and date for bid opening. iii. If all envelopes are not sealed and marked as required, the Employer will assume no responsibility for the misplacement or premature opening of the bid. (b) Bidders submitting Bids electronically shall follow the electronic bid submission procedure specified **in BDS**.
19. Deadline for Submission of Bids	19.1 Bids must be received by the Employer at the address and no later than the date and time indicated **in the BDS**. In case of e-submission, the standard time for e-submission is Nepalese Standard Time as set out in the server. The e-procurement system will accept the e-submission of bid from the date of publishing of notice and will automatically not allow the e-submission of bid after the deadline for submission of bid.
	19.2 The Employer may, at its discretion, extend the deadline for the submission of bids by amending the Bidding Document in accordance with ITB 8, in which case all rights and obligations of the Employer and Bidders previously subject to the deadline shall thereafter be subject to the deadline as extended.
20. Late Bids	20.1 The Employer shall not consider any bid that arrives after the deadline for submission of bids, in accordance with ITB 19. Any bid received by the Employer after the deadline for submission of bids shall be declared late, rejected, and returned unopened to the Bidder.
21. Withdrawal, and	21.1 A Bidder may withdraw, or modify its bid after it has been submitted

Modification of Bids	either in hard copy or by e-submission. Procedures for withdrawal or modification of submitted bids are as follows: (i) Bids submitted in hard Copy a) Bidders may withdraw or modify its bids by sending a written notice in a sealed envelope, duly signed by an authorized representative, and shall include a copy of the authorization in accordance with ITB 17.2 before 24 hours prior to the last deadline of submission of bid. The corresponding modification of the bid must accompany the respective written notice. All notices must be: (aa) prepared and submitted in accordance with ITB 17 and ITB 18, and in addition, the respective envelopes shall be clearly marked "WITHDRAWAL", "MODIFICATION;" and (bb) received by the Employer twenty-four hour prior to the deadline prescribed for submission of bids, in accordance with ITB 19. ii) E-submitted bids. a) Bidder may submit modification or withdrawal prior to the deadline prescribed for submission of bids through e-GP system by using the forms and instructions provided by the system.
	21.2. Bids requested to be withdrawn in accordance with ITB 21.1 shall not be opened. In case of hard copy submission, the Bid will be returned unopened to the Bidders.
	21.3 Except in case of any modification or correction in bid document made by procuring entity, Bidder may submit request for withdrawal or modification only one time. 21.4 In case of hard copy bid, no bid may be withdrawn if the bid has already been modified; except in case of any modification or correction in bid document by procuring entity.
	21.5 Request for withdrawal or modification must be made through the same medium of submission. Request for withdrawal or modifications through different medium shall not be considered.
	21.6 The following provisions apply for withdrawal or modification of the Bids: (i) In case of bids submitted in hard copy no bid shall be withdrawn or modified in the interval between 24 hours prior to the deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder on the Letter of Bid or any extension thereof. (ii) In case of e-submitted bids no bids shall be withdrawn or modified in the interval between deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder on the Letter of Bid or any extension thereof.
	21.7 Once a Bid is withdrawn, bidder will not be able to submit another bid for the same bid.
22. Bid Opening	22.1 The Employer shall open the bids in public at the address, date and time

	specified **in the BDS** in the presence of Bidders` designated representatives who choose to attend.
	22.2 The Employer shall download the e-submitted bid files. The e-GP system allows the Employer to download the e-submitted bid files (report) only after bid opening date and time after login simultaneously by two members of the Bid opening committee.
	22.3 Electronically submitted bid shall be opened at first in the same time and date as specified above. Electronic Bids shall be opened one by one and read out. The e-submitted bids must be readable through open standards interfaces. Unreadable and or partially submitted bid files shall be considered incomplete.
	22.4 Thereafter, envelopes marked "WITHDRAWAL" shall be opened and read out and the envelope with the corresponding bid shall not be opened, but returned to the Bidder. No bid withdrawal shall be Permitted unless the corresponding withdrawal notice contains a valid authorization to request the withdrawal and is read out at bid opening. Next, envelopes marked "MODIFICATION" shall be opened and read out with the corresponding bid. No bid modification shall be permitted unless the corresponding modification notice contains a valid authorization to request the modification and is read out at bid opening. Only envelopes that are opened and read out at bid opening shall be considered further.
	22.5 All other envelopes shall be opened one at a time, reading out: the name of the Bidder; the Bid Price(s), including any discounts and alternative bids and indicating whether there is a modification; the presence of a bid security and any other details as the Employer may consider appropriate. Only discounts and alternative offers read out at bid opening shall be considered for evaluation. No bid shall be rejected at bid opening except for late bids, in accordance with ITB 20.1.
	22.6 The Employer shall prepare a record of the bid opening that shall include, as a minimum: the name of the Bidder and whether there is a withdrawal, or modification; the Bid Price, per Contract if applicable, including any discounts and alternative offers; and the presence or absence of a bid security. The Bidders' representatives who are present shall be requested to sign the record. The omission of a Bidder's signature on the record shall not invalidate the contents and effect of the record.
E. Evaluation and Comparison of Bids	
23. Confidentiality	23.1 Information relating to the examination, evaluation, comparison, and recommendation of Contract award, shall not be disclosed to Bidders or any other persons not officially concerned with such process until information on Contract award is communicated to all Bidders.
	23.2 Any attempt by a Bidder to influence the Employer in the evaluation of the bids or Contract award decisions may result in the rejection of its bid.
	23.3 Notwithstanding ITB 23.2, from the time of bid opening to the time of Contract award, if any Bidder wishes to contact the Employer on any matter related to the

	bidding process, it may do so in writing.
24. Clarification of Bids	24.1 To assist in the examination, evaluation, and comparison of the bids, the Employer may, at its discretion, ask any Bidder for a clarification of its bid. Any clarification submitted by a Bidder that is not in response to a request by the Employer shall not be considered. The Employer's request for clarification and the response shall be in writing. No change in the prices or substance of the bid shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the bids, in accordance with ITB 28. In case of e-submission of bid, upon notification from the employer, the bidder shall also submit the original of documents comprising the bid as per ITB 11.1 for verification of submitted documents for acceptance of the e-submitted bid.
	24.2 If a Bidder does not provide clarifications of its bid by the date and time set in the Employer's request for clarification, its bid shall be rejected.
25. Deviations, Reservations, and Omissions	25.1 During the evaluation of bids, the following definitions apply: (a) "Deviation" is a departure from the requirements specified in the Bidding Document; (b) "Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Bidding Document; and (c) "Omission" is the failure to submit part or all of the information or documentation required in the Bidding Document.
26. Determination of Responsiveness	26.1 The Employer's determination of a bid's responsiveness is to be based on the contents of the bid itself, as defined in ITB 11.
	26.2 A substantially responsive bid is one that meets the requirements of the Bidding Document without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that, (a) if accepted, would: (i) affect in any substantial way the scope, quality, or performance of the Works specified in the Contract; or (ii) limit in any substantial way, inconsistent with the Bidding Document, the Employer's rights or the Bidder's obligations under the proposed Contract; or (b) if rectified, would unfairly affect the competitive position of other Bidders presenting substantially responsive bids.
	26.3 If a bid is not substantially responsive to the requirements of the Bidding Document, it shall be rejected by the Employer and may not subsequently be made responsive by correction of the material deviation, reservation, or omission.
	26.4 In case of e-submission bids, the Employer evaluates the bid on the basis of the information in the electronically submitted bid files. If the Bidder cannot substantiate or provide evidence to establish the information provided in e-submitted bid through documents/ clarifications as per ITB Clause 24.1, the bid

	shall not be considered for further evaluation.
27. Nonconformities, Errors, and Omissions	27.1 Provided that a bid is substantially responsive, the Employer may waive any non-conformities in the bid that do not constitute a material deviation, reservation, or omission.
	27.2 Provided that a bid is substantially responsive, the Employer may request that the Bidder submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities in the bid related to documentation requirements. Requesting information or documentation on such nonconformities shall not be related to any aspect of the price of the bid. Failure of the Bidder to comply with the request may result in the rejection of its bid.
	27.3 Provided that a bid is substantially responsive, the Employer shall rectify quantifiable nonmaterial nonconformities related to the Bid Price. To this effect, the Bid Price shall be adjusted, for comparison purposes only, to reflect the price of a missing or non-conforming item or component. The adjustment shall be made using the methods indicated in Section III (Evaluation and Eligibility Criteria).
	27.4 If the monetary value of such non-conformities is found to be more than fifteen percent of the Bid Price of the bidder on account of minor discrepancies pursuant to ITB 27.3, such bid shall be considered non responsive and shall not be involved in evaluation.
28. Correction of Arithmetical Errors	28.1 Provided that the bid is substantially responsive, the Employer shall correct arithmetical errors on the following basis: (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.
	28.2 If a Bidder does not accept the correction of arithmetical errors, its bid shall be disqualified and its bid security shall be forfeited.
29. Evaluation of Bids	29.1 The Employer shall use the criteria and methodologies listed in this Clause. No other evaluation criteria or methodologies shall be permitted.

	29.2 To evaluate a bid, the Employer shall consider the following: (a) the bid price, excluding Value Added Tax and Provisional Sums in the Summary Bill of Quantities, for Unit Rate Contracts, or Schedule of Prices for lump sum Contracts, but including Day work items, where priced competitively; (b) adjustment for correction of arithmetic errors in accordance with ITB 28.1; (c) adjustment due to discounts offered in accordance with ITB 13.4; (d) adjustment for nonconformities in accordance with ITB 27.3; (e) application of all the evaluation factors indicated in Section III (Evaluation and Eligibility Criteria); If the evaluated Bid Price of the Bidder is more than 30 (thirty) percent below or substantially higher than the cost estimate, the Employer shall reject the Bid as non-responsive.
	29.3 The estimated effect of the price adjustment provisions of the Conditions of Contract, applied over the period of execution of the Contract, shall not be taken into account in bid evaluation.
	29.4 If this Bidding Document allows Bidders to quote separate prices for different Lots (Contracts), and to award multiple Contracts to a single Bidder **as specified in BDS**, the methodology to determine the lowest evaluated price of the Contract combinations, including any discounts offered in the Letter of Bid, is specified in Section III (Evaluation and Eligibility Criteria).
	29.5 If the bid for a Unit Rate Contract, evaluated as per ITB 30.1, is front-loaded or has quoted abnormally high rate for any item believing that the item was underestimated, the Employer **shall** require the Bidder to provide clarification along with detailed rate analysis, for any or all items of the Bill of Quantities as per ITB 24.1. The rate analysis submitted shall be analyzed and compared against prevailing norms and rates, on the basis of the work execution methodology, technology, and management methods specified by the bidder. If the clarification is deemed unsatisfactory, the Employer shall require that the amount of the performance security be increased at the expense of the Bidder as **specified in BDS**.
	29.6 In case of e-submission bids, the Employer evaluates the bid on the basis of the information in the electronically submitted bid files. If the Bidder cannot substantiate or provide evidence to establish the information provided in e-submitted bid through documents/ clarifications as per ITB Clause 24.1, the bid shall not be considered for further evaluation.
	29.7 If all the Bids evaluated are substantially higher than the cost estimate, the employer may negotiate with the bidder who submitted the lowest evaluated substantially responsive Bid to propose a lump sum discount rate in order to bring the bid price within the approved cost estimate. However, no change in the substance of the bid is permitted during the negotiations.
	29.8 If no agreement can be reached as per ITB 29.7, the employer shall cancel the procurement proceedings.
30. Comparison of	30.1 The Employer shall compare all substantially responsive bids in accordance

Bids	with ITB 29.2. The Employer shall determine the Average Bid Price of all the substantially responsive Bids. The Bid Price which is closest to the Average Bid Price AND is not substantially higher than the cost estimate shall be selected for awarding the contract. In case two or more Bid Prices are determined to be equally closest to the Average Bid Price, the Bid Price which is below the Average Bid Price shall be selected for awarding the contract.
	30.2 While evaluating the Bid Price as per ITB 30.1, if the Bid Price of two or more Bidders is found to be equal, the Employer shall select the bid for awarding the contract by drawing of lots in presence of Bidders' designated representatives who choose to attend in date, time and place as notified by the Employer in writing to the concerned bidders. The Bidders' representatives who are present shall be requested to sign a record evidencing their attendance. The omission of a Bidder's signature on the record or the absence of a Bidder during the drawing of lots shall not invalidate the contents and the effect of the record. The method of drawing of lots shall be determined by the Employer.
31. Employer's Right to Accept Any Bid, and to Reject Any or All Bids	31.1 The Employer reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time prior to Contract award, without thereby incurring any liability to Bidders. In case of annulment, all bids submitted and specifically, bid securities, shall be promptly returned to the Bidders.
	31.2 The public entity shall give notice of the rejection of bids or the cancellation of the procurement proceedings pursuant to ITB 31.1, along with the reasons for such rejection or cancellation, to all bidders participating in the bid**.**
	31.3 Where any bidder requests, within thirty (30) days of the communication of the notice pursuant to ITB 31.2, the grounds for the rejection of all bids or the cancellation of the procurement proceedings, the public entity shall provide such information to that bidder**.**
F. Award of Contract	
32. Award Criteria	32.1 The Employer shall award the Contract to the Bidder whose Bid Price is selected as per ITB 29.7, ITB 30.1 or ITB 30.2 and is substantially responsive to the Bidding Document, provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily.
33. Letter of Intent to Award the Contract/Notification of Award	33.1 The Employer shall notify the concerned Bidder whose bid has been selected in accordance with ITB 32.1 within seven days of the selection of the bid, in writing that the Employer has intention to accept its bid and the information regarding the name, address and amount of selected bidder shall be given to all other bidders who submitted the bid.
	33.2 After issuance of the notice under ITB 33.1 if the concerned bidder provides information pursuant to ITB 4.9 regarding saturation of maximum number of contracts, the employer shall disqualify the bidder and shall select the next Bidder whose Bid Price is closest to the previously

	determined Average Bid Price in accordance with ITB 32.1 and notify accordingly as per ITB 33.1.
	33.3 If no bidder submits an application pursuant to ITB 36 within a period of seven days of the notice provided under ITB 33.1, the Employer shall, accept the bid selected in accordance with ITB 32.1 and Letter of Acceptance shall be communicated to the selected bidder prior to the expiration of period of Bid validity, to furnish the performance security and sign the contract within fifteen days.
	33.4 After communicating letter of acceptance under ITB 33.3, if the concerned bidder provides information pursuant to ITB 4.9 regarding saturation of maximum number of contracts, the employer shall reject the bid of that bidder and shall select the next Bidder whose Bid Price is closest to the previously determined Average Bid Price in accordance with ITB 32.1 and shall issue the notice accordingly as per ITB 33.1. In such case bid security of the rejected bidder shall not be forfeited.
34. Performance Security	34.1 Within Fifteen (15) days of the receipt of Letter of Acceptance from the Employer, the successful Bidder shall furnish the performance security in an amount equal to 5 (five) percent of the Bid Price 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. The Bid Price shall be without VAT but including Provisional Sum.
	34.2 Failure of the successful Bidder to submit the above-mentioned Performance Security or to sign the Contract Agreement shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security. In that event the Employer may award the Contract to the next Bidder whose Bid Price is closest to the previously determined Average Bid Price in accordance with ITB 32.1 whose offer is substantially responsive and is determined by the Employer to be qualified to perform the Contract satisfactorily. The process shall be repeated according to ITB 33.
35. Signing of Contract	35.1 The Employer and the successful Bidder shall sign the Contract Agreement within the period as stated ITB 34.1.
	35.2 At the same time, the Employer shall affix a public notice on the result of the award on its notice board and make arrangement for causing such notice to be affixed on the notice board also of the **District Coordination Committee, District Administration Office, Provincial Treasury and Controller Office and District Treasury and Controller Office**. The Employer may make arrangements to post the notice into its website, if it has; and if it does not have, into the website of the Public Procurement Monitoring Office, identifying the bid and lot numbers and the following information: (i) the result of evaluation of bid; (ii) date of publication of notice inviting bids; (iii) name of newspaper; (iv) reference number of notice; (v) item of procurement; (vi) name and address of

	bidder making contract and (vii) contract price.
	35.3 Within thirty (30) days from the date of issuance of notification pursuant to ITB 33.1 unsuccessful bidders may request in writing to the Employer for a debriefing seeking explanations on the grounds on which their bids were not selected. The Employer shall promptly respond in writing to any unsuccessful Bidder who, requests for debriefing.
	35.4 If the bidder whose bid is accepted fails to sign the contract as stated ITB 35.1, the Public Procurement Monitoring Office shall blacklist the bidder on recommendation of the Public Entity.
36. Complaint and Review	36.1 If a Bidder is dissatisfied with the Procurement proceedings or the decision made by the Employer in the intention to award the Contract, it may file an application to the Chief of the Public Entity within Seven (7) days of providing the notice under ITB 33.1 by the Public Entity, for review of the proceedings stating the factual and legal grounds.
	36.2 Late application filed after the deadline pursuant to ITB 36.1 shall not be processed.
	36.3 The chief of Public Entity shall, within five (5) days after receiving the application, give its decision with reasons, in writing pursuant to ITB 36.1: (a) whether to suspend the procurement proceeding and indicate the procedure to be adopted for further proceedings; or (b) to reject the application. The decision of the chief of Public Entity shall be final.

SECTION - II
Bid Data Sheet

This section consists of provisions that are specific to each procurement and supplement the information or requirements included in Section I. Instructions to Bidders.

A. General	
ITB 1.1	The number of the Invitation for Bids is : IFB/WRIDDO_GULMI/NCB-02/2083-84
ITB 1.1	The Employer is: **Water Resource and Irrigation Development Division Office, Gulmi**
ITB 1.1	**Multiple Contract or lots (contracts) is " *not applicable***
ITB 2.1	The name of the Project is: **Construction of Canal Works of Aslewa Chaurphant Irrigation Project, Satyawati-1, Aslewa, Gulmi.** The implementing agency is: **Water Resource and Irrigation Development Division Office, Gulmi**
ITB 4.1 (a)	Maximum number of partner in a joint venture shall be : ***3 (three)***
ITB 4.2	For GoN funded: Eligible countries: ***Nepal***
ITB 4.4	For GoN: www.***ppmo.gov.np***
ITB 4.8 & ITB 4.9	For GoN Funded: The Bidder, including all parties constituting the Bidder, shall be ineligible to participate in the open competitive bidding process if it has already secured **five (5)** construction contracts (in open competitive bidding) and has not yet completed the work as stipulated in the respective contracts. Following Procurement of Works contracts shall not be counted for this purpose: a) The works for which tender were invited or contracts accepted before 2078-12-03 B.S (March 17, 2022 A.D) b) The works for which tender have been invited and contracts accepted after 2078-12-03 B.S (March 17, 2022 A.D) but the work acceptance report has been approved according to Rule 117 of PPR. c) The works for which tenders were invited or contracts accepted under all types of foreign assistance.
ITB 5.1	For GoN funded: For the purpose of Country of Origin: "all Countries"
B. Bidding Document	

ITB 7.1	For clarification purposes only, the Employer's address is: Attention:Division Chief Address: Tamghas, Gulmi Telephone: : 9857064516 Electronic mail address: irrigation.gulmi@gmail.com
ITB 7.4	A Pre-Bid meeting **"shall"** held. Pre-Bid Meeting will Take place at the following date, time and place: Date:2083/06/27 . Time: 11:00 A.M. Place: WRIDDO, TAMGHAS, GULMI A site visit ***shall not be*** organized by the Employer.
ITB 7.5	Time for request: Requests for clarification should be received by the Employer no later than 10 days prior to the deadline for submission of bids.
C. Preparation of Bids	
ITB 10.1	The language of the bid is: English / Nepali
ITB 11.1 (b)	In accordance with ITB 12 and ITB 14, the following schedules shall be submitted with the bid, including the priced Bill of Quantities for Unit Rate Contracts and Schedule of Prices for lump sum contracts:
ITB 11.1 (h)	The Bidder shall submit with its bid the following additional documents:
ITB 13.6	The prices quoted by the Bidder ***"shall not be"***subject to adjustment during the performance of the Contract.
ITB 15.1	The bid validity period shall be: ***Ninety (90) days***.
ITB 16.1	The Bidder shall furnish a bid security, from Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law in Nepal with a minimum of **NRs *87,000.00*** which shall be valid for 30 days beyond the validity period of the bid.
ITB 16.2 (b)	Account Name: Ko.le.ni.ka., Gulmi Bank Name: Rastriya Banijya Bank Bank Address: Tamghas, Gulmi Account Number: 3010100202030000
ITB 17.1	In addition to the original of the bid, the number of copy/ies is/are: ***Not Applicable***
ITB 17.2	The written confirmation of authorization to sign on behalf of the Bidder shall indicate: (a) The name and description of the documentation required to demonstrate the authority of the signatory to sign the Bid such as a Power of Attorney; and (b) In the case of Bids submitted by an existing or intended JV, an undertaking signed by all parties (i) stating that all parties shall be jointly and severally liable, and (ii) nominating a Representative who shall have the authority to conduct all business for and on behalf of any and all the parties of the JV during the bidding process

<table>
<tr><td></td><td>and, in the event the JV is awarded the Contract, during contract execution.</td></tr>
<tr><td colspan="2">D. Submission and Opening of Bids</td></tr>
<tr><td>ITB 18.1</td><td>Bidders shall have the option of submitting their bids…

By post office/ by hand / by courie</td></tr>
<tr><td>ITB 18.1 (b)</td><td><u>Electronic bid submission procedure: N/A</u>
(a) Bidders submitting Bids electronically shall follow the electronic bid submission procedures specified in this clause.
i. Bidders who choose to submit their bids electronically, can view/download the bidding documents from “published bids” section of e-GP system, https://bolpatra.gov.np/egp.
ii. For the purpose of e-Submission, the bidder shall, at first, register in e-GP system and maintain their organization profile data and documents required during bid response preparation. The details of e-GP registration and profile management procedure are specified in Article No 9 and 10 respectively of e-GP Directives issued by PPMO, which can be downloaded from Download section of e-GP system.
iii. The bidders shall prepare their bids using data and documents maintained in bidder’s profile, instruction provided by e-GP system and forms/format provided in the bidding document.
iv. Bidders may submit bids as a single entity or as a joint venture (JV). Bidder submitting bid in JV shall have to upload joint venture agreement along with partner(s) Bolpatra ID provided during bidder’s registration.
v. Bidders (all partners in case of JV) shall update their profile data and documents required during preparation and submission of their bids.
vi. In case of bid submission in JV, the consent of the partners shall be obtained through the confirmation link sent to the registered email address and the partners shall have to acknowledge their confirmation.
vii. Bidders shall submit the required documents as specified in Section I-Instruction to Bidders, Section II-Bid Data Sheet and Section III-Evaluation and Eligibility Criteria of the bidding document. The format of the documents shall be in PDF and/or web form as provisioned in the e-GP system.
The required forms and documents shall be part of bid.
<table>
<tr><th>No.</th><th>Document</th><th>Requirement</th><th>Remarks</th></tr>
</table>
</td></tr>
</table>

1.	Letter of Bid	Mandatory	PDF
2.	Bid Security / Bank Guarantee	Mandatory	PDF
3.	Firm or Company registration Certificate	Mandatory	PDF
4.	VAT and PAN registration Certificate	Mandatory (for domestic bidders only)	PDF
5.	Business Registration Licence	Mandatory	PDF
6.	Tax Clearance Certificate / Tax return submission evidence / evidence of time extension	Mandatory (for domestic bidders only)	PDF
7.	Power of Attorney of Bid signatory	Mandatory	PDF
8.	Joint venture agreement	Mandatory in case of JV Bids Only	PDF
9.	Completed Bill of Quantities (BoQ)	Mandatory	Online Forms
10.	Price Adjustment Table (if Applicable)	Mandatory (If Applicable)	Online Forms
11.	Additional documents specified in ITB 11.2 (h)	Mandatory (If any)	PDF

Note:

a) The documents specified as "Mandatory" should be included in e-submission and non-submission of the documents shall be considered as non-responsive bid.

b) Bidders (all partners in case of JV) should verify/update their profile documents as appropriate for the specific bid before submitting their bid electronically.

viii. After providing all the details and documents, the e-GP system will generate bid response documents for the bidder. Bidders shall download, verify and confirm the bid response documents prior to bid submission.

ix. For verifying the authentic user, the system will send one time password (OTP) in the registered e-mail address of the bidder. System will validate the OTP and then only allow bidders to submit their bid.

x. Electronically submitted bids can be modified and/or withdrawn through the system within the bid submission deadline.

xi. The bidder/bid shall meet the following requirements and conditions for e-submission of bids;

aa) The e-submitted bids must be readable through PDF reader.

bb) The bidders are fully responsible for using the e-GP system as per specified procedures and in no case the employer shall be held liable for

	bidder's inability to use the system. cc) When a bidder submits electronic bid through the e-GP System, it is assumed that the bidder has prepared the bid by studying and examining the complete set of the bidding document and e-GP instruction including the provision stipulated in e-GP Directives.
ITB 19.1	**<u>For bid submission purposes only, the Employer's address is :</u>** Attention: Water Resource and Irrigation development division office (Division Chief) Address: Tamghas, Gulmi **<u>The deadline for bid submission is :</u>** Date : 2083/07/12 Time : 12:00 P.M.
ITB 22.1	The bid opening shall take place at : Address : WRIDDO, GULMI Date : 2083/07/12 Time : ***13:00 P.M.***
E. Evaluation and Comparison of Bids	
ITB 29.4	Bidders are ***"not permitted"*** to quote separate prices for lots (Contracts), and a single Bidder will be awarded multiple lots (Contracts) based on provision of ***Paragraph 1.1, Multiple Contracts Section III (Evaluation and Eligibility Criteria):***
ITB 29.5	The amount of the performance security be increased by Eight (8) percent of the quoted bid price (without VAT but Including PS).

SECTION - III

Evaluation and Eligibility Criteria

This Section contains all the criteria that the Employer shall use to evaluate bids and eligible Bidders. GoN/DP requires bidders to be qualified by meeting predefined eligibility criteria. In accordance with ITB 29, no other methods, criteria and factors shall be used. The Bidder shall provide all the information requested in the forms included in Section IV (Bidding Forms).

1. Evaluation

In addition to the criteria listed in ITB 29.2 (a) - (e) the following criteria shall apply:

1.1 Multiple Contracts

Pursuant to Sub-Clause ITB 29.4 of the Instructions to Bidders, if Works are grouped in multiple contracts, evaluation will be as follows:

Works are grouped in multiple contracts and pursuant to Sub-Clause 29.4 of the Instructions to Bidders, the Employer will evaluate and compare Bids on the basis of a contract, or a combination of contracts, or as a total of contracts in order to arrive at the least cost combination for the Employer by taking into account discounts offered by Bidders in case of award of multiple contracts.

1.2 Quantifiable Nonconformities and Omissions

Subject to ITB 13.2 and ITB 29.2, the evaluated cost of quantifiable nonconformities including omissions, is determined as follows:

[***Insert in bidding document:*** "Pursuant to ITB 27.3, the cost of all quantifiable nonmaterial nonconformities shall be evaluated, but excluding omission of prices in the Bill of Quantities. The Employer will make its own assessment of the cost of any nonmaterial nonconformities and omissions for the purpose of ensuring fair comparison of bids."]

2. Eligibility

Criteria	Compliance Requirements				Documents
Requirement	Single Entity	Joint Venture			Submission Requirements
		All Partners Combined	Each Partner	One Partner	
2.1 Conflict of Interest					
No conflicts of interest in accordance with ITB Sub-Clause 4.3.	must meet requirement	existing or intended JV must meet requirement	must meet requirement	not applicable	Letter of Bid
2.2 Government/DP Eligibility					
Not having been declared ineligible by government/DP, as described in ITB Sub-Clause 4.4.	must meet requirement	must meet requirement	must meet requirement	not applicable	Letter of Bid
2.3 Government-owned Entity					

Bidder required to meet conditions of ITB Sub-Clause 4.5.	must meet requirement	existing or intended JV must meet requirement	must meet requirement	not applicable	Letter of Bid, Forms ELI - 1, ELI - 2, with attachments
2.4 UN Eligibility					
Not having been declared ineligible based on a United Nations resolution or Employer's country law, as described in ITB Sub-Clause 4.7.	must meet requirement	existing or intended JV must meet requirement	must meet requirement	not applicable	Letter of Bid
2.5 Bidder's Running Contracts					
Bidder's have not yet secured five (5) number of construction contracts[2](in open competitive bidding) as described in ITB Sub-Clause 4.8.	must meet requirement	existing or intended JV must meet requirement	must meet requirement	not applicable	Letter of Bid, Form ELI-3
2.6 Other Eligibility					
Firm or Company Registration Certificate	must meet requirement	not applicable	must meet requirement	not applicable	Document attachment
Business Registration License	must meet requirement	not applicable	must meet requirement	not applicable	Document attachment
VAT and PAN Registration certificate	must meet requirement	not applicable	must meet requirement	not applicable	Document attachment
Tax clearances certificate for the F/Y 2081/82. or Tax return submission evidence or evidence of tax time extension for.	must meet requirement	not applicable	must meet requirement	not applicable	Document attachment
Additional requirements ***[Insert if any]***	…….	……	…….	……	……

[2]Note: Following Procurement of Works contracts shall not be counted for this purpose:

a) The works for which tender were invited or contracts accepted before 2078-12-03 B.S or March 17, 2022 A.D

b) The works for which tender have been invited and contracts accepted after 2078-12-03 B.S or i.e March 17, 2022 A.D and accepted but the work acceptance report has been approved according to Rule 117 of PPR.

c) The works for which tenders were invited or contracts accepted under all types of foreign assistance

SECTION - IV

Bidding Forms

This Section contains the forms which are to be completed by the Bidder and submitted as part of its Bid.

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: ***[Insert Complete name of Employer]*** ……

We, the undersigned, declare that:

(a) We have examined and have no reservations to the Bidding Documents, including Addenda issued in accordance with Instructions to Bidders (ITB) Clause 8;

(b) We offer to execute in conformity with the Bidding Documents the following Works: ***[Insert Description of the works].***

(c)The total price of our Bid, excluding any discounts offered in item (d) below is: ***[Insert one of the options below as appropriate]*** or when left blank is the Bid Price indicated in the Bill of Quantities.

Option 1, in case of single contract: Total price is: ***[insert the total price of the Bid in words and figures]***;

Or

Option 2, in case of multiple lots (contracts): (i) Total price of each lot (contracts): ***[insert the total price of each lot in words and figures]***; (ii) Total price of subject contract [say Lot1] and Lot2 [another contract] [insert the total price in words and figures]; (iii) Total price of subject contract [say Lot1]and Lot3 [another contract] ***[insert the total price in words and figures]***; Total price of subject contract [say Lot1], Lot2 [another contract], Lot3 [another contract], ***……..[insert the total price in words and figures];***

(d) The discounts offered and the methodology for their application for subject contract [single contract] are:…….. [For Bidding Documents not provisioning multiple contracts]

Add following if Bidding Document provisions applicability of multiple contracts

The discounts offered and the methodology for their application for subject contract [say Lot1] and Lot2 [another contract] are:……..

The discounts offered and the methodology for their application for subject contract [say Lot1] and Lot3 [another contract] are:……..

The discounts offered and the methodology for their application for subject contract [say Lot1], Lot2 [another contract] and Lot3 [another contract],……,
are:……..

[Note:

1. Formulate possible combinations depending upon the number of lots under Bidding Process and modify accordingly Paragraph (c) and (d)]

(e) Our bid shall be valid for a period of ……..***[insert validity period as specified in ITB 15.1]*** 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) Our firm, including any subcontractors or suppliers for any part of the Contract, have nationalities from eligible countries or any countries [insert the nationality of the Bidder, including that of all parties that comprise the Bidder if the Bidder is a consortium or association, and the nationality of each Subcontractor and Supplier];

(h) We, including any subcontractors or suppliers for any part of the contract, do not have any conflict of interest in accordance with ITB 4.3;

(i) We are not participating, as a Bidder or as a subcontractor, in more than one bid in this bidding process in accordance with ITB 4.3;

(j) Our firm, its affiliates or subsidiaries, including any Subcontractors or Suppliers for any part of the contract, has not been declared ineligible, under the Employer's country laws or official regulations or by an act of compliance with a decision of the United Nations Security Council;

(k) *[*We are not a government owned entity*] / [*We are a government owned entity but meet the requirements of ITB 4.5*]*; *

(l) 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;

(m) We declare that, we have not been black listed as per ITB 3.4 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.

(n) We declare that we have not yet secured five (5) number of constructions contracts[3] (in open competitive

* Note: Use one of the two options as appropriate.

bidding) as described in ITB Sub-Clause 4.9.

(o) We understand that you are not bound to accept the bid closest to the Average Bid Price or any other bid that you may receive; and

(p) If awarded the contract, the person named below shall act as Contractor's Representative:

(q) 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.

(r) We declare that we are solely responsible for the authenticity of the documents submitted by us. The document and information submitted by us are true and correct. If any document/information given is found to be concealed at a later date, we shall accept any legal actions by the Employer.

Name: ***[insert complete name of the person signing the Bid]***.....

In the capacity of ***[insert legal capacity of person signing the Bid]***.....

Signed ***[signature of the person whose name and capacity are shown above]***……

Duly authorized to sign the Bid for and on behalf of ***[insert complete name of the Bidder]***……

Date ***[insert date of signing]***…….....

[3] Note: Following Procurement of Works contracts shall not be counted for this purpose

a) The works for which tender were invited or contracts accepted before 2078-12-03 B.S (March 17, 2022 A.D).

b) The works for which tender have been invited and contracts accepted after 2078-12-03 B.S (March 17, 2022 A.D) and accepted but the work acceptance report has been approved according to Rule 117 of PPR.

c) The works for which tenders were invited or contracts accepted under all types of foreign assistance.

Table of Price Adjustment Data[4]

[To be used if Price Adjustment is applicable as per GCC 53.1]

Code	Index Description	Source of Index*	Base Value and Date	Employer's Proposed Weighting Range (coefficient)	Bidder's Proposed Weighting (coefficient)**
1	**2**	**3**	**4**	**5**	**6**
	Non - adjustable (A)			0.15	0.15
	Labor (b)				
	Materials (c)***				
	…				
	Equipment usage (d)				
		Total			**1.00**

*Normally following source of index shall apply. Public Entity shall choose applicable Index for each item.
(a) Labor:
"National Salary and Wage Rate Index"- "Construction Labor" of Nepal Rastra Bank
or
rate fixed by District Rate Fixation Committee

(b) Material: "National Wholesale Price Index" - Construction Materials" of Nepal Rastra Bank

(c) Equipment usage:
"National Wholesale Price Index"-"Machinery and Equipment" of Nepal Rastra Bank
or

"Fuel" Price fixed by Nepal Oil Corporation.
** Bidders proposed weightings should be within the range specified by the Employer in column - 5
***Note: The materials can be broken down into major construction materials if necessary. In this case the source of index shall be the specified by Employer, preferably as per the published ex-factory price or published price from the sole authorized seller.

[4] Non-compliance of the data (stipulated by the bidder in this table) with requirements described here shall not be grounds for bid rejection and such non-compliance will be subject to clarification and rectification prior to contract award.

Table of Price Adjustment Data[5]

[To be used if Price Adjustment is applicable as per GCC 53.6]

Code	Construction Material*	Unit	Base Price (NRs/Unit) (Ex-factory)	Source (Factory)**
1	**2**	**3**	**4**	**5**

* Major construction materials to be specified by Employer in column - 2.

** Base Price and source normally to be specified by Employer (or alternatively informed to be proposed by bidder) in column 4 and5.

Note:
The base prices of the construction materials shall be taken as of 30 days before the deadline for submission of the Bid as quoted by the Bidder and verified by the Employer. For the purpose of calculation of price adjustment, the Ex-factory price of the same source shall be taken into consideration.

[5] Non-compliance of the data (stipulated by the bidder in this table) with requirements described here shall not be grounds for bid rejection and such non-compliance will be subject to clarification and rectification prior to contract award.

Bid Security

Bank Guarantee

Bank's Name, and Address of Issuing Branch or Office

(On letterhead paper of the Bank)

Beneficiary: ..... ***[Insert name and address of Employer]*** …….

Date: ……...

Bid Security No.: .....

We have been informed that . ……. ***.[insert name of the Bidder]*** (hereinafter called "the Bidder") intends to submit its bid (hereinafter called "the Bid") to you for the execution of ……... ***[Insert name of Contract .*** …… under Invitation for Bids No. ……***[insert IFB No.]*** ("the IFB").

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

At the request of the Bidder, we……. . ***[Insert name of Bank]*** …….. hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of Nepalese Rupees. . ***……....[Insert amount in figures and amount in words]*** upon receipt by us of your first demand in writing accompanied by a written statement stating that the Bidder is in breach of its obligation(s) under the bid conditions, because the Bidder:

(a) has withdrawn or modifies its Bid:

(i) during the period of bid validity specified by the Bidder on the Letter Bid, in case of electronic submission

(ii) from the period twenty-four hours prior to bid submission deadline up to the period of bid validity specified by the Bidder on the Letter of Bid, in case of hard copy submission; or

(b) does not accept the correction of errors in accordance with the Instructions to Bidders (hereinafter "the ITB"); or

(c) 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; or

(d) is involved in fraud and corruption in accordance with the ITB; or

(e) a Bidder changes the prices or substance of the bid while providing information pursuant to ITB 24.1; or

(f) if the bidder fails to inform about the saturation of the maximum number of contracts as per ITB 4.9.

This guarantee will remain in force up to and including the date ……**number**……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 (URDG), 2010 Revisions, ICC Publication No. 758 .except that the supporting statement under Article 15(a) is hereby excluded.

. . .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 Foreign Banks).

Bidder's Information Format

Site Organization

Method Statement

Mobilization Schedule

Construction Schedule

Others

Bidder's Information

Form ELI - 1: Bidder's Information Sheet

Bidder's Information	
Bidder's legal name	
In case of JV, legal name of each partner	
Bidder's country of constitution	
Bidder's year of constitution	
Bidder's legal address in country of constitution	
Bidder's authorized representative (name, address, telephone numbers, fax numbers, e-mail address)	
Attached are copies of the following original documents.	
1. In case of single entity, articles of incorporation or constitution of the legal entity named above, in accordance with ITB 4.1 and 4.2. 2. Authorization to represent the firm or JV named in above, in accordance with ITB 17.2. 3. In case of JV, letter of intent to form JV or JV agreement, in accordance with ITB 4.1. 4. In case of a government-owned entity, any additional documents not covered under 1 above required to comply with ITB 4.5.	

Form ELI - 2: JV Information Sheet

Each member of a JV must fill in this form

JV / Specialist Subcontractor Information	
Bidder's legal name	
JV Partner's or Subcontractor's legal name	
JV Partner's or Subcontractor's country of constitution	
JV Partner's or Subcontractor's year of constitution	
JV Partner's or Subcontractor's legal address in country of constitution	
JV Partner's or Subcontractor's authorized representative information (name, address, telephone numbers, fax numbers, e-mail address)	
Attached are copies of the following original documents.	
1. articles of incorporation or constitution of the legal entity named above, in accordance with ITB 4.1 and 4.2. 2. Authorization to represent the firm named above, in accordance with ITB .2. 3. In the case of government-owned entity, documents establishing legal and financial autonomy and compliance with commercial law, in accordance with ITB 4.5.	

Form ELI - 3: Bidder's Running Contracts****

Each member of a JV must fill in this form

	Bidder's Running Contracts				
Name of office	**Contract Identification no.**	**Source of Fund***	**Date of issuance of Letter of Acceptance**	**Status of contract****	**Date of Issuance of Taking Over Certificate*****

* Mention GON funded or DP funded or Other PE (Insert name) funded

** Mention "Yet to sign" if contract is not signed, "Running" if contract has been signed and contract is running and "Substantially completed" if taking over certificate has been issued.

*** Insert date of issuance of taking over certificate if the awarded contract has been substantially completed and taking over certificate has been issued.

****Note: Following Procurement of Works contracts shall not be counted for this purpose

a) The works for which tender were invited or contracts accepted before 2078-12-03 B.S (March 17, 2022 A.D).

b) The works for which tender have been invited and contracts accepted 2078-12-03 B.S (March 17, 2022 A.D) but the work acceptance report has been approved according to Rule 117 of PPR.

c) The works for which tenders were invited or contracts accepted under all types of foreign assistance.

Part – II

REQUIREMENTS

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SECTION - V
Works Requirements

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

Scope of Work

Construction of Canal Works of Aslewa Chaurphant Irrigation Project, Satyawati-1, Aslewa, Gulmi

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, DoLI 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.

Specifications

1. General

The works covered by this technical specification shall comprise of general type of civil works.

2. Clearing of Site

The Contractor shall remove all trees, shrubs, bushes and vegetation standing above the ground surface. The root of all trees and other vegetation shall be removed as approved by the Engineer.

3. Ground Leveling

The site of the works shall be leveled by cutting and filling as the case may require. The exact location and elevation of each of the works sites shall be indicated by the Engineer.

4. Materials

a. General

Materials used in the work shall be new and conforming to the qualities and kinds specified herein or equal to the approved samples. All materials used in the works should be in conformity practiced with relevant standard specification.

b. Inspection and Testing

All materials used in the works shall be subject to inspection and tested as the Engineer may direct from time to time as the work proceed. Only material, which the Engineer considers satisfactory, shall be used and materials condemned or not approved by the Engineer shall be removed from the works at the contractor's cost.

5. Cement

Quality and Type

The cement to be used in the Works shall be ordinary Portland cement complying in all respects with BS 12. For the purposes of cement testing under BS 12, the Site shall be deemed to have a tropical climate.

Tests on Cement

Before any cement is ordered in quantity or brought on to the site, the Contractor shall submit to the Engineer a detailed list of the sources, country or countries of origin and manufacturer's brand names of the types of cement which he proposes to use.The Contractor shall submit to the Engineer, without charge, test certificates relating to each consignment of cement. Each certificate shall show that a sample of the consignment has been tested by the manufacturer or by an approved laboratory and that it complies in all respects with the requirements of the Technical Specifications. The cement will be tested in accordance with and shall meet the requirements of the NS Code. When required by the Engineer the Contractor shall supply to the Engineer samples of cement taken on delivery to, or during storage on the Site, for testing at the Contractor's laboratory without extra charge.No cement from any consignment shall be used without the approval of the Engineer and the Contractor shall maintain a record of the locations of the concrete made from each consignment which record shall be available for inspection by the Engineer. If for any reason the Contractor wishes to vary the source, country or manufacturer in respect of any type of cement at any time during the Contract, he shall give adequate notice of every such variation and shall carry out all tests called for by the Engineer on the proposed substitute cement, and shall obtain written approval of the variation before ordering any substitute material.The Engineer may call for new tests, at the Contractor's expense, in particular if the cement has been stored for a long time, to check the cement is still conforming to the requirements.

Delivery and Storage of Cement

Cement shall be delivered to the site in properly sealed bags or other approved containers, stamped with date of delivery and marked sound. Cement from abroad, except from India, shall be packed in sealed plastic bags inside the paper bag. Cement shall be delivered in quantities sufficient to ensure the proper progress of the Works and the quantities held in stock on site shall be to the approval of the Engineer.Each consignment of cement shall be stored separately so as to provide easy access for inspection and testing. After they have been approved by the Engineer, consignments shall be used in the order in which they were delivered. Any cement which shall prove to have been exposed to damage by water will be rejected upon delivery.Cement delivered in bags shall be stored in a weather proof, waterproof and reasonably airtight

building provided solely for that purpose. The floors of the building shall be raised at least 30 cm above the ground level to prevent the absorption of moisture. It is not permitted to store bags to a greater height than 2 metres. Storage in the open may be permitted on small works by the written authority of the Engineer, in which case the cement shall be placed on a raised platform and amply protected by waterproof coverings to the approval of the Engineer.Cement, when being conveyed to the site in lorries or other vehicles, shall be adequately protected from the weather and from contamination by dust, sand or any organic materials. In the case of delivery of cement in bulk, the cement shall be stored in a properly designed silo. The silo must be provided with walls properly insulated against sun radiation. No cement shall be taken from the storage, unless it is needed for immediate use.

Cement Measured by Weight

All cement used in the Works shall be measured by weight or volume. Cement from partly filled or unsealed bags shall not be used.

Rejection of Cement

Notwithstanding the receipt of the test certificate and the approval of the Engineer, the Engineer may reject any cement as a result of further tests on compressive strength and chemical composition. The Engineer may also reject cement which has deteriorated owing to inadequate protection or other causes, or in any other case where the cement is not to his satisfaction. Re-tests, if required, are at the Contractor's expense. The Contractor shall remove all rejected cement from the site without delay and at the Contractor's expense.

6. Aggregates

Supply and Classification

The Contractor shall make his own arrangements for procuring, crushing, grading and delivering aggregate for the Works, as required from sources to be approved by the Engineer. Separate fine and coarse aggregate shall be used for the manufacture of concrete. Aggregates shall be graded to produce a workable dense concrete.

(a) **Coarse Aggregates**

The term "coarse aggregate" is used to designate well graded aggregate mainly retained on a 5.00 mm, NS: 305-2050 or IS:460 test sieve and mainly passing a 40 mm, NS:305-2050 or IS:460 test sieve. Coarse aggregate shall be supplied in the following primary sizes:

Size designation	Normal size range
10 mm	5 mm to 10 mm
20 mm	5 mm to 20 mm
40 mm	5 mm to 40 mm

Coarse aggregate shall consist of natural gravel or crushed rock. Friable and flaky pieces such as mica and shale shall not be present. Coarse aggregates shall be well graded within grading given in Table 5.1 and to the satisfaction of the Engineer.

Table 5.1: Percentage by Weight Passing Standard Sieves

Sieve Size (mm)	Size Designation		
	5 mm to 10 mm	5 mm to 20 mm	5 mm to 40 mm
50.0	-	-	100
37.5	-	100	95 - 100
20.0	100	95 - 100	37 - 70
10.0	85 - 100	30 - 60	10 - 40
5.0	0 - 25	0 - 10	0 – 5

The aggregate shall be free from adherent coatings and shall, if necessary, be washed for this purpose and shall be free from sulphates.Clay or silt lumps shall not exceed 0.25 per cent and material passing a BS sieve No. 200 shall not exceed 1.0 per cent, both by weight. The content of coal and lignite shall not exceed 0.5 per cent by weight.

(b) **Fine Aggregates**

The term “fine aggregates” is used to designate aggregate mainly passing a 0.075 mm, NS:305-2050 or IS:460 test sieve and containing only that much coarser material as is permitted for the various grading zones.Fine aggregate shall consist of natural sand, or a mixture of natural sand and crushed gravel or crushed rock. The aggregate shall not contain any flint, chirt or lime. The quantity of silt, clay and dust, determined in accordance with the decantation method given in NS:305-2050 or IS:460, shall not exceed 3% by weight of the sample. The content of mica shall not exceed 3% by weight of the sample. The aggregate shall not contain any deleterious material in such form or in sufficient quantity as to affect adversely the quality of concrete.The Engineer shall permit the addition of crushed gravel or crushed rock fine aggregates to the natural sand only where, in his opinion, it is impracticable to obtain the required fine aggregate grading other than by such addition. The grading of the fine aggregates shall lie within one of the grading zones as set out in Table 5.2 and specified in BS 882.

Table 5.2 Percentage by Weight Passing Standard Sieves

BS 410 Standard Mesh	Grading Zone 1	Grading Zone 2	Grading Zone 3	Grading Zone 4
10.0 mm	100	100	100	100
5.0 mm	90 - 100	90 – 100	90 - 100	95 - 100
2.36 mm	60 - 95	75 – 100	85 - 100	95 - 100

1.18 mm	30 - 70	55 – 90	75 - 100	90 - 100
600 μm	15 - 35	35 – 60	60 - 80	80 - 100
300 μm	5 - 20	8 – 30	12 - 40	15 - 50
150 μm	0 - 10	0 – 10	0 - 10	0 – 15

Quality

All aggregates to be used in concrete shall be clean, hard, dense, sound, chemically inert, or limited porosity and uncoated particles free from clayey or organic matter. Aggregates for concrete shall comply with related codes and the following:

- Grading: in accordance with Tables 5.1 and 5.2 herein.
- Mechanical Properties: when tested, the "Ten per cent Fines Value" shall be not less than 50 KN.
- mica content test
- Silt, Clay and Dust Fraction: when determined in accordance with the decantation method given in BS 882:1992 Fines.
- Water Absorption: when tested in accordance with BS 812 Part 2 the water absorption after 24 hours shall not exceed 4%.
- Soundness: when tested in accordance with the sodium sulphate soundness test specified in ASTM C88 the aggregate shall have a percentage loss of less than 15.
- Alkali-Aggregate Reactivity: when tested in accordance with ASTM C 289 aggregates exhibiting evidence of alkali-aggregate reactivity will not be acceptable unless the Contractor can show that the proposed cement aggregate combination, when tested in accordance with ASTM C227 or other tests, will not produce deleterious alkali-aggregate reactivity, as to which the Engineer shall be the sole judge.
- Shrinkage: when determined in accordance with the BRE Digest 35 test the drying shrinkage shall not exceed 0.065%.
- Flaking Index shall not exceed 40.
- Elongation shall not exceed 40.
- Aggregate Crushing Value (ACV) shall not be more than 30%.

Testing

Testing of aggregates is to be in accordance with NS:305-2050 or as specified herein. For each source of aggregate, and at least six weeks prior to the preparation of trial mixes, samples of aggregates together with the results of the test requirements shall be submitted to the Engineer for approval of the sources of aggregate and quality.To check whether the aggregates contain lime, the particles shall be immersed in a 5 per cent HCL solution after crushing. The aggregate shall be rejected if the particles dissolve in the solution.After approval has been given for any particular aggregate, a sample weighing at least 50 kg of the approved aggregate shall be retained by the Engineer as a standard against which all future samples can be compared.Approval of a source of aggregate by the Engineer shall not be construed as constituting the approval of all materials to be taken from that source, and the Contractor shall be responsible for the specified quality of all such materials used in the Works. The Contractor shall not obtain aggregates from sources which have not been approved by the Engineer.During the course of the Contract, the Contractor shall supply to the Engineer samples of aggregates taken in accordance with NS 305/IS 383 at a frequency of at least once a week, or as directed by the Engineer from each aggregate stockpile. The samples shall be delivered to the Site laboratory for testing under the supervision of the Engineer. If the routine tests carried out by the Engineer show the aggregate to be not to the same standard as originally approved, then subsequent testing to obtain acceptable aggregates shall be undertaken by the Contractor at his own cost.

Washing and Screening

Aggregates shall be washed and screened as necessary, to produce aggregates meeting the specified requirements. All such washing and screening shall be to the satisfaction of the Engineer. Should mica be present in unacceptable quantities, its removal shall be effected by techniques approved by the Engineer. The costs of all washing and screening shall be included in the unit rates for concrete in the Bill of Quantities.

Storage

Aggregates shall be stored in separate stockpiles in such a manner that the intermingling of materials from separate stockpiles or bins is not possible, and so as to prevent contamination by mud, rubbish, windblown dust or vegetation. Aggregate stockpiles shall be provided with adequate drainage to ensure rapid drainage of the aggregates. The storage arrangements shall be to the approval of the Engineer.

7. Water

Water for concrete, mortar and curing shall be subjected to the approval of the Engineer. It shall be clean, fresh and free oil, acid, alkali etc. Water used in mixing and curing of concrete shall be subject to approval, and shall be reasonably clean and free of oil, salt, acid, alkali, sugar, vegetable or other substances injurious to the finished project. In no case shall the water contain an amount of impurities which will cause a change in the time of initial or final set of the cement of more than 30 minutes, nor a reduction in the compressive strength of mortar of more than 10 per cent at any time of testing, when compared to the results obtained with distilled water. Water for mixing, washing aggregates, curing and rinsing shall not contain:

- More than 500 mg/l of chlorides as Cl;
- More than 1000 mg/l of sulphates as SO3;
- More than 2,000 parts per million of insoluble residues;
- An acid degree of pH > 5.

Furthermore, the chloride content in mixing water must be such that in no case, the total amount of chlorides in water, cement, aggregates and additives of the fresh concrete, shall exceed 0.3 per cent of the weight of cement.The Contractor shall deliver to the Engineer, without charge, samples of the water proposed for use in the Works, for the Engineer to carry out such tests as he may require to confirm its suitability. Samples will be delivered sufficiently in advance of the Works for completion of the tests before the water is required for use, and at such other times during the course of the Contract as the Engineer may direct. If required by the Engineer, the Contractor shall, without extra charge, treat the water taken from any other source to such a degree as may be necessary in order to render it suitable for mixing and mortar.

8. Reinforcement Steel

Material and Tests

Reinforcement steel shall include the steel bars in reinforced concrete structures as well as the steel bar supports, and shall be laid in accordance with the approved Drawings.Steel reinforcement shall consist of hot rolled round deformed (high bond) high yield stress bars and shall comply with the requirements of NS:191-2046. The bars shall be from new stock. A cross section of any bar to be delivered shall be of the exact shape and have the specified diameter at any point of the bar. When required by the Engineer, the Contractor shall submit three copies of mill sheets of steel bars for theapproval of the Engineer before each shipment, and inspection at site will be made by the Engineer in accordance with the Specifications and the above mill sheets.The Contractor shall prepare test specimens of steel reinforcement to be used in the works. Test specimens shall be taken in the presence of the Engineer and shall be of a size sufficient to carry out the specified test. The test specimens shall be tested in an approved laboratory and the certified copies of the

results of the tests shall be submitted to the Engineer. The specimen shall be tested for bending and tensile properties. The methods and requirements for testing shall be carried out in accordance with the applicable specifications of NS-333-2050.If necessary, other equivalent National Standards may be substituted after obtaining the approval of the Engineer.If ordered by the Engineer, test procedures shall be repeated at the Contractor's own expense for any new supply of steel reinforcement.

Storage of Steel Reinforcement

Steel reinforcement shall be stored above the ground on platforms, skids or other approved supports, and shall be protected from mechanical injury and surface deterioration caused by exposure to conditions producing rust.Different types and dimensions of reinforcement shall be kept separately.

Preparation of Reinforcement Drawings

The Contractor shall prepare, at his own expense, all detailed reinforcement and bending drawings. The drawings shall include all bar-placing drawings, bar-bending schedules, bar lists, and any other reinforcement drawings as may be required to facilitate fabrication and placement of reinforcement bars.Reinforcement drawings shall be submitted to the Engineer for approval. Reinforcement drawings and bar lists prepared by the Contractor shall conform to the standard practices of the industry.

Bending of Steel Reinforcement

Steel reinforcement shall be cut from straight bars, free from kinks and bends or other damage, and bent cold by experienced competent workmen. Bar diameters greater than 19 mm shall be bent in a bending machine designed for the purpose and approved by the Engineer. Any steel that has already been bent shall not be re-bent at the place of the previously made bend.Dimensions for bending shall be in accordance with the requirements as set out in IS,SF 24.

Placing Reinforcement Steel

The number, size, form and position of all reinforcement steel bars, fabric, ties, links, stirrups and other parts of the reinforcement shall be placed in exact position in accordance with the Drawings and kept in the correct position in the forms without displacement during the process of vibrating, tamping and ramming the concrete in place. The Contractor shall provide all necessary distance pieces and space bars at his own cost to maintain the reinforcement in the correct position.Correct positioning will be achieved with the use of stays, blocks, ties, hangers or other approved supports. Blocks for holding the reinforcement from contact with the forms of adjacent reinforcement shall be precast concrete mortar blocks of approved shapes and dimension consisting of 1:2 cement/sand mortar. The Contractor shall provide evidence that mortar is of the same quality and density as the surrounding concrete. The water tightness of the mortar blocks shall be at least similar to the concrete into which they are concreted. The blocks shall be fitted with a semi-circular hollowing and double bent poured-in 16 gauge annealed steel wire. The use of pebbles, pieces of broken stone or brick, or other materials shall not be permitted.Any ties, links or stirrups connecting the bars shall be taut, so that the bars are properly braced; the inside of their curved parts shall be in actual contact with the bars around which they are intended to fit. Bars shall be bound together with the best black annealed mild steel wire which is subject to the Engineer's approval, and the binding shall be twisted tight with proper pliers. The free ends of the binding wire shall be bent inwards.Before any steel reinforcement is embedded in the concrete, any scale, loose rust, oil, grease or other deleterious matter shall be removed. Partially set concrete which may have adhered to the exposed bars during concreting operations shall likewise be removed.When the reinforcement has been placed and is ready for concreting, it will be inspected by the Engineer, and no concrete shall be placed until the reinforcement has been approved by him. The Contractor shall inform the Engineer at least 24 hours in advance of his intention to have the reinforcement ready for inspection.

Splicing of Reinforcement Steel

All steel reinforcement shall be furnished in full length as indicated on the Drawings. Splicing of bars, except where shown on the Drawings, shall not be permitted without the written approval of the Engineer. Splices shall be staggered. Welding of steel reinforcement or connections of steel reinforcement by means of mechanical splices shall be done only if detailed on the duly approved Drawings or if such authorisation is made by the Engineer.When it is necessary to splice reinforcement bars at points other than any shown on the Drawings, position and methods of splicing shall be determined based on strength calculations and approved by the Engineer. In lapped splices, the bars shall be lapped 20 times the diameter of the bar or the following, whichever is larger. No hooks shall be required for lap joints, unless otherwise specified.The lap length shall be calculated as follows:

(i) For tension reinforcement bars

$$1 = \frac{f_y}{4\,\tau_{bd}}\,\varnothing$$

where, fy = Yield strength of reinforcement steel.

τbd = Bond strength of concrete.

$\varnothing$ = Diameter of reinforcement bar

1 = Lap length

(ii) For compressive reinforcement bars

80 per cent of "1" calculated by the above formula.

When gas pressure welding of joints is used, the operation shall be made by conforming to the following requirements:

a.The welding equipment shall be so designed as to hold both bars to be jointed in a straight line, applying pressure of more than 3 kg/sq.mm to the contact surface of the bars.

b. The blowpipe shall emit a constant flow of gas, and its diameter shall be suitable for the diameter of the bars to be welded.

c.Oil, rust, paint, and dust shall be completely removed, by a grinder, from the surfaces to be jointed.

d. The edge surface of bars to be jointed shall be inclined to the axis of the bar at more than 80 degrees, and shall be so planed that the clearance between bars being in contact shall not be more than 4 mm.

e.Bars to be jointed shall be butted with pressure of more than 1 kg/sq mm. The pressure shall be increased gradually with heating, until the diameter of the joint portion increases to 1.2 times the original diameter of the bars.

f. The joint portion shall be heated uniformly with more than two blowpipes. Flames shall always completely cover the heated portion.

g. After jointing, the joint shall not be cooled rapidly by rain, etc. Re-jointing shall be made, when inflation of the joint portion is insufficient.

Cover to Reinforcement Steel

The concrete cover to reinforcement shall be as shown on the Drawings, or as directed by the Engineer. Unless otherwise specified on the Drawings, the concrete cover on the steel reinforcement shall be at least 50 mm, if the concrete is subject to exposure to soil or water. In other cases a cover of 40 mm shall be acceptable.The Contractor shall provide any necessary cement pads for ensuring that the cover is attained, and in no case may the use of pebble, pieces of broken stone or brick, or other packing materials be permitted.

9. Earth work (Excavation and Embankment)

All trees, bushes, stumps, roots and rubbish shall be removed from the area designated by the Engineer for earthwork. All the cleared material shall be disposed off in designated areas only.All excavation shall be made in accordance with the general standard specification or as directed by the Engineer and to the grades shown on the drawing or as established by the Engineer the rate for the excavation shall include the cost of excavation, prevention and diversion of flowing water if any hauling and disposal of the excavated material as per instruction. No extra payment shall be made on account of above items unless and otherwise specified.The embankment shall be constructed by taking selected earth materials which shall not contain clay clods lager than 5cm in size, root grass and other rubbish or organic or perishable matter. Lumps of clay shall be broken down to such a size that they do not interfere with the compaction of material. Embankment shall be built in layer not exceeding 25 cm in thickness (loose layer) and to full width of embankments. The embankment shall be properly compacted to achieve 90% of the maximum dry density as determined by the compaction test approved by the Engineer. The distribution of materials shall be such that the compacted material will be homogeneous and free from loose pocket streaks, or other imperfections. The excavation and placing operations shall be such that materials when compacted will be blended sufficiently to secure the best practicable degree of compaction impermeability and stability.After the site clearance the foundation on which embankments are to be built shall be stripped of unsuitable surface soil to a depth of 15 cm or as directed by the Engineer. The trenches and cavities made of removal of unsound foundation materials, deep roots of trees if any, or for inspection of sub-surface materials should be properly compacted. Foundation materials which do not have the prescribed density in undisturbed condition shall be moistened and compacted or shall be removed and replaced as directed.Embankment shall be build to the height and slope as instructed and indicated in the drawing. The finished surfaces of the top and sides shall present an even and neat appearance to the satisfaction of the Engineer.Back filling shall unless otherwise specified be carried out with approved materials and shall be well compacted in 15cm layers to the satisfaction of the Engineer.The contractor shall make arrangements for obtaining fill materials form borrow pits approved by the Engineer. No borrow pits shall be dug within the restricted distance i.e. 25m to 30m Borrow pits shall not be more than 1m in depth and 25m in length. A clear distance of 1m shall be left between the pits.Backfill/Embankments about any structures shall be considered incidental to the embankment construction and shall be placed to the lines shown on the Drawings, as prescribed in this Paragraph, or as directed by the Engineer. The type of material used for backfill, the amount thereof the manner of deposition of the material shall be subject to approval. In so far as practicable back fill material shall be obtained from material removed in excavating for structures, by when sufficient materials in not available from this sources or from adjacent excavation additional material shall be obtained from approved borrow pits.Backfill around or on sides of any structures or Portion of structures, shall be compacted to slopes shown on the drawings from the top of the wall, Provided that where the structure is located in compacted embankment, the backfill shall be compacted to the elevation prescribed for the adjacent compacted embankments.To avoid interference with the construction of abutment, wing wall or turn wall the contractor shall at points to be determined by the Engineer, suspend work on embankments forming approaches to such structures, until such times as the construction of the later

is sufficiently advanced to permit the completion of approaches without the risk of interference or damage to the works.Unless directed otherwise, the filling around the structures shall be carried out independent of the work on the main embankment. The fill material shall not be placed against any abutment or wing wall unless permission has been given by the Engineer but in any case not until concrete or masonry has been given by the Engineer but in any case not until concrete or masonry has been in position for 14 days. The embankment shall be brought up simultaneously in equal layer on each side of the structure to avoid displacement and unequal pressure. The sequence of work in this regard shall be approved by the Engineer or as specified by the Engineer.The material used for back filling shall be suitable material for embankment unless otherwise specified, obtain from excavation for structure and rivers or from borrow areas as directed. Backfilling shall be placed in every 20cm. Layers and thoroughly compacted. Unless otherwise specified. Topsoil vegetation or other organic materials shall be excluded from backfilling materials.Where the provision of any filter medium is specified behind abutment the same shall be laid in layers simultaneously with the lying of fill material. The material used for filter shall confirm to the requirements for filter medium spelled out in stone protection unless otherwise directed by the Engineer.Where it may be impracticable to use the specified tempers the compaction shall be carried out by special compactors. Care shall be taken to see that the compaction plant does not hit or come too close to any structural member so as to cause any damage to them or excessive pressure against the structure.In placing and compacting backfill or embankment adjoining concrete pipes or small structures, sufficient material shall be carefully placed and compacted in layer equally along the sides of the pipes or structures in order to firmly establish line and grade before placing and compacting the adjoining embankment. The Contractor shall be responsible for any damage to structures caused by this operating in placing or compacting embankment or backfill material adjoining to structure, and shall repair damage to the full satisfaction of the Engineer. Construction traffic shall not use the prepared surface of the embankment without the prior permission of the Engineer. Any damage arising out of such use shall however, be made good by the contractor at his own expense.Embankment (and incidental backfill construction) shall be measured by taking cross sections at intervals in the original position before the work starts and after its completion and computing the volumes of embankment in cubic meters by the method of average end areas.The measurement of embankment to filling will be carried out as per embankment of filled section established after proper compaction as per specification. For the work of embankment filling no separate Payment will be given for borrow excavation.The contract unit rate for the embankment (including any incidental backfill construction) shall include the following:

- Setting out
- Compaction of original ground
- Scrapping or cutting continuous horizontal benches 0.20m wide on side slope of existing embankment or slopes as applicable.
- Compaction to specification requirements along with proper watering as required for maximum compaction.
- Shaping and dressing top and slope of the embankment and backfill including rounding off corners.
- Working or narrow widths of embankments.
- Restricted working as sites of structures.
- Excavation in all soil from designated borrow areas and transportation in all soil from designated borrow areas and transportation of the material to embankment site within all lifts and leads unless and otherwise specified and laying and spreading to proper slope & grade for compaction.
- All labour, material, tools equipment and incidental necessity to complete the work to the specification

10. Concrete works

Concrete

Concrete shall consist of cement, graded aggregate and water thoroughly mixed and compacted to provide strength as detailed below or as directed by the Engineer or as specified in the approved drawings.

Mix. Proportion Cement/Sand/Coarse Aggregate	Minimum Compressive Strength of Concrete after 28 days
1:2:4	150kg/cm2
1:1.5:3	200kg/cm2
1:3:6	100kg/cm2

The proportion shown in the table above is given, as a guide to mix ordinary needed to achieve the specified strength. The Contractor shall have to perform mix design for particular batch of cement and aggregate to achieve the required strength for important concrete works if required by the Engineer.

Machine Mixing

The materials for concrete shall be mixed in an approved mechanical mixer. The mixing time for each batch shall be about 3 minutes. The mixer shall not be loaded beyond their rated capacity nor shall be operated as a speed in excess of that recommended by the manufacturer. All mixing equipment shall be cleaned before commencing mixing and shall be kept free from set concrete. Mixed concrete shall be unloaded on impervious platform.

Hand Mixing

Where it is not possible to employ machine mixing and approval has been obtained from the Engineer, concrete shall be mixed by hand as near as practicable to the site where it is to be placed. Clean mixing platforms of sufficient areas for the proper execution of the work shall be provided. Cement and sand shall first be mixed dry on the platform and then dry mix shall be spread over the coarse aggregate uniformly and the hold mass shall then be mixed thoroughly turning over backwards and forwards. The water shall be entirely turned over in a wet state at least three times before being placed in site.

Placing and Compaction
Preparatory Works

The Engineer's approval in writing shall always be obtained before any concrete is placed in the Works. The formwork or area of disposition shall be cleaned as specified in Sub-Clause Formwork. All construction equipment and materials required, or which may be required, during the concreting work and for cooling and curing, shall be on site and fully prepared for the work. The Engineer's approval to place concrete will only be given after all these preparations and other relevant requirements of the Technical Specifications have been carried out and complied with.If concreting is to be executed at night or when otherwise daylight is not sufficient, the Contractor shall provide for sufficient lamps on site so that all elements of the site relevant for the concreting will be clearly visible.Struts, stays and braces, serving temporarily to hold the formwork for structures in correct shape and alignment, pending the placing of concrete at their locations, shall be removed when the concrete placing has reached an elevation rendering their services unnecessary. These temporary members shall be entirely removed from the formwork and not buried in the concrete. If necessary and/or directed by the Engineer, the Contractor shall cool any formwork that has become overheated or exceptionally dry through prolonged exposure to the sun. The Contractor shall ensure that all shuttering retains sufficient humidity content and does not become shrunken or warped. All soaking or spraying of shuttering shall be done with pure water. The Engineer may forbid altogether the placing of concrete in any formwork which he

judges has become too hot and/or dry and that concrete members cannot be satisfactorily produced there from. No extra payment for cooling or soaking formwork shall be claimed, and costs incurred by the Contractor, due to shuttering becoming too hot or dry, shall be deemed to be included in the rates.

Depositing in Works

The methods of conveying and depositing concrete shall be such as to prevent segregation of the materials, and shall be approved by the Engineer before concreting begins.

Concrete shall be deposited directly in the Works, without the need for rehandling, as soon as possible and not more than 20 minutes after mixing and, in any case, before the initial set has taken place. If any delay has occurred after mixing and the concrete has begun to set, it shall not be used in the Works and shall be removed from the Site. Normally, concrete for structures may be deposited at a maximum vertical height of 1.50 metres without the use of tubes, provided suitable measures are taken to prevent segregation and premature coating of upper reinforcing steel. When placing operations involves dropping concrete from more than 1.50 m height, it shall be deposited through sheet metal slides or other approved pipes. As far as practical, the pipes shall be kept full of concrete during placing and their lower ends shall be kept buried in the newly placed concrete.Concreting of any section or unit of the Works shall be carried out in one continuous operation and no interruption of the concreting will be allowed without the approval of the Engineer.Where deposition of concrete has to be interrupted, precautions shall be taken to ensure satisfactory adhesion of later batches of concrete to that previously placed. Where delays of more than one hour occur between successive concreting operations in one section or unit of Works, concreting shall only be resumed when, in the opinion of the Engineer, the previously placed concrete has had ample time to harden and the resulting joint shall be treated as a Construction Joint within the meaning and description of the Sub-Clause 5.9.1.1. When concrete is being placed, a competent steel fixer shall be in continuous attendance to adjust and correct the position of any reinforcement which may be displaced. The Contractor shall take care that during, and immediately after, depositing in the work of the concrete, the concrete will not be contaminated by dust, organic matter or other foreign material. Concrete that, in the opinion of the Engineer, has been contaminated will be regarded as inferior and shall be dealt with as described in Sub-Clause 5.3.2.9.Transportation of concrete directly over the fixed reinforcement during the depositing shall not be allowed without proper provisions to avoid displacing or any other harm to the reinforcement.

Depositing Concrete under Water

A retarding agent shall be added to the concrete, and Portland blast furnace slag cement (BS 12) shall be used. The cement contents shall not be less than 400kg/cu.m of concrete. The consistency shall be such that the concrete will flow out evenly from the tremie tube.Concreting shall commence immediately after approval of the bottom of the wall and after the reinforcing cage has been placed. If concreting has not been started within four hours after cleaning the bottom of the wall, the cleaning shall be repeated at the Contractor's expense. Continuity of concrete placing is essential and a continuous rate of at least 20 cu.m concrete per hour is desirable.Concreting of a wall shall be carried out without construction joints and executed under bentonite by the tremie method. The bentonite level within the wall shall be kept at a constant elevation, well above ground or water elevation outside the casing. The tremie tube shall be filled with concrete while slowly lowering a valve or plug. The tremie tube shall, at all times, be kept full of concrete up to the bottom of the hopper, while the discharge end shall be kept sufficiently submerged (2 to 6 m) in already deposited concrete to prevent surging of bentonite into the tube. The location of the discharge of the tremie tube, relative to the surface of deposited concrete, shall be kept under strict supervision at all times. If, by accident, the concrete in the tremie tube sinks below the bottom of the hopper, the tube shall be refilled in such a way that no air or bentonite is trapped in the tube.The first 0.5 cu.m of concrete to be deposited in a wall may consist of grout, with a consistency and quality corresponding to the rest of the concrete in the wall.Concreting shall be continued to such a level above the theoretical cut-off elevation (minimum 300 mm) in order to ensure the concrete below this cut-off elevation is of a satisfactory quality. The cut-off elevations are as shown on the

Drawings unless otherwise directed by the Engineer.After one week of hardening of the concrete the top of the wall shall be cut-off at the theoretical cut-off elevation without damaging the reinforcement or the concrete under the specified cut-off level, and in such a way as to produce a horizontal bearing surface.

Depositing in Layers

Concrete shall be deposited in approved quantities and in horizontal layers of such thickness as to permit thorough compaction, expel air and bond with the layers below. However, in no case shall the thickness of the layer be deeper than 0.30 m. Each layer shall be placed and consolidated before the preceding batch has started it's initial set.If, for unforeseen reasons, it is necessary to stop concreting before completion of the layer then construction joints as specified shall be formed and further concreting will be suspended for at least 24 hours.

Compaction of Concrete

All concrete shall be thoroughly compacted immediately after deposition to expel air and to ensure the concrete is in full contact with all contained and embedded surfaces. Vibrators shall be used for compacting, unless otherwise specified or ordered by the Engineer. The type of vibrator to be used is subject to the approval of the Engineer. Vibrators of the immersion type shall have a frequency of 5,000 - 8,000 vibrations per minute for concrete with a slump of more than 80 mm and a frequency of 9,000 - 12,000 vibrations per minute for concrete with a slump less or equal to 80 mm. The Contractor shall provide a sufficient number of vibrators to properly compact each batch immediately after it is placed in the formwork.The Contractor shall also provide at least a 50 per cent duplication of all vibration equipment as standby during any period of concreting.Vibrators shall not be allowed to come into contact with the reinforcement or formwork and great care shall be taken to avoid over-vibration causing segregation or pockets in the finished mass. All personnel handling vibrators shall be trained in their proper use.Vibration shall not be applied directly or through the reinforcement to sections or layers of concrete which have hardened to the degree that the concrete ceases to be plastic under vibration. It shall not be used to make concrete flow in the formwork over distances so great as to cause segregation, and vibrators shall not be used to transport concrete in the formwork.Every care shall be taken to see that reinforcement and fittings attached to the formwork are not disturbed and that no damage is caused to concrete that has already set or to the internal face of the formwork by using immersion type vibrators. In areas of congested reinforcement, it may be necessary to use small diameter pokers and the Contractor shall supply suitable sizes of pokers for each part of the work. Vibration of concrete by hammering the formwork with hand tools shall not be permitted.Concrete that, in the opinion of the Engineer, has been compacted in a way that does not conform with the Technical Specifications as described above will be regarded as inferior.

Construction Joints

Construction joints shall be made only where located on the drawings prepared by the Contractor and approved by the Engineer. Construction joints shall be formed only on horizontal planes.

Concreting in Unfavourable Weather

Concreting shall not be permitted during heavy rain or stormy weather or when the concrete temperature rises above 32□C on discharge from the mixer. When the air temperature exceeds 25□C, concreting will only be permitted after special precautions, approved by the Engineer, have been taken to prevent early setting of the concrete, such as using chilled mixing water, keeping the aggregates and shutters continuously sprayed with water and erection of temporary sun shades over the working area. During concreting operations, the temperature of the placed concrete shall be recorded. The minimum internal temperature of the concrete within 24 hours after casting in place should not be more than 30□C in excess of the ambient temperature or more than 60□C.Since the temperatures in the project area frequently exceed 25□C the Contractor shall submit a Method Statement, describing all special precautions as described above for the approval of the Engineer.The measures to be taken shall generally comply with the requirements and/or recommendations as described in ACI 305-R77 ("Hot weather concreting").All cracks wider than 0.3 mm caused by thermal

stresses or other causes shall be repaired by the Contractor, by injecting epoxy-resin with a low viscosity. The epoxy resin shall be subject to the Engineer's approval. Any additional cost in connection with the above mentioned preparations and injections with epoxy-resin shall be included in the unit rate of concrete works.

Curing of Concrete

Until a period of 7 days has elapsed from the time of placing the concrete, it shall be kept protected against loss of moisture, rapid temperature change, rain and flowing water, mechanical injury and contamination by airborne dust and/or sand. All methods to be used for curing and protection of freshly placed concrete shall be subject to the prior approval of the Engineer. These methods shall include the use of curing membranes, watering, damp covers, shades and/or any other precautions that the Engineer may require.Curing membranes shall be sprayed on the surface of the concrete as soon as all free water has evaporated from the surface. In the case of forms that have been eased or struck before 7 days have elapsed from the date of placing concrete, the curing membranes shall be applied immediately after the shutter has been removed. In the case rain falls on the newly coated concrete before the film has dried sufficiently to resist damage, or if the film is damaged in any other manner, a new coat of the solution shall be applied to the affected portions. The Contractor shall submit details of the curing procedure he proposes to use, to the Engineer for his approval. During very hot weather conditions, the Contractor may be required to cool and/or wet formwork containing concrete by spraying with water and this shall be carried out where directed notwithstanding and whatever other measures the Contractor may employ for the curing of the concrete. All materials spray equipment and an ample supply of water for curing shall be ready on site before any concreting starts. The Contractor may submit for the Engineer's consideration alternative methods of curing which will achieve a result at least as good as those specified, and the Engineer shall approve or reject such alternative methods without any reason being given. Concrete that is, in the opinion of the Engineer, not cured according to the approved curing procedure will be regarded as inferior

Faulty Work

Any portion of the work which is honeycombed or otherwise inferior shall, on the written instruction of the Engineer, immediately be cut out and reconstructed in an approved manner without extra charge. Plastering of defective Works shall not be permitted.

Record of Concreting

All pre-cast concrete elements shall have the date of casting engraved on them before the concrete has fully hardened. Any undated elements may be liable to be rejected by the Engineer. The Contractor shall take all measures necessary for the curing and protection of the elements after fabrication.

Cast-in Parts

The cast-in parts, such as lifting lugs, steel plates to fit the Rubber Seals, nosing angles, supporting structures, etc. shall be fixed in the positions as indicated on the Drawings or as directed by the Engineer.Anchor bolts must be free from rust, dirt or grease and be properly stored before using. The delivering, processing and fixing of the cast-in parts shall be deemed to be included in the rates for the steel structures.

Blockouts

Concrete blockouts shall be formed where metalwork and other various items specified under the Contract are to be installed by the Contractor. Where blockouts are to be made, the concrete surfaces shall be chipped, roughened, cleaned and kept moist for at least 4 hours. After such surfaces have been approved by the Engineer and the metalwork and such other items as specified above have been installed in position, the Contractor shall place reinforcement (if required) and cement concrete of M15 grade or concrete of the same type as that specified for the surrounding concrete, which ever is of a higher grade.If blockouts are filled with concrete as specified above, care shall be taken that the freshly placed concrete is tightly bonded to the previously placed concrete and that complete adhesion between the concrete and all metalwork and other

items in the blockouts is obtained.The cost of making and backfilling blockouts shall be included in the unit rate of the respective concrete types in the Bill of Quantities.

Grouting

All grout required to be used for spaces under ready made equipment metalwork (gates, guides etc.,) or as may be required by the Engineer shall be furnished by the Contractor. Unless otherwise specified, all materials shall conform to the requirements specified herein for concrete. Grout shall consist of one part Portland cement tothree parts sand by volume with sufficient water to obtain a consistency suitable for the intended use. All grouting operations shall be performed in the presence of the Engineer.

11. Form Work

General

Formwork shall include all temporary moulds for forming the concrete, including the 'herring bone' steel, together with all temporary structures required to support such moulds. The Contractor shall submit drawings and calculations showing details of the formwork he intends to use, to the Engineer for approval. The drawings and calculations shall be in accordance with the provisions stipulated in Sub-Clause 1.04.3 of these Technical Specifications.The drawings shall show the materials proposed and indicate details of construction, such as sizes of members and spacing, and position of waling, struts, bolts and wedges. Formwork shall not be constructed until the drawings and the calculations, if applicable, have been approved by the Engineer. Such approval shall not relieve the Contractor of the responsibility for the sufficiency of the formwork. Any changes or modifications to the formwork required by the Engineer shall be borne by the Contractor.Formwork shall be of suitable design and substantial construction to carry the loads resulting from placing and vibrating wet concrete and any incidental loads such as construction loads, wind and other forces, without inadmissible bulging, distortion or deflection. Formwork shall be sufficiently tight to prevent loss of water or mortar from the concrete. Special attention shall be paid to formwork where pokers or shutter vibrators are to be used.

Materials for Formwork

Formwork for the concrete structures shall be made from timber or plywood or steel. The timber or plywood shall be resistant to deterioration by water and shall be fixed and jointed in such a manner as to give a perfectly smooth and even finish to the concrete. It shall have a thickness of not less than 17.5 mm incase of timber and of 9mm for plywood. The steel formwork shall be accurately aligned and with close fitting joints. The outside of the steel formwork shall be painted in a light colour to prevent extreme temperatures due to solar radiation.Only with the approval of the Engineer can formwork be made from good quality seasoned timber, free from loose knots, shakes and warped surfaces.This timber shall not be less than 30 mm in thickness and the board faces in contact with concrete and the board edges shall be planed smooth and joints shall be tongued and grooved.The Contractor shall submit to the Engineer, before commencing construction, a set of forms complying with the above requirements, but such submission to the Engineer or approval by him shall not relieve the Contractor of any of his responsibilities under the Contract for the successful completion of the structure.

Fixing of Formwork

Formwork shall be fixed in perfect line and true plane, with no crevices and joints, and shall be securely braced, supported and wedged so as to retain its position without displacement or deflection during the placing and compaction of the concrete.

Joints in formwork shall be made so that no leakage of grout can occur from the concrete. All joints shall be either horizontal or vertical, unless the form of the finished concrete requires them to be otherwise. Chamfers measuring 30 mm by 30 mm are to be made to all exposed edges of concrete, unless otherwise indicated in the Technical Specifications or ordered by the Engineer.

Subject to the approval of the Engineer, internal ties may be used. All such fastening shall be so arranged that when the forms are removed, no metal left permanently in the work shall be within 50 mm of any surface.

The use of wire ties for supporting the forms shall not be permitted in concrete walls which are to be subject to water, or when the finished surface, required as determined by the Engineer, is to be permanently exposed; wire ties used for other concrete works shall be cut off flush with the concrete surface, after the forms are removed.

Connections shall be so formed as to permit the easy removal of the forms without hammering, etc., and without the necessity of levelling against the surface of the concrete.

Adequate access holes shall be left for the purpose of inspecting, cleaning out the forms and for placing and compacting the concrete.

Scaffolding (if required) shall be firmly constructed to the satisfaction of the Engineer. No separate payment shall be made for scaffolding.

Before placing any concrete, all bolts and the like (if required and which are to be built in) shall be fixed in their correct positions, and cores and other devices for forming holes, openings, etc., shall be fixed to the forms. No holes shall be cut in any concrete unless approved by the Engineer.

Surfaces of the forms to be in contact with concrete shall be free from adhering foreign matter, projecting nails and the like, grooves, splits or other defects.

A non-staining commercial mineral oil or other approved material shall be applied to the faces of the forms before concreting to prevent adherence to the concrete. Care shall be exercised to prevent the material applied to the faces of the forms from coming in contract with the reinforcement, but if this should inadvertently occur, the reinforcement shall be cleaned to the satisfaction of the Engineer.

When forms have been built and have been prepared ready for concreting, they will be inspected by the Engineer and no concrete shall be placed until the forms have been approved by him. In order to avoid delays in obtaining approval, the Contractor shall inform the Engineer, at least 24 hours in advance, of his intention to have the forms ready for inspection.

Dimensional Tolerances

Any deviation on the minus side in measurements of the finished concrete works is not permitted.Unless specifically indicated on the duly approved Drawings, tolerances on the plus side can only be accepted up to a range of 4% at the most with a maximum of 5 mm.

Cleaning and Re-using of Shuttering
Before any concrete is placed, the forms shall be properly cleaned and washed out with water and air under pressure to remove saw-dust, shavings and all other foreign matter. All water shall then be trained and mopped out from the formwork. If side forms are to be re-used, all surfaces shall be cleaned and shall be completely free from remains of concrete or mortar. If, in the opinion of the Engineer, moulds are not acceptable for re-use, they shall be either properly repaired or be substituted by other moulds. Substituting moulds shall comply with the requirements as specified above.

Removal of Forms
Forms shall be removed only under skilled supervision and in such a manner as to not damage the concrete. Forms shall not be removed before the concrete is sufficiently set and hardened. Nevertheless, the forms shall not be struck without the prior approval of the Engineer. The minimum periods which shall elapse between placing concrete and the removal of the forms are given in Table 5.8.

Table 5.8: Removal of Forms

Type of formwork		Minimum net period before removal in days
Vertical :	Columns and walls	2
Soffit :	Slabs	5
	Beams	8
Drops :	Slab	16
	Beams	18

Compliance with the above requirements shall not relieve the Contractor of his obligation to delay the removal of the forms if the concrete has not sufficiently set. Due to variations in site temperatures and depending on the curing conditions, the Engineer may, at his discretion, vary the time listed above.Any damage to the concrete, which may occur by the removal of the forms or by overloading, shall be fixed at the Contractor's expense and to the satisfaction of the Engineer.

Finishing of Concrete
Surface finishing shall be classified as follows:

- Ordinary finish;
- Wire Brush finish.
- Power Trowel finish

Ordinary Finish

If not otherwise specified, exposed surfaces shall be given an ordinary finish.Immediately following the removal of forms, fins and irregular projections shall be removed from surfaces. On all surfaces, the cavities produced by form ties and all other holes, broken corners or edges, and other defects shall be thoroughly cleaned, and after having been thoroughly saturated with water shall be carefully pointed and trued with an approved non-shrinkable polymer modified cement mortar with at least the same qualities of the adjacent concrete. The concrete shall then be rubbed if required or cured. Construction joints in the work shall be left carefully tooled and free of mortar and concrete. The resulting surfaces shall be true and uniform. Exposed surfaces not protected by forms shall be struck off with a straight-edge and finished with a wood float to a true and even surface The use of additional mortar to provide a grout finish will not be permitted.

Wire Brush Finish

All surfaces that will come into contact with cementitious grout or epoxy bonding grout shall be ridged finished by means of a wire brush. As soon as the forms are removed, and while the concrete is still comparatively green, the surface shall be thoroughly and evenly scrubbed with stiff wire or fibre brushes, using a solution of muriatic acid in the proportion of one part acid to four parts of water until the cement film or surface is completely removed and the aggregate particles are exposed, leaving an even pebbled texture presenting an appearance grading from that of fine granite to coarse conglomerate, depending upon the size and grading of aggregate used. When the scrubbing has progressed sufficiently to produce the texture desired, the entire surface shall be thoroughly washed with water to which a small amount of ammonia has been added, to remove all traces of acid.

Power Trowel Finish

Where indicated in the drawings as power trowel finish, the surface will be finished with a steel trowelled 3 mm thick floating coat of neat cement. Immediately after trowelling and removing excess laitance, a well-mixed cement slurry consisting of ordinary Portland cement or coloured cement and water solution shall be mixed with hardener and sprinkled over the surface in a uniform layer at maximum rate of 2.5 kg per square metre. The cement slurry shall then be steel trowelled perfectly smooth.

12. Gates, Trash rack and Gate Hardware

Design, Drawing and Data

No drawings other than those included in the Bidding Documents shall be provided by the Employer. The Drawings provided show general details only. The Contractor shall therefore prepare the necessary detailed Design Drawings and data required for the fabrication and installation of the gates/trash rack and other metalworks. Steel gates/trash shall be designed/fabricated by a firmwhich has reasonable past experience. If the Contractor lacks sufficient experience in fabricating gates/trash, a specialist firm shall be engaged.Any fabrication or procurement, prior to approval of the design, drawings and the relevant data, shall be at the Contractor's own risk. The Engineer has the right to order the Contractor to make any change in the design, drawings and data so as to make the gates/trash and metal works conform to the requirement of the under mentioned specifications without additional cost to the Employer. However, approval from the Engineer on the Contractor's design, drawings and data shall not relieve the Contractor of any part of the Contractor's responsibility.Before proceeding with fabrication or procurement of gates and metal-works, the Contractor shall submit two (2) sets of the drawings and data showing specification of materials, assembly, lift capacity and detailed dimensions to the Engineer for approval.The costs of preparing the design, drawings and data, and submitting such things to the Engineer shall be included in the unit rates in the Bill of Quantities for furnishing and installing the gates/trash and other metal-works.

Design to Suit Climate

The water control equipment to be supplied, shall be designed with due regard to the climatic conditions prevailing in the Project area, particular care being taken to accommodate expansion and contraction due to temperature changes. Water control equipment shall be suitable for operating in ambient air temperatures from 5° C to 45° C but parts exposed to the sun may reach higher temperatures.

Materials, Stresses and Workmanship
The water control equipment shall be designed and constructed in accordance with the requirements of BS 153 except where inconsistent with the terms of the Specifications. The deflection of gates/trash shall be restricted to 1/600 of their clear span.

Minimum Thickness
An allowance of 2 mm shall be added to the thickness of gates/trash skin-plates/screening members over and above the calculated thickness required to meet the design stresses, but in no case shall the actual skin-plate thickness be less than 8 mm, unless otherwise shown on the Drawings.Unless otherwise shown on the Drawings, plates (other than skinp-lates) rolled steel angles and tee sections used in the construction of gates shall have a minimum thickness of 10 mm and the webs of rolled steel beams and channel sections shall have a minimum thickness of 9 mm.Unless otherwise shown on the Drawings, metal-works which will be permanently or semi-permanently submerged, such as that used for embedded guides, frames, etc., shall have a minimum thickness of 10 mm, with the exception of rolled steel beam and channel sections which shall have a minimum thickness of 7.5 mm.

Gates/trash rack Design
Each gates/trash shall be designed to withstand and operate against the seating head of water specified on the relevant Drawings with no water downstream and of being raised clear of the orifice soffit.Each gate shall consist of framing incorporating guide grooves, sealing faces and a spindle guide bracket supporting members specified on the Drawings, movable gate leaf with sealing faces and operating gear.

Framing and Gear Supporting Members
The gates/trash framing shall consist of steel guide grooves fabricated from a standard MS sections with sill, lintel and spindle guide bracket supporting members, where specified on the Drawing, and shall all be connected to the grooves by bolts at their ends.Gear for supporting members shall be angle sections or other suitable sections connected to the grooves by bolts at their ends.The groove members shall extend upwards to support and guide the gate throughout its travel and shall be arranged for bolting on to the concrete headwall, or casting into gate slots, as shown on the Drawings.The framing shall be fitted with machined non-ferrous or stainless steel faces upon which the gate shall slide and seal. Arrangements shall be incorporated to permit the framing to be accurately aligned and levelled and finally held in position before being grouted to the concrete headwall, or gate slot filled with concrete.The gear supporting members shall be designed to resist the loads resulting from operating the gate.

Gate
The gate shall consist of a steel skinplate supported by horizontal stiffening members connected to vertical side guiding and stiffening members contained within the grooves. Arrangements shall be provided for attaching the gate to the operating spindle by a non-ferrous hinge pin.

Slide Gates - The gate shall be fitted with machined non-ferrous sliding faces and approved rubber seals, as detailed on the Drawings, to achieve an effective watertight seal.

Roller Gates - The gate shall have cast iron self-lubricating rollers with ARMCO “Lubrite”, or similar, bushings.

Operating Gear
The operating gear shall consist of a hand operated self-sustaining gear capable of operating the gate against the maximum water loading conditions specified, and capable of positively holding the gate in any position when the handwheel or crank handle is released. The operating gear shall be capable of being operated by one man. The gear units shall consist of a bronze operating nut engaging with a mild steel operating screw attached to the gate. The lifting mechanisms shall be either Armco type HB 18 to 24 Armco type for gates

requiring only a single lifting mechanism or Armco type CPE 2 or 4 for gates requiring tandem lifting mechanisms with one stem left threaded and one right threaded. Other proprietary lifting mechanisms of equivalent specification to the Armco units can be supplied with the prior approval of the Engineer.All gear sprockets and pinions shall be machine cut with ratio and strength adequate to withstand operating loads. Gears shall be enclosed with casings to avoid dust and rain. To prevent unauthorised use, operating gear shall be provided with appropriate locking devices.The lift housing or handwheel shall be provided with a cast-in direction arrow and the word "OPEN" to indicate the direction of operation, to open gates. Lift mechanisms shall be provided with a cast iron stop nut to allow adjustable end-stop travel.

Bolted Joints
The Contractor shall supply all the necessary bolts, nuts, washers etc, for fixing the metalwork, together with a suitable number of spare bolts, nuts and washers. Bolted joints subject to vibration shall be securely locked.All bolt holes shall be drilled and the outside edges slightly countersunk.Friction grip bolts, nuts and washers shall comply with BS 4604, Part 1. They shall be used on all bolted joints which are liable to vibrate and elsewhere to the approval of the Engineer.

Field Connections
Field connections shall, whenever possible, be bolted connections. Welded field connections will be permitted where it is considered by the Engineer impractical to form bolted connections, in which case the weld preparation shall be carried out in the manufacturer's works before despatch and the prepared surfaces shall be fully protected for transport to, and storage on, the Site. The Contractor shall supply the electrodes for completing the connections on site.Connections to be welded at Site shall be made by the Contractor's welders using their own welding plant.

Standardisation and Maintenance
Wherever possible, corresponding parts shall be finished with sufficient accuracy to ensure that they are interchangeable, and where required by the Engineer interchangeability shall be proved by actually changing the various parts.The design shall be such that all parts of the installations are accessible for inspection and maintenance and for use where continuity of operation is a first consideration. Drainage holes shall be provided in members which are likely to collect or retain water.

Advance Delivery of Anchor Members, etc.
Anchor members, seating plates etc. for building into primary concrete work to facilitate alignment and fixing of embedded parts shall be supplied by the Contractor and delivered in advance of the remainder of the parts, in accordance with a programme arranged by the Contractor and agreed by the Engineer to fit the overall construction programme.

Preparation and Storage of Bolts
Before they are despatched to the Site, the Contractor shall protect all bolts (other than rag-bolts, Lewis bolts and galvanised bolts) by heating them and dipping them while hot into boiled linseed oil, or shall provide such other protection as may be approved by the Engineer. The Contractor shall pack the bolts carefully so that the threads do not become damaged or dirty during delivery, storage and transport to Site.

Packing and Marking
The Contractor shall pack, mark, and as necessary protect, all parts for delivery, unloading, storage and subsequent transport to Site in accordance with the relevant section of BS 1133.

Attention shall be given to the protection of parts which are liable to deterioration in the climatic condition prevailing in the Project Area, and the form of packaging shall be such that no damage to the equipment shall result from normal handling or prolonged storage in the open.

Small parts shall be boxed and suitably marked on the outside. Larger parts shall be protected as necessary and shall be suitably marked and listed.Lists of contents of crates, boxes and bunches shall be supplied and shall be handed over to the Engineer on delivery of each consignment.Attention shall be given to the method of marking sub-assemblies and other components to assist in identifying them at Site. The method of marking

employed shall enable any particular component or sub-assembly to be easily identified from the Contractor's Drawings and also from the shipping specification.Where practicable, components for each individual site shall be packed separately so that all items required for each site may be easily separated and transported to individual sites.

Erection at Place of Manufacture

Each gate and operating gear shall be fully assembled at the place of manufacture for inspection by the Engineer and, if considered necessary, testing before despatch. The Contractor shall arrange for the manufacturer to give the Engineer, in writing, a minimum of fourteen (14) days' notice prior to the date when the assemblies will be ready for inspection. No parts shall bedespatched from the manufacturer's works until they have been marked to ensure correct re-assembly at Site.

Inspection at Place of Manufacture

Inspection of materials, workmanship, manufacture of the gates, and the trial assembly of components at the place of manufacture, in accordance with the preceding Sub-Clause of these Specifications, shall be carried out by the Engineer at his discretion and shall include the following:

a. Checks on steel and other materials used to ensure compliance with accepted standards. Manufacturer's chemical analysis sheets and report sheets showing results of tests on any physical properties which may be called for.

b. Dimensional checks to ensure conformity with approved Drawings.

c. Weld inspection and testing where required.

d. Inspection of cleaning and painting of steelwork.

e. Witnessing erection and testing at the manufacturer's works.

f. Inspection of method of packing components for despatch.

Instructions for Site Erection

As soon as practicable four (4) sets of instructions, detailing the method of Site erection of the various types of Water Control Units to be supplied under the Contract, shall be furnished by the Contractor and handed over to the Engineer. The instructions shall be in English and shall refer to identification marks on the various components.

Operating and Maintenance Manuals

Manuals with sufficient detailed instructions, in English, for operating and maintaining the various items of water control shall be provided by the Contractor. The Contractor shall prepare a draft of the instructions for the approval of the Engineer, and thereafter shall supply six (6) sets of the Manuals, together with any relevant reduced-scale drawings, catalogues, parts lists etc., on stout paper bound into durable covers for use at the various sites.The manuals shall be provided as soon as possible after the delivery of the water control units.

Spare Parts, Special Tools, etc.

Spare parts, as recommended by the manufacturer, together with any special tools, grease guns, etc. required for maintaining the gates, shall be provided and delivered to the store at the Project Office in Nepalgunj. The spare parts shall generally consist of one (1) set of all gate fittings, seals, etc., sufficient to fit up one gate of each type, together with recommended spares.

Storage of Fabricated Metalwork

Fabricated steelwork when stored at the Works, and at the Site, shall be properly laid out and stacked in an orderly manner. The method of stacking shall ensure that the steelwork is kept clear of the ground and that no

pools of water or debris can collect thereon; each layer shall be separated from adjacent layers by stout timber battens or packings.

Erection of Metalwork

The erection of the metalwork at the Site shall comply with BS 449, Part 5 and be in accordance with the recommendations of BS 5531. When lifting and fitting metalwork into position care shall be taken that the parts thereof are not strained, twisted, bent or damaged in any way whatsoever. Should any parts be strained, twisted, bent or damaged they shall be rectified in such manner as the Engineer may approve. Any parts that are, in the opinion of the Engineer, too badly damaged for rectification in the manner aforesaid shall be replaced by new material. All rectification and/or replacement shall be carried out at the Contractor's own cost.The stacking of metalwork, or the individual parts thereof, that are stored in positions as may, in the opinion of the Engineer, cause damage to any of the members or parts thereof or to any portion of the Works, shall not be permitted.Proper and suitable slings, blocks, tackles, shear legs, derricks, cranes and other types of lifting appliances and equipment shall be provided, whenever needed for the erection of the metalwork and the use of all such equipment shall be in accordance with the recommendations of CP 3010. Every care and precaution shall be taken to ensure the safety of all persons engaged in such work and to prevent damage to any metalwork in the process of being erected or already erected or to any part of the Works from the results of any mishap, failure, breakdown or other accident to any of the aforesaid lifting appliances and equipment. The lifting of metalwork in bundles or in such quantities or in any manner which, in the opinion of the Engineer, is liable to cause damage or strain or is in any way considered to be insecure or unsafe shall not be permitted.The use of high strength friction grip bolts and nuts in the erection of metalwork shall be generally in accordance with the provisions of BS 4604: Part 1, except that the method of tightening load indicating bolts or bolts incorporating load indicators shall be in conformity with the manufacturer's instructions.

Testing after Erection

After erection, the Contractor shall check that the gates and gate hardware are complete and in working order, and satisfactorily fulfils the purpose for which it is intended.The Contractor shall test all gates to the satisfaction of the Engineer. Each gate shall be made to move through a full cycle of operation using the equipment specified for the purpose, unless otherwise instructed, and each gate when closed shall affect a watertight seal to the approval of the Engineer.

Painting of Gates/ Trash racks

The painting of gates/ trash racks shall be done as specified in the Clause 7.2 Protection of Metalworks of the Technical specification

13. Gabion

Gabions shall consists of wire netting double knotted to from a hexagonal mesh of 100 mm X120 mm. Unless and otherwise specified in the BOQ. The stone for filling gabions shall be hard clean stone of one-man size i.e. between 20 cm & 35 cm. The minimum weight of Zinc coating per unit area of uncoated wire surface shall be at least 135 gm/m2. The tensile strength of the wire shall be between 290 to 540 N/mm2.To meet the required length of apron and slope protection, dimension of gabion boxes other than specified may also be fabricated as directed by the Engineer.

Laying of Gabion Mattress

Before placing position the gabions shall be stretched their full size and shall be wired at all edges. Each gabions shall be made of standard galvanized iron wire fulfilling the specifications and wired with adjoining gabions. Each gabion shall be carefully packed by hand with stone so placed as to minimize voids. After stuffing the stone, the mouth of the gabion shall be closed by means of galvanized iron wire net. Where it is shown on the Drawings or directed by the Engineer, filter cloth or equivalent approved by the Engineer shall be placed under the gabion mattresses. Regardless of numbers, size and weight of the boulders measurement

for payment of gabion mattress will be made at the unit rate per sq. meters. The unit rate shall include all costs of collecting and loading onto truck, in quarry, hauling, unloading, storing of boulders, supply of materials and knitting of wire baskets, packing boulders into wire baskets and placing the mattress to the place including furnishing filter cloth under the mattress, if any.

14. Concrete Block Pitching

Materials

The concrete blocks for pitching shall be cast-in-situ to the sizes specified using concrete class M10. The dimension of the blocks shall as shown on the drawings or such dimensions as ordered by the Engineer. The blocks shall be placed on a prepared gravel backing, 0.20m or 0.30m thick or as the Engineer directs otherwise, to a true and even surface with a gap of 10 mm between the blocks. The Concrete shall comply with the requirement of as directed by Engineer

15. Geo-textiles

Geo-textile used for sub-surface drains shall be made of polyethylene or polypropylene or polyster or similar fibres, either woven or non-woven. Unless otherwise shown on the Drawing, the geo-textile shall:

- sustain a load of not less than 10 kN/m at break and have a minimum failure strain of 10 percent when determined in accordance with BS: 6906 or shall have a grab tensile strength more than 0.4 kN/m and grab elongation corresponding to this limit in accordance with ASTM D4632.
- have apparent opening size as shown on the Drawing. If no size is shown on the Drawing, then the apparent size shall be 0.1 mm.
- allow water to flow through it at right angles to its principal plane, in either direction at a rate of not less than 50 litres/sq.m./sec. under a constant head of 100 mm, determined in accordance with BS: 6906 (Part 3) or ASTM D4491, unless otherwise shown on the Drawing. The flow rate determined in the test shall be corrected to that applicable to a temperature of 15oC using data on variation in viscosity of water with temperature.
- have a minimum puncture resistance of 200 N when determined in accordance with ASTM D4833.
- have a minimum tear resistance of 350 N when determined in accordance with ASTM D4533.

The higher tensile strength alignment of the geo-textile should in cross sectional direction. Unless otherwise specified, the overlap between two pieces should be at least 0.50 m. The supplier shall provide a method statement detailing installation procedures. Prior to deliver material at site the supplier shall submit a representative geo-textile sample minimum 4.0 m², to be retained by the engineer for purpose of comparative testing together with materials sampled from product delivered to site.

16. Gravel Filter

Unless otherwise directed by the Engineer, gravel filter shall be placed and compacted under the concrete, back of weep holes, and boulder pitching. The filter shall be as specified in the Drawings or as directed by the Engineer.The granular material used for the graded filter shall be obtained from the sources approved by the Engineer, and be hard, dense and free from clay and other foreign matters. It shall be well graded in accordance with the following limits:

- maximum size shall be 40 mm.
- grading coefficient (60% size/10% size) shall be greater than 4.
- the 15% size shall be less than 5 times the 85% size of the soil to be protected.
- the 15% size shall be less than 20 times the 15% size of the soil to be protected.
- the 50% size shall be less than 25 times the 50% size of the soil to be protected.
- the 15% size shall be greater than 5 times the 15% size of the soil to be protected.

The grading of the soil to be protected shall be determined by the Contractor at locations directed by the Engineer.The filter shall be placed in two equal layers. The lower layer shall contain finer material and the upper layer the coarser material. The filter shall be designed and compacted as approved or directed by the Engineer.

17. Stone masonry

Mortar for all stone masonry, unless specified, shall consist of one part Portland cement and four parts of sand (by volume) and sufficient water to produce a proper consistency.All stone used shall be properly cleaned and shall be approved by the Engineer. Before placing, stone shall be wetted. Stone masonry shall be placed on properly prepared and firm foundation in accordance with the drawings or as directed by the Engineer.All stone masonry shall be kept wet continuously for at least 4 days, unless otherwise specified by the Engineer.If after completion of any stone masonry works, masonry does not confirm to the lines and grades shown on the drawings, if shall be removed and replaced by the contractor at his expenses unless the Engineer grants permission in writing to patch or replace part of the defective area to his satisfaction. Measurement for payment shall be according to the lines shown in the drawings or as determined by the Engineer. The volume of all opening embedded pipes and recesses shall be deducted. Stone Lining Thickness of stone lining shall be as given in BOQ or in drawings or as specified by the Engineer. Mortar for lining unless otherwise specified shall of one part Portland Cement and three parts of sand (by volume) and sufficient water to produce a workable consistency. Mortar shall be placed upon a firm clean foundation, clean angular quarry stones or clean cut boulders which is flushed upon the required depth of lining. A smooth outer surface on the lining shall be done by keeping the surface continuously wet for at least 4 days or as specified by the Engineer. Measurement for payment shall be made according to the lines and grades as shown in the drawings or as determined by the Engineer.

18. Dry Boulder Packing

Boulder for packing shall be sound, hard, durable and fairly regular in shape. Stone subject to marked deterioration by water or weather shall not be used.All stone shall be taken from approved sources. The stones shall be fine or rock quarrying of granite, quartzite, or similar materials. Boulder packing comprises pieces of rock, which shall be hard durable and free from incipient fractures and slumps, whose shortest dimension shall not be less than one half of their largest dimension. The material shall be from an approved location.

19. Filter Materials

The material for filter shall consist of sound gravel, stone ballast and coarse sand uniformly graded from 5mm to 75mm. For a single layer filter the compacted thickness of the filter shall not be less than 200 mm. for a multi-layer filter, the compacted thickness of layer filter shall not be less than 115mm.Riprap comprise of rock shall be hard durable and free from incipient fractures and slumps, whose shorts dimension shall not be less than one half of their largest dimension. The material shall be from an approved location.

20. Plastering

In case of brick the joints shall be raked out to a depth of 12.5 mm and the surface shall be cleaned, kept wet before plastering as directed by the Engineer. In case of concrete surface it shall be rendered rough, washed and cleaned before plastering. Cement mortar plastering should be applied having total thickness of 12.5 mm for wall and ceiling or specified.

21. Stop log

Timber for stop log shall be of salwood of best quality, free from saps, fissures, knots, sare and/or other defects. The Engineer reserve the right to approved or disapprove the adequacy of the stop log proposed by the contractor’s

22. Water stop, Joint filler and sealer

Scope

The Contractor shall furnish and install waterstop of polyvinyl chloride in the shape and dimensions specified, and in the locations as shown on the Drawings, or as directed by the Engineer. For convenience of placement in forms, a waterstoputilizing a split flange may be used; however, prior to placement of final concrete, the split flange portion shall be jointed in an approved manner such that no concrete or mortar can enter between the two split portions of the flange.Unless otherwise specified, two kinds of water stops, 230 mm wide waterstops shall be used depending on the magnitude and importance of the works as designated on the Drawings or as directed by the Engineer.

Material

Waterstops shall be manufactured by the extrusion process from an elastometric plastic compound, the basic resin of which is one hundred (100) per cent polyvinyl chloride (PVC). The product shall be dense, homogeneous and free from holes and other imperfections.The waterstops as described herein shall have the following physical properties as per IS:15058:2002

Specific gravity	1.33 + 0.03 at 23°C	
Tensile strength	13.8 Mpa	(IS8543 Part 4-sec 1)
Ultimate elongation	285%	(IS8543 Part 4-sec 1)
Brittleness	- 25°C	(Annex of IS 9766)
Hardness	65	(IS 13360 Part 5 sec 1)
Maximum water absorption	0.6	Annex 0f IS:5058:2002
after 1 days at 27°±2ºC	5%	

The Contractor shall provide the Engineer with a sample to be used in the Works and the manufacturer's test certificate for the Engineer's approval, before issuing the purchasing order to the suppliers, and shall, if requested, supply a sufficient length of each sample for confirmatory tests to be carried out in accordance with the appropriate test procedure, at the Contractor's own expense.

Workmanship

The Contractor shall furnish all materials, equipment and electric power required for making field splices and installing the waterstops. Field splices for waterstops shall be made by cutting the waterstops as required, heating the ends to the melting point and jointing them to form the desired splice. The heating of the splice ends shall be made by means of the splicing machine recommended by the waterstop manufacturer or by any other approved electric heating device acceptable to the Engineer.Care shall be taken when installing the waterstops to ensure that the centres of the waterstops coincide at the joints. The Contractor shall suitably support and protect the waterstops during the progress of the Works. The stop-boards on each side of the waterstop shall be accurately wrought to match the profile of the waterstop. The concrete shall be carefully compacted under and around the waterstop so as to leave no cavities.

Dowel Bars

In the contraction joint, dowel bars shall be provided, as shown on the Drawings, or as directed by the Engineer. The dowel bars shall be of straight plain round steel bars conforming to the requirements specified for reinforcement bars in Clause 5.8 of these Specifications.In joints, the part of the dowel bar to be free to move shall be encased in rigid PVC hose, or pipe, or metal sleeve, or other approved materials and fitted with a compressible cap of joint filler to prevent bonding and shall be placed at intervals shown on the Drawings or as directed by the Engineer. The free end of the dowel bar shall be coated with an approved bitumen bond

breaking compound. The diameter of the sleeve shall be the minimum necessary to allow free sliding movement of the bar after concreting. The other half shall be bonded firmly on one side of the joint.

Joint Filler

The Contractor shall supply and fix pre-moulded joint fillers in expansion joints as shown on the Drawings. Unless otherwise specified, the joint filler shall be resin bonded cork such as Expandite "Hydrocor" or similar approved. It shall be obtained from manufacturers approved by the Engineer and shall be stored and fixed in accordance with the manufacturer's instructions.Resin bonded cork filler shall comply with the United States Federal Specification HH-F-341e Type II Class B with the following limitations when tested in accordance with the said specification:

a. the load required to compress the material to 50% of its thickness shall be more than 0.035 N/sq.mm and less than 0.35 N/sq.mm.
b. the recovery after compression to 50% of the original thickness shall be not less than 95% of the original thickness.

The Contractor shall provide the Engineer with a sample to be used in the Works and the manufacturer's test certificate for the Engineer's approval, before issuing the purchasing order to the suppliers, and shall, if requested, supply sufficient of each sample for confirmatory tests to be carried out in accordance with the appropriate test procedure.The joint filler of the thickness specified shall be cut to shape, and fixed to fill the whole space between the concrete faces of the joint which is not otherwise filled by waterstop or joint sealer. Abutting pieces shall be placed in close contact and the joints covered on each side to prevent passage of cement grout.

Joint Sealer

Joint sealer shall be Expandite "Thioflex 600 based on a liquid polysulphide polymer", or similar approved. It shall be obtained from manufacturers approved by the Engineer, and shall be used in accordance with the manufacturer's instruction inclusive of the supply and application of any priming materials. An approved bond breaker shall be supplied for placing between the sealant and the joint filler.The Contractor shall provide the Engineer with a sample to be used in the Works and the manufacturer's test certificate for the Engineer's approval, before issuing the purchasing order to the suppliers, and shall, if requested, supply sufficient of each sample for confirmatory tests to be carried out in accordance with the appropriate test procedure.Measurement for payment of joint sealer shall be made in running meter actually placed in the joint in accordance with the Drawings, or as directed by the Engineer.

23. Steel Sheet Piling

Scope

The work shall consist of furnishing, transporting, and installing steel sheet piling as shown on the construction drawings.

Materials

Sheet Steel Piling shall conform to the requirements of ASTM Specification A 328, Standard Specification for Steel Sheet Piling; A 572, Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel; or A 857, Standard Specification for Steel Sheet Piling, Cold Formed, Light Gage.Appurtenant Materials (steel plates, bars, structural shapes) shall conform with ASTM Specification A 36, Standard Specification for Carbon Structural Steel. Protective Coatings shall be a coal tar polyamide epoxy paint suitable for use on structural steel and shall meet Paint Specification No. 16, Type 1, Class II, of the Steel Structures Painting Council (SSPC) or a zinc (hot-dip galvanized) coating conforming to the requirements of ASTM Specification A 123, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

Site Preparation

All clearing within the area to be occupied by the steel sheet piles shall be completed before the piling is installed.

Placement of Steel sheet Piling

Steel sheet piling shall be installed as specified in the construction plans by one of the following methods:

a. Driving Sheet Piling

The Contractor shall provide driving heads and other devices for sheet pile driving and shall conform to the recommendations of the manufacturer. The piling shall be driven in such a manner as to insure perfect interlocking throughout the entire length of each pile. The piles shall be held in proper alignment during driving by means of assembling frames or other suitable temporary guide structures. Temporary guide structures shall be removed when they have served their purpose. At any time the forward edge of the sheet pile wall is found to be out of correct alignment: (a) the piling already assembled and partly driven shall be driven to the required depth, and (b) taper piles shall be then driven to bring the forward edge into correct alignment before additional regular piling is assembled and driven. The maximum permissible taper in a single pile shall be one-fourth inch per foot of length. The Contractor shall not attempt to drive sheet piles beyond the point of refusal, as indicated by excessive bouncing of the hammer or kicking of the sheet pile.

b. **Trench Embedment of Sheet Piling**

Steel sheet piling is embedded by excavating a trench and backfilling to the dimensions and lines shown on the drawings. Backfill material shall be placed and compacted to the density of the surrounding material, taking care not to displace or damage the steel sheet piling or its protective coating. Backfill material shall contain no frozen soil, sod, brush, roots or other perishable material.

Cutting of piles

The Contractor shall cut off the steel sheet pile at the specified elevations. The length of the pile cut off shall be sufficient to permit the removal of all damaged material.

Defective piles and damaged coating

Any sheet pile ruptured in the interlock or otherwise damaged during installation shall be pulled and replaced. Damaged coatings on painted steel sheet piles shall be prepared and repainted in accordance with the manufacturer's specifications of the original coating. Damaged galvanized coatings shall be repaired in accordance with ASTM A 780, Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.

24. Standards and Supplementary Specifications

All workmanship materials and components throughout shall, where applicable, and unless otherwise stated in the Contract Documents, comply either.

a. With the relevant American, British, German or India Standard or Code of practice current on the date fixed for receipt of tenders. Or
b. With the relevant American, British, German or Indian Standard or code of Practice.

The Acceptance of a tender based upon a Standard or Code of Practice proposed by the contractor shall only signify the Engineer's general approval t the use of such standard or Code of Practice and Shall not make the Engineer liable to accept a standard of workmanship subsequently found to be inferior to the corresponding

American, British, German or Indian Standard or Nepal Standard or Code of Practice.Where the relevant standard provides for the furnishing of a certificate to Employer or Engineer at their request, stating that the materials supplied comply in all respects with the standard the contractor shall obtain the certificate and forward it to the Engineer. If no standard is indicated then the relevant American, British, German of Indian Standard, if any shall apply.Where reference is made within these documents to certain standard specifications the reference shall unless otherwise specially stated by construed to mean the standard with all subsequent amendments, changes or additional as thereafter adopted and published that are in effect on the date of issue of the Tender Documents.Whenever in these documents references are made to particular reference standards or abbreviations thereof, their meaning shall be as listed below and copies of such standards may be obtained at the contractor's expense from the particular organization at the address give:

ASTM American Society for Testing and Materials 1916 Race St. Philadelphia, PA 19103, USA

BIS Bureau of Indian Standards, ManakBhawan, 9 Bahadur Shah ZafarMarg, New Delhi- 110002, India

BSI British Standard institution 101 Pantonville Road London NI 9ND, England

DIN Deutsche Industries Norm (German Industry Standard)

NS Nepal Standard

25. Control Water

- The contractor shall be responsible for the control of water met within the excavations due to ground water, spring, seepage, rain or other causes. He shall take all measures and necessary precautions to control water seepage into excavations by suitable diversions and by bailing out or by pumping or necessary to keep the excavations dry during excavation, concrete construction, and embankment of back fill placement and compaction.
- The contractor shall submit to the Engineer for approval, details of such measures as he proposes to adopt for the control of water from any source notwithstanding any approval by the Engineer of the Contractor's arrangement for the exclusion of water, the contractor shall be responsible for sufficiency thereof and for keeping the works safe at all times, particularly during any floods, and for making good at his own expense any damage to the works including any that maybe attributable to floods.
- Pumping from the interior of any foundation, enclosure shall be done in such a manner as to preclude the possibility of the movement of water through any fresh concrete. No pumping shall be permitted during the placing of concrete or for any period of at least 24 hours thereafter, unless it is done from a suitable pump separated from the concrete work by a water right wall or other similar means.
- At the direction of the Engineer, cement grouting of other approved methods may be used to prevent or reduce seepage and to protect the excavation area.
- The contractor shall keep the works well drained until the Engineer certifies that the whole of the works is substantially complete and shall ensure that so for as is practicable all work is carried out in the dry temporary works such as temporary dams, water courses and other works of all kinds including pumping and well point dewatering that may be necessary or exclude water from toe works with the approval of the Engineer's representative. The Contractor is to take all necessary precautions to avoid floating of any partially completed structure.
- The contractor shall make provision for the discharge or disposal from the works and temporary works of all water and waste products howsoever arising and the methods or disposal shall be to the satisfaction of the Engineer and of any authority or person having an interest in any pond or water course over or in which water and waste products any be so discharged. Care shall be taken so that discharge of drained water will cause no damage to the works, crops or any other property. The requirements of that clause shall not limit any of the contractor's obligations or liabilities particularly as to clause of the conditions of contract.
- Costs incurred by the contractor in complying with the requirements of the section shall be deemed to be included in the price tendered for the various items of the Bill of Quantities for which the control of the water is required and no separate payment will be made if it is not given in Bill of quantities.

26. Temporary Diversion Works

The Contractor shall have to construct temporary diversion works for construction of cross drainage structures, canals, roads, drains, natural stream and rivers and the related structures such as turnouts, culverts, bridges, etc. Coffer and/or diversion channel shall be constructed in such a manner that the water can be smoothly supplied downstream without overtopping and damaging any part of the coffer and channel.Not less than 14 days before he intends to commence construction of any part of the temporary diversion works, the Contractor shall submit to the Engineer the detailed construction programme, and drawings of:

a. coffer including impermeable membrane and diversion channel which he proposes; and
b. any other temporary works which he considers necessary for the proper execution of the Works.

The Contractor shall not commence any temporary diversion works until the Engineer's approval thereto has been obtained. However, the approval shall not relieve the Contractor of any liability or obligation under the Contract.The Contractor shall construct the temporary diversion works in accordance with the approved drawings and construction programme. The Contractor shall remove all temporary diversion works on completion of the canals, roads and structures.The cost of all the temporary diversion works, care of water including dewatering and the related temporary works including crops and land compensation related to the diversion works shall be borne by the Contractor.

27. Pre-cast Concrete Units

Pre-cast concrete units, i.e., RCC pipes and bridge girders shall be provided as shown on the Drawings. The Contractor shall submit Working Drawings to the Engineer at least 14 days in advance of the manufacturing date of each type of pre-cast element. The Contractor may manufacture the pre-cast concrete units at the site, after approval from the Engineer, in accordance with the Specifications. All materials to be furnished and used for pre-cast concrete units by the Contractor shall conform to the requirements of this Sub-Clause and shall be approved by the Engineer. Forms or moulds for concrete units shall conform to shapes lines and dimensions as shown on the Drawings, or as directed by the Engineer. The Contractor shall submit details of the forms or moulds he proposes to use for the approval of the Engineer.Pre-cast units may also be manufactured in a factory off the Site. In such cases, the Contractor shall provide the Engineer with full information, in advance, concerning the name and address of the factory, details of the probable date of commencement of manufacture and arrangements for inspections in the factory.

In all cases, the Contractor shall submit a time schedule indicating the following:

- date of commencement of manufacturing
- date of delivery
- date and sequence of erection
- duration of the execution

No commencement of works shall be made until the time schedule has been approved by the Engineer.

Pre-casting of Concrete Units

Pre-cast concrete units to be manufactured shall be of concrete with adequate strength for bearing loads as shown on the Drawings, or as directed by the Engineer. Moulds for pre-cast concrete shall be of steel construction. The Contractor shall submit details of the mould to the Engineer for his approval. The quality, tests, trial mixes and test cubes of the concrete shall be made, all in accordance with Sub-Clause 5.3 of these Technical Specifications.The concrete units shall be cast in horizontal position, unless otherwise directed by the Engineer. The concrete shall be placed continuously in each of these units and compacted by vibrating in a manner acceptable to the Engineer. Special care shall be exercised in tamping and vibrating the concrete so as not to displace the reinforcement.The method of curing shall be approved by the Engineer. At least four hours must elapse from completion of the placing of concrete before its temperature is raised. The rise in temperature within any period of 30 minutes shall not exceed 100C and the maximum temperature attained shall not exceed 700C. The rate of subsequent cooling shall not exceed the rate of heating.The method of curing used shall minimize the loss of moisture from the concrete.The concrete units shall remain in their moulds for three (3) days before being stripped, during which time the exposed face shall be covered with sacking or matting and kept constantly wet; in addition, the sides of the forms or moulds shall be shielded from the direct rays of the sun. After removal of forms or from the moulds, the units shall be kept moist continuously, for a minimum period of eleven (11) days. After stripping, the pre-cast units shall be stacked for a period of not less than thirty (30) days,

unless otherwise directed by the Engineer, so as to leave a free air space between each of these pre-cast units.All pre-cast units shall have the date of casting engraved on them before the concrete has fully hardened. Any undated units may be rejected by the Engineer. The cast-in parts, such as lifting lugs, fasteners, jointing materials, supporting structures, etc. shall be fixed in position as indicated on the Drawings or directed by the Engineer. Cast-in parts shall be free from rust, dirt or grease. The Contractor shall also coat the concrete joints with straight run bitumen, grade 40/50 as indicated on the Drawings or instructed by the Engineer.The costs for the delivering, processing and fixing of cast-in parts as well as bitumen coating shall be deemed to be included in the unit rates of the relevant pre-cast concrete units and no separate payment shall be made.Loading, unloading, storage and placing of the pre-cast units at the Site shall be done by skilled labour under the supervision of a competent supervisor. When pre-cast units are stored they shall be supported at such positions as will ensure that the stresses induced in them are always less then the permissible design stresses. Transportation, storage and placing of the pre-cast units shall be done carefully and in such a manner as to avoid damage and to keep the surfaces of the units free of dirt and other unwanted spots. Any unit which is damaged or has any perceptible impairment shall be liable to be rejected by the Engineer.Materials to the approval of the Engineer and shall be internally smooth and seamless.

Laying and Jointing Pipes

Arrangements for handling including lifting, loading, transporting, unloading from factory/yard and site as well as storage and lowering the pipes onto the bed shall be such that the pipes do not suffer any damage.The thickness of the gravel filter in the bedding and the surroundings shall be as shown on the Drawings. The pipes shall be laid true to line and level. No pipes shall be laid until the foundation has been approved by the Engineer. Pipes shall be laid so that each one is in contact with the bed throughout the length of the barrel. The pipes shall be laid closely against each other so as to obtain tight joints.Joints shall be such that they do not permit entry of soil into the pipe. Perforated pipes shall be laid as shown the Drawings. The concrete pipes shall be jointed by either collar joints or flush joints. In case of a collar joint, the collar shall be of reinforced cement concrete 150 to 200 mm wide, according to the diameter of the pipe, and having the same structural strength as the pipes to be jointed. Caulking space shall be between 13 to 19 mm according to the diameter of the pipe as specified by the relevant clause of NS or IS or ASTM Standard. Caulking material shall be a slightly wet mix of cement and sand in the ratio of 1:2 rammed with caulking irons. Before caulking, the collar shall be placed in such a way that its centre coincides with the joint and an even annular space is left between the collar and the pipe. In case of flush joints, the ends of the pipes shall be spaced to form a self-centring joint with a 13 mm wide jointing space. The jointing space shall be filled with cement sand mortar in the ratio of 1:2. Care shall be taken to fill all voids and to see that any excess of cement mortar is neatly cleaned off while each joint is being made, and any earth, cement or other material thoroughly cleaned out of the pipes. All joints shall be made with care so that the interior surface is smooth and consistent with the interior surface of the pipes. After finishing, the joint shall be kept covered and damp for at least four (4) days. A properly fitted plug shall be well secured at the end of each pipe already laid and shall be removed only when the next pipe is being laid. The foundation shall be kept free from water until the joints are thoroughly set.On completion, all pipelines, shall be flushed from end to end with water and left clean and free from obstructions.

28. Joints

Construction Joints

The location of all construction joints in concrete work shall be subject to approval by the Engineer, and the joints shall be constructed as specified herein.Construction joints are joints which are placed in structures to facilitate construction, or which occur in structures as a result of inadvertent delays in concrete placing operations. Construction joints are to be placed to reduce initial shrinkage stresses and cracks, to allow time for the installation of embedded metalwork, or to allow for the subsequent placing

of other concrete, blockout concrete, or second stage concrete.All vertical members such as columns and walls shall be in place for not less than four (4) hours, before any concrete is placed in concrete elements directly over such columns or walls. Before placing is resumed, all excess water and fine materials, which have risen to the top, shall be removed and the concrete shall be cut away as may be necessary to ensure a strong and dense concrete at the joint. The surface of construction joints shall be clean, rough, and dry when covered with fresh concrete or mortar. Cleaning shall consist of the removal of all laitance, loose or defective concrete, coatings, sand, sealing compound if used, and other foreign materials. The surfaces of construction joints shall be wet-sandblasted, washed thoroughly with air-water jets, and surface dried prior to placement of adjoining concrete. Construction joints in beams and slabs shall not be permitted, except where the Engineer approves.Where construction joints are made in plain and reinforced concrete of monolithic construction other than beams, a tongue and groove joint and reinforcement bars equal in area to not less than 0.25 per cent of the surfaces to be connected and forty (40) diameters in length shall be provided unless otherwise shown on the Drawings.At horizontal construction joints which will be exposed, the concrete shall be struck off at the level of the top of the form sheathing or shall be carried about 12 mm above the underside of a 25 mm high by 12 mm thick strip set level on the form. Beams, brackets, column capitals, and haunches shall be considered as part of the floor system and shall be placed monolithically therewith. Where new concrete is to be bonded to existing concrete, the existing surface shall be cleaned and roughened thoroughly in order to remove all laitance and loose matter.

Unscheduled construction joints in structures requiring water tightness shall have waterstop approved by the Engineer. Such joints shall be located by the Contractor so as to least impair the strength of the structure and shall be subject to the approval of the Engineer.

Contraction Joints

Contraction joints, of the types shown on the Drawings, shall be provided in walls, floors, beams, footings, and foundations where indicated on the Drawings, or directed by the Engineer. The joints shall be made by forming the concrete on one side of the joint and allowing it to set before concrete is placed on the other side of the joint. The surface of the concrete first placed at the contraction joint shall be coated with bitumen or other materials so as to avoid bond.Waterstops, specified in Sub-Clause 5.11 hereof, shall be provided where so shown on the Drawings, or as directed by the Engineer. All the joints shall be provided with dowel bars of plain round steel bars, as specified in Sub-Clause 5.13 hereof.

29. Storage of Materials

- Materials shall be stored so as to ensure preservation of their specified quality and fitness for the work. They shall be placed on hard, clean surface, and when required, they shall be placed under cover as approved by the Engineer. Stored materials shall be located so as to facilitate prompt inspection. Private property shall not be used for storage purposes without the written permission of the owner or lessees and payment to him if necessary.
- The stockpile site shall be prepared by clearing and levelling as approved by the Engineer.
- Aggregate storage piles shall be built up and removed in lays not exceeding 1m. All height of such stockpiles shall be limited to 5.0m the centreo the storage areas shall be raised and sloped to the sides, as required to provide proper drainage of excess moisture, the materials shall be stored in such as manner as to prevent segregation and to ensure proper gradation and moisture content.

- The cost of providing for storage of materials shall be included in the prices tendered for the various items of the Bill of Quantities for which storage of materials is required and no separate payment will be made thereof.

30. Measurement and Payment

Measurement

The items as set out in the Bill Quantities are understood to be full compensation for the preparation of working drawings for the civil Engineering works and conforming to the requirements for the equipment and drawings as set out in the specification, conditions of contract, information and instruction, drawings, schedules and appendices submitted with the Tender Document.

- for all materials, part and labor cost as well of supervision, quantity inspection and testing and all other costs for the supply of the equipment and materials.
- For all handling, packing and shipping charges, rail road and all other transport costs, including harbour dues, dock handling changes, insurance during transit, customs outside Nepal (if any) and all other charges on the equipment and materials from any place outside Nepal until it is delivered on site.For all cost of labor, supervising, erection of plant and temporary works, materials and other things of whatever nature required for storing moving into final position, setting out handling and erection, final painting and protection, quality inspection and testing.
- For site testing and commissioning of the equipment.
- For maintenance and making good.
- For all duties and obligations as set out in the Conditions of contract, the specification, information and instructions, drawing, schedules and appendices.

Measurement methods specified in the individual sections of the specification shall govern if they differ from methods specified in this section.The Engineer will compute all quantities and will take measurements as requires for such computations.

Measurement Standards

All works to be paid at a contract price per unit of measurement will be measured by the Engineer in accordance with Metric Standards Measures. A ton shall consist of 1,000 kilograms.

Measurement by weight

- Steel shapes casting, miscellaneous, metal fabrications, and similar items to be paid for any weight shall be measured by handbook weights for the type and quantity of material actually furnished and used.
- The Engineer may be present to witness the weighing and to check and compile the daily record of such scale weights; however, if any case, the Engineer will require that contractor furnish weight slips and daily summary weight sheets. In such case furnish a duplicate weight slip to the Engineer at the point of delivery of the materials.

Measurements by volume

- Measurement by volume will be the cubic dimension listed or indicated in the Bill of Quantities. Method of volume measurement will be as determined or directed by the Engineer.
- When materials is to be measured and paid for on a volume basis and it is impractical to determine the volume by the specific method of measurement, or requested by the contractor in writing and accepted by the Engineer in writing, the material will be weighted in accordance with the requirements specified for weight measurement. Such weight will be converted to volume measurement for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the Engineer and shall be agreed by the contractor before such method of measurement of payment for quantities will be accepted.

Measurement by Area

Measurement by area will be the square dimension listed or indicated in the Bill of Quantities. Method of square measurement will be as determined or directed by the Engineer.

Linear Measurement

Linear measurement will be by the linear dimension listed or indicated in the Bill of Quantities. Method of linear measurement will be as determined or directed by the Engineer. Generally, items, components, or work to be measured will be measured at the Centre line of the item in place.

Lump-sum Measurement

- Lump-sum measurement will be for the entire item, unit of work, structure or combination hereof as listed or indicated in the Bill of Quantities.

- If the contractor requests progress payments for lump-sum or amounts in the Bill of Quantities, such progress payment will be made in accordance with a well-balance, detailed program of payment-apportioning prepared by the Contractor and submitted to the Engineer for approval.

- Such program for each applicable lump-sum item shall show estimated quantities and unit prices therefore as allocated by the contractor to the different features of the work and major sub-decision thereof It shall also show the amounts allocated by the contractor for;

i. cost of the various materials to be furnished,
ii. direct labour cost and deviated charges,
iii. other itemized costs,
iv. overhead

- The summation of contents of quantities and unit prices and related cost shall total in each case, the exact amount to be paid under the lump-sum contract price for the item.

- Such program will be used for computing progress payment as provided herein but will not be used to determine the amount of the final payment for the final payment for the work of this contract.

Field Measurement for Payments

- The Engineer will compute for payment purpose all quantities of work performed by the contractor or of materials and equipment delivered to the site.

- The Contractor shall assist the Engineer in the taking of measurement by providing all equipment's and workers as required to measure quantities in accordance with the provision for measurement specified herein.

- All measurement services required of the Contractor, as specified shall be performed under the direction and supervision of the Engineer.

31. Rejected Materials

Quantities of material wasted or disposed of in a manner not called for under the contract: rejected loads of material, including material rejected after it has been placed by reasons of the failure of the Contractor to conform to the provisions of the contract; materials not unloaded from the transporting vehicle; or material placed outside the hues; indicated on the contract Drawing's or established by the Engineer's or material remaining on hand after completion of the Work; will not be paid for, and such quantities shall not be included in the final total quantities. No compensation will be permitted or loading, hauling and disposing of rejected materials.

Separate measurement of payment will not be made for work required under this section. All costs in connection with the related item of work in the Bill of Quantities incidental to the Project.

32. Site Investigation

If at any time during the execution of the works the Engineer shall require the contractor to name bore holes or to carry out exploratory excavation such requirement shall be ordered in writing and a provisional sum in respect of such anticipated work shall have been included in the bill of quantities.

33. Drawings

Bidding Drawings

The drawings provided in f the Bidding Documents shows the general features of the construction works. Additional drawings may be delivered to the Contractor prior to the commencement of the works. The Contractor shall prepare construction and/or shop drawings as stipulated in Specifications.

Additional Drawings

The drawings attached to the Bidding Documents (hereinafter referred to as "Bidding Drawings") accompany and form part of the Contract Documents. In addition to the Bidding Drawings, Additional Drawings may be delivered by the Engineer to the Contractor and such drawings shall thereupon become part of the Contract.During the progress of the work, Additional Drawings will be issued by the Engineer prior to commencement of the Works and as necessity arises to supplement and/or supersede the Bidding Drawings, and such Additional Drawings shall thereupon become part of the Contract.The Contractor shall be governed by figures and dimensions as given on the drawings. Where required dimensions are not shown, the Contractor shall obtain such dimensions from the Engineer before proceeding with the construction of the portion of the Works to which they refer. In every case, detailed drawings shall take precedence of general drawings.The Contractor shall scrutinise such drawings and such further drawings issued from time to time to the Contractor. If any ambiguity, discrepancy or mistake is found in the drawings, the same shall be referred to the Engineer before proceeding with the works, and the Engineer's decision on resolving such ambiguity, discrepancy or mistake shall be final, conclusive and binding.

Drawings and Calculations to be furnished by the Contractor

Unless otherwise stated in the Contract, the Contractor shall prepare drawings for all Temporary Works to be constructed or supplied and installed by the Contractor or his Sub-Contractor.The Bidding Drawings and the Additional Drawings delivered by the Engineer will not always be detailed enough for performance of the works. They will show many works only in typical forms supplemented by tables of dimensions. The Contractor shall at his own expense prepare detailed Construction Drawings of the individual works (hereinafter referred to as "Construction Drawings") based on the Bidding Drawings and the Additional Drawings as needed for performance of the works. All Construction Drawings prepared by the Contractor shall be submitted to the Engineer for his approval.If required by the Engineer, the Contractor shall also submit calculations to the Engineer for his approval. The drawings submitted by the Contractor shall be clear and complete. The recommendable scales of the drawings are 1:1,000, 1:100, 1:50, 1:20, 1:10, 1:5, 1:2 or 1:1 depending upon the type of drawing and/or details which have to be drawn. Drawings shall be of standard sizes as required by the Engineer.In addition to the above, the Contractor shall at his own expense prepare reinforcement drawings based on the drawings supplied by the Employer/Engineer as needed for the performance of the works. These reinforcement drawings shall include such bar placing drawings, bar-bending drawings, bar list and any other reinforcement drawings as may be required to facilitate fabrication and placement of reinforcement bars. All reinforcement drawings prepared by the Contractor shall be submitted to the Engineer for his approval.For all sections of the work to be executed under the Contract, the Contractor shall submit detailed drawings to the

Engineer for his approval, including working drawings, shop drawings and specifications. The Contractor shall submit these drawings in four (4) copies to the Engineer for approval unless otherwise specified, and these drawings shall be sufficiently detailed to show:

a. The general arrangement and dimensions of all the parts and the size of each and every part of the works to be executed under the Contract.
b. The nature of the materials from which various parts are to be made, and
c. Details of all construction.

Fabrication, manufacture or construction of any part of the works shall not commence until the drawings have been approved by the Engineer, and thereafter no change shall be made to any drawings so approved without permission of the Engineer. Subsequent changes shall be reported by sending another set of four (4) or specified number of copies of each revised drawing to the Engineer for approval. The approval of Contractor's drawings by the Engineer shall not relieve the Contractor from any of his liabilities or responsibilities under the Contract.The Engineer shall check or review the drawings submitted by the Contractor and shall return them with comments or approval within fourteen (28) days from the date of submission by the Contractor. If re-submission of the drawings is required by the Engineer, the Contractor shall re-submit them after necessary modifications and corrections until the approval of the Engineer is obtained. In the event of disagreement with alteration, the Contractor shall send a written notice to the Engineer within 7 days after receiving the altered drawing(s).From the approved drawings and calculations, four paper copies and one reproducible copy of each set shall be submitted to the Engineer.

Right to Change Design and Drawings

When additional information regarding foundation or conditions become available as a result of excavation work and further testing, and if found desirable to make changes in the alignment, cross-sections, dimensions or design to conform to such conditions, the Employer/Engineer reserves the right to make the necessary or desirable changes to the opinion of the Engineer.

"As-Built" Drawings

The Contractor shall submit whole sets of "As-Built" Drawings of the completed Works, clearly printed drawings along with two sets of CD, to the Employer.The "As-Built" Drawings shall clearly show the lines and dimensions of the permanent construction actually made based on the original design and/or change of design from time to time ordered by the Engineer or proposed by the Contractor and approved by the Engineer.No separate payment shall be made for preparation of all construction drawings, reinforcement drawings, working drawings and shop drawings, drawing details, etc., to be prepared by the Contractor and submitted to the Engineer and/or the Employer in accordance with the provisions of the Contract, except for provision of "As-Built" Drawings.

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.

Attached below

Supplementary Information

SECTION - VI
Bill of Quantities[6]

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:

[6]In lump sum contracts, delete "Bill of Quantities" and replace with "Schedule of Activities" throughout this section.

(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, labor, 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 Labor

1. In calculating payments due to the Contractor for the execution of day works, the hours for labor will be reckoned from the time of arrival of the labor 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 labor 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 labor is employed on day work, calculated at the basis rates entered by it in the " SCHEDULE OF DAY WORK RATES: 1. LABOR". The rates for labor shall be deemed to cover all costs to the Contractor including (but not limited to) i) the amount of wages paid to such labor, transportation time, overtime, subsistence allowances, ii) any sums

paid to or on behalf of such labor 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

1. 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 labor 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

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

Attached Below

PART-III CONDITIONS OF CONTRACT AND CONTRACT FORMS

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Section VII: General Conditions of Contract

Water resource and Irrigation Development Division Office, Gulmi

Construction of Canal Works of Aslewa Chaurphant Irrigation Project, Satyawati-1, Aslewa, Gulmi

IFB/WRIDD_GULMI/NCB-02/2083-84

General Conditions of Contract

This Section provides the General Conditions of Contract that will apply to the Contract for which the Biding document is issued.

General	
1. Definitions	1.1 Boldface type is used to identify defined terms. (a) The **Accepted Contract Amount** means the amount accepted in the Letter of Acceptance for the execution and completion of the Works and the remedying of any defects. (b) The **Activity Schedule** is a schedule of the activities comprising the construction, installation, testing, and commissioning of the Works in a lump sum contract. It includes a lump sum price for each activity, which is used for valuations and for assessing the effects of Variations and Compensation Events. (c) **Bill of Quantities** means the priced and completed Bill of Quantities forming part of the Bid. (d) **Compensation Events** are those defined in GCC 50 hereunder. (e) The **Completion Date** is the date of completion of the Works as certified by the Project Manager, in accordance with GCC 68.1. (f) The **Contract** is the Contract between the Employer and the Contractor to execute, complete, and maintain the Works. It consists of the documents listed in GCC 2.3 below. (g)The **Contractor** is the party whose Bid to carry out the Works has been accepted by the Employer. (h)The **Contractor's Bid** is the completed bidding document submitted by the Contractor to the Employer. (i)The **Contract Price** is the Accepted Contract Amount stated in the Letter of Acceptance and thereafter as adjusted in accordance with the Contract. (j) **Days** are calendar days; months are calendar-months. (k) **Dayworks** are varied work inputs subject to payment on a time basis for the Contractor's employees and Equipment, in addition to payments for associated Materials and Plant. (l) A **Defect** is any part of the Works not completed in accordance with the Contract.

	(m) The **Defects Liability Certificate** is the certificate issued by Project Manager upon correction of defects by the Contractor. (n) The **Defects Liability Period** is the period calculated from the Completion Date where the Contractor remains responsible for remedying defects. (o) **Drawings** include calculations and other information provided or approved by the Project Manager for the execution of the Contract. (p) The **Employer** is the party who employs the Contractor to carry out the Works, as **specified in the SCC**. (q) **Equipment** is the Contractor's machinery and vehicles brought temporarily to the Site to construct the Works. (r) **Force Majeure** means an exceptional event or circumstance: which is beyond a Party's control; which such Party could not reasonably have provided against before entering into the Contract; which, having arisen, such Party could not reasonably have avoided or overcome; and, which is not substantially attributable to the other Party. (s) The **Initial Contract Price** is the Contract Price listed in the Employer's Letter of Acceptance. (t) **In writing** or **written** means hand written, type written, printed or electronically made, and resulting in permanent record. (u) The **Intended Completion Date** is the date on which it is intended that the Contractor shall complete the Works. The Intended Completion Date is **specified in the SCC**. The Intended Completion Date may be revised only by the Project Manager by issuing an extension of time or an acceleration order. (v) **Letter of Acceptance** means the formal acceptance by the Employer of the Bid and denotes the formation of the contract at the date of acceptance. (w) **Materials** are all supplies, including consumables, used by the Contractor for incorporation in the Works. (x) **Party** means the Employer or the Contractor, as the context requires. (y) **SCC** means Special Conditions of Contract (aa) **Plant** is any integral part of the Works that shall have a mechanical, electrical, chemical, or biological function. (bb) The **Project Manager** is the person **named in the SCC** (or any other competent person appointed by the Employer and notified to the Contractor, to act in replacement of the Project Manager) who is responsible for supervising the execution of the Works and administering the Contract. (cc) **Retention Money** means the aggregate of all monies retained by the Employer pursuant to GCC 54.1. (dd) **Schedules** means the document(s) entitled schedules, completed by the Contractor and submitted with the Letter of Bids, as included in the Contract. Such document may include the Bill of Quantities, data, lists, and schedules of rates and/or prices. (ee) The **Site** is the area defined **as such in the SCC.** (ff) **Site Investigation Reports** are those that were included in the bidding documents and are factual and interpretative reports about the surface and subsurface conditions at the Site. (gg) **Specification** means the Specification of the Works included in the Contract and any modification or addition made or approved by the Project

	Manager. (hh) The **Start Date** is given i**n the SCC**. It is the latest date when the Contractor shall commence execution of the Works. It does not necessarily coincide with any of the Site Possession Dates. (ii) A **Subcontractor** is a person or corporate body who has a Contract with the Contractor to carry out a part of the work in the Contract, which includes work on the Site. (jj) **Temporary Works** are works designed, constructed, installed, and removed by the Contractor that are needed for construction or installation of the Works. (kk) A **Variation** is an instruction given by the Project Manager which varies the Works (ll) The **Works** are what the Contract requires the Contractor to construct, install, and turn over to the Employer, as **defined in the SCC**.
2. Interpretation	2.1 In interpreting these GCC, singular also means plural, male also means female or neuter, and the other way around. Headings have no significance. Words have their normal meaning under the language of the Contract unless specifically defined. The Project Manager shall provide instructions clarifying queries about these GCC.
	2.2 If sectional completion is **specified in the SCC**, references in the GCC to the Works, the Completion Date, and the Intended Completion Date apply to any Section of the Works (other than references to the Completion Date and Intended Completion Date for the whole of the Works).
	2.3 The documents forming the Contract shall be interpreted in the following order of priority: (a) Contract Agreement, (b) Letter of Acceptance, (c) Letter of Bid, (d) Special Conditions of Contract, (e) General Conditions of Contract, (f) Specifications, (g) Drawings, (h) Bill of Quantities (or Schedules of Prices for lump sum contracts), and (i) Any other document **listed in the SCC** as forming part of the Contract.
3. Language and Law	3.1 The language of the Contract and the law governing the Contract are **stated in the SCC**.
	3.2 Throughout the execution of the Contract, the Contractor shall comply with the import of goods and services prohibitions in the Employer's country when (a) by an act of compliance with a decision of the United Nations Security

	Council taken under Chapter VII of the Charter of the United Nations, the Employer's Country prohibits any import of goods from, or any payments to, a particular country, person, or entity. Where the Employer's country prohibits payments to a particular firm or for particular goods by such an act of compliance, that firm may be excluded.
4.Contract Agreement	4.1 The Parties shall enter into a Contract Agreement within 15 days after the Contractor receives the Letter of Acceptance, unless the Special Conditions establish otherwise. The Contract Agreement shall be based upon the attached Contract forms in Section IX.
	4.2 Without altering the basic nature or scope of work, the contract may be amended upon mutual written consent as per prevailing Public Procurement Law.
5. Assignment	5.1 Neither Party shall assign the whole or any part of the Contract or any benefit or interest in or under the Contract. However, either Party (a) may assign the whole or any part with the prior agreement of the other Party, at the sole discretion of such other Party; and (b) may, as security in favor of a bank or financial institution, assign its right to any moneys due, or to become due, under the Contract.
6. Care and Supply of Documents	6.1 The Specification and Drawings shall be in the custody and care of the Employer. Unless otherwise stated in the Contract, one copy of the Contract and of each subsequent Drawing shall be supplied to the Contractor, who may make or request further copies at the cost of the Contractor.
	6.2 Each of the Contractor's Documents shall be in the custody and care of the Contractor, unless and until taken over by the Employer. Unless otherwise stated in the Contract, the Contractor shall supply to the Engineer six copies of each of the Contractor's Documents.
	6.3 The Contractor shall keep, on the Site, a copy of the Contract, publications named in the Specification, the Contractor's Documents (if any), the Drawings and Variations and other communications given under the Contract. The Employer's Personnel shall have the right of access to all these documents at all reasonable times.
	6.4 If a Party becomes aware of an error or defect in a document which was prepared for use in executing the Works, the Party shall promptly give notice to the other Party of such error or defect.
7. Confidential Details	7.1 The Contractor's and the Employer's Personnel shall disclose all such confidential and other information as may be reasonably required in order to verify the Contractor's compliance with the Contract and allow its proper implementation.
	7.2 Each of them shall treat the details of the Contract as private and confidential, except to the extent necessary to carry out their respective obligations under the Contract or to comply with applicable Laws. Each of them shall not publish or

	disclose any particulars of the Works prepared by the other Party without the previous agreement of the other Party. However, the Contractor shall be permitted to disclose any publicly available information, or information otherwise required to establish his qualifications to compete for other projects.
	7.3 Notwithstanding the above, the Contractor may furnish to its Subcontractor(s) such documents, data and other information it receives from the Employer to the extent required for the Subcontractor(s) to perform its work under the Contract, in which event the Contractor shall obtain from such Subcontractor(s) an undertaking of confidentiality similar to that imposed on the Contractor under this Clause.
8. Compliance with Laws	8.1 The Contractor shall, in performing the Contract, comply with applicable Laws of Nepal.
9. Joint and Several Liability	9.1 If the Contractor is a joint venture of two or more entities , all such entities shall be jointly and severally liable to the Employer for the fulfillment of the provisions of the Contract, and shall designate one of such persons to act as a leader with authority to bind the joint venture. **The contractor shall not handover the responsibility of the contract to any one member or some members of Joint Venture or any other parties, not involved in the contract.** The composition or the constitution of the joint venture shall not be altered without the prior consent of the Employer.
10. Project Manager's Decisions	10.1 Except where otherwise specifically stated, the Project Manager shall decide contractual matters between the Employer and the Contractor in the role representing the Employer.
11. Delegation	11.1 The Project Manager may delegate any of his duties and responsibilities to other people after notifying the Contractor, and may cancel any delegation after notifying the Contractor.
12. Communications	12.1 Communications between parties that are referred to in the Conditions shall be effective only when in writing. Wherever these Conditions provide for the giving or issuing of approvals, certificates, consents, determinations, notices and requests, these communications shall be: (a) in writing and delivered by hand (against receipt), sent by mail or courier, or transmitted using any of the agreed systems of electronic transmission as **stated in the SCC**; and (b) delivered, sent or transmitted to the address for the recipient's communications as stated in the Contract. However: (i) if the recipient gives notice of another address, communications shall thereafter be delivered accordingly; and (ii) if the recipient has not stated otherwise when requesting an approval or consent, it may be sent to the address from which the request was issued. Approvals, certificates, consents and determinations shall not be unreasonably withheld or delayed.

	12.2 A Notice shall be effective when delivered or on the Notice's effective date, whichever is later.
13. Subcontracting	13.1 **For GON Funded:** A list of approved Subcontractors including its value/works is included as Article 2 (k) of contract Agreement. Approval by the Employer for any of the Subcontractors shall not relieve the Contractor from any of its obligations, duties, or responsibilities under the contract. **For DP Funded:** The Contractor may subcontract with the approval of the Project Manager, but may not assign the Contract without the approval of the Employer in writing. Subcontracting shall not alter the Contractor's obligations. Bidders may propose subcontracting up to the percentage of total value of contracts as specified in the SCC. The Sub contractor shall meet the qualification requirement as specified **in SCC.** 13.2 The contractor shall give prior notice to the Employer clearly specifying the nature, scope, and responsibilities of the work to be performed, to engage other subcontractors, material suppliers, equipment suppliers, service providers, or other persons or entities during the implementation of the contract. 13.3 Before notifying the Employer as per GCC 13.2, the contractor shall enter into a written agreement with the subcontractor, material suppliers, equipment suppliers, service providers, or other persons or entities clearly specifying the scope of work, responsibilities, quality requirements, duration, payment terms, security, labor-related obligations, and conditions relating to performance of the work. 13.3 Any subcontracting arrangement made in accordance with GCC 13.2 shall not relieve the Contractor of any of its obligations or liabilities under the Contract. 13.4 The contractor shall provide the Employer with details of the payments made to the subcontractor, material suppliers, equipment suppliers, service providers, or other persons or entities engaged under GCC 13.1 and/or GCC 13.2. 13.5 If the contractor is found not to have made payment to the subcontractor, material suppliers, equipment suppliers, service providers, or other persons or entities engaged under GCC 13.1 and/or GCC 13.2 in accordance with the terms of the agreement, the Employer may determine the amount payable to such subcontractor, material suppliers, equipment suppliers, service providers, or other persons or entities and make payment to them from any remaining dues to be paid to the contractor, retention money, or forfeited performance security.
14. Other Contractors	14.1 The Contractor shall cooperate and share the Site with other contractors, public authorities, utilities, and the Employer between the dates given in the Schedule of Other Contractors, **as referred to in the SCC**. The Contractor shall also provide facilities and services for them as described in the Schedule. The Employer may modify the Schedule of Other Contractors, and shall notify the Contractor of any

	such modification
15 Personnel and Equipment	15.1 The Contractor shall employ the key personnel and use the equipment identified in its Bid to carry out the Works, or other personnel and equipment approved by the Project Manager. The Project Manager shall approve any proposed replacement of key personnel and equipment only if their relevant qualifications or characteristics are substantially equal to or better than those proposed in the Bid.
	15.2 If the Project Manager asks the Contractor to remove a person who is a member of the Contractor's staff or work force, stating the reasons, the Contractor shall ensure that the person leaves the Site within seven days and has no further connection with the work in the Contract.
	15.3 If the Employer, Project Manager, or Contractor determines, that any employee of the Contractor be determined to have engaged in corrupt, fraudulent, collusive, coercive, or other prohibited practices during the execution of the Works, then that employee shall be removed in accordance with Clause 15.2 above.
16. Employer's and Contractor's Risk	16.1 The Employer carries the risks which this Contract states are Employer's risks, and the Contractor carries the risks which this Contract states are Contractor's risks.
17. Employer's Risks	17.1 From the Start Date until the Defects Liability Certificate has been issued, the following are Employer's risks: (a) The risk of personal injury, death, or loss of or damage to property (excluding the Works, Plant, Materials, and Equipment), which are due to (i) use or occupation of the Site by the Works or for the purpose of the Works, which is the unavoidable result of the Works or (ii) negligence, breach of statutory duty, or interference with any legal right by the Employer or by any person employed by or contracted to him except the Contractor. (b) The risk of damage to the Works, Plant, Materials, and Equipment to the extent that it is due to a fault of the Employer or in the Employer's design, or due to war or radioactive contamination directly affecting the country where the Works are to be executed.
	17.2 From the Completion Date until the Defects Liability Certificate has been issued, the risk of loss of or damage to the Works, Plant, and Materials is an Employer's risk except loss or damage due to (a) a Defect which existed on the Completion Date, (b) an event occurring before the Completion Date, which was not itself an Employer's risk, or (c) the activities of the Contractor on the Site after the Completion Date.

18. Contractor's Risks	18.1 From the Starting Date until the Defects Liability Certificate has been issued, the risks of personal injury, death, and loss of or damage to property (including, without limitation, the Works, Plant, Materials, and Equipment) which are not Employer's risks are Contractor's risks.
19. Insurance	19.1 The Contractor shall provide insurance in the joint names of the Employer and the Contractor from the Start Date to the end of the Defects Liability Period, in the amounts and deductibles **stated in the SCC** for the following events which are due to the Contractor's risks: (a) loss of or damage to the Works, Plant, and Materials; (b) loss of or damage to Equipment; (c) loss of or damage to property (except the Works, Plant, Materials, and Equipment) in connection with the Contract; and (d) Personal injury or death.
	19.2 Policies and certificates for insurance shall be delivered by the Contractor to the Project Manager for the Project Manager's approval before the Start Date. All such insurance shall provide for compensation to be payable in the proportions of Nepalese Rupees required to rectify the loss or damage incurred.
	19.3 If the Contractor does not provide any of the policies and certificates required, the Employer may affect the insurance which the Contractor should have provided and recover the premiums the Employer has paid from payments otherwise due to the Contractor or, if no payment is due, the payment of the premiums shall be a debt due.
	19.4 Alterations to the terms of insurance shall not be made without the approval of the Project Manager.
	19.5 Both parties shall comply with any conditions of the insurance policies.
20. Site Investigation Reports	20.1 The Contractor, in preparing the Bid, shall rely on any Site Investigation Reports referred to **in the SCC**, supplemented by any information available to the Contractor.
21. Contractor to Construct the Works	21.1 The Contractor shall construct and install the Works in accordance with the Specifications and Drawings.
22. The Works to Be Completed within intended Completion Date	22.1 The Contractor may commence execution of the Works on the Start Date and shall carry out the Works in accordance with the Program submitted by the Contractor, as updated with the approval of the Project Manager, and complete them within the intended Completion Date.

23. Design by contractor and Approval by the Project Manager	23.1 The contractor shall be responsible for the design of permanent works as **specified in SCC**.
	23.2 Contractor shall be responsible for design of the Temporary Works. The Contractor shall submit Specifications and Drawings showing the proposed Temporary Works to the Project Manager, for his approval.
	23.3 All Drawings prepared by the Contractor for the execution of the temporary or permanent Works, shall be subject to prior approval by the Project Manager before their use.
	23.4 The Project Manager's approval shall not alter the Contractor's responsibility for design of temporary works.
24. Safety, Security and Protection of the Environment	24.1 The Contractor shall, throughout the execution, and completion of the works and remedying of any defects therein: a. Have full regard for the safety of all persons entitled to be upon the site and keep the site (so as the same is under his control) and the works (so far as the same are not completed or occupied by the Employer) in an orderly state appropriate to the avoidance of danger to such persons. b. Provide and maintain at his own cost all lights, guards, fencing, warning signs and watching, when necessary or required by the Project Manager or by any duly constituted authority, for the protection of the Works of for the safety and convenience of the public or others. c. Take all reasonable steps to protect the environment on and off the site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of his methods of operation. d. Ensure that any cut or fill slopes are planted in grass or other plant cover as soon as possible to protect them from erosion. e. Any spoil or material removed from drains shall be disposed of to designated stable tipping areas as directed by the Project Manager. f. Shall not use fuel wood as a means of heating during the processing or preparation of any materials forming part of the works. g. The Project Manager shall have the power to disallow any working practice or activity of the Contractor or direct that such practices or activities be modified should the Project Manager consider, on the advice of the relevant Government Departments, that the practices or activities will be harmful to wildlife. h. Provide on the Site such lifesaving apparatus as may be appropriate and an adequate and easily accessible first aid outfit or such outfits as may be required by any government ordinance, factory act, etc., subsequently published and amended from time to time.
	24.2 The Contractor shall comply with the Employer's Occupational Health and Safety (OHS) Policy, Guideline and/or Operating Manual, if any, **as specified in the SCC.**

25. Discoveries	25.1 Anything of historical or other interest or of significant value unexpectedly discovered on the Site shall be the property of the employer. The Contractor shall notify the Project Manager of such discoveries and carry out the Project Manager's instructions for dealing with them.
26. Possession of the Site	26.1 The Employer shall give possession of all parts of the Site to the Contractor. If possession of a part is not given by the date **stated in the SCC**, the Employer shall be deemed to have delayed the start of the relevant activities, and this shall be a Compensation Event.
27. Access to the Site	27.1 The Contractor shall allow the Project Manager and any person authorized by the Project Manager access to the Site and to any place where work in connection with the Contract is being carried out or is intended to be carried out.
28.Instructions, Inspections and Audits	28.1 The Contractor shall carry out all instructions of the Project Manager which comply with the applicable laws where the Site is located.
	28.2 The Contractor shall keep, and shall make all reasonable efforts to cause its Subcontractors and sub consultants to keep accurate and systematic accounts and records in respect of the Works in such form and details as will clearly identify relevant time changes and costs.
	28.3 The Contractor shall permit the GoN/DP and/or persons appointed by the GoN/DP to inspect the Site and/or the accounts and records of the Contractor and its sub-contractors relating to the performance of the Contract, and to have such accounts and records audited by auditors appointed by the GoN/DP if required by the GoN/DP. The Contractor's attention is drawn to Sub-Clause 73.2 which provides, inter alia, that acts intended to materially impede the exercise of the GoN's/DP's inspection and audit rights provided for under this Sub-Clause constitute a obstructive practice subject to contract termination.
29.Dispute Settlement	29.1 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.
	29.2 Any dispute between the Parties as to matters arising pursuant to this Contract which cannot be settled amicably within thirty (30) days after receipt by one Party of the other Party's request for such amicable settlement may be referred to Arbitration within 30 days after the expiration of amicable settlement period.
30. Procedures for Disputes	30.1 In case of arbitration, the arbitration shall be conducted in accordance with procedures in accordance with law of Nepal at the place **given in the SCC**.
B. Staff and Labor	
31. Forced Labor	31.1 The Contractor shall not employ forced labor, which consists of any work or service, not voluntarily performed, that is exacted from an individual under threat of force or penalty. This covers any kind of involuntary or compulsory labor, such as indentured labor, bonded labor, or similar labor–contracting arrangements.

32. Child Labor	32.1 The Contractor shall not employ children in a manner that is economically exploitative, or is likely to be hazardous, or to interfere with, the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development. Where national laws have provisions for employment of minors, the Contractor shall follow those laws applicable to the Contractor. Children below the age of 18 years shall not be employed in dangerous work.
33.Non-discrimination and Equal Opportunity	33.1 The Contractor shall not make employment decisions on the basis of personal characteristics unrelated to inherent job requirements. The Contractor shall base the employment relationship on the principle of equal opportunity and fair treatment, and shall not discriminate with respect to aspects of the employment relationship, including recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment, access to training, promotion, termination of employment or retirement, and discipline. In countries where national law provides for non-discrimination in employment, the Contractor shall comply with national law. When national laws are silent on nondiscrimination in employment, the Contractor shall meet this Sub clause's requirements. Special measures of protection or assistance to remedy past discrimination or selection for a particular job based on the inherent requirements of the job shall not be deemed discrimination.
B1. Time Control	
34. Program	34.1 Within the time **stated in the SCC**, after the date of the Letter of Acceptance, the Contractor shall submit to the Project Manager for approval a Program showing the general methods, arrangements, order, and timing for all the activities in the Works. In the case of a lump sum contract, the activities in the Program shall be consistent with those in the Activity Schedule.
	34.2 An update of the Program shall be a program showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining work, including any changes to the sequence of the activities.
	34.3 The Contractor shall submit to the Project Manager for approval an updated Program at intervals no longer than the period **stated in the SCC**. If the Contractor does not submit an updated Program within this period, the Project Manager may withhold the amount stated in the SCC from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue Program has been submitted. In the case of a lump sum contract, the Contractor shall Provide an updated Activity Schedule within 15 days of being instructed to by the Project Manager.
	34.4 The Project Manager's approval of the Program shall not alter the Contractor's obligations. The Contractor may revise the Program and submit it to the Project Manager again at any time. A revised Program shall show the effect of Variations and Compensation Events.
35. Extension of the Intended Completion	35.1 The Project Manager shall extend the Intended Completion Date if a Compensation Event occurs or a Variation is issued which makes it impossible for Completion to be achieved by the Intended Completion Date without the

Date	Contractor taking steps to accelerate the remaining work, which would cause the Contractor to incur additional cost.
	35.2 The Project Manager shall decide whether and by how much to extend the Intended Completion Date within 21 days of the Contractor asking the Project Manager for a decision upon the effect of a Compensation Event or Variation and submitting full supporting information at least 21 days prior to the intended completion date. If the Contractor has failed to give early warning of a delay or has failed to cooperate in dealing with a delay, the delay by this failure shall not be considered in assessing the new Intended Completion Date. Along with full supporting information, the contractor shall also submit a revised work schedule and ensure that the Performance Security, Insurance, and Advance Payment Security remain valid. Within fifteen (15) days of the receipt of Letter of Extension of Intended Completion Date from the Employer, the contractor shall submit Performance Security, Advanced Payment Guarantee (if any) and Insurance Policy documents as required with extended validity.
	35.3 If the contractor fails to submit Performance Security, Advanced Payment Guarantee (if any) and Insurance Policy documents, as required with extended validity within the prescribed time as per ITB 35.2, the Contractor shall pay fine at the rate of 0.01% of the final contract price (without VAT but including PS) per day for a maximum of fifteen (15) days. The Employer may deduct the fine from payments due to the Contractor.
36. Acceleration	36.1 When the Employer wants the Contractor to finish before the Intended Completion Date, the Project Manager shall obtain priced proposals for achieving the necessary acceleration from the Contractor. If the Employer accepts these proposals, the Intended Completion Date shall be adjusted accordingly and confirmed by both the Employer and the Contractor.
	36.2 If the Contractor's priced proposals for acceleration are accepted by the Employer, they are incorporated in the Contract Price and treated as a Variation.
37. Delays Ordered by the Project Manager	37.1 The Project Manager may instruct the Contractor to delay the start or progress of any activity within the Works.
38.Management Meetings	38.1 Either the Project Manager or the Contractor may require the other to attend a management meeting. The business of a management meeting shall be to review the plans for remaining work and to deal with matters raised in accordance with the early warning procedure.
	38.2 The Project Manager shall record the business of management meetings and provide copies of the record to those attending the meeting and to the Employer. The responsibility of the parties for actions to be taken shall be decided by the Project Manager either at the management meeting or after the management meeting and stated in writing to all who attended the meeting.
39. Early	39.1 The Contractor shall warn the Project Manager at the earliest opportunity of

Warning	specific likely future events or circumstances that may adversely affect the quality of the work, increase the Contract Price, or delay the execution of the Works. The Project Manager may require the Contractor to provide an estimate of the expected effect of the future event or circumstance on the Contract Price and Completion Date. The estimate shall be provided by the Contractor as soon as reasonably possible.
	39.2 The Contractor shall cooperate with the Project Manager in making and considering proposals for how the effect of such an event or circumstance can be avoided or reduced by anyone involved in the work and in carrying out any resulting instruction of the Project Manager.
C. Quality Control	
40. Identifying Defects	40.1 The Project Manager shall check the Contractor's work and notify the Contractor of any Defects that are found. Such checking shall not affect the Contractor's responsibilities. The Project Manager may instruct the Contractor to search for a Defect and to uncover and test any work that the Project Manager considers may have a Defect.
41. Tests	41.1 If the Project Manager instructs the Contractor to carry out a test not specified in the Specification to check whether any work has a Defect and the test shows that it does, the Contractor shall pay for the test and any samples. If there is no Defect, the test shall be a Compensation Event.
42.Correction of Defects	42.1 The Project Manager shall give notice to the Contractor of any Defects before the end of the Defects Liability Period, which begins at issuance of taking over certificate pursuant to GCC clause 69.2, and is **defined in the SCC**. The Defects Liability Period shall be extended for as long as Defects remain to be corrected.
	42.2 Every time notice of a Defect is given, the Contractor shall correct the notified Defect within the length of time specified by the Project Manager's notice.
43.Uncorrected Defects	43.1 If the Contractor has not corrected a Defect within the time specified in the Project Manager's notice, the Project Manager shall assess the cost of having the Defect corrected, and the Contractor shall pay this amount.
D. Cost Control	
44. Contract Price	44.1 In the case of a Unit Rate contract, the Bill of Quantities shall contain priced items for the Works to be performed by the Contractor. The Bill of Quantities is used to calculate the Contract Price. The Contractor will be paid for the quantity of the work accomplished at the rate in the Bill of Quantities for each item.
	44.2 In the case of a lump sum contract, the Activity Schedule shall contain the priced activities for the Works to be performed by the Contractor. The Activity Schedule is used to monitor and control the performance of activities on which basis the Contractor will be paid. If payment for Materials on Site shall be made separately, the Contractor shall show delivery of Materials to the Site separately on the Activity Schedule.
45. Changes in	45.1 In the case of an Unit Rate contract:

the Contract Price	(a) If the final quantity of the work done differs from the quantity in the Bill of Quantities for the particular item by more than 25 percent, provided the change exceeds 2 percent of the Initial Contract Price, the Project Manager shall adjust the rate to allow for the change. (b) If requested by the Project Manager, the Contractor shall provide the Project Manager with a detailed cost breakdown of any rate in the Bill of Quantities.
	45.2 In the case of a lump sum contract, the Activity Schedule shall be amended by the Contractor to accommodate changes of Program or method of working made at the Contractor's own discretion. Prices in the Activity Schedule shall not be altered when the Contractor makes such changes to the Activity Schedule.
46. Variations	46.1 All Variations shall be included in updated Programs, and, in the case of a lump sum contract, also in the Activity Schedule, produced by the Contractor.
	46.2 The Contractor shall provide the Project Manager with a quotation for carrying out the Variation when requested to do so by the Project Manager. The Project Manager shall assess the quotation, which shall be given within seven (7) days of the request or within any longer period stated by the Project Manager and before the Variation is ordered.
	46.3 If the Contractor's quotation is unreasonable, the Project Manager may order the Variation and make a change to the Contract Price, which shall be based on the Project Manager's own forecast of the effects of the Variation on the Contractor's costs.
	46.4 If the Project Manager decides that the urgency of varying the work would prevent a quotation being given and considered without delaying the work, no quotation shall be given and the Variation shall be treated as a Compensation Event.
	46.5 The Contractor shall not be entitled to additional payment for costs that could have been avoided by giving early warning.
	46.6 In the case of an Unit Rate contract, if the work in the Variation corresponds to an item description in the Bill of Quantities and if, in the opinion of the Project Manager, the quantity of work above the limit stated in **GCC 45.1** or the timing of its execution do not cause the cost per unit of quantity to change, the rate in the Bill of Quantities shall be used to calculate the value of the Variation. If the cost per unit of quantity changes, or if the nature or timing of the work in the Variation does not correspond with items in the Bill of Quantities, the quotation by the Contractor shall be in the form of new rates for the relevant items of work.
47.Cash Flow Forecasts	47.1 When the Program, or, in the case of a lump sum contract, the Activity Schedule, is updated, the Contractor shall provide the Project Manager with an updated cash flow forecast.
48.Payment Certificates	48.1 The Contractor shall submit to the Project Manager monthly statements of the estimated value of the work executed less the cumulative amount certified previously.

	48.2 The Project Manager shall check the Contractor's monthly statement and certify the amount to be paid to the Contractor within 30 days of submission by contractor.
	48.3 The value of work executed shall be determined by the Project Manager.
	48.4 The value of work executed shall comprise: (a) In the case of an Unit Rate contract, the value of the quantities of work in the Bill of Quantities that have been completed; or (b) In the case of a lump sum contract, the value of work executed shall comprise the value of completed activities in the Activity Schedule.
	48.5 The value of work executed shall include the valuation of Variations and Compensation Events.
	48.6 The Project Manager may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information.
49. Payments	49.1 Payments shall be adjusted for deductions for advance payments and retention. The Employer shall pay the Contractor the amounts certified by the Project Manager within 30 days of the date of each certificate. If the Employer makes a late payment, the Contractor shall be paid interest as **indicated in the SCC** on the late payment in the next payment. Interest shall be calculated from the date by which the payment should have been made up to the date when the late payment is made.
	49.2 If an amount certified is increased in a later certificate or as a result of an award by an Arbitrator, the Contractor shall be paid interest upon the delayed payment as set out in this clause. Interest shall be calculated from the date upon which the increased amount would have been certified in the absence of dispute.
	49.3 Items of the Works for which no rate or price has been entered in BOQ shall not be paid for by the Employer and shall be deemed covered by other rates and prices in the Contract.
50.Compensation Events	50.1 The following shall be Compensation Events: (a) The Employer does not give access to a part of the Site by the Site Possession Date pursuant to GCC 26.1. (b) The Employer modifies the Schedule of Other Contractors in a way that affects the work of the Contractor under the Contract. (c) The Project Manager orders a delay or does not issue Drawings, Specifications, or instructions required for execution of the Works on time. (d) The Project Manager instructs the Contractor to uncover or to carry out additional tests upon work, which is then found to have no Defects. (e) The Project Manager unreasonably does not approve a subcontract to be let.

	(f) Ground conditions are substantially more adverse than could reasonably have been assumed before issuance of the Letter of Acceptance from the information issued to bidders (including the Site Investigation Reports), from information available publicly and from a visual inspection of the Site. (g) The Project Manager gives an instruction for dealing with an unforeseen condition, caused by the Employer, or additional work required for safety or other reasons. (h) Other contractors, public authorities, utilities, or the Employer does not work within the dates and other constraints stated in the Contract, and they cause delay or extra cost to the Contractor. (i) The advance payment is delayed. (j) The effects on the Contractor of any of the Employer's Risks. (k) The Project Manager unreasonably delays issuing a Certificate of Completion.
	50.2 If a Compensation Event would cause additional cost or would prevent the work being completed before the Intended Completion Date, the Contract Price shall be increased and/or the Intended Completion Date shall be extended. The Project Manager shall decide whether and by how much the Contract Price shall be increased and whether and by how much the Intended Completion Date shall be extended.
	50.3 As soon as information demonstrating effect of each Compensation Event upon the Contractor's forecast cost has been provided by the Contractor, it shall be assessed by the Project Manager, and the Contract Price shall be adjusted accordingly. If the Contractor's forecast is deemed unreasonable, the Project Manager shall adjust the Contract Price based on the Project Manager's own forecast. The Project Manager shall assume that the Contractor shall react competently and promptly to the event.
	50.4 The Contractor shall not be entitled to compensation to the extent that the Employer's interests are adversely affected by the Contractor's not having given early warning or not having cooperated with the Project Manager.
51. Tax	51.1 The Project Manager shall adjust the Contract Price if taxes, duties, and other levies are changed between the date 30 days before the submission of bids for the Contract and the date of the last Completion certificate. The adjustment shall be the change in the amount of tax payable by the Contractor, provided such changes are not already reflected in the Contract Price or are a result of GCC 53.
52. Currency	52.1 The currency of Contracts shall be Nepalese Rupees.
53.Price Adjustment	53.1 Prices shall be adjusted for fluctuations in the cost of inputs only if **provided for in the SCC**. If so provided, the amounts certified in each payment certificate, before deducting for Advance Payment, shall be adjusted by applying the respective price adjustment factor to the payment amounts due.

	53.2 Adjustment Formulae[7]: The formulae will be of the following general type: $$pn = A + b\frac{Ln}{Lo} + c\frac{Mn}{Mo} + d\frac{En}{Eo} + etc.$$ Where: *pn* is a price adjustment factor to be applied to the amount for the payment of the work carried out in the subject month, determined in accordance with Clause 49; *A* is a constant, specified in the Bidding Forms- Table of Price Adjustment data, representing the nonadjustable portion in contractual payments;[8]b, c, d, etc., coefficients representing the estimated proportion of each cost element (labor, materials, equipment usage, etc.) in the Works or sections thereof, net of Provisional Sums, **as specified in the SCC;** *Ln, Mn, En,* etc., are the current cost indices or reference prices of the cost elements for month "n," determined pursuant to Sub-Clause 53.4, applicable to each cost element; and *Lo, Mo, Eo,* etc., are the base cost indices or reference prices corresponding to the above cost elements at the date specified in Sub-Clause 53.4
	53.3 Sources of Indices and Weightings: The sources of indices shall be those listed in the Bidding Forms- Table of Price Adjustment data, as approved by the Project Manager and stated in SCC. Indices shall be appropriate for their purpose and shall relate to the Contractor's proposed source of supply of inputs on the basis of which his Contract shall have been computed. As the proposed basis for price adjustment, the Contractor shall have submitted with his bid the tabulation of Weightings and Source of Indices in the Bidding Forms, which shall be subject to approval by the Project Manager.
	53.4 Base, Current and Provisional Indices: The base cost indices or prices shall be those prevailing on the day 30 days prior to the latest date for submission of bids. Current indices or prices shall be those prevailing on the day 30 days prior to the last day of the period to which a particular Interim Payment Certificate is related. If at any time the current indices are not available, provisional indices as determined by the Project Manager will be used, subject to subsequent correction of the amounts paid to the Contractor when the current indices become available.
	53.5 Weightings: The weightings for each of the factors of cost given in the Bidding Forms shall be adjusted if, in the opinion of the Project Manager, they have been

[7] For complex Works involving several types of construction work with different inputs, a family of Formulae will be necessary. The various items of Day work may also require different formulae, depending on the nature and source of the inputs

[8] Insert a figure for factor A only where there is a part of the Contractors' expenditures which will not be subject to fluctuation in cost or to compensate for the unreliability of some indices. A should normally be 0.15. The sum of A, b, c, d, etc., should be one.

	rendered unreasonable, unbalanced or inapplicable as a result of varied or additional work already executed or instructed under Clause 46 or for any other reason.
	53.6 Where, price adjustment provision is not applicable pursuant to Sub-clause 53.1 then the Contract is subject to price adjustment only for construction material in accordance with this clause. If the prices of the construction materials stated in the contract is increased or decreased in an unexpected manner in excess of ten (10%) percent in comparison to the base price construction material stated in Section –IV, Bidding Forms-Table of Price Adjustment Data, then the price adjustment for the increase or decrease of price of the construction material beyond 10% shall be made by applying the following formulas: For unexpected increase in price $P = [R_1 - (R_0 \times 1.10)] \times Q$ For unexpected decrease in price P $= [R_1 - (R_0 \times 0.90)] \times Q$ Where: "P" is price adjustment amount "R_1" is the present price of the construction material (Source of indices shall be those listed in the Bidding forms) "R_0" is the base price of the construction material "Q" is quantity of the construction material consumed in construction during the period of price adjustment consideration If the Base price and source is to be proposed by the Bidder as per the provision made in Section –IV, Bidding Forms-Table of Price Adjustment Data then the Base price and source filled by Bidder for the construction material stated in the Bidding Form shall be subject to the approval of the Project manager and shall be as **stated in SCC**..
	53.7 The Price Adjustment amount shall be limited to a maximum of the initial Contract Amount **as specified in the SCC**.
	53.8 The Price Adjustment provision shall not be applicable for delayed period if the contract is not completed in time due to the delay caused by the contractor or the contract is a Lump sum Contract.
54. Retention	54.1 The Employer shall retain from each payment due to theContractor the proportion **stated in the SCC** until Completion of the whole of the Works.
	54.2 Upon the issue of a Defects Liability Certificate by the Project Manager, in accordance with GCC 70.1, half the total amount retained shall be repaid to the Contractor and half when the Contractor has submitted the evidence of submission of tax return to the concerned Internal Revenue Office.
	54.3 The Contractor may substitute retention money with an unconditional bank

	guarantee issued from Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law if: (a) at least eighty (80) percent of the whole works have been completed, (b) progress of the works is satisfactory in accordance with the Contract as per approved work schedule, and (c) it can be assured that the works can be completed at the intended completion date. The validity of the bank guarantee under this sub-clause shall be at least 30 days beyond the end of Defect Liability Period.
	54.4 If retention money is substituted by bank guarantee in accordance with clause 54.3, the bank guarantee shall be submitted either using the Retention Money Security Form included in Section X (Contract Forms) or in another Form acceptable to the employer. The validity of the bank guarantee shall be at least one month more than the end of defect liability period.
55.Liquidated Damages	55.1 The Contractor shall pay liquidated damages to the Employer at the rate per day **stated in the SCC** for each day that the Completion Date is later than the Intended Completion Date. The total amount of liquidated damages shall not exceed the amount **defined in the SCC**. The Employer may deduct liquidated damages from payments due to the Contractor. Payment of liquidated damages shall not affect the Contractor's liabilities.
	55.2 If the Intended Completion Date is extended after liquidated damages have been paid, the Project Manager shall correct any overpayment of liquidated damages by the Contractor by adjusting the next payment certificate. The Contractor shall be paid interest on the overpayment, calculated from the date of payment to the date of repayment, at the rates specified in GCC 49.
56. Bonus	56.1 The Contractor shall be paid a Bonus calculated at the rate per calendar day **stated in the SCC** for each day (less any days for which the Contractor is paid for acceleration) that the Completion is earlier than the Intended Completion Date. The Project Manager shall certify that the Works are complete, although they may not be due to be complete.
57.Advance Payment	57.1 Unless otherwise **stated in SCC,** 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 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. The validity of the bank guarantee under this sub-clause shall be at least 30

	days beyond the end of intended completion date. The contractor shall submit the list of activities for which the Advance Payment for mobilization to be used along with their time schedules.
	57.2 The Contractor is to use the advance payment only to pay for the purpose of construction site preparation, establishment of temporary camp facilities, construction of workers' housing, mobilization of labors, materials or equipment etc 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.
	57.3 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.
	57.4 If the advance provided under GCC 57.1 is not repaid due to non-performance of the works under the contract, by the contractor within the time period specified in the contract, the Employer shall recover the advance by enforcing the bank guarantee as provided under GCC 57.1, and shall also recover interest on the advance amount from the contractor at a rate **stated in SCC.**
58. Securities	58.1 The Performance Security, including any additional security required as per ITB 29.5, shall be provided to the Employer no later than the date specified in the Letter of Acceptance and shall be issued in an amount **specified in the SCC,** by a 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, and denominated in Nepalese Rupees. The Performance Security shall be valid until a date 30 days beyond the end of the Defect Liability Period. Any additional performance security required as per ITB 29.5 shall be valid until a date 30 days beyond the end of the intended completion date.
	58.2 The performance security issued by any foreign Bank outside Nepal must be counter guaranteed by a Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law in Nepal.
59. Day works	59.1 If applicable, the Day works rates in the Contractor's Bid shall be used for small additional amounts of work only when the Project Manager has given written instructions in advance for additional work to be paid for in that way.
	59.2 All work to be paid for as Day works shall be recorded by the Contractor on forms approved by the Project Manager. Each completed form shall be verified and signed by the Project Manager within two days of the work being done.
	59.3 The Contractor shall be paid for Day works subject to obtaining signed Day works forms.
60. Cost of	60.1 Loss or damage to the Works or Materials to be incorporated in the Works

Repairs	between the Start Date and the end of the Defects Correction periods shall be remedied by the Contractor at the Contractor's cost if the loss or damage arises from the Contractor's acts or omissions.
F. Force Majeure	
61.Definition of Force Majeure	61.1 In this Clause, "Force Majeure" means an exceptional event or circumstance, (a) which is beyond a Party's control; (b) which such Party could not reasonably have provided against before entering into the Contract; (c) which, having arisen, such Party could not reasonably have avoided or overcome; and (d) which is not substantially attributable to the other Party.
	61.2 Force Majeure may include, but is not limited to, exceptional events or circumstances of the kind listed below, so long as conditions (a) to (d) above are satisfied: (a) war, hostilities (whether war be declared or not), invasion, act of foreign enemies; (b) rebellion, terrorism, sabotage by persons other than the Contractor's Personnel, revolution, insurrection, military or usurped power, or civil war; (c) riot, commotion, disorder, strike or lockout by persons other than the Contractor's Personnel; (d) munitions of war, explosive materials, ionizing radiation or contamination by radio-activity, except as may be attributable to the Contractor's use of such munitions, explosives, radiation or radio-activity; and (e) natural catastrophes such as earthquake, hurricane, typhoon or volcanic activity.
62. Notice of Force Majeure	62.1 If a Party is or will be prevented from performing its substantial obligations under the Contract by Force Majeure, then it shall give notice to the other Party of the event or circumstances constituting the Force Majeure and shall specify the obligations, the performance of which is or will be prevented. The notice shall be given within 14 days after the Party became aware, or should have become aware, of the relevant event or circumstance constituting Force Majeure.
	62.2 The Party shall, having given notice, be excused performance of its obligations for so long as such Force Majeure prevents it from performing them.
	62.3 Notwithstanding any other provision of this Clause, Force Majeure shall not apply to obligations of either Party to make payments to the other Party under the Contract.
63. Duty to	63.1 Each Party shall at all times use all reasonable endeavors to minimize any delay

Minimize Delay	in the performance of the Contract as a result of Force Majeure.
	63.2 A Party shall give notice to the other Party when it ceases to be affected by the Force Majeure.
64. Consequences of Force Majeure	64.1 If the Contractor is prevented from performing its substantial obligations under the Contract by Force Majeure of which notice has been given under GCC 62, and suffers delay and/or incurs Cost by reason of such Force Majeure, the Contractor shall be entitled subject to GCC 30 to (a) an extension of time for any such delay, if completion is or will be delayed, under GCC35 ; and (b) if the event or circumstance is of the kind described in sub-paragraphs (a) to (d) of GCC 61.2 and, in the case of subparagraphs (b) to (d), occurs in the Country, payment of any such Cost, including the costs of rectifying or replacing the Works and/or Goods damaged or destructed by Force Majeure, to the extent they are not indemnified through the insurance policy referred to in GCC 19.
	64.2 After receiving this notice, the Project Manager shall proceed in accordance with GCC 10 to agree or determine these matters.
65. Force Majeure Affecting Subcontractor	65.1 If any Subcontractor is entitled under any contract or agreement relating to the Works to relief from force majeure on terms additional to or broader than those specified in this Clause, such additional or broader force majeure events or circumstances shall not excuse the Contractor's nonperformance or entitle him to relief under this Clause.
66.Optional Termination, Payment and Release	66.1 If the execution of substantially all the Works in progress is prevented for a continuous period of 90 days by reason of Force Majeure of which notice has been given under GCC 62, or for multiple periods which total more than 150 days due to the same notified Force Majeure, then either Party may give to the other Party a notice of termination of the Contract. In this event, the termination shall take effect 7 days after the notice is given, and the Contractor shall proceed in accordance with GCC 72.5.
	66.2 Upon such termination, the Project Manager shall determine the value of the work done and issue a Payment Certificate, which shall include (a) the amounts payable for any work carried out for which a price is stated in the Contract; (b) the Cost of Plant and Materials ordered for the Works which have been delivered to the Contractor, or of which the Contractor is liable to accept delivery: this Plant and Materials shall become the property of (and be at the risk of) the Employer when paid for by the Employer, and the Contractor shall place the same at the Employer's disposal; (c) other Costs or liabilities which in the circumstances were reasonably and

	necessarily incurred by the Contractor in the expectation of completing the Works; (d) the Cost of removal of Temporary Works and Contractor's Equipment from the Site and the return of these items to the Contractor's works in his country (or to any other destination at no greater cost); and (e) the Cost of repatriation of the Contractor's staff and labor employed wholly in connection with the Works at the date of termination.
67. Release from Performance	67.1 Notwithstanding any other provision of this Clause, if any event or circumstance outside the control of the Parties (including, but not limited to, Force Majeure) arises, which makes it impossible or unlawful for either or both Parties to fulfill its or their contractual obligations or which, under the law governing the Contract, entitles the Parties to be released from further performance of the Contract, then upon notice by either Party to the other Party of such event or circumstance, (a) the Parties shall be discharged from further performance, without prejudice to the rights of either Party in respect of any previous breach of the Contract; and (b) the sum payable by the Employer to the Contractor shall be the same as would have been payable under GCC 66 if the Contract had been terminated under GCC 66.
G. Finishing the Contract	
68. Completion	68.1 The Contractor shall request the Project Manager to issue a certificate of Completion of the Works, and the Project Manager shall do so upon deciding that the work is completed.
	68.2 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.
69. Taking Over	69.1 In the contractor's Opinion, if the works are complete and ready for taking over, the contractor may apply by notice to the Project Manager for a Taking-Over Certificate. If the Works are divided into Sections, the Contractor may similarly apply for a Taking-Over Certificate for each Section.

	69.2 The Project Manager shall, within 30 days after receiving the Contractor's application: (a) issue the Taking-Over Certificate to the Contractor if physical progress of works is at least ninety (90) percent in accordance with the Contract except for any minor outstanding work and defects (as listed in the Taking-Over Certificate) which will not substantially affect the use of the Works or Section for their intended purpose (either until or whilst this work is completed and these defects are remedied); or (b) reject the application, giving reasons and specifying the work required to be done by the Contractor to enable the Taking-Over Certificate to be issued. The Contractor shall then complete this work before issuing a further notice under this Sub-Clause.
	69.3 If the Engineer fails either to issue the Taking-Over Certificate or to reject the Contractor's application within the period of 30 days, and if the Works or Section (as the case may be) are substantially completed in accordance with the Contract, the Taking-Over Certificate shall be deemed to have been issued on the last day of that period.
70. Final Account	70.1 The Contractor shall supply the Project Manager with a detailed account of the total amount that the Contractor considers payable under the Contract before the end of the Defects Liability Period. The Project Manager shall issue a Defects Liability Certificate and certify any final payment that is due to the Contractor within 60 days of receiving the Contractor's account if it is correct and complete. If it is not, the Project Manager shall issue within 60 days a schedule that states the scope of the corrections or additions that are necessary. If the Final Account is still unsatisfactory after it has been resubmitted, the Project Manager shall decide on the amount payable to the Contractor and issue a payment certificate.
71. Operating and Maintenance Manuals	71.1 If "as built" Drawings and/or operating and maintenance manuals are required, the Contractor shall supply them by the **dates stated in the SCC**.
	71.2 If the Contractor does not supply the Drawings and/or manuals by the dates **stated in the SCC** pursuant to **GCC 71.1,** or they do not receive the Project Manager's approval, the Project Manager shall withhold the amount **stated in the SCC** from payments due to the Contractor.
72. Termination	72.1 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.
	72.2 The Employer or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract.
	72.3 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 Project Manager gives two consecutive Notices to update the Program and accelerate the works to ensure compliance with GCC Sub clause 22.1 and the Contractor fails to update the Program 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 days for which the maximum amount of liquidated damages can be paid, **as defined in the SCC**; 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, pursuant to GCC 73.1. k) The Contractor fails to submit Performance Security, Advanced Payment Guarantee (if any) and Insurance Policy documents with extended validity within the time prescribed pursuant to GCC 35.3.
	72.4 When either party to the Contract gives notice of a breach of Contract to the Project Manager for a cause other than those listed under GCC 72.3 above, the Project Manager shall decide whether the breach is fundamental or not.
	72.5 Notwithstanding the above, the Employer may terminate the Contract for convenience.
	72.5 Notwithstanding the above, the Employer may terminate the Contract for convenience. 72.6 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.

73.Fraud and Corruption	73.1 If the Employer determines that the Contractor has engaged in corrupt, fraudulent, collusive, coercive or obstructive practices, in competing for or in executing the Contract, then the Employer may, after giving 15 days' notice to the Contractor, terminate the Contractor's employment under the Contract and expel him from the Site.
	73.2 Should any employee of the Contractor be determined to have engaged in corrupt, fraudulent, collusive, coercive, or obstructive practice during the execution of the Works, then that employee shall be removed in accordance with GCC Clause 15. For the purposes of this GCC 73; (i) "corrupt practice" is the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party. (ii) "fraudulent practice"[5] is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation; (iii) "collusive practice"[6] is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party; (iv) "coercive practice"[7] is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party; (v) "obstructive practice" is (aa) deliberately destroying, falsifying, altering or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; and/or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or (bb) acts intended to materially impede the exercise of the GON's/DP's inspection and audit rights provided for under GCC28.3.
	73.3 The contractor shall be prosecuted for offenses under prevailing criminal laws, if the contractor: (i) Misuses the Advance Payment or payments received from the Employer; (ii) Receives payment by submitting false information or documents; (iii) Abandons the works before completion; (iv) Commits a serious violation of the contract; or (v) Causes loss or damage to the Employer.
74. Black Listing	74.1 Without prejudice to any other rights of the Employer under this Contract, GoN, Public Procurement Monitoring Office (PPMO), on the recommendation of procuring entity, may blacklist a Bidder or contractor for its conduct for a period of

	one (1) to three (3) years on the following grounds and seriousness of the act committed by the bidder or contractor: (a) if it is established that the Contractor has committed substantial defect in implementation of the contract or has not substantially fulfilled its obligations under the contract or the completed work is not of the specified quality as per the contract. (b) If convicted from a court of law in a criminal offense liable to be disqualified for taking part in procurement contract, (c) If it is established that the Contractor has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.
75. Payment upon Termination	75.1 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.
	75.2 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.
	75.3 If the Contract is terminated because of fundamental breach of Contract or for any other fault by the Contractor, the Employer may: (a) withhold further payments to the Contractor until the costs of design, execution, completion and remedying of any defects, liquidated damages (if any), and all other costs incurred by the Employer, have been established, and/or (b) recover from the Contractor any losses and damages incurred by the Employer and any extra costs of completing the Works, after allowing for any sum due to the Contractor, as Government dues. After recovering any such losses, damages and extra costs, the Employer shall pay any balance to the Contractor. (c) forfeit the Performance Security. 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.
76. Property	76.1 All Materials on the Site, Plant, Equipment, Temporary Works, and Works shall be deemed to be the property of the Employer if the Contract is terminated because of the Contractor's default.
77.Release from Performance	77.1 If the Contract is frustrated by the outbreak of war or by any other event entirely outside the control of either the Employer or the Contractor, the Project Manager shall certify that the Contract has been frustrated. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all work carried out before receiving it and for any work carried out afterwards to which a commitment was made.

78. Suspension of DP Loan/Credit/ Grant	78.1 In the event that the DP suspends the loan/ credit/grant to the Employer from which part of the payments to the Contractor are being made: a. the Employer is obligated to notify the Contractor of such suspension within 7 days of having received the DP's suspension notice; and b. if the Contractor has not received sums due him within the 30 days for payment provided for in GCC 49.1, the Contractor may immediately issue a 15-day termination notice.
79. Eligibility	79.1 The Contractor shall have the nationality of an eligible country as specified in Section V of the bidding document. The Contractor shall be deemed to have the nationality of a country if the Contractor is a citizen or is constituted, or incorporated, and operates in conformity with the provisions of the laws of that country. This criterion shall also apply to the determination of the nationality of proposed subcontractors or suppliers for any part of the Contract including related services.
	79.2 The materials, equipment, and services to be supplied under the Contract shall have their origin in eligible source countries **as specified in SCC** and all expenditures under the Contract will be limited to such materials, equipment, and services. At the Employer's request, the Contractor may be required to provide evidence of the origin of materials, equipment, and services.
	79.3 For purposes of GCC 79.2, "origin" means the place where the materials and equipment are mined, grown, produced, or manufactured, and from which the services are provided. Materials and equipment are produced when, through manufacturing, processing, or substantial or major assembling of components, a commercially recognized product results that differs substantially in its basic characteristics or in purpose or utility from its components.
80.ProjectManager's Duties and Authorities	80.1 The Project Manager's duties and authorities are restricted to the extent as **stated in the SCC**.
81.Quarries and Spoil Dumps	81.1 Any quarry operated as part of this Contract shall be maintained and left in a stable condition without steep slopes and be either refilled or drained and be landscaped by appropriate planting. Rock or gravel taken from a river shall be removed over some distance so as to limit the depth of material removed at any one location, not disrupt the river flow or damage or undermine the river banks. The Contractor shall not deposit excavated material on land in Government or private ownership except as directed by the Project Manager in writing or by permission in writing of the authority responsible for such land in Government ownership, or of the owner or responsible representative of the owner of such land in private ownership, and only then in those places and under such conditions as the authority, owner or responsible representative may prescribe.
82. Local Taxation	82.1 The prices bid by the Contractor shall include all taxes that may be levied in accordance to the laws and regulations in being in Nepal on the date 30 days prior to the closing date for submissions of Bids on the Contractor's equipment, plant

	and materials acquired for the purpose of the Contract and on the services performed under the Contract. Nothing in the Contract shall relieve the Contractor from his responsibility to pay any tax that may be levied in Nepal on profits made by him in respect of the Contract.
83. Value Added Tax	83.1 The Contract is not exempted from value added tax. An amount specified in the schedule of taxes shall be paid by the Contractor in the concerned VAT office within time frame specified in VAT regulation.
84. Income Taxes on Staff	84.1 The Contractor's staff, personnel and labor will be liable to pay personal income taxes in Nepal in respect of their salaries and wages, as are chargeable under the laws and regulations for the time being in force, and the Contractor shall perform such duties in regard to such deductions as may be imposed on him by such laws and regulations.
	84.2 The issue of the Final Account Certificate pursuant to clause GCC 70 shall be made only upon submittal by the Contractor of a certificate of income tax clearance from the Government of Nepal.
85. Duties, Taxes and Royalties	85.1 Any element of royalty, duty or tax in the price of any goods including fuel oil, and lubricating oil, cement, timber, iron and iron goods locally procured by the Contractor for the works shall be included in the Contract rates and prices and no reimbursement or payment in that respect shall be made to the Contractor.
	85.2 The Contractor shall familiarize himself with GON the rules and regulations with regard to customs, duties, taxes, clearing of goods and equipment, immigration and the like, and it will be necessary for him to follow the required procedures regardless of the assistance as may be provided by the Employer wherever possible.
	85.3 The Contractor shall pay and shall not be entitled to the reimbursement of cost of extracting construction materials such as sand, stone/boulder, gravel, etc. from the river beds or quarries. Such prices will be levied by the concerned Local Government (LG) as may be in force at the time. The Contractor, sub-contractor(s) employed directly by him and for whom he is responsible, will not be exempted from payment of royalties, taxes or other kinds of surcharges on these construction materials so extracted and paid for to the concerned Local Government (LG)
86. Member of Government , etc, not Personally Liable	86.1 No member or officer of GoN or the Employer or the Project Manager or any of their respective employees shall be in any way personally bound or liable for the act or obligations of the Employer under the Contract or answerable for any default or omission in the observance or performance of any of act, matter or thing which are herein contained.
87. Approval of Use of Explosives	87.1 No explosives of any kind shall be used by the Contractor without the prior consent of the Employer in writing and the Contractor shall provide, store and handle these and all other items of every kind whatsoever required for blasting operations, all at his own expense in a manner approved in writing by the Employer.

88 Compliance with Regulations for Explosives	88.1 The Contractor shall comply with all relevant ordinances, instructions and regulations which the Government, or other person or persons having due authority, may issue from time to time regarding the handling, transportation, storage and use of explosives.
89. Permission for Blasting	89.1 The Contractor shall at all times maintain full liaison with and inform well in advance, and obtain such permission as is required from all Government authorities, public bodies and private parties whatsoever concerned or affected, or likely to be concerned or affected by blasting operation.
90.Records of Explosives	90.1 Before the beginning of the Defects Liability Period, the Contractor shall account to the satisfaction of the Project Manager for all explosives brought on to the Site during the execution of the Contract and the Contractor shall remove all unused explosives from the Site on completion of works when ordered by the Project Manager.
91. Traffic Diversion	91.1 The Contractor shall include the necessary safety procedures regarding and pedestrian traffic diversion that is needed in execution of the works. The Contractor shall include in his costing of works, any temporary works or diversion that are needed during the construction period. All traffic diversion should be designed for the safety of both the motoring public and the men at work. It shall ensure the uninterrupted flow of traffic and minimum inconvenience to the public during the period concerned. As such, adequate warning signs, flagmen and other relevant safety precautionary measures shall be provided to warn motorists and pedestrians well ahead of the intended diversion as directed by the Project Manager. All traffic devices used shall be designed in accordance with the instruction of Project Manager.
92. Social Security Fund	92.1 The contractor shall enroll the laborers, employees, or other workforce engaged in such work in the Social Security Fund in accordance with prevailing laws. 92.2 The contractor shall be responsible to disburse the remuneration, benefits, and other payments of the laborers, employees, or workforce into the bank account of the concerned individual. 92.3 The contractor shall be responsible for ensuring that the required work permit has been obtained in accordance with prevailing laws in respect of foreign personnel.

Section VIII: Special Conditions of Contract

The following Special Conditions of Contract shall supplement the GCC. Whenever there is a conflict, the provisions herein shall prevail over those in the GCC.

Water resource and Irrigation development division office, Gulmi

Construction of Canal Works of Aslewa Chaurphant Irrigation Project, Satyawati-1, Aslewa, Gulmi

Special Conditions of Contract

A. General	
GCC 1.1 (p)	The Employer is **W*ater Resource and Irrigation Development Division Office, Gulmi***
GCC 1.1 (u)	The Intended Completion Date for the whole of the Works shall be ***B.S. 2084/03/10***
GCC 1.1(bb) & GCC 10.1	The Project Manager is: Division Chief The Project Manager and Engineer are synonyms.
GCC 1.1 (ee)	The Site is located at Satyawati-01***, Gulmi and is defined in drawings No. 1***
GCC 1.1 (hh)	The Start Date shall be **After 7 days from Signing of Contract**
GCC 1.1 (ll)	The Works consist of **Construction of Canal Works of Aslewa Chaurphant Irrigation Project, Satyawati-1, Aslewa, Gulmi**
GCC 2.2	Sectional Completions are: ***N/A***
GCC 2.3 (i)	The following documents also form part of the Contract:
GCC 3.1	The language of the contract is **ENGLISH/NEPALI** The law that applies to the Contract is the law of NEPAL
GCC 11.1	The Project Manager ***"may"*** delegate any of his duties and responsibilities.
GCC 12.1 (a)	The agreed electronic transmission shall be: ***Email: irrigation.gulmi@gmail.com***
GCC 14.1	Schedule of other contractors:
GCC 19.1	The minimum insurance amounts and deductibles shall be: 1. The minimum cover for loss of or damage to the Works, Plant and Materials is: **115 %** of the Contract Amount. 2. The maximum deductible for insurance of the Works and of Plant and Materials is: NPR.***1,00,000.00*** 3. The minimum cover for loss or damage to immovable Equipment/plants is : ***100% (i.e Replacement Cost)*** 4. The maximum deductible for insurance of immovable Equipment/plant is: ***NPR.1,00,000.00*** 5. The minimum cover for loss of or damage to other property is: ***NPR. 50,000.00***with

	unlimited number of occurrences 6. The maximum deductible for insurance of other property is NPR.**50,000.00** 7. The minimum cover for personal injury or death insurance i. for the Contractor's employees is that specified in the Labor act of Nepal and ii. for other people is NPR.***10,00,000.00*** with an unlimited number of occurrences
GCC 20.1	Site Investigation Reports are: ***Updated programme***
GCC 23.1	The following shall be designed by the Contractor: ***Quality assuarance plan***
GCC 24.2	***[Insert OHS Policy, Guideline and/or Operating Manual, if any].***
GCC 26.1	The Site Possession Date(s) shall be: ***within 7 days from date of contract signing***
GCC 30.1	The place of arbitration shall be: ***Wriddo, Gulmi***
C. Time Control	
GCC 34.1	The Contractor shall submit for approval a Program for the Works within **30** days from the date of the Letter of Acceptance.
GCC 34.3	The period between Program updates is **30** days. The amount to be withheld for late submission of an updated Program is NPR.**20,000.00**
D. Quality Control	
GCC 42.1	The Defects Liability Period is: ***365*** days.
E. Cost Control	
GCC 49.1	***10%***
GCC 53.1	The Contract ***"is not"*** subject to price adjustment, and the following information regarding coefficients ***"does not"*** apply. The coefficients and indices for adjustment of prices in Nepalese Rupees shall be as specified in the Table of Adjustment Data submitted by bidder together with the Letter of Price Bid which is approved by the Project manager and attached as Annex-1.
GCC 53.6	Base Price of Construction Materials applicable for price adjustment shall be as per the Table of Adjustment Data submitted by Bidder together with the Letter of Price Bid which is approved by the Project manager and attached as Annex-1.
GCC 53.7	The Price Adjustment amount shall be limited to a maximum of :N/A

GCC 54.1	The proportion of payments retained is: 5 (five) percent.
GCC 55.1	The liquidated damages for the whole of the Works are 0.05 Percent of the final Contract Price (without VAT but including PS) per day. The maximum amount of liquidated damages for the whole of the Works is 10 Percent of the final Contract Price (without VAT but including PS).
GCC 56.1	The provision of bonus ***"Not Applicable"*** in the contract. If Applicable, the Bonus for the whole of the Works is 0.05 Percent of the final Contract Price (without VAT but including PS) per day. The maximum amount of Bonus for the whole of the Works is ***[Insert Percentage]*** of the final Contract Price (without VAT but including PS).
GCC 57.1	The provision of Advance Payments ***"Not Applicable"*** in the contract. If Applicable, the Advance Payments shall be: ***[Insert percentage] percent of initial contract amount (without VAT but including PS)]*** and shall be paid in two equal installments and to the Contractor. ***[specify how and when the installments will be paid]***
GCC 57.3	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 ***[Insert percentage]***[9] 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.
GCC 57.4	Recover interest on the advance amount from the Contractor should be at a rate of **10 %**.
GCC 58.1	The Performance Security amount is: **5%**
G. Finishing the Contract	
GCC 71.1	The date by which operating and maintenance manuals are required is : after 2084/3/10
GCC 71.2	The date by which "as built" drawings are required is: ***30 days after work acceptance date,*** The amount to be withheld for failing to produce "as built" drawings and/or Operating and maintenance manuals is: NPR.**50,000.00**
GCC 72.3 (i)	The maximum number of days is: **200**
GCC 79.2	For GoN funded: For the purpose of Country of Origin: "all Countries" *countries]*
GCC 80	The Project Manager has to obtain the specific approval of the Employer for taking any of the following actions : a. Approving subcontracting of any part of the works under General Conditions of Contract Clause 13; b. Certifying additional costs determined under General Conditions of Contract Clause 50;

[9] ***[% of advance payment × 100/(80-30)]***

	c. Determining start date under General Conditions of Contract Clause 1; d. Determining the extension of the intended Completion Date under General Conditions of Contract Clause 35; e. Issuing a Variation under General Conditions of Contract Clause 1 and 46, except in an emergency situation, as reasonably determined by the Project Manager; emergency situation may be defined as the situation when protective measures must be taken for the safety of life or of the works or of adjoining property. f. Adjustment of rates under General Conditions of Contract Clause 45;

Section IX: Contract Forms

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

Letter of Intent

[on letterhead paper of the Employer]

Date: ... ……

To: .....***Name and address of the Contractor***.....

Subject: …… Issuance of letter of intent to award the contract.....

This is to notify you that, it is our intention to award the contract ... .***[insert date]*** .....for execution of the ... .***[insert name of the contract and identification number, as given in the Contract BDS/SCC]*** to you as your bid price ***Nepalese Rupees*** ..... ***[insert amount of contract price in figures and words including taxes]*** as corrected and modified in accordance with the Instructions to Bidders is hereby selected as substantially responsive evaluated bid closest to the Average Bid Price.

Authorized Signature: ……

Name: ... …….

Title: …….

CC:
[Insert name and address of all other Bidders, who submitted the bid]

[Notes on Letter of Intent
The issuance of Letter of Intent is the information of the selection of the bid of the successful bidder by the Employer and for providing information to other unsuccessful bidders who participated in the bid as regards to the outcome of the procurement process. This standard form of Letter of Intent to Award should be filled in and sent to the successful Bidder only after evaluation and selection of substantially responsible evaluated bid closest to the Average Bid Price.]

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 Bid for the Invitation of Bids dated ***.....[Insert date of bid invitation]*** ……..for execution of the……..***[Insert name of the contract and identification number, as given in the Contract BDS/SCC]*** ……... for the Contract price of Nepalese Rupees ***[insert amount in figures and words including taxes],*** 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 15 days with Performance Security of **NRs**. ……. in accordance with the Conditions of Contract, using for that purpose the Performance security Form included in Section X (Contract Forms) of this Bidding Document.

Authorized Signature: ……...

Name and Title of Signatory: ……

Contract Agreement

THIS AGREEMENT made the .....day of…..between……. name of the Employer ***……(hereinafter "the Employer"),*** of the one part, and ……name of the Contractor ……(hereinafter "the Contractor"), of the other part:

WHEREAS the Employer desires that the Works known as …….... name of the Contract .....should be executed by the Contractor, and has accepted a Bid 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. This Agreement shall prevail over all other Contract documents.
   (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 List of Eligible Countries as per GCC,
   (f) the General Conditions of Contract;
   (g) the Specification;
   (h) the Drawings;
   (i) Bill of Quantities (or Schedules of Prices for lump sum contracts), and
   (j) Table of Price Adjustment Data
   (k) List of Approved Subcontractors
   (l).....***[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 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
Witness, Name, Signature, Address, Date

Signed by……..
for and on behalf of the Employer in the presence of
Witness, Name, Signature, Address, Date

Witness, Name Signature, Address, Date List of Approved Subcontractors

In accordance with GCC Sub-Clause 13.1, The following Subcontractors are approved for carrying out the work as specified below.

Name of Subcontractors	Description of Works	Value/Percentage of subcontract

Performance Security

(On letterhead paper of the Bank)

..... ***Bank's Name, and Address of Issuing Branch or Office*** .....

Beneficiary: ..... ***[Insert Name and Address of Employer]*** …….....
Date: .....

Performance Guarantee No.:…….

We have been informed that ... ... ***[insert name of the Contractor, which in the case of a joint venture shall be the name of the joint venture]*** (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.

At the request of the Contractor, we..…..…. ***[insert name of the Bank]*** hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of Nepalese Rupees .....***[insert amount in figures* and amount in words)*** such sum being payable in Nepalese Rupees, upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation(s) under the Contract, without your needing to prove or to show grounds for your demand or the sum specified therein.

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

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG), 2010 Revisions,, ICC Publication No. 758 , .except that the supporting statement under Article 15(a) is hereby excluded..

……

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.*

Advance Payment Security

(On letterhead paper of the Bank)

…….. Bank's Name, and Address of Issuing Branch or Office.....

Beneficiary: ……***[Insert Name and address of employer]***

Date : ……

Advance Payment Guarantee No……..

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

Furthermore, we understand that, according to the Conditions of the Contract, an advance payment in the sum Nepalese Rupees ……. ***[insert amount in figures*and in words]*** is to be made against an advance payment guarantee.

At the request of the Contractor, we..... ***[insert name of the Bank]*** hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of Nepalese Rupees ……***[insert*** amount in figures****. =and amount in words]*** upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation under the Contract because the Contractor:

(a) Used the advance payment for purposes other than the costs of mobilization in respect of the Works. Or

(b) .Has failed to repay the advance payment when it has become due and payable in accordance with the conditions of the contract, specifying the amount payable by the contractor.

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 .. ***[insert day]***..... day of ... ***[insert month, year]***...**, whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG), 2010 Revisions,, ICC Publication No. 758 , except that the supporting statement under Article 15(a) is hereby excluded..

……

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 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.*

Retention Money Security

(On letterhead paper of the Bank)

..... ***Bank's Name, and Address of Issuing Branch or Office***.....

Beneficiary: _____ ***[Insert name and Address of Employer]***

Date: _____***[Insert date of issue]***

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

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

Furthermore, we understand that, according to the conditions of the Contract, the Beneficiary retains moneys up to the limit set forth in the Contract ("the Retention Money"), and that when at least eighty (80) percent of the whole works have been completed, progress of the works is satisfactory in accordance with the Contract as per approved work schedule and it can be assured that the works can be completed at the intended completion date, payment of ***[insert the amount of the Retention Money]*** is to be made against a Retention Money guarantee.

At the request of the Contractor, we, .. . ***[insert name of the Bank]*** ……., as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of Nepalese Rupees _____ ***[insert amount in figures andamount in words]***[1] upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Contractor is in breach of its obligation(s) under the Contract, without your needing to prove or show grounds for your demand or the sum specified therein.

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

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG), 2010 Revisions,, ICC Publication No. 758 , except that the supporting statement under Article 15(a) is hereby excluded.

……

Seal of Bank and Signature(s)

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

[1] *The Guarantor shall insert the amount of the Retention Money.*

[2] *Insert the same expiry date which is 30 days more than the end of Defect Liability Period. The Employer should note that in the event of an extension of this date 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.*

Annex-1

Table of Price Adjustment Data
[GCC 53.1]

Code	Index Description	Source of Index*	Base Value and Date	Employer's Proposed Weighting Range (coefficient)	Bidder's Proposed Weighting (coefficient)**
1	**2**	**3**	**4**	**5**	**6**
	Non - adjustable (A)			0.15	0.15
	Labor (b)				
	Materials (c)				
	…				
	Equipment usage (d)				
		Total			**1.00**

Note: Base value and Bidder's proposed weighting coefficient to be filled as per "Bid Form of Table of Price Adjustment Data" in Bidding Forms (Section-IV) after verification by the Employer in case of the alternative provision of Bidder proposed value and weighting coefficient.

Table of Price Adjustment Data
[GCC 53.6]

Code	Construction Material*	Unit	Base Price (NRs/Unit) ** (Ex-factory)	Source (Factory)**
1	**2**	**3**	**4**	**5**

** For the purpose of calculation of price adjustment, the Ex-factory price of the same source mentioned in the table shall be taken into consideration.

Note: Base Price and source to be filled as per "Bid Form of Table of Price Adjustment Data" in Bidding Forms (Section-IV) after verification by the Employer in case of the alternative provision of Bidder proposed source and base price.

GOVERNMENT OF LUMBINI PROVINCE

MINISTRY OF URBAN DEVELOPMENT, ENERGY, IRRIGATION AND WATER SUPPLY

WATER RESOURCES & IRRIGATION DEVELOPMENT DIVISION OFFICE

Gulmi

Bill of Quantity

2083/084

Name of project : Aslewa Chaurphant Irrigation Project,

Name of works : Construction of Canal Works

Location : Satyawati-1, Aslewa, Gulmi

S. No.	Description of work	Total Quantity	Unit	Rate		Total Amount	Remarks
				In Figure	In Words		
A	**Civilworks**						
1	Earth Work in excavation of soil including disposal all lead and lift all complete	142.70	Cu.m				
2	Backfilling behind abutment,wing wall, return wall, and other structures in 20 cm layer compaction by tamping rod all complete	59.35	Cu.m				
3	Concreting work in ratio of (1:3:6) (M 10) including supplying of materials as per drawing and instruction all complete	27.59	Cu.m				
4	Concreting work in ratio of (1:2:4) (M 15) including supplying of materials as per drawing and instruction all complete	109.85	Cu.m				
5	Cutting , Bending, placing in position as shown in the Drawing & binding by binding wire of Reinforcement Bars for RCC as per drawing and instruction all complete	5309.32	Kg				
6	Providing, Preparing, and Installing Formworks including Necessary Support and Removing after completion all complete as per specification and Direction of Engineer all complete	1493.40	Sq.m				
7	Providing and laying rubber seal 150 mm 10 mm thick as per drawing and instruction all complete.	92.40	Rm.				
8	RR masonary work in 1:4 Cement Mortar including supply of hard stone blocks, preparating cement mortar, and const. of wall all complete	1.43	Cu.m.				
9	As Built Drawing	1.00	Job				
					Sub total A		

GOVERNMENT OF LUMBINI PROVINCE

MINISTRY OF URBAN DEVELOPMENT, ENERGY, IRRIGATION AND WATER SUPPLY

WATER RESOURCES & IRRIGATION DEVELOPMENT DIVISION OFFICE

Gulmi

Bill of Quantity

2083/084

Name of project : Aslewa Chaurphant Irrigation Project,

Name of works : Construction of Canal Works

Location : Satyawati-1, Aslewa, Gulmi

S. No.	Description of work	Total Quantity	Unit	Rate		Total Amount	Remarks
				In Figure	In Words		
B	**General Works**						
i	Insurance of Work, Third Party and Workman(@0.45% of A)	1.00	PS	15,440.96	Rs. Fifteen thousand four hundred forty and paisa ninety six only.	15440.96	
ii	Lab test (0.1% of civil items)	1.00	PS	3,431.32	Three thousand four hundred thirty one and paisa thirty two only	3431.32	
					Sub total B	**18872.28**	
					Sub total (A+B)		
					13% VAT of A		
					Total Amount		
Total Amount (In words):							

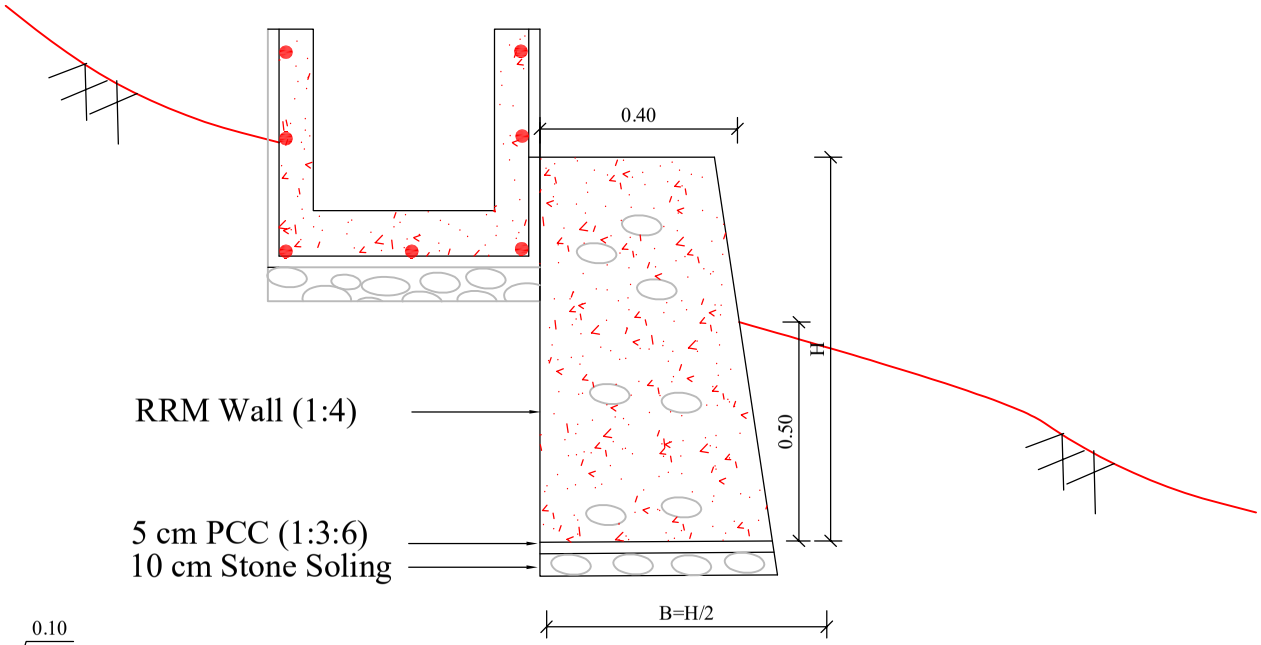
On behalf of contractor

Name :

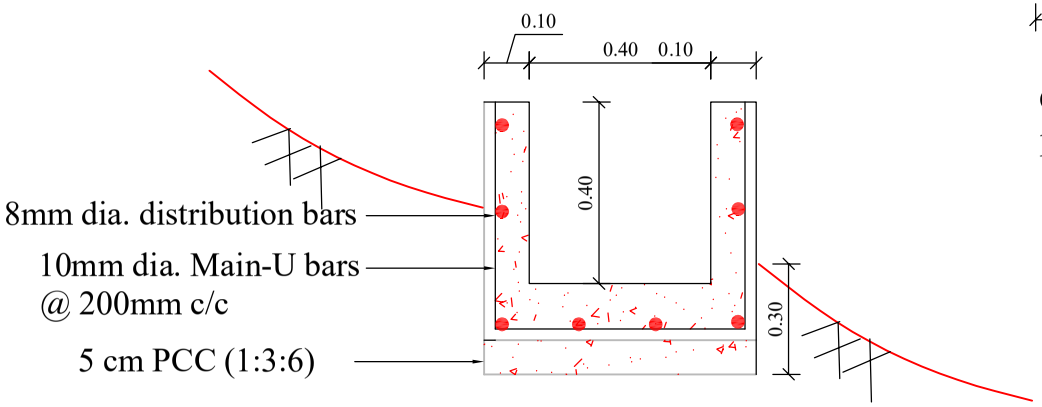
Address :

Signature :

Date:



Canal section with RRM protection Wall



Canal Section(40cm*40cm)

Provincial Government
Ministry of Urban Development, Energy, Irrigation and Irrigation
Water Resource & Irrigation Development Division Office Gulmi
Lumbini Province,Nepal

Aslewa Chaurphant Irrigation Project, Satyawati Rural Municipality- 01, Gulmi

Typical Section Drawing of Structure

Drawn By:

Checked By:

Approved By:

Drawing Not in Scale

ALL DIMENSION ARE IN m