



Agricultural Pole , Wire & Transformer Installation Works Within shahidnagar Municipality Under Procurement of Works (NCB)- 1S2E Procedure



सार्वजनिक खरिद ऐन २०६३ को दफा ६५ को उपदफा (१) को खण्ड (ग) ले दिएको अधिकार बमोजिम

सार्वजनिक खरिद अनुगमन कार्यालयबाट जारी गरिएको

(Issued by the Public Procurement Monitoring Office in accordance with the authority given by clause (c) of Subsection (1) of Section 65 of the Public Procurement Act, 2063)

STANDARD BIDDING DOCUMENT (SBD)

Procurement of Works

National Competitive Bidding (NCB)

Single-Stage: Two-Envelope Bidding Procedure

[Procurement of value above NRs. 20 Million]

Government of Nepal

Office of The Prime Minister and Council of Ministers

Public Procurement Monitoring Office (PPMO)

~~(Revised on July 2026)~~

~~(Revised on 12 August 2026)~~

(Revised on September 2026)


प्रमुख प्रशासकीय अधिकृत



Guidance Notes on the Use of The Standard Bidding Document (SBD)

This Standard Bidding Document for Procurement of Works, has been prepared by the Government of Nepal (GoN), Public Procurement Monitoring Office (PPMO) to facilitate Single-Stage: Two-Envelope Bidding Procedures used for the procurement of Works through National competitive bidding (NCB) procedure (Procurement of value above NRs. 20 million) and is applicable to all the Public Entities as defined in the Public Procurement Act, 2063.

Guidance notes in the Standard Bidding Document within the left square bracket and right square bracket and guidance footnotes are intended as information for preparing the bidding documents and hence should be deleted in the final document.

This document has 10 Sections, of which Section I (Instructions to Bidders) and Section VIII (General Conditions of Contract) must not be altered or modified under any circumstances. The Invitation for Bid (IFB) is a copy for advertisement that provides relevant and essential information to help the Bidders to decide whether or not to participate in the particular bidding process; this is provided in the Bidding Document for information only.

The Procuring Entity should provide its specific needs in the Bid Data Sheet (BDS), the Special Conditions of Contract (SCC) and the detailed requirements of the procurement in the Works Requirements.

This Standard Bidding Document, when properly completed should provide all the information that a Bidder needs in order to prepare and submit a bid. This should also provide a sound basis on which a Procuring Entity can fairly, transparently and accurately carry out evaluation of the Bids received from the bidders.

The Procuring Entity, before publishing the Invitation for Bids, should identify and approve from the competent authority the procurement requirements, its technical features, and cost estimate. Furthermore, the Procuring Entity should keep in mind the availability of the budget and possible slicing and packaging of the procurement requirements.

If any amendments on Public Procurement Act, 2063 or Public Procurement Regulation, 2064 are made, the Procuring Entity shall incorporate such amendments when preparing a particular Bidding Document.

Brief description of different sections of the Standard Bidding Document and how a Procuring Entity should use these when preparing a particular Bidding Document is detailed below:



SECTION I

Instructions to Bidders (ITB)

This Section provides relevant information to help the Bidders to prepare their Bids. Information is also provided on the submission, opening, and evaluation of Bids and on the award of Contract.

The Instructions to Bidders (ITB) specify the procedures that regulate the bidding process. The ITB contain standard provisions that have been designed to remain unchanged and to be used without modifying their text. The ITB clearly identify the provisions that may need to be specified for a particular bidding process and require that such specification be introduced through the BDS.

The Instructions to Bidders are not a Contract document and, therefore, are not a part of the Contract.

SECTION II

Bid Data Sheet (BDS)

The Bid Data Sheet (BDS) contains information and provisions that are specific to each bidding process. The Employer must specify in the BDS provisions that supplement the information and requirements specified in Section I, Instructions to Bidders. All information shall be provided; no clause shall be left blank.

To facilitate the preparation of the BDS, the clauses in the BDS format are numbered with the same numbers as the corresponding ITB clauses. The instructions included in the BDS are to guide the Employer on how to enter all required information.

SECTION III

Evaluation and Qualification Criteria (EQC)

The purpose of the Evaluation and Qualification Criteria (EQC) is to specify the criteria that determine the **substantially responsive bid closest to the Average Bid Price** and the qualifications of the Bidder to perform the contract. The Procuring Entity shall prepare the EQC by taking into account the nature, quantity and or amount of the procurement and include it as a part of the Bidding Document. In determining the Evaluation and Qualification Criteria, the Procuring Entity shall follow the guidance incorporated on this section and shall not limit the competition or make onerous criteria.

The EQC is not a part of the Contract document.



SECTION IV Bidding Forms

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

This Section provides the standard format for the Letter of Technical and Price Bid, table of price adjustment data, Bid Security Form, Technical proposal form, Bidder's information and qualification forms to be submitted by the Bidder.

SECTION V Eligible Countries

This section contains the list of eligible countries. The procuring entity shall mention the list of eligible countries as per the instructions provided in this section.

SECTION VI Works Requirements

This section contains the volumes of information that describe the Works to be constructed and includes Specification, the Drawings, and supplementary information that describe the Works to be procured Personnel Requirements and Equipment Requirements.

SECTION VII Bill of Quantities (BOQ)

This Section provides estimated information on the itemized quantities in sufficient detail to distinguish between the different classes of Works to be performed by the bidder and enable the Bidder to prepare priced bill of quantities efficiently and accurately.

SECTION VIII General Conditions of Contract (GCC)

The GCC contain standard provisions that have been designed to remain unchanged and to be used without



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modifying their text. This Section provides the General Conditions of Contract that will apply to the Contract for which the Bidding document is issued. The GCC clearly identify the provisions that may normally need to be specified for a particular bidding process and require that such information be introduced through the SCC

SECTION IX Special Conditions of Contract (SCC)

The contents of this Section supplement Section VIII: General Conditions of Contract. The Special Conditions of Contract shall be prepared by the Procuring Entity.

The Special Conditions of Contract (SCC) contain provisions that the GCC require be specified for a particular bidding process. The Employer should include at the time of issuing the Bidding Document, all information that the GCC indicate shall be provided in the SCC. No SCC Clause should be left blank.

To facilitate the preparation of the SCC, the Clauses in the SCC format are numbered with same numbers as the corresponding GCC Clauses. The instructions included in the SCC are to guide the Employer to provide the required information.

The SCC is a part of the Contract Document; therefore, the Procuring Entity shall provide the information in appropriate manner as indicated in the SCC.

SECTION X Contract Forms

This Section contains the Sample format for Letter of Intent, Letter of Acceptance, Contract Agreement Form, the forms for Performance Security, Advance Payment Security and Retention Money Security.



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BIDDING DOCUMENT

for

THE PROCUREMENT OF

***Agricultural Pole, Wire & Transformer Installation Works
within Shahidnagar Municipality***

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

**Shahidnagar Municipality
Office of The Municipal Executive
Yadukuha, Dhanusha**

Issued on: 2083/06/09 (25/09/2026)

Invitation for Bids No.: ***SNM/NCB/WORKS/02/2083-84***

NCB No.:02

Contract Identification No.: ***SNM/NCB/WORKS/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
EQC	Evaluation and Qualification Criteria
EXP	Experience
FIN	Financial
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
LIT	Litigation
NCB	National Competitive Bidding
NRs.	Nepalese Rupees
PAN	Permanent Account Number
PPA	Public Procurement Act
PPMO	Public Procurement Monitoring Office
PPR	Public Procurement Regulations
PL	Profit & Loss
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 Nepal (GoN)

Shahidnagar Municipality

Office of The Municipal Executive

Yadukuha , Dhanusha

Invitation for Bids No: **SNM/NCB/WORKS/02/2083-84**

Date of publication: 2083/06/09 (25/09/2026)

Name of the Development Partner [if applicable]: NA

Loan/Credit/Grant No [if applicable]: NA

1. **Shahidnagar Municipality , Office of The Municipal executive , Yadukuha, Dhanusha , Nepal has allocated funds from GoN towards the cost of Agricultural Pole , Wire & Transformer Installation Works Within shahidnagar Municipality and intends to apply part of the funds to cover eligible payments under the Contract for SNM/NCB/WORKS/02/2083-84 Bidding is open to all eligible as per Section V of bidding document.**

2. **Shahidnagar Municipality , Office of The Municipal executive , Yadukuha, Dhanusha , Nepal invites sealed bids (Hard Copy bids) from eligible bidders for the construction of Agricultural Pole , Wire & Transformer Installation Works Within shahidnagar Municipality under National Competitive Bidding – Single Stage Two Envelope Bidding procedures.**

Only eligible bidders with the following key qualifications should participate in this bidding:

• Minimum Average Annual Construction Turnover of the best 3 years within the last 10 years: **NRs 4,54,27,000.00**

• Minimum Work experience of similar size and nature: **One number of Project Completed with a minimum value of NRs 2,42,28,000.00**

3. Under the Single Stage, Two Envelope Procedure, Bidders are required to submit simultaneously two separate sealed envelopes, one containing (i) the Technical Bid and the other (ii) the Price Bid, both in turn enclosed in one sealed envelope as per the provision of ITB 21 of the Bidding Document.

4. Eligible Bidders may obtain further information and inspect the Bidding Documents at the office of **Shahidnagar Municipality , Office of The Municipal executive , Yadukuha, Dhanusha , Nepal** or may visit Shahidnagarmun.gov.np or PPMO e-GP system www.bolpatra.gov.np/egp.

5. A complete set of Bidding Documents may be purchased from the office **Shahidnagar Municipality , Office of The Municipal executive , Yadukuha, Dhanusha , Nepal** by eligible Bidders on the submission of a written application, along with the *copy of company/firm registration certificate*, and upon payment of a non-refundable fee of **NRs 5000.00** till **2083/06/29 (15th Oct 2026) during office hours** in the account as specified below.

Information to deposit the cost of bidding document in Bank:

Name of the Bank: Rastriya Banijay Bank

Name of Office : Shahidnagar Municipality , Yadukuha , Dhanusha .

Office Code no. : 80217408300 Account no.: 1220100301010010

Rajaswa (revenue) Shirshak no. :14229

6. Pre-bid meeting shall be held at **2083/06/19 (5th Oct 2026)** at **Shahidnagar Municipality , Yadukuha ,**

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Dhanusha

7. Sealed bids (Hard Copy bids) must be submitted to the office **Shahidnagar Municipality , Office of The Municipal executive , Yadukuha, Dhanusha , Nepal** by hand/courier on or before **12:00** on **2083/06/30 (16th Oct 2026)** Bids received after this deadline will be rejected.
8. The bids will be opened in the presence of Bidders' representatives who choose to attend at **1:00 PM 2083/06/30 BS (16/10/2026 AD)** at the office of **Shahidnagar Municipality , Office of The Municipal executive , Yadukuha, Dhanusha , Nepal** Bids must be valid for a period of **90 days** 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 **NRs 18,00,000.00** which shall be valid for 30 days beyond the validity period of the bid .
9. 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.



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Part I: BIDDING PROCEDURES



Section I: Instructions to Bidders (ITB)

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.

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Section I: Instructions to Bidders

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 VI (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 email 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 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 4.10. (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 Technical Bid and Price 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 Technical Bid and Price 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 as per ITB 27.1. (h) a Bidder changes the prices or substance of the bid while providing information pursuant to ITB 27.1.
	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 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 an eligible country, in accordance with Section V (Eligible Countries). 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. A Bidder may be considered to be in a conflict of interest with one or more parties in this bidding process, if any of, including but not limited to, the following apply: (a) they have controlling shareholders 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 material information about or improperly influence 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. (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 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. Where Nepal prohibits payments to a particular firm or for particular goods by such an act of compliance, that firm may be excluded; (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 sanctioned or temporarily suspended 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 In case a prequalification process has been conducted prior to the bidding process, this bidding is open only to prequalified Bidders.
	4.9 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
	4.10 For the purpose of ITB 4.9 above, the bidder shall declare that the bidder, and all parties constituting the Bidder have not already secured maximum number of construction contract (in open competitive bidding) 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 accordance with Section V (Eligible Countries) 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 Qualification Criteria (EQC) Section IV Bidding Forms (BDF) Section V Eligible Countries PART II Requirements Section VI Works Requirements (WRQ) Section VII Bill of Quantities (BOQ) PART III Conditions of Contract and Contract Forms Section VIII General Conditions of Contract (GCC) Section IX Special Conditions of Contract (SCC) Section X 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 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 a 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 22.2.
	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, 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 22.2. 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 two envelopes submitted simultaneously, one called the Technical Bid containing the documents listed in ITB 11.2 and the other the Price Bid containing the documents listed in ITB 11.3, both envelopes enclosed together in an outer single envelope. 11.2 The Technical Bid shall comprise the following: (a) Letter of Technical Bid; (b) Bid Security in accordance with ITB 19; (c) alternative Technical Bid, at Bidder's option and if permissible, in accordance with ITB 13; (d) written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB 20.2; (e) documentary evidence in accordance with ITB 17, establishing the Bidder's qualifications to perform the contract; (f) Technical Proposal in accordance with ITB 16; (g) 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; (h) list of subcontractors, in accordance with ITB 34 (If any); and (i) Any other documents required in the BDS. 11.3 The Price Bid shall comprise the following: (a) Letter of Price Bid; (b) completed Bill of Quantities (BoQ), in accordance with ITB 12 and ITB 14, or as stipulated in the BDS; (c) alternative price Bids, at Bidder's option and if permissible, in accordance with ITB 13; (d) Table of Price adjustment (if applicable) ; and (e) Any other document required in the BDS. 11.4 The Bidder is solely responsible for the authenticity of the submitted documents. 11.5 The Technical Bid shall not include any financial information related to the Price Bid. A Technical Bid containing such material financial information shall be declared non-responsive.
12. Letter of	12.1 The Letters of Technical Bid and Price Bid, Schedules, and all documents listed under



Bid and Schedules	ITB 11, shall be prepared using the relevant forms in Section IV (Bidding Forms) and in Section VII (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. Alternative Bids	13.1 Unless otherwise specified in the BDS , alternative bids shall not be considered.
	13.2 When alternative times for completion are explicitly invited, a statement to that effect will be included in the BDS , as will the method of evaluating different times for completion.
	13.3 When specified in the BDS pursuant to ITB 13.1, and subject to ITB 13.4 below, Bidders wishing to offer technical alternatives to the requirements of the Bidding Document must first price the Employer's design as described in the Bidding Document and shall further provide all information necessary for a complete evaluation of the alternative by the Employer, including drawings, design calculations, technical specifications, breakdown of prices, and proposed construction methodology and other relevant details. Only the technical alternatives, if any, of the evaluated Bidder whose Bid Price is closest to the Average Bid Price conforming to the basic technical requirements shall be considered by the Employer.
	13.4 When specified in the BDS , Bidders are permitted to submit alternative technical solutions for specified parts of the Works. Such parts will be identified in the BDS and described in Section VI (Works Requirements). The method for their evaluation will be stipulated in Section III (Evaluation and Qualification Criteria).
14. Bid Prices and Discounts	14.1 The prices and discounts quoted by the Bidder in the Letter of Price Bid and in the Schedules shall conform to the requirements specified below.
	14.2 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 VII (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.
	14.3 The price to be quoted in the Letter of Price Bid shall be the total price of the Bid, excluding any discounts offered. Absence of the total price in the Letter of Price Bid may result in rejection of the Bid.
	14.4 The Bidder shall quote any discounts and the methodology for their application in the Letter of Price Bid, in accordance with ITB 12.1.
	14.5 If so indicated in ITB 1.1 and ITB 35.4, 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 14.4, provided the Bids for all Contracts are submitted and opened at the same time.



	14.6 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. 14.7 All 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.
15. Currency of Bid and Payment	15.1 The currency of the bid and payment shall be in Nepalese Rupees.
16. Documents Comprising the Technical Proposal	16.1 The Bidder shall furnish a Technical Proposal including a statement of work methods, equipment, personnel, schedule and any other information as stipulated in Section IV (Bidding Forms), in sufficient detail to demonstrate the adequacy of the Bidders' proposal to meet the work requirements and the completion time.
17. Documents Establishing the Qualifications of the Bidder	17.1 To establish its qualifications to perform the Contract in accordance with Section III (Evaluation and Qualification Criteria) the Bidder shall provide the information requested in the corresponding information sheets included in Section IV (Bidding Forms).
18. Period of Validity of Bids	18.1 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 22.1. 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. 18.2 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 19, 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.



19. Bid Security	19.1 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. 19.2 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 18.2. A bid security valid for a shorter period shall be rejected by the Employer as nonresponsive. 19.3 The bid security issued by any foreign Bank outside Nepal must be counter guaranteed by Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law in Nepal. 19.4 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. 19.5 The public entity shall return the bid securities except those that are to be forfeited as per ITB 19.6 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 40.1 and ITB 41.1. 19.6 The bid security shall be forfeited if: GoN funded: (a) a Bidder requests for withdrawal or modification of its bid, except as provided in ITB 18.2: (i) during the period of bid validity specified by the Bidder on the Letter of Technical Bid and Price 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 Technical Bid and Price Bid, in case of hard copy submission. (b) a Bidder changes the prices or substance of the bid while providing information pursuant to clause 27.1; (c) a Bidder involves in fraud and corruption pursuant to clause 3.1; (d) the successful Bidder fails to: (i) furnish a performance security in accordance with ITB 35.5, ITB 35.8 and ITB 40.1; or (ii) sign the Contract in accordance with ITB 41.1; or
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	(iii) accept the correction of arithmetical errors pursuant to clause 33.1; (e) if the bidder fails to inform about the saturation of the maximum number of contracts as per ITB 4.10. DP funded: The bid security shall be forfeited (a) if a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Letters of Technical Bid and Price Bid, except as provided in ITB 18.2; or (b) if the successful Bidder fails to (i) furnish a performance security in accordance with ITB 35.5 and ITB 40.1; or (ii) sign the Contract in accordance with ITB 41.1; or (iii) accept arithmetical corrections in accordance with ITB 33.1. 19.7 The Bid Security of a Joint Venture shall be in the name of the Joint Venture that submits the bid. If the Joint Venture 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.
20. Format and Signing of Bid	20.1 The Bidder shall prepare one original set of the Technical Bid and one original of the Price Bid comprising the Bid as described in ITB 11 and clearly mark it “ORIGINAL – TECHNICAL BID” and “ORIGINAL – PRICE BID.” Alternative bids, if permitted in accordance with ITB 13, shall be clearly marked “ALTERNATIVE”. 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 21.1(b). 20.2 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. 20.3 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	
21. Sealing and Marking of Bids	21.1 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 shall enclose the original of the Technical Bid, and the original of the Price Bid and each copy of the Technical Bid and Price Bid, including alternative bids, if permitted in accordance with ITB 13, in separate sealed envelopes, duly marking



the envelopes as “ORIGINAL TECHNICAL BID”, “ORIGINAL – PRICE BID”, “ALTERNATIVE” and “COPY No. – TECHNICAL BID” and “COPY NO. PRICE BID” These envelopes containing the original and the copies shall then be enclosed in one single envelope.

(b) Bidders submitting Bids electronically shall follow the electronic bid submission procedure specified in this clause.

i. The bidder is required to register in the e-GP system <https://www.bolpatra.gov.np/egp> following the procedure specified in e-GP guideline.

ii. Interested bidders may either purchase the bidding document from the Employer's office as specified in the Invitation for Bid (IFB) or bidders may download the IFB and bidding document from e-GP system.

iii. The registered bidders need to maintain their profile data required during preparation of bids.

iv. The bidder can prepare their technical and price bids using data and documents maintained in bidder's profile and forms/format provided in bidding document by Employer. The bidder may submit bids as a single entity or as a joint venture. The bidder submitting bid in joint venture 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) should update their profile data and documents required during preparation and submission of their technical 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.

The required forms and documents shall be part of technical bids.

No.	Document	Requirement	Remarks
1.	Letter of Technical 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.	Qualification Documents	Mandatory	Using profile data(financial details, contract details etc.) and Technical Proposal
10.	Additional documents] specified in ITB 11.2 (i)	Mandatory (If any)	PDF

The required forms and documents shall be part of price bids.

No.	Document	Requirement	Remarks
1.	Letter of Price Bid	Mandatory	PDF
2.	Completed Bill of Quantities (BoQ)	Mandatory	Online Forms
3.	Price Adjustment Table	Mandatory (If applicable)	Online Forms
4.	Additional Documents specified in ITB 11.3 (e)	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.

vii.After providing all the details and documents, two separate bid response documents i.e technical bids and price bids will be generated from the system. Bidders are advised to download and verify the response documents prior to bid submission.

viii.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 allow bidder to submit their bid.

ix.Electronically submitted bids can be modified and/or withdrawn through system. The bidder may modify their bids multiple times online within bid submission date and time specified in e-GP system. Once a Bid is withdrawn, bidder won't be able to submit another bid response for the same bid.

x.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 facility for submission of bid electronically through e-submission is to promote transparency, non-discrimination, equality of access, and open competition in the bidding process. The Bidders are fully responsible to use the e- submission facility properly in e-GP system as per specified procedures and in no case the Employer shall be held liable for Bidder's inability to use this facility.

cc)When a bidder submits electronic bid through the PPMO e-GP portal, it is assumed that the bidder has prepared the bid by studying and examining the complete set of the Bidding documents including specifications, drawings and conditions of contract.

21.2. 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 22.1; (cc) bear the specific identification of this bidding process indicated in BDS 1.1; and 21.3 The outer envelope and the inner envelope containing Technical Proposal shall bear a warning not to open before the time and date for the opening of Technical Bid in accordance with ITB 25.1. 21.4 The inner envelope containing the Price Bid shall bear a warning not to open until advised by the Employer in accordance with ITB 25.7 21.5 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.
22. Deadline for Submission of Bids	22.1 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 Nepal 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. 22.2 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.
23. Late Bids	23.1 The Employer shall not consider any bid that arrives after the deadline for submission of bids, in accordance with ITB 22. Any bid received by the Employer after the deadline for submission of bids shall be declared late, rejected, and returned unopened to the Bidder.
24. Withdrawal, and Modification of Bids	24.1 A Bidder may withdraw, or modify its bid- Technical or Price - after it has been submitted either in hard copy or by e-submission. Once a Bid is withdrawn, bidder shall not be able to submit another bid for this bidding process. Procedures for withdrawal or modification of submitted bids are as follows: (i) Bids submitted in Hard Copy GoN Funded: 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 20.2. The corresponding modification of the bid must accompany the respective written notice. All notices must be: (aa) prepared and submitted in accordance with ITB 20 and ITB 21, and in addition, the respective envelopes shall be clearly marked “WITHDRAWAL”, “MODIFICATION;” and (bb) received by the Employer twenty; four hours prior to the deadline prescribed for submission of bids, in accordance with ITB 22. DP Funded: A Bidder may withdraw or modify its Bid – Technical or Price – after it has been submitted by sending a written notice, duly signed by an authorized representative, and shall include a copy of the authorization in accordance with ITB 20.2, (except that withdrawal notices do not require copies). The



	corresponding modification of the Bid must accompany the respective written notice. All notices must be (a) prepared and submitted in accordance with ITB 20 and ITB 21 (except that withdrawal notices do not require copies), and in addition, the respective envelopes shall be clearly marked “WITHDRAWAL,” and “MODIFICATION;” and (b) received by the Employer prior to the deadline prescribed for submission of Bids, in accordance with ITB 22. 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. 24.2 Bids requested to be withdrawn in accordance with ITB 24.1 shall not be opened. In case of hard copy submission, the Bid will be returned unopened to the Bidders. 24.3 The following provisions apply for withdrawal or modification of the Bids: GoN Funded: (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 Technical Bid and Price Bid or any extension thereof. DP Funded: No Bid may be withdrawn or modified in the interval between the deadline for submission of Bids and the expiration of the period of bid validity specified by the Bidder on the Letters of Technical Bid and Price Bid or any extension thereof. 24.4 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. 24.5 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. 24.6 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.
25. Bid Opening	25.1 The Employer shall open the Technical Bids in public at the address, on the date and time specified in the BDS in the presence of Bidders' designated representatives who choose to attend. The Price Bids will remain unopened and will be held in custody of the Employer until the specified time of their opening. If the Technical Bid and Price Bid are submitted together in one envelope, the Employer shall reject the Bid as nonresponsive. 25.2 The Employer shall download the e-submitted Technical Bid. The e-GP system



	allows the Employer to download the e-submitted technical bid only after bid opening date and time after login simultaneously by at least two members of the Bid Opening Committee.
	25.3 Electronically submitted Technical 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 technical bids must be readable through open standards interfaces. Unreadable and or partially submitted bid files shall be considered incomplete.
	25.4 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 Technical Bid and/or Price Bid modification shall be permitted unless the corresponding modification notice contains a valid authorization to request the modification and is read out and recorded at bid opening. Only the Technical Bid, both Original as well as Modification, are to be opened, read out, and recorded at the opening. Price Bids, both Original and Modification, will remain unopened in accordance with ITB 25.1.
	25.5 All other envelopes holding the Technical Bid shall be opened one at a time, reading out: the name of the Bidder; whether there is a modification; the presence of a bid security and any other details as the Employer may consider appropriate. Only Technical Bids read out and recorded at bid opening shall be considered for evaluation. No bid shall be rejected at opening of Technical Bids except for late bids, in accordance with ITB 23.1.
	25.6 The Employer shall prepare a record of the opening of Technical Bids that shall include, as a minimum: the name of the Bidder and whether there is a withdrawal, or modification; 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.
	25.7 At the end of the evaluation of the Technical Bids, the Employer will invite bidders who have submitted substantially responsive Technical Bids and who have been determined as being qualified for award to attend the opening of the Price Bids. The date, time, and location of the opening of Price Bids will be advised in writing by the Employer. Bidders shall be given at least 7 days' notice for the opening of Price Bids.
	25.8 The Employer will notify Bidders in writing who have been rejected on the grounds of their Technical Bids being substantially nonresponsive to the requirements of the Bidding Document and return their Price Bids unopened.
	25.9 The Employer shall conduct the opening of Price Bids of all Bidders who submitted substantially responsive Technical Bids, in the presence of Bidders’ representatives who choose to attend at the address, on the date, and time specified by the Employer. The Bidder’s representatives who are present shall be requested to sign a register evidencing their attendance.
	25.10 All envelopes containing Price Bids shall be opened one at a time and the following



	read out and recorded: (a)the name of the Bidder; (b)whether there is a modification; (c)the Bid Prices, including any discounts and alternative offers; and (d)any other details as the Employer may consider appropriate. Only Price Bids, discounts, modifications, and alternative offers read out and recorded during the opening of Price Bids shall be considered for evaluation. No Bid shall be rejected at the opening of Price Bids.
	25.11 The Employer shall prepare a record of the opening of Price Bids that shall include, as a minimum, the name of the Bidder, the Bid Price (per lot if applicable), any discounts, modifications and alternative offers. 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	
26. Confidential ity	26.1 Information relating to the examination, evaluation, comparison, and post-qualification of bids 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. 26.2 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. 26.3 Notwithstanding ITB 26.2, 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.
27. Clarification of Bids	27.1 To assist in the examination, evaluation, and comparison of the Technical and Price 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 substance of the Technical Bid or prices in the Price Bid shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the Price Bids, in accordance with ITB 33. In case of e-submission of bid, upon notification from the employer, the bidder shall also submit the original of documents comprising the Technical and Price Bid as per ITB 11.2 and ITB 11.3 for verification of submitted documents for acceptance of the e-submitted bid. 27.2 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.
28. Deviations, Reservations , and Omissions	28.1 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.
29. Examination of Technical Bid	29.1 The Employer shall examine the Technical Bid to confirm that all documents and technical documentation requested in ITB 11.2 have been submitted. If any of these documents or information (except alternative Technical Bid which is optional) is missing, the bid shall be rejected. 29.2 In case of e-submission bids, the Employer shall confirm that all the documents and information requested in ITB 21.1 have been submitted. If any of these documents or information is missing, the bid shall be rejected.
30. Determination of Responsiveness of Technical Bid	30.1 The Employer’s determination of a Bid’s responsiveness is to be based on the contents of the bid itself, as defined in ITB 11.2. 30.2 A substantially responsive Technical 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. 30.3 The Employer shall examine the technical aspects of the Bid submitted in accordance with ITB 16, Technical Proposal, in particular, to confirm that all requirements of Section VI (Works Requirements) have been met without any material deviation, reservation or omission. 30.4 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. 30.5 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 27.1, the bid shall not be considered for further evaluation. 30.6 Except in case of e-submission, the Price Bid of the bidder, which is evaluated as substantially non-responsive in technical bid, shall be returned to the respective bidders.
31. Non-conformities	31.1 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



Errors, and Omissions	omission.
	31.2 Provided that a Technical 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 Technical Bid related to documentation requirements. Requesting information or documentation on such nonconformities shall not be related to any aspect of the Price Bid. Failure of the Bidder to comply with the request may result in the rejection of its bid.
	31.3 Provided that a Technical 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 Qualification Criteria).
	31.4 If the monetary value of such non-conformities is found to be more than fifteen percent of the Bid Price of the bidder pursuant to ITB 31.3, such bid shall be considered nonresponsive and shall not be involved in evaluation.
32 Eligibility and Qualification of the Bidder	32.1 The Employer shall determine to its satisfaction during the evaluation of Technical Bids whether Bidders meet the eligibility and qualifying criteria specified in Section III (Evaluation and Qualification Criteria).
	32.2 The determination shall be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to ITB 17.1. If two or more companies or firms have been merged prior to the submission of the bid, the qualifications of the companies or firms existing prior to such merger shall be deemed to form part of the qualifications of the resulting merged firm or company.
	32.3 An affirmative determination shall be a prerequisite for the opening and evaluation of a Bidder's Price Bid. A negative determination shall result into the disqualification of the Bid, in which event the Employer shall return the unopened Price Bid to the Bidder.
33. Correction of Arithmetical Errors	33.1 During the evaluation of Price Bids, 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; (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 Price Bid, the bid price in the Summary of Bill of Quantities will prevail and the bid amount in item (c) of the Letter of Price 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.
	33.2 If a Bidder does not accept the correction of arithmetical errors, its bid shall be



	disqualified and its bid security shall be forfeited.
34 Subcontractors	34.1 In case of Prequalification, the Bidder's Bid shall name the same subcontractor as submitted in the prequalification application and approved by the Employer. In case of Post-qualification, the Employer may permit subcontracting for certain specialized works as indicated in Section III When subcontracting is permitted by the Employer, the sub-contractor shall meet the qualifications criteria as indicated in section III. Sub-contractors' qualification and experience will not be considered for evaluation of the Bidder. The Bidder on its own (without taking into account the qualification and experience of the sub-contractor) should meet the qualification criteria. Bidders may propose subcontracting up to the percentage of total value of contracts or the volume of works as specified in the BDS.
35. Evaluation of Price Bids	35.1 The Employer shall use the criteria and methodologies listed in this Clause. No other evaluation criteria or methodologies shall be permitted. 35.2 To evaluate a Price 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 33.1; (c) adjustment due to discounts offered in accordance with ITB 14.4; (d) adjustment for nonconformities in accordance with ITB 31.3; (e) application of all the evaluation factors indicated in Section III (Evaluation and Qualification 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. 35.3 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. 35.4 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 Price Bid, is specified in Section III (Evaluation and Qualification Criteria).

	35.5 If the bid for a Unit Rate Contract, evaluated as per ITB 36.1, 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 27.1. 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. 35.6 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 27.1, the bid shall not be considered for further evaluation. 35.7 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. 35.8 If no agreement can be reached as per ITB 35.7, the employer shall cancel the procurement proceedings.
36. Comparison of Bids	36.1 The Employer shall evaluate all the bid prices of the substantially responsive bids in accordance with ITB 35.2. 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. 36.2 While evaluating the Bid Price as per ITB 36.1, 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.



37. Employer's Right to Accept Any Bid, and to Reject Any or All Bids	37.1 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. 37.2 The public entity shall give notice of the rejection of bids or the cancellation of the procurement proceedings pursuant to ITB 37.1, along with the reasons for such rejection or cancellation, to all bidders. 37.3 Where any bidder requests, within thirty (30) days of the communication of the notice pursuant to ITB 37.2, 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	
38. Award Criteria	38.1 The Employer shall award the Contract to the Bidder whose Bid Price is selected as per ITB 35.7, ITB 36.1 or ITB 36.2 and is substantially responsive to the Bidding Document, provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily.
39. Letter of Intent to Award the Contract/Notification of Award	39.1 The Employer shall notify the concerned Bidder whose bid has been selected in accordance with ITB 38.1 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. 39.2 After issuance of the notice under ITB 39.1 if the concerned bidder provides information pursuant to ITB 4.10 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 38.1 and notify accordingly as per ITB 39.1. 39.3 If no bidder submits an application pursuant to ITB 42 within a period of seven days of the notice provided under ITB 39.1, the Employer shall, accept the bid selected in accordance with ITB 38.1 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. 39.4 After communicating letter of acceptance under ITB 39.3, if the concerned bidder provides information pursuant to ITB 4.10 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 38.1 and shall issue the notice accordingly as per ITB 39.1. In such case bid security of the rejected bidder shall not be forfeited.
40. Performance Security	40.1 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 in accordance with the Conditions of Contract and subject to ITB 35.5, from Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law in Nepal using Sample Form for the Performance Security included in Section X (Contract Forms), or another form acceptable to the Employer. The performance security issued by any foreign Bank



	outside Nepal must be counter guaranteed by Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law in Nepal. The Bid Price shall be without VAT but including Provisional Sum.
	40.2 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 38.1 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 39.
41 Signing of Contract	41.1 The Employer and the successful Bidder shall sign the Contract Agreement within the period as stated ITB 40.1.
	41.2 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 (viii) contract price
	41.3 Within thirty (30) days from the date of issuance of notification pursuant to ITB 39.1 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.
	41.4 If the bidder whose bid has been accepted fails to sign the contract as stated ITB 40.1, the Public Procurement Monitoring Office shall blacklist the bidder on recommendation of the Public Entity.
42. Complaint and Review	42.1 If a Bidder is dissatisfied with the Procurement proceedings or the decision made by the Employer in opening of the price bid or 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 25.8 and ITB 39.1 by the Public Entity, for review of the proceedings stating the factual and legal grounds.
	42.2 Late application filed after the deadline pursuant to ITB 42.1 shall not be processed.
	42.3 The chief of Public Entity shall, within five (5) days after receiving the application, give its decision with reasons, in writing pursuant to ITB 42.1: (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 for the Bid amount up to the value as stated in 42.4.



	42.4 If the Bidder is not satisfied with the decision of the Public Entity in accordance with ITB 42.3, or the decision is not given within five (5) days of receipt of application pursuant to ITB 42.1, it can, within seven (7) days of receipt of such decision, file an application to the Public Procurement Review Committee of the GoN, stating the reason of its disagreement on the decision of the chief of Public Entity and furnishing the relevant documents, provided that its Bid amount ,equal or more than Rupees Twenty Million (NRs. 20,000,000). The application may be sent by hand, by post, by courier, or by electronic media at the risk of the Bidder itself.
	42.5 Late application filed after the deadline pursuant to ITB 42.4 shall not be processed.
	42.6 Within three (3) days of the receipt of application from the Bidder, pursuant to ITB 42.4, the Public Procurement Review Committee shall notify the concerning Public Entity to furnish its procurement proceedings, pursuant to ITB 42.3.
	42.7 Within three (3) days of receipt of the notification pursuant to ITB 42.6, the Public Entity shall furnish the copy of the related documents to the Public Procurement Review Committee.
	42.8 The Public Procurement Review Committee, after inquiring from the Bidder and the Public Entity, if needed, shall give its decision within thirty (30) days of the receipt of the application filed by the Bidder, pursuant to ITB 42.4.
	42.9 The Bidder, filing application pursuant to ITB 42.4, shall have to furnish a cash amount or Bank guarantee from Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law equivalent to ten percent (10 %) of amount of bid security in case of complaint against decision pursuant to ITB 25.8 and one percent (1%) of its quoted Bid amount in case of complaint against decision pursuant to ITB 39.1 with the validity period of at least ninety (90) days from the date of the filing of application pursuant to ITB 42.4.
	42.10 If the claim made by the Bidder pursuant to ITB 42.4 is justified, the Public Procurement Review Committee shall have to return the security deposit to the applicant, pursuant to ITB 42.9, within seven (7) days of such decision made.
	42.11 If the application submitted by the Bidder pursuant to ITB 42.4 is dismissed by the Public Procurement Review Committee, the security deposit (Cash or Bank Guarantee) submitted by the Bidder pursuant to ITB 42.9 shall be forfeited.
	42.12 If the Employer does not implement the decision of the Public Procurement Review Committee, the bidder may file an application to the Public Procurement Review Committee.



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: SNM/NCB/WORKS/02/2083-84
ITB 1.1	The Employer is: Shahidnagar Municipality , Office of The Municipal Executive , Yadukuha , dhanusha, Nepal.
ITB 1.1	Multiple Contract or lots (contracts) is : Not Applicable .
ITB 2.1	The name of the Project is : Agricultural Pole, Wire & Transformer Installation Works Within Shahidnagar Municipality . The DP is : NA The implementing agency is : Shahidnagar Municipality . GoN Funded or DP Funded: GoN Funded
ITB 3.3 (d)	For DP Funded: Not Applicable [For GoN funded delete this row]
ITB 4.1 (a)	For GoN Funded: Maximum number of partners in a joint venture shall be: 3 (three)
ITB 4.4	For GoN: www.blacklist.ppmo.gov.np
ITB 4.9 & ITB 4.10	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) number of 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 were 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. For DP Funded: [select one options as per DPs Policy] There is no limit on number of running contracts that a Bidder, and all parties constituting the



	Bidder can have Or Maximum number of running contracts that a Bidder, and all parties constituting the Bidder can have shall be: <i>[insert number]</i>
B. Bidding Document	
ITB 7.1	For clarification purposes only, the Employer's address is: Attention: Keshav Sharma Address: Yadukuha , Dhanusha. Telephone: 9851151425 Facsimile number: _____ Electronic mail address: _____
ITB 7.4	A Pre-Bid meeting shall held. Pre-Bid Meeting will Take place at the following date, time and place: Date: 2083/06/19 (5th Oct 2026) Time: 13:00 Place: Shahidnagar Municipality , Office of The Municipal Executive , Yadukuha, Dhanusha. A site visit "shall 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 11.2 (i)	The Bidder shall submit with its Technical Bid the following additional documents: a) Manufacturer's authorization letter for every proposed materials , b) Technical Data Sheets (Fully Filled out technical specifications sheets for all proposed items)
ITB 11.3 (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: NA
ITB 11.3 (e)	The Bidder shall submit with its Price Bid the following additional documents: <i>[insert if any additional documents required which is not against the provision of Procurement Act/Regulation/Directives and Standard Bidding Document issued by PPMO].</i>
ITB 13.1	Alternative bids shall not be permitted.
ITB 13.2	Alternative times for completion shall not be permitted.
ITB 13.4	Alternative technical solutions shall be permitted for the following parts of the Works: NA
ITB 14.6	The prices quoted by the Bidder Shall be subject to adjustment during the performance of the Contract. <i>"Bidder shall submit the Table of Price Adjustment Data as a part of price bid."</i>
ITB 18.1	The bid validity period shall be: 90 Days



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ITB 19.1	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 <u>18,00,000.00</u> which shall be valid for 30 days beyond the validity period of the bid.
ITB 19.2 (b)	Office Name: Shahidnagar Na.Pa.(Ga-3) - Dharauti A/C Bank Name: Rastriya Banijay Bank (RBB) Account Number: 1220100303000010 Bank Address: Bhanuchauk Janakpurdham Dhanusha. Office Code: 80217408300
ITB 20.1	In addition to the original of the bid, the number of copy/ies is/are: NA
ITB 20.2	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 and, in the event the JV is awarded the Contract, during contract execution.
D. Submission and Opening of Bids	
ITB 21.1	Bidders shall have the option of submitting their bids : “By Hand /Courier Only” .
ITB 22.1	Attention: Keshav Sharma Address: Shahidnagar Municipality , Yadukuha , Dhanusha , www.bolpatra.gov.np/egp The deadline for bid submission is: Date: 2083/06/30 ((16/10/2026) Time: 12:00
ITB 25.1	Address: Shahidnagar Municipality , Yadukuha, Dhanusha , Madhesh Province , Nepal. Date: 2083/06/30 (16/10/2026) Time: 13:00
E. Evaluation and Comparison of Bids	
ITB 34.1	Contractor’s proposed subcontracting: Maximum percentage of subcontracting permitted is: NA
ITB 35.4	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 1.2, Multiple Contracts Section III (Evaluation and Qualification Criteria): NA
ITB 35.5	The amount of the performance security be increased by Eight (8) percent of the quoted bid price without VAT but Including PS.
ITB 41.4	For DP Funded: Not Applicable [For GoN funded delete this row]



Section III: Evaluation and Qualification Criteria

This Section contains all the criteria that the Employer shall use to evaluate bids and qualify Bidders by post-qualification exercise. GoN/DP requires bidders to be qualified by meeting predefined, precise minimum requirements. The method sets pass-fail criteria, which, if not met by the bidder, results in disqualification. In accordance with ITB 32 and ITB 35, 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 35.2 (a) - (e) the following criteria shall apply:

Note:

Use the evaluation criteria listed below as appropriate and required for the project.

1.1 Adequacy of Technical Proposal

Evaluation of the Bidder's Technical Proposal will include an assessment of the Bidder's technical capacity, to mobilize key equipment and personnel for the contract consistent with its proposal regarding work methods, scheduling, and material sourcing in sufficient detail and fully in accordance with the requirements stipulated in Section VI (Works Requirements).

Non-compliance with equipment and personnel requirements described in Section VI (Works Requirements) shall not be grounds for bid rejection and such non-compliance will be subject to clarification and rectification prior to contract award.

1.2 Multiple Contracts

Multiple Contracts, if permitted under ITB 35.4, will be evaluated as follows:

Award Criteria for Multiple Contracts [ITB 35.4]:

Bidders have the option to Bid for any one or more Contracts. Bids will be evaluated taking into account discounts offered, if any, for combined contracts. The contract(s) will be awarded to the Bidder or Bidders offering the lowest evaluated cost to the Employer for combined contracts, subject to the selected Bidder(s) meeting the required qualification criteria for combination of multiple contracts as the case may be.

Qualification Criteria for Multiple Contracts:

The criteria for qualification shall be the sum of the minimum requirements for respective individual contracts as specified under items 2.3.2, 2.3.3, 2.3.4 and 2.4.2 b.

With respect to the **Contracts of Similar Size and Nature** under item 2.4.2(a) of Section III, the



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N is the minimum number of contracts required as per Specific Construction Experience (2.4.2(a)).

V is the minimum value of a single contract as per Note (2), ~~or~~ (3) of 2.4.2 Specific Construction Experience.

i. Minimum requirements for combined contract(s) shall be the aggregate requirements for each contract for which the bidder has submitted bids as follows, and N1, N2, N3, etc. shall be different contracts:

Contract 1: N1 contracts, each of minimum value V1;

Contract 2: N2 contracts, each of minimum value V2;

Contract 3: N3 contracts, each of minimum value V3;

----etc.

Or

ii. Total number of contracts is equal or less than $N1 + N2 + N3 + \dots$ but the total value of all such contracts is equal or more than $N1 \times V1 + N2 \times V2 + N3 \times V3 + \dots$.

1.3 In Case, other than Multiple Contracts

Bidders have the option to Bid for any one or more Contracts. The contracts will be awarded to the Bidder or Bidders offering the **substantially responsive Bid closest to the Average Bid Price** to the Employer, subject to the selected Bidder(s) meeting the required qualification which shall be the sum of the minimum requirements for respective individual contracts. Under this case, the Contract shall be awarded based on Least Cost Combination to the Employer.

1.4 Completion Time

An alternative Completion Time, if permitted under ITB 13.2, will be evaluated as follows:

[insert project specific requirements]

1.5 Alternative Technical Solutions

Alternative technical solutions, if permitted under ITB 13.4, will be evaluated as follows:

[insert project specific requirements]

1.6 Quantifiable Nonconformities and Omissions

Subject to ITB 14.2 and ITB 35.2, the evaluated cost of quantifiable nonconformities including omissions, is determined as follows:



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[Insert in bidding document: “Pursuant to ITB 31.3, the cost of all quantifiable nonmaterial nonconformities shall be evaluated, but excluding omission of prices in the BoQ. 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. Qualification

2.1 Eligibility

Criteria	Compliance Requirements				Documents
Requirement	Single Entity	Joint Venture			Submission Requirements
		All Partners Combined	Each Partner	One Partner	
2.1.1 Nationality					
Nationality in accordance with ITB sub-clause 4.2	must meet requirement	must meet requirement	must meet requirement	not applicable	Letter of Technical Bid, Forms ELI –1; ELI –2 with attachments
2.1.2 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 Technical Bid
2.1.3 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 Technical Bid
2.1.4 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 Technical Bid, Forms ELI - 1, ELI - 2, with attachments
2.1.5 UN Eligibility					



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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 Technical Bid
2.1.6 Bidder's Running Contracts					
Bidders have not yet secured five (5) number of construction Contracts ² (in open competitive bidding) as described in ITB Sub-Clause 4.9.	must meet requirement	existing or intended JV must meet requirement	must meet requirement	not applicable	Letter of Technical Bid, Form ELI-3
2.1.7 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 (<i>only for domestic bidders</i>)	must meet requirement	not applicable	must meet requirement	not applicable	Document attachment
Tax Clearance Certificate or Tax return submission evidence or evidence of time extension for the F/Y : 2082/83	must meet requirement	not applicable	must meet requirement	not applicable	Document attachment
Additional requirements : a) Manufacturer's authorization letter for 9m & 11m PSC Poles , 100 KVA Transformer, 50.0 sq.mm 4c ABC Cable , 55.0 sq.mm XLPE Cover conductor etc	must meet requirement	Must meet requirement	NA	NA	Document attachment

² 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.



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b) Technical Data Sheets (Fully Filled out technical specifications sheets for 9m & 11m PSC Poles , 100 KVA Transformer, 50.0 sq.mm 4c ABC Cable , 55.0 sq.mm XLPE Cover conductor etc	must meet requirement	Must meet requirement	NA	NA	Document attachment
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2.2 Pending Litigation

Criteria	Compliance Requirements				Documents
Requirement	Single Entity	Joint Venture			Submission Requirements
		All Partners Combined	Each Partner	One Partner	

2.2.1 Pending Litigation

All pending litigation shall be treated as resolved against the Bidder and so shall in total not represent more than 50% percent of the Bidder's net worth.	must meet requirement by itself or as partner to past or existing JV	not applicable	must meet requirement by itself or as partner to past or existing JV	not applicable	Form LIT - 1
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Note:

(1) The percentage should normally be within the range of 50% to 100% of the Bidder's net worth.

2.3 Financial Situation

2.3.1 Historical Financial Performance

Submission of audited balance sheets and income statements, for the last 3 (Three) years to demonstrate the current soundness of the Bidder's financial position. As a minimum, a Bidder's net worth for the last year calculated as the difference between total assets and total liabilities should be positive.	must meet requirement	not applicable	must meet requirement	not applicable	Form FIN - 1 with attachments
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Note:

(2) The financial information provided by a Bidder should be reviewed in its entirety to allow a truly informed judgment,



Agricultural Pole , Wire & Transformer Installation Works Within shahidnagar Municipality Under Procurement of Works (NCB)- 1S2E Procedure and the pass-fail decision on the financial position of the Bidder should be given on this basis. Balance sheet of the past three to five year's period which shall be decided according to the nature of the work.



2.3.2 Average Annual Construction Turnover

Minimum average annual construction turnover of NRs <u>4,54,27,000.00</u> calculated as total certified payments received for construction contracts in progress or completed, within best three years out of last ten fiscal years.	must meet requirement	must meet requirement	must meet 25% of the requirement	must meet 40% of the requirement	Form FIN -2
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Only the net amount shall be calculated after deducting the amount for VAT and such amount shall be adjusted to present value by applying wholesale price index of Nepal Rastra Bank.

Note:

(3) The amount stated should normally not be less than $1.5 \times V/T$, the estimated annual turnover in the subject contract based on a straight-line projection of the Engineer's estimated cost (V), over the contract duration (T) in year. The Engineer's estimated cost (V) is taken without VAT and contingencies but including provisional sum. Contract duration less than one year shall be considered one year. The multiplier of 1.5 may be reduced up to 1 (one) in accordance with the size, nature and complexity of contracts.

(4) Usually not less than 25 %

(5) Usually not less than 40 %

2.3.3 Financial Resources

Using Forms FIN - 3 and FIN - 4 in Section IV (Bidding Forms) the Bidder must demonstrate access to, or availability of, financial resources such as liquid assets ³ , unencumbered real assets, and other financial resources, (other than any contractual advance payments) to meet the cash-flow requirement of NRs. <u>1,55,00,000.00</u>	must meet requirement	must meet requirement	must meet 25% of the requirement	must meet 40% of the requirement	Form FIN - 3
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Note:

(6) Construction cash flow requirement for a number of months (to the nearest half-month), determined as the total

³ Liquid Assets mean cash and cash equivalents, short-term financial instruments, short term available-for-sale-securities, marketable securities, trade receivables, short-term financing receivables and other assets that can be converted into cash within ONE YEAR.



Agricultural Pole , Wire & Transformer Installation Works Within shahidnagar Municipality Under Procurement of Works (NCB)- 1S2E Procedure time needed by the Employer to pay a contractor's invoice, allowing for (a) the actual time consumed for construction, from the beginning of the month invoiced, (b) the time needed by the Project Manager to issue the monthly payment certificate, (c) the time needed by the Employer to pay the amount certified, and (d) a contingency period of one month to allow for unforeseen delays. The total period should not exceed three months for estimated cost (without VAT and contingencies but including PS) more than NRs. 250 Millions and for estimated cost (without VAT and contingencies but including PS) less than NRs. 250 Millions, the total period should not exceed 5 months. The assessment of the monthly amount should be based on a straight-line projection of the estimated cash flow requirement over the particular contract period, neglecting the effect of any advance payment and retention monies, but including contingency allowances in the estimated contract cost.]

(7) Usually not less than 25 %

(0) Usually not less than 40 %

2.3.4 Required Bid Capacity					
The bidding capacity of the bidder should be equal to or more than the NRs <u>5,45,00,000.00</u>	must meet requirement	must meet requirement	must meet 25% of the requirement	must meet 40% of the requirement	Form FIN - 4 and Form FIN - 5

Note:

(9) The amount stated should be 80 % to 100 % of Engineer's Estimate (without VAT and Contingencies but including Provision Sum) in round figure

(10) Usually not less than 25 %

(11) Usually not less than 40 %

2.4 Experience

Criteria	Compliance Requirements				Documents
Requirement	Single Entity	Joint Venture			Submission Requirement
		All Partners Combined	Each Partner	One Partner	
2.4.1 General Construction Experience					
Experience under construction contracts in the role of contractor, subcontractor, or management contractor for at least the last 5 (Five) years prior to the applications submission deadline.	must meet requirement	not applicable	must meet requirement	not applicable	Form EXP - 1

Note:

(12) Insert number of years in words and figures. The time period is normally 5 years, but may be reduced to not less than 3 years, according to the nature of works.



Criteria	Compliance Requirements				Documents
Requirement	Single Entity	Joint Venture			Submission Requirement
		All Partners Combined	Each Partner	One Partner	
2.4.2 Specific Construction Experience					
(a) Contracts of Similar Size and Nature					
(i) For Works with Estimated value (without VAT & Contingency but including PS) up to NRs. 100 million					
Participation as Prime contractor, management contractor, or subcontractor, within the last ten (10) years, that have been successfully or are substantially ^a completed and that are similar to the proposed works. The similarity shall be based on the physical size, complexity, methods, technology or other characteristics as described; 1.... 2.... 3.....	must meet requirement, in at least One (1) Contract with a value of at least <i>NRs 2,42,28,000.00</i>	not applicable	not applicable	must meet requirement, in at least One (1) Contract with a value of at least NRs <i>2,42,28,000.00</i>	Form EXP – 2(a)

Only the net amount shall be calculated after deducting the amount for VAT and such amount shall be adjusted to present value by applying wholesale price index of Nepal Rastra Bank.

***Complex works means those works involving complex technology such as tunnel roads, roads (asphalt concrete, Rigid pavement with high strength concrete etc.), major bridges, special bridges (pre stress bridge, arch bridge, cable stayed bridge, suspension bridge etc.), airport, large water supply and wastewater projects, large irrigation projects and their components like Headworks, weir, Barrage, Tunnel works, hydropower projects and similar works. However, in case of complex works like tunnel roads, airports, railway lines, hydropower projects, flyover, viaduct etc. for which experienced domestic bidders may not be available in market, in order to enhance capability of domestic bidders, the qualification criteria may be specified in a similar manner for non-complex works i.e. each partner's requirement may be specified as "not applicable".*

^a A contract for which a Taking-Over Certificate has been issued shall be considered as substantially completed.

Note:

(13) Insert amount in Nepalese rupees, which is 40% (in above round figure in thousand) of the estimated value (without VAT and contingencies but including provisional sum) of the subject contract.

(14) Insert amount in Nepalese rupees, which is 60% (in above round figure in thousand) of the estimated value (without VAT and contingencies but including provisional sum) of the subject contract.



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(15) Only in case of complex works, insert amount which is 10% (in above round figure in thousand) of the estimated value (without VAT and contingencies but including provisional sum) of the subject contract.

Criteria	Compliance Requirements				Documents
Requirement	Single Entity	Joint Venture			Submission Requirement
		All Partners Combined	Each Partner	One Partner	

(b)Construction Experience in Key Activities*					
Participation as Prime contractor, management contractor, or subcontractor, within a last ten (10) years, For the above or other contracts stipulated in 2.4.2(a) above, a minimum annual production rate on construction experience in the following key activities that have been successfully or substantially ^a completed: <i>[list activities indicating number or rate of production as applicable; for the key activity (ies) in the subject contract. The rates should be about 80% of the estimated annual production rates of the key activity(ies) in the subject contract as needed to meet the expected construction schedule with due allowance for adverse climatic conditions. Contract duration less than one year shall be considered one year for calculation of annual production rates.]</i>	must meet all requirements	must meet all requirements	not applicable	not applicable	Form EXP - 2(b)
a)Supply,Delivery & installation of 506 Nos 9 M. or above PSC pole per Fiscal year .					

*Under Criterion 2.4.2 (a), the specified requirements define the similarity of contracts, whereas the key activities or production rates to be specified under Criterion 2.4.2 (b) define the required capability of the Bidder to execute key components of the Works. There shall be no inconsistency or duplication of requirements between Criteria 2.4.2(a) and 2.4.2(b).



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- *For the rate of production, the rate of production shall be on the basis of the average during the entire contract period.*
- *Only the activities having weightage 10 percent or more of the total estimated amount that should be manufactured or built by contractor should be considered as key activities.*
- *Key activities or production rates to be specified shall not restrict innovation and better quality.*
- *Key activities or production rates of different contracts for a particular duration can be added while evaluating. The annual production rate of key activities can be converted to a monthly production rate during the overlap period for better interpretation and evaluation.*
- *While specifying key activities or production rates, it shall be assured and to be recorded by public entity so that sufficient bidders with required qualification are available in market for adequate competition.*
- *Key activities or production rates to be specified shall be unambiguous e.g. environmentally friendly, international/high standard, complex technology etc.*
- *While specifying Key activities or production rates, the similarity shall be based on the complexity, methods or technology to be adopted.*
- *The activities that can be sub-contracted or readily available in the market (e.g. lift, elevator, electrical works, special type of facilities etc.) shall not considered as key activities.*



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2.5 Subcontractors

The experience and financial capacity of the sub-contractors shall not be added to those of the Bidder for purposes of qualification of the Bidder.

The sub-contractors proposed shall be fully qualified for their work proposed, and meet the following criteria:

2.5 (a) Nature of Works that can be sub contracted: NA



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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 Technical Bid

The Bidder must accomplish the Letter of Technical Bid in its letter head 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) Our Bid consisting of the Technical Bid and the Price Bid shall be valid for a period of *[insert validity period as specified in ITB 18.1 of the BDS]* 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.
- (d) Our firm, including any subcontractors or suppliers for any part of the Contract, have nationalities from eligible countries in accordance with ITB 4.2 and meet the requirements of ITB 3.4, & ITB 3.5
- (e) 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(e), other than alternative offers submitted in accordance with ITB 13.
- (f) Our firm, its affiliates or subsidiaries, including any Subcontractors or Suppliers for any part of the contract, has not been declared ineligible by DP, under the Employer's country laws or official regulations or by an act of compliance with a decision of the United Nations Security Council;
- (g) [We are not a government owned entity] / [We are a government owned entity but meet the requirements of ITB 4.5];¹
- (h) We declare that, 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 and we have not been punished for an offense relating to the concerned profession or business.
- (i) 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.



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(j) 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.

(k) If our Bid is accepted, we commit to mobilizing key equipment and personnel in accordance with the requirements set forth in Section VI (Works Requirement) and our technical proposal, or as otherwise agreed with the Employer.

(l) We declare that we have not yet secured five (5)⁴ number of construction contract (in open competitive bidding) as described in ITB Sub-Clause 4.9.

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]*.....

¹ Note: Use one of the two options as appropriate.

⁴ 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) 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.



Letter of Price Bid

The Bidder must accomplish the Letter of Price 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;

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:.....



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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 18.1]* 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) We have paid, or will pay the following commissions, gratuities, or fees with respect to the bidding process or execution of the Contract:⁵

Name of Recipient	Address	Reason	Amount
.....			
.....			

(h) 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;

(i) 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

(j) We declare that we are solely responsible for the authenticity of the documents submitted by us.

(k) We agree to permit the Employer/DP or its representative to inspect our accounts and records and other documents relating to the bid submission and to have them audited by auditors appointed by the Employer.

Name: *[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]*.....

⁵ If none has been paid or is to be paid, indicate "None".



Table of Price Adjustment Data⁶

[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)			0.25	0.25
	Materials (c)***			0.35	0.35
	Equipment usage (d)			0.25	0.25
		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

*** 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.

⁶ 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.



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Table of Price Adjustment Data⁷

[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 and 5.

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.

⁷ 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 Letter head 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 of Technical and Price 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 Technical Bid and Price 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) changes the prices or substance of the bid while providing information pursuant to clause 27.1 of ITB; or

(d) 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

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

(f) if the bidder fails to inform about the saturation of the maximum number of contracts as per ITB 4.10.

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 later 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).



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Technical Proposal Format

Personnel

Equipment

Site Organization

Method Statement

Mobilization Schedule

Construction Schedule

Others



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Personnel

Form PER - 1: Proposed Personnel

Bidders should provide the names of suitably qualified personnel to meet the specified requirements for each of the positions listed in Section VI (Work Requirements). The data on their experience should be supplied using the Form below for each candidate.

No.	Name	Position*	Academic Qualification	Total Work Experience [Years]	Experience in Similar Works [years]
1.					
2.					
3.					
4.					
5.					

*As listed in Section VI (Work Requirements).



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Form PER - 2: Resume of Proposed Personnel

The Bidder shall provide all the information requested below.

Position*		
Personal Information	Name	Date of Birth
	Professional qualifications	
Present employment	Name of employer	
	Address of employer	
	Telephone	Contact (manager/personnel officer)
	Fax	E-mail
	Job title	Years with present employer

Summarize professional experience over the last twenty years in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company, Project, Position and Relevant Technical and Management Experience



Equipment

Form EQU: Equipment

The Bidder shall provide adequate information to demonstrate clearly that it has the capability to meet the requirements for the key equipment listed in Section VI (Work Requirements). A separate Form shall be prepared for each item of equipment listed, or for alternative equipment proposed by the Bidder.

(i) For the equipment under Bidder's ownership

No.	Equipment Type and Characteristics	Total Nos. of Equipment under Bidder's Ownership	No. of Equipment engaged/proposed for ongoing/committed contracts	Nos. of Equipment proposed for this contract
1.				
2.				
3.				
4.				
5.				

(ii) For the Equipment to be leased/hired

No.	Equipment Type and Characteristics	Total Nos. of Equipment under the ownership of lease/hire provider	No. of Equipment engaged/committed for other works	Nos. of Equipment proposed to be leased/hired for this contract
1.				
2.				
3.				
4.				
5.				
Type of Equipment				
Equipment Information		Name of manufacturer		Model and power rating
		Capacity		Year of manufacture
Current Status		Current location		
		Details of current commitments		
Source		Indicate source of the equipment ☐ Owned ☐ Rented ☐ Leased ☐ Specially manufactured		



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The following information shall be provided only for equipment not owned by the Bidder.

Owner	Name of owner	
	Address of owner	
	Telephone	Contact name and title
	Fax	email
Agreements	Details of rental / lease / manufacture agreements specific to the project	

The Bidder shall be solely responsible for the data provided. However, this shall not limit the right of Employer to verify the authenticity of submitted information.



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Bidder's Information and Qualification Format

Site Organization

Method Statement

Mobilization Schedule

Construction Schedule

Others



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Bidder's Qualification

To establish its qualifications to perform the contract in accordance with Section III (Evaluation and Qualification Criteria) the Bidder shall provide the information requested in the corresponding Information Sheets included hereunder.

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 20.2. 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.	



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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 20.2. 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 Contracts⁸

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.

⁸: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) 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



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Form LIT - 1: Pending Litigation

Each member of a JV must fill in this form

Pending Litigation			
☐ No pending litigation in accordance with Criteria 2.2 of Section III (Evaluation and Qualification Criteria)			
☐ Pending litigation in accordance with Criteria 2.2 of Section III (Evaluation and Qualification Criteria)			
Year	Matter in Dispute	Value of Pending Claim in NRS	Value of Pending Claim as a Percentage on Net Worth



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Form FIN - 1: Financial Situation

Each Bidder or member of a JV must fill in this form

Financial Data for Previous 3 Years [in NRS]		
Year 1 :	Year 2 :	Year 3 :

Information from Balance Sheet

Total Assets			
Total Liabilities			
Net Worth			
Current Assets			
Current Liabilities			

Information from Income Statement

Total Revenues			
Profit Before Tax			
Profit After Tax			

- Attached are copies of financial statements (balance sheets including all related notes, and income statements) for the last three or above years, as indicated above, complying with the following conditions.
- All such documents reflect the financial situation of the Bidder or partner to a JV, and not sister or parent companies.
- Historic financial statements must be audited by a certified auditor.
- Historic financial statements must be complete, including all notes to the financial statements.
- Historic financial statements must correspond to accounting periods already completed and audited (no statements for partial periods shall be requested or accepted).



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Form FIN - 2: Average Annual Construction Turnover

Each Bidder or member of a JV must fill in this form

The information supplied should be the Annual Turnover of the Bidder or each member of a JV in terms of the amounts billed to clients for each year for work in progress or completed to NRs at the end of the period reported.

Annual Turnover Data for the Last 10 Years (Construction only)	
Year	Amount Currency

-Average Annual Construction Turnover
(Best three years within the last 10 years)

--



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Form FIN - 3: Financial Resources

Specify proposed sources of financing, such as liquid assets, unencumbered real assets and other financial means, net of current commitments, available to meet the total construction cash flow demands of the subject contract or contracts as indicated in Section III (Evaluation and Qualification Criteria).

Financial Resources		
No.	Source of financing	Amount (in NRS)
1		
2		
3		



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Form FIN – 4: Bid Capacity

Each Bidder or member of a JV must fill in this form

Bid Capacity = [(5 x A) – B]

A = Average Annual Turnover of best three years out of last ten fiscal years.

B = Annual Value of the existing commitments and works (ongoing) to be completed, calculated from
FIN-4.

SN	Name of Bidder	Pan No.	A, in Million	B, in Million	Bid Capacity, in Million
1					
2					
3					

Total Bid Capacity:

Signature of Bidder



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Form FIN- 5: Current Contract Commitments / Works in Progress

Bidders and each partner to a JV should provide information on their current commitments on all contracts that have been awarded, or for which a letter of intent or acceptance has been received, or for contracts approaching completion, but for which an unqualified, full completion certificate has yet to be issued.

Current Contract Commitments (For Calculation of B with reference of FIN-3)									
No.	Name of Contract	Name of the Contractor/s	Employer's Contact Address, Tel, Fax	Contract Share in % (a)	Contract Amount in Millions (b)	Contract Date(yyyy-mm) (c)	Initial or Revised Contract Duration (months) (d)	Value of outstanding works [In Millions, NRS] [#] (e)	Estimated Time in Month to Complete the outstanding works (f) = (c) + (d) – Date of Invitation of Bid (f)
1									
2									
3									
4									

Signature of Bidder

[#] The Outstanding Works means Contract Price (excluding Vat) minus Work Evaluated by Employer till the reference date. Bidder shall have to submit the relevant documentary evidence to substantiate the facts/figures.

Note 1: “B” shall be calculated as : $B = \sum \left[\frac{(e) \times (a)}{(f)} \right] \times 12$, If (f) is less than 12, then value of (f) shall be taken as 12.

Note 2: If Initial or Revised Contract Date is run out with respect to Date of Invitation of Bid, the Estimated Time in Month to Complete the outstanding works shall be taken equal to 12 months.

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Form EXP - 1: General Construction Experience

Each Bidder or member of a JV must fill in this form.

General Construction Experience				
Starting Month Year	Ending Month Year	Year	Contract Identification and Name and Address of Employer Brief Description of the Works Executed by the Bidder	Role of Bidder


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Form EXP - 2(a): Specific Construction Experience

Fill up one (1) form per contract.

Contract of Similar Size and Nature			
Contract No..... of.....	Contract Identification		
Award Date		Completion Date	
Role in Contract	☐ Contractor	☐ Management Contractor	☐ Subcontractor
Total Contract Amount	☐ NRS		
If Partner in a JV or subcontractor, specify participation of total contract amount	Percent of Total	Amount	
Employer's Name Address Telephone/Fax Number E-mail			
Description of the similarity in accordance with Criteria 2.4.2 (a) of Section III			
Note : <i>The Employer should insert here contract size, complexity, methods, technology, or other characteristics as described in Section III (EQC), 2.4.2 (a) against which the bidder demonstrates similarity in the box on the right-hand-side.</i>			

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Form EXP - 2(b): Specific Construction Experience in Key Activities

Fill up one (1) form per contract.

Contract of Similar Size and Nature			
Contract No..... of.....	Contract Identification		
Award Date		Completion Date	
Role in Contract	☐ Contractor	☐ Management Contractor	☐ Subcontractor
Total Contract Amount	☐ NRS		
If Partner in a JV or subcontractor, specify participation of total contract amount	Percent of Total	Amount	
Employer's Name Address Telephone/Fax Number E-mail			
Description of the similarity in accordance with Criteria 2.4.2 (a) of Section III			
Note : <i>The Employer should insert here production rate(s) for the key activity (activities) subject contract against which the bidder demonstrates in the box on the right-hand-side production rates achieved by him on previous contracts.</i>			



Section V - Eligible Countries

[This section contains the list of eligible countries. Select one option, either GoN Funded or DP Funded.]

For GoN funded: *[with estimate up to NRs. 5 billion]*

For the purpose of ITB 4.2: “**Nepal**”; and

For the purpose of Country-of-Origin ITB 5.1 and GCC 79.2: “**all Countries**”

For DP funded: **[attach list as per their list of eligible countries]**



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Part II: EMPLOYER's REQUIREMENTS



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Section VI: Works Requirements

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



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Scope of Work

[Insert brief scope of works.]



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Specifications

TECHNICAL SPECIFICATIONS AND STANDARDS

SECTION – 1

REQUIREMENTS FOR EXECUTION OF WORKS

FOR

LINE AND DISTRIBUTION TRANSFORMER CONSTRUCTION
WORKS



Requirements for Execution of Works

1. General

- 1.1 These Standard Specifications, together with the Standards of Nepal Electricity Authority shall govern the performance of the Works and shall be the basis for inspection and acceptance of the Work by the Project.
- 1.2 The Standard Specifications and the Standards of Nepal Electricity Authority shall be considered as mutually inclusive, and the conditions stated in each shall supplement the other as appropriate.
- 1.3 All Standard Specifications shall be followed at all times by the Contractor unless specifically accepted in writing by the Project, or unless some aspects of the work covered by these General Specifications are not required by the Scope of Work.

2. Site Office Management

- 2.1 The Contractor and/or sub-contractors as per GCC shall establish and maintain throughout the period of the performance of the contract a site office to serve as a base for all the operations necessary to perform the works and shall maintain adequate store facilities for storing materials and equipment issued by the employer. In case the above-mentioned facilities and establishments are not found satisfactory during the site verification, the employer shall have right to instruct the contractor for rectification of the same.

3. Contractor's key personnel and workforce

- 3.1 The contractor shall have experienced and qualified administrative, accounting and store keeping staffs capable to undertake respective jobs. An office manager with adequate qualification and experience to run such establishment efficiently must head the site office. The contractor shall employ only experienced, competent and skilled office staff as required in the tender document.
- 3.2 The line construction and supervisory staff of the contractor shall be examined by the employer to ensure their capability to perform proper quality of work before commencement of the work.
- 3.3 The site and field staff as approved by the employer shall be made available for the entire construction period of the project. All the staff and workforce of the contractor shall be issued identity cards jointly certified by the contractor and the employer. Replacement of any such staff or site personnel must not be made without prior permission of the employer.
- 3.4 The contractor is required to pay salary and wages of his staff and workforce at an interval not exceeding a month. The rate of wages payable to the labors shall not be less than as prescribed by the labor law of Nepal.

4. Tools and Equipment

- 4.1 The Contractor shall have owned, leased or hired tools and equipment for successful execution of the work. Prior to beginning of the work the contractor shall show these items in his possession. In case of the heavy tools equipment and vehicles the contractor is required to submit the source of these items with credible documents such as contract papers conforming their availability at the time of the execution of the works.
- 4.2 The employer shall examine to verify the availability of all such tools and equipment before commencement of the work. The contractor shall be allowed to start his work only after verification of such tools and equipment in satisfaction of the employer. No tools and equipment


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5. Workmanship and quality of work

- 5.1 The contractor shall be attentive to maintain workmanship and quality of work while performing the work and shall obey to all the instructions of the field staff of the project time to time in this regard.
- 5.2 Special items such as concrete works, cable jointing works and transformer installation works etc. must be performed in presence of the project field staff. In case of the concrete works the project staff shall assess quantity of cement and steel to be used for each of the job and this must be followed for performing the job. Sand and aggregate must be supplied as per the standard specification of the tender document. The project field staff shall check quality of such materials and the contractor shall use the same after his approval. Curing of concrete works must be carried as per standard practice. The field staff shall have right to ask the contractor to repeat concrete works in case of his failure to execute the job as above or in his absence.
- 5.3 Each and every item of the standard data sheet (SDS) shall also be checked by the project staff for the satisfaction of quality of workmanship as per the prescribed specification of the tender document. In case of failure of the contractor to execute any item of the work as per proper workmanship or quality, the project shall have right to ask the contractor to revise or remedy such work at the cost of the contractor.

6. Construction Time Schedule

- 6.1 Before the commencement of construction works the contractor shall be required to submit a detail construction time schedule showing details of each event of construction of different components of works so as to complete the whole work within the time frame as per the requirement of the contract. The contractor's proposal shall be examined by the employer to ensure his ability to perform the work in time and approval shall be given with any modification, if necessary, in satisfaction of the employer.
- 6.2 If the contractor fails to execute the any component of work within the period specified in the construction schedule, the employer shall have right to warn the contractor to make up for such delay in time. In case the contractor fails to overcome delay in different components of the works instead of repeated reminders by the employer, he shall be made fully responsible for any delay in final time schedule and no consideration shall be made for any extension of construction period for the whole work.

7. Technical Documentation

- 7.1 All technical documentation as specified herein, shall be prepared by the Contractor. The Contractor shall employ skilled drafting personnel to produce all documentation specified. All technical documentation prepared by the Contractor shall be subject to the approval of the Project prior to acceptance by the Project of such documentation. All technical documentation shall be prepared in the English language.
- 7.2 Structure Data Sheets (SDS), Material Data Sheet (MDS) along with the GIS maps shall be prepared in accordance with the format provided by NEA. Structure Data Sheets shall be prepared by the Contractor showing his proposed construction details for erection of facilities in accordance with the Standards of Nepal Electricity Authority. Submission of SDS, MDS and GIS maps for approval shall in clearly legible copy. Any unclear or illegible form entry or reproduction shall be rejected. Project may require any revisions to be made, at their sole discretion, prior to approval of the SDS, MDS and GIS maps for construction. An approved and field checked SDS is required for all Construction Units invoiced by the Contractor. Field checking of the SDS, MDS and GIS maps shall be performed jointly by the Contractor and

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Project representative. The SDS and As-Built Plan are intended as permanent records for Project. Any construction performed prior to the Contractor's receipt of approved SDS from Project shall be completely at the Contractor's risk, and Project shall have the right to require any correction due to the un-approved construction activities.

7.3 As-Built Drawings along with GIS maps shall be prepared by the Contractor in the general format provided by the Project. The Project shall provide any available environmental background data for inclusion on the various drawings and the Contractor shall record (in ink) all facilities as-built.

7.4 The Contractor shall prepare other technical drawings, in the same medium and format as the As-Built Drawings, for As-Built Drawings index sheets, pole maps, and One-Line Diagrams as specified and required by the Project.

8. **Approval of Drawings**

8.1 The contractor must get approval from the employer in writing before he starts execution of construction of any of the segment of work. If the contractor executes any work without the employer's prior approval, he may be asked to revise the same without paying any compensation to him.

9. **Pole Setting**

9.1 Poles shall be set in accordance with the appropriate Sections of the Standards of Nepal Electricity Authority.

9.2 Each pole shall be assigned a unique construction number at the time of structure staking for preliminary identification and preparation of structure Data Sheets (SDS).

9.3 Subsequent to the preparation and approval of SDS, and prior to provisional acceptance of a given line section, the Project shall provide the Contractor with unique permanent pole numbers. The Contractor shall then apply the specified permanent pole numbers to each pole with black oil-based paint in neat clear English letters and/or Latin numerals. Permanent pole numbers shall be applied in letters/numerals five (5) centimeters in height at a point on the pole 1.6 meters above ground level. Numbers shall be applied on the side of the pole facing the adjacent street or travelled way.

10. **Route of Circuits**

10.1 To the greatest extent practicable, all overhead circuits should be located along streets or travelled ways ordained by the local level authority or other required authority as public property, except as required for Service drops and circuits to individual consumers.

10.2 All structures should be located at the outer limits of public property along streets or travelled ways. Structures should also be located along streets at property lines of adjacent private property. Structures and stays running parallel or perpendicular to the line route shall not block portions of streets, travelled ways, drives, passages, or gates.

10.4 All structures shall be so located as to reduce, to the greatest extent practicable, obstacles to pedestrian and vehicular traffic. Barriers shall be provided in accordance with instructions by the employer. As far as practicable, transformer structures shall be located to reduce visual and noise impact on adjacent residences or businesses.

10.5 Where underground facilities are indicated by surface conditions, or where such facilities can


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be located, structures and stays shall be so located as to avoid conflict with such facilities during construction.

- 10.6 All structure and stay lead locations shall be staked. At points of intersection (P.I.) of tangent line sections, steel rebar stakes shall be used to locate the P.I. A minimum of two (2) side sightings will be made at each P.I. to permit re-location of P.I. in the event of stake removal. All structure locations in tangent line sections shall be staked.
- 10.7 All distances between structures, and other necessary measurements of length, shall be measured to accuracy of 0.1 metre and all angles shall be determined by transit to an accuracy of 0.1 decimal degree. All elevations shall be measured to an accuracy of 0.1 metre by means acceptable to the Project.
- 10.8 All measuring and staking activity shall be accomplished by personnel with experience in survey procedures, and standard survey equipment acceptable to the employer shall be used to perform the survey work. Field survey notes covering all survey work shall be produced and maintained and shall be turned over to the Project at the time of completion of the Works. The format of proposed survey notes shall be submitted to the Project for approval.
- 10.9 Survey work and Survey reports shall be prepared and submitted in hard copy and soft copy. The complete SDS and GIS reports shall be submitted to the project for approval. After the final construction, the as-built drawings and reports shall also be prepared and submitted in hard as well as soft copy. The complete GIS maps shall be prepared and submitted as directed by the Project.
11. **Materials**
- 11.1 All materials and equipment of the Project shall be located at the designated store of the Contractor as approved by the Project. During issue and handing over of these materials it shall be the Contractor's responsibility to load all of them and provide all necessary lifting and handling equipment, labor and suitable transport as required to transport the various items of materials and equipment to the Contractor's site of storage and operations.
- 11.2 Accountability for all materials and equipment procured and issued for the project shall be based on the material lists associated with the various construction drawings and sole responsibility of the contractor.
- 11.3 If the Contractor fails to account for all materials and equipment procured for the Project, the Contractor shall be charged for the missing materials or equipment. The Project shall have the right to withhold money due or to become due to the Contractor, as reimbursement for the deficit in the Contractor's material.
- 11.4 Prior to the rehabilitation work, representative of the NEA's local branch office, the Site Engineer and the Contractor shall jointly inspect the materials to be dismantled and list down such materials. It shall be the contractor's responsibility to pack those goods appropriately, transport them to the nearest NEA store and get receipt. Such receipts shall be enclosed with the subsequent invoices claimed by the contractor.
12. **Material Storage**
- 12.1 The Contractor shall procure all materials and equipment stated in the Bill of quantities. The Contractor shall provide all labor, equipment, and vehicles to load and transport materials and equipment to the Contractor storage facilities and worksites as required. All materials and equipment turned in to the Project reclaimed after demolition of existing facilities if any shall be transported to the Project warehouse and unloaded in the same manner.

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12.2 Worksite

- a) Extended storage of materials along the routes of lines will not be permitted. All small items of material shall be provided to the work crews on a daily basis and no small items of materials may be stored on the worksite overnight.
- b) Transformers, cable, conductor reels and line accessories may be spotted at the worksites for a short period prior to installation provided that crating and reel lagging are intact to protect the items. Poles may be spotted at structure locations for short periods prior to setting.
- c) All poles, transformers, cable, conductor and line accessories placed at the worksites shall be located so that the items are not subject to damage and do not impede pedestrian or vehicular traffic.
- d) Any damage caused by imprudent placement of equipment and materials by the Contractor at the worksites shall be corrected by the Contractor, in a manner acceptable to the Project, at the Contractor's cost.

12.3 Contractor Storage Facility

- a) The Contractor shall be financially responsible for the secure and proper storage of materials, prior to installation of the materials and equipment, to prevent loss or damage to any materials.
- b) Any items of material and equipment contained in degradable packaging shall be stored under roof and protected from moisture. Other materials, except as specified in subparagraph (c) below shall be stored and covered in a well-drained level area, free from accumulation of surface water.
- c) Transformers, disconnecting switches, reels of ABC Cable, reels of Cover Conductor, reels of XLPE Cable may be stored outdoors in a well-drained, level area free from accumulation of surface water. Reels of cable may be stacked on reel sides not more than three (3) reels high. Cable reels shall be placed on Wood pallets, wood lagging, or well-graveled level surface.
- d) Packaged items of material and equipment shall not be uncrated, or have packaging removed, prior to installation. The Contractor shall exercise due caution and care in the transportation, storage, and handling of all materials which are to be provided by the Project. Equipment consisting of, or containing, porcelain insulation should be transported and handled to avoid cracks or chipping. Lagging or other protection shall not be removed from ABC cable reels until the cable is to be installed.
- e) The ends of installed cables shall be sealed immediately after being cut with a nonabsorbent covering fastened around the outer jacket.

13. Local Materials

- 13.1 Certain minor items of materials, including civil materials, required by the Standards of Nepal Electricity Authority are designated Local Materials in the Standards and shall be furnished and installed by the Contractor as part of the completed unit of construction.
- 13.2 The contractor shall include the cost of such items of materials in his quoted construction unit prices and no other payments for such materials shall be made to the contractor.
- 13.3 It shall be the Contractor's responsibility to determine his requirements for any items of Local Material in a timely manner and make procurement accordingly. No delays shall be allowed,


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and no exceptions shall be made to the required use of Local Materials due to the unavailability of such materials.

14. **Excavations**

- 14.1 All excavations made for the installation, or demolition, of facilities shall be accomplished in a timely manner according to the scheduled installation. Required excavations shall be opened, material installed, and backfill placed, as specified, in a continuing operation to the greatest extent practicable.
- 14.2 Any excavation left open during discontinuous construction which is accessible to the public or along public thoroughfare, shall be covered or barricaded, and marked by suitable visual means, to prevent a public hazard.
- 14.3 Excavations shall be properly located and sized for the intended use. Pole and stay plate/ anchor excavations shall be correctly sized to retain undisturbed soil to the greatest extent consistent with the means of excavation. Pole holes shall be made by power-driven auger or by manual methods; power-driven shovel equipment shall not be used. Pole holes shall be excavated to the specified depth with no tolerance shallow and tolerance of ten (10) centimeters deep. The bottom of pole holes shall be undisturbed soil, gravel or rock. Stay plate holes shall be excavated by manual methods to specified depth with no disturbed soil in the direction of the anchor rod.
- 14.4 All excavations shall be backfilled with excavated material, or as specified for the installation. Backfill shall be free of foreign materials and shall be well tamped with excess backfill graded over the excavated area to prevent depressions resulting from eventual natural compaction. Large amounts of excess backfill shall be removed from the site by the Contractor if so directed by employer. If so directed by Project, the Contractor shall provide suitable backfill materials for excavations where existing removed materials is insufficient, or inappropriate, to provide suitable grading of the excavated area.

15. **Demolition**

- 15.1 The Contractor shall perform the removal of all existing facilities, if any, in accordance with the specific directions of the Employer. All materials removed shall remain the property of Project and the Contractor shall deliver all salvaged materials to the Project warehouse, or as specifically directed by the Employer.
- 15.2 All poles shall be removed by pulling the complete pole from the ground; poles shall not be cut off at the ground line. Holes shall be backfilled and compacted completely with sufficient added backfill piled above grade to prevent depressions being created by natural compaction. Backfill material shall be provided by the Contractor.
- 15.3 All conductor materials removed shall be returned to the Project. Methods of conductor removal shall be specified by the Project. If conductor is removed in the longest length practicable for future re-use, the said conductor shall be wound on empty conductor reels, with the reels marked with the conductor size and approximate length. Different conductor sizes shall not be mixed on any reel. If conductor is removed from structures and specified as scrap, conductors may be cut down in lengths and made up in rolls. Conductor sizes for scrapping may be mixed; different conductor metals shall be separated.
- 15.4 Care shall be taken in removing, handling, and transporting cutouts, and surge arresters to minimize porcelain damage.
- 15.5 Transformers removed from service shall be delivered to the Project warehouse or as specifically directed by the Employer. Care shall be taken in removing, lifting, and transporting


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Agricultural Pole , Wire & Transformer Installation Works Within shahidnagar Municipality Under Procurement of Works (NCB)- 1S2E Procedure transformers.

- 15.6 Other structures shall be removed, such as concrete transformer pedestals in the most appropriate manner, as specified by the Project. Existing stay rods may be cut 20 centimeters below finished ground level.

16. Tree Cutting and Trimming

- 16.1 Any tree cutting or tree trimming authorized and directed shall be accomplished by the Contractor under the direct supervision of Project.
- 16.2 All cutting shall be removed by the Contractor with disposition of cutting as specified by Project.

17. Safety

- 17.1 The Contractor shall take all measures required to safeguard the public and private property from any hazard to life, limb, or property which may arise during the performance of the construction of the works. Such measures shall include, but not be limited to: barricades, signs, newspaper announcements, traffic control by police, or other advisory and control methods deemed appropriate.
- 17.2 The Contractor shall provide his work force with all tools and equipment in sufficient numbers and quality to perform all aspects of the works in a safe manner. The Contractor shall provide protective headgear for all members of his workforce, and shall provide protective clothing as required for specific tasks. The Contractor shall instruct his work force in proper and safe construction techniques and shall continuously monitor compliance with safety instructions throughout the period of the Contract.
- 17.3 The Contractor shall provide and require use of protective grounding equipment when:
- a) Work is being performed on lines adjacent either in extension of or parallel to energized circuits.
 - b) Work is being performed on isolated circuits after conductors have been installed.
- 17.4 The Contractor shall maintain all tools and equipment in good working order. All mechanized equipment shall have adequate safety mechanisms and guards in place and be fully operational. Operators of such equipment shall be skilled and fully trained in the operation of such equipment.
- 17.5 The Contractor shall provide and maintain emergency medical supplies to cover with accidents and snakebites for his work force on a readily available basis. The Contractor shall also instruct all supervisory personnel in the action to be taken in the event of serious injury, and the sources and locations of professional medical assistance which shall be employed in such cases.
- 17.6 The Contractor shall apply all accidental insurance policies to his work force for an accident occurring during the working period of the construction.

18. Interruptions to Existing Service

- 18.1 The Contractor shall arrange for interruptions of service to existing lines with Project. Every effort shall be made to limit such interruptions to the minimum.

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19. Tests

- 19.1 The Contractor shall furnish the electrical test equipment and personnel to perform electrical tests of equipment and circuits, as specified by, and under the supervision of the Project.
- 19.2 The Contractor shall megger all circuits installed with a motor-driven megger to demonstrate the acceptable insulation characteristics of the line prior to energization and Provisional Acceptance. 11 kV and 400 V overhead circuits shall be tested at 2500/1000 volts AC and 33 kV overhead circuits shall be tested at 5000 volts AC.
- 19.3 The Contractor shall megger all transformers with a motor-driven megger prior to installation
- 19.4 All tests specified shall be conducted during suitable atmospheric conditions under the supervision and witness of the Project. All test results shall be documented and signed by both parties.

20. Commissioning of work

- 20.1 After completion of entire work of any village or load center, the project after necessary tests shall arrange to electrically charge the same. In case of successful operation in satisfaction to the project the contractor shall be issued a provisional certificate starting from the date of such commissioning.
- 20.2 The Project shall be authorized to change such date of commissioning in case of failure of the line due to any defect in the quality of construction.
- 20.3 Final acceptance of work shall be issued only after completion and satisfactory commissioning of whole work of the contract.

21. Measurement of work and material

- 21.1 The contractor after completion of work of any segment of work as per approved drawing of the project shall submit detail work measurement in structure data sheet (SDS) provided.
- 21.2 Measurement of the work performed by the contractor shall be jointly checked by the contractor and the staff deputed by the employer. In case of any discrepancy or dissatisfaction of employer staff the contractor shall be notified for making corrections for the same and the contractor shall have to submit his revised measurement schedule.

22. Cleanup

- 22.1 The Contractor shall ensure that all worksites shall be free of all manner of debris resulting from the construction activity.
- 22.2 All crating, cable and conductor reels, packaging materials, conductor scraps, and other miscellaneous items are removed from the workplace. All holes resulting from removal of facilities shall be filled. If trees or bush have been cut or trimmed, all cuttings shall be removed. The worksites shall be left in clean natural conditions.
- 22.3 Site cleanup shall be an integral part of the Provisional Acceptance process, and no line section shall be provisionally accepted unless all cleanup work has been accomplished.
- 22.4 Technical Documentation and Drawing Approval Workflow
22.4.1 **Document Specifications:*** The Contractor shall submit comprehensive engineering drawings, schematic diagrams, structural design calculations, and manufacturer's technical catalog cuts for all equipment, plant, and structural materials for formal review and verification.


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22.4.2 Manufacturing Sequence:* Component manufacturing, casting, production, or fabrication processes shall strictly follow the approved technical designs. No material fabrication shall proceed without checked and verified technical profiles on record.

22.5 Quality Control and Technical Verification Protocol

22.5.1 NEA Test Centre Protocols:* All distribution transformers supplied under this contract shall undergo standard routine testing and technical verification at the Nepal Electricity Authority (NEA) Test Centre. Testing protocols shall verify compliance against specified technical parameters, losses, and performance efficiency.

22.5.2 Certification Requirement:* A certified, serialized routine test report for each individual distribution transformer must be formally registered and approved prior to the authorization of field erection, deployment, or network charging

Structure Data Sheet (SDS)

Structure Data Sheets (SDS) shall be prepared to provide details of specific construction information necessary for erection of pole structures with hardware and accessories and conductor installation. The SDS shall be used in conjunction with the area plan drawing to document the works to be performed. A sample copy of the SDS format is attached herewith.

Abbreviations used in the preparation of SDS shall be defined as follows,

S.N.	Particular	Description	Code
1	Circuit Type	Single Circuit	SC
		Double Circuit	DC
2	Pole Type	Steel Telescopic Pole	TTP
		Steel Tubular Pole	STP
3	Conductor/ Cable Type	33 kV 400 mm ² XLPE Power Cable, 1C	XLPE,400,33, 1C
		33 kV 400 mm ² XLPE Power Cable, 3C	XLPE,400,33, 3C
		ACSR 'WOLF' Conductor	WOLF
		120 mm ² XLPE insulated Covered Conductor for 11 kV line	Covered,120
		ACSR 'DOG' Conductor	DOG
		LT AB Cable (3x95+70)	ABC, 3x95+70
		LT AB Cable (4x70)	ABC,4x70
4	Pole Frame Type (33kV and 11 kV Line)	Single Pole Single Arm	SPSA
		Single Pole Double Arm	SPDA
		H-structure	HS
		Three Pole or Four Pole Structure	MP
		Single Pole Double Dead End Structure	SPDDE
		Tap-Off structure (TO)	TO
		Dead End Structure (DE)	DE
		Offset Structure	OFF
		Composite	CO
		Transformer pole Dead End Type Structure (TR-DE)	TR-DE
		Transformer Pole Intermediate Structure (TR-IN)	TR-IN
5	Pole Frame Type (400 V Line)	Low voltage frame type A1	A1
		Low voltage frame type A2	A2
		Low voltage frame type B	B
		Low voltage frame type C	C
		Low voltage frame type D	D
		Low voltage frame type E	E
6	Stay Type	Single stay	S
		Double Stay	D
		Flying type stay	F
7	Load Break Switch	Load Break Switch	LB

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8	Angle of Deflection	Angle of line deflection in degree	BA
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Note:

- Information for a single pole location need not be confined to a single row.
- All works, whether new or on existing systems, shall be documented on the SDS.
- Each SDS shall include the applicable "As Built" Plan Drawing number(s). Similarly, each "As-Built" Plan Drawing shall include the applicable SDS number(s).

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NEPAL ELECTRICITY AUTHORITY

Structure Data Sheet (SDS) of 11kV and 400V Line

Province: _____ Distribution Centre: _____
 District: _____ Name of the Project: _____
 Municipality: _____ Contract No.: _____
 Ward No: _____ Contractor: _____
 Tole: _____ Authorized Subcontractor: _____

S/N	Pole No.		Geo Co-ordinates	Span	Circuit Type	Composite	BA	Pole Type	Pole Frame Type			Stay			Conductor /Cable		Distribution Transformer (kVA)	Switch	Remark
	From	To							HT	LT	TRF	S	D	F	HT	LT	HT	LT	
1																			
2																			
3																			
4																			
5																			
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SECTION – 2
SPECIFICATIONS OF LINE MATERIALS
FOR
LINE AND DISTRIBUTION TRANSFORMER CONSTRUCTION
WORKS


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Distribution Transformer

1. Scope

These specifications cover the requirements of oil-immersed, natural-cooled single and three-phase distribution transformers suitable for outdoors installation on 11kV, 50 Hz distribution systems.

2. Service Condition

The transformers shall be designed and constructed for outdoor installation and operation under the following conditions:

Ambient temperature:	-5 deg. C to 50 deg. C
Relative humidity:	up to 99%
Altitude:	up to 3000m above the mean sea level

3. Standards and Quality Certification

- 3.1 The equipment specified in this Section of the Contract shall conform to the latest edition of the appropriate IEC specifications and/or other recognized international standards. In particular:

IEC 60076	Power transformers
IEC 60137	Insulating Bushings for alternating voltages above 1 kV
IEC 60156	Insulating liquids-Determination of the breakdown voltage at power frequency test method
IEC 60296	Specification for unused mineral insulating oils for transformers and switchgear
IEC 60551	Determination of transformer and reactor sound levels
IEC 60616	Terminal and tapping materials for power transformer
IEC 60722	Guide to lightning and switching impulse testing of power transformers and reactors
IEC 60733	Determination of water in insulating oils.

- 3.2 The manufacturer of the offered transformers must have been accredited with the latest edition of ISO 9001 (including design in the scope of registration) quality certification.

4. Description

- 4.1 Technical details are provided in the tables below.

S.N.	Description	Unit	Required ratings/features
1	Type		Three-phase, 11/0.4 kV
2	Rated power	kVA	100, 200, 300
3	Rated voltage		
3.1	Primary	kV	11
3.2	Secondary	V	400
4	Maximum system voltage		
4.1	Primary	kV	12
4.2	Secondary	V	440
5	Rated frequency	Hz	50
6	Connection		
6.1	Primary		Delta
6.2	Secondary		Grd. Wye
7	Cooling System		ONAN
8	Vector group		Dyn11
9	Rated impedance voltage		3.5 - 4.5%

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10	BIL for windings and bushings for primary side	kV	75
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11	Power frequency withstand voltage, 50 Hz, 60 Sec.		
11.1	Primary	kV	28
11.2	Secondary	kV	3
12	No load tap changer		+/- 2.5%, +/- 5% on HV side
13	Mounting		Platform
S.N.	Description	Unit	Required ratings/features
14	Insulation levels (IEC)		LI 75 AC 28/AC 3
15	Insulation temperature class A		A
16	Maximum allowable noise level at 3 metre hemispherical radius	dB	<44
17	Applicable standard		IEC

4.2 Tank

The tank shall be of welded construction and fabricated from mild steel of adequate thickness. All seams shall be properly welded to withstand requisite impact during short circuit without distortion. All welding shall be stress relieved. The tank cover shall be bolted on to the tank with weatherproof, hot-oil resistant, resilient gasket in between for complete oil tightness. Pressedsteel radiators shall be mounted on transformer-tanks of 50 kVA and higher rating transformers. The radiator shall be of pressed-steel of corrugated type design. Heat dissipation calculation in respect of the number, size and length of the radiators are to be satisfied by design calculation.

Each transformer shall be provided with a case of rigid construction, which shall be oil-tight and gas-tight. The thickness of all tank sides except the tank bottom and cover shall not less than 3.2 mm. The thickness of tank, the tank bottom and cover shall not be less than 4.0 mm. The tank shall be capable of withstanding, without leakage or permanent distortion, a pressure 25% greater than the maximum operating pressure. The tank cover shall be bolted. Each transformer shall be provided with earthing terminal with clamp type connector. The radiator shall be of pressed steel or corrugated type design.

4.3 Painting

All sheet steel works shall be phosphated in accordance with the following procedure and in accordance with ISO 2063 and ISO 12944.

The tank body shall be sand/shot blasted to remove the welding scales. Oil, grease, dirt shall be thoroughly removed by emulsion cleaning. Rust and scale shall be removed by pickling with dilute acid followed by washing with running water, rinsing with slightly alkaline hot water and drying. After phosphating, thorough rinsing shall be carried out with clean water, followed by final rinsing with dilute dichromate solution and even drying. The phosphate coating shall be sealed by the application of two coats of stoving type zinc chromate primer. The first coat may be "flash dried" while the second coat shall be stoved. After application of the primer, two coats of finishing synthetic enamel paint shall be applied, each coat followed by stoving. Touch up shall be applied after completion of tests. The color for the finishing paint shall be light gray or as approved by Employer. The final finished thickness of paint film on steel shall not be less than 60 microns. Finished painted surface shall present aesthetically pleasing appearance free from runs and drips. A small quantity of finishing paint shall be supplied for minor touching up required at site.

4.4 Core

The transformer shall be of core type. The cores shall be constructed with prime core-material of interleaved grade non-aging, low loss, high permeability, grain oriented and cold rolled silicon steel laminations, properly treated after being sheared to remove any burrs and shall be


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reannealed to remove any residual stresses. The steel shall be thin in lamination. The core shall be M4 type or better.

The yoke laminations shall be in single piece instead of pieces to reduce chances of introducing more air gaps in the core construction. All steel sections used for the support of the core shall be thoroughly sand/shots blasted after cutting, drilling and welding.

All laminations shall be properly insulated with the materials that will not deteriorate due to pressure and hot oil. The core shall be rigidly clamped with positive locking device to ensure adequate mechanical strength. Core and coil assembly shall be capable of withstanding the vibrations and shock during transportation, installation, service and adequate provision shall be made to prevent movement of core and coil assembly relative to the tank during these conditions. The core shall be provided with lifting lugs suitable for lifting complete core and coil assembly of transformer.

Permissible Flux Density and Over Fluxing

Flux density at rated voltage and frequency shall not exceed 1.6 T. The no-load current at rated voltage and at 112.5% voltage shall not exceed the values given below with tolerance as indicated.

At 100% rated voltage 2% of rated full load current + 30% as tolerance. At

112.5% rated voltage max 4% of rated full load current

The bidder shall submit the design calculation in support of flux density and no-load current at 100% and 112.5% voltage along with drawings of core-steps, limb diameter, window-height, limb-center, etc.

4.5 Winding

The design, construction and treatment of winding shall give proper consideration to all service factors. The winding shall be so designed that all coil assemblies are of identical voltage ratio and shall be interchangeable. All delta leads should be clamped tightly on to the special frame/bracket making pie (π) frame. The leads leading to the bushing terminals should be clamped to the horizontal support base of the pie frame so that vibration during short circuit is not passed on to the windings.

The completed assembly of core and coils shall be dried in a vacuum sufficient to ensure elimination of air and moisture within the insulating structure. After the drying process, the assembly shall be immediately impregnated with dry oil to develop full electrical strength in the windings. The windings of the transformer shall be fabricated from copper materials.

Current density for any part of the winding shall not exceed 2.5 amp/mm² for copper winding transformers.

4.6 Oil Preservation System

The transformers up to 25 kVA of voltage rating 11/0.4kV shall be completely oil filled type. The transformers of higher ratings shall be provided with conservator. The conservator vessel shall have a capacity between highest and the lowest levels of not less than 7.5% of the total cold oil volume of the transformer.

Each conservator vessel shall be fitted with a sufficient-size breather in which silica gel shall be used as the drying agent. Windows in the silica-gel breathers shall be sufficiently large enough to allow crystal color change to be easily observed from a distance of 6 m. The position of the silica gel breather shall be such that maintenance can be carried out without the need to deenergize the transformer.

4.7 Short Circuit Capacity

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 The transformer shall be designed and constructed to withstand without injury the mechanical and thermal stress produced by short-circuit current limited by the impedance of the transformer only.

4.8 Tap Changer

An externally - operated tap changer shall be furnished with each transformer, to be operated only when the transformer is de-energized. The tap changer shall include an operating handle, visible indication of tap position and means for locking the tap changer in any desired position. The locking device shall be arranged to prevent locking the tap changer in an off position. Mechanical means shall be provided for limiting the maximum and minimum travelling of the extreme tap positions to be at the maximum and minimum position of the tap changer.

4.9 Insulating Oil

The insulating oil shall be refined mineral oil. Necessary quantity of oil for the transformer shall be furnished by the contractor.

4.10 Bushings

The bushings shall be made of homogeneous and well vitrified porcelain. The color of the insulator shall be brown and the surface shall have polished glaze.

The high voltage bushings shall have bolted terminal lugs (samples should be approved by NEA) suitable for terminating 30-120 mm² stranded conductor.

The low voltage bushings shall have bolted terminal lugs (samples should be approved by NEA) suitable for terminating aluminum conductor compatible to the kVA rating (with 100% factor of safety) of the transformer.

The low voltage neutral bushings shall include a bolted terminal lug for terminating together an earth wire and an aluminum conductor of neutral circuit of the LV system.

4.11 Temperature rise

Maximum oil-temperature rise and maximum winding-temperature rise above ambient temperature of 45 deg. C when carrying maximum continuous rated current shall not exceed the following:

- a) In oil by thermometer 50 deg. C
- b) In winding by resistance 55 deg. C

The temperature rise of the insulating oil shall be measured near the top of the main tank.

4.12 Gaskets

All sealing washers/Gaskets shall be made of oil and heat resistance nitrile/neoprene/synthetic rubber bonded with cork gasket. Gasket made with natural rubber and cork shall not be acceptable. The thickness of the tank cover gasket shall not be less than 6 mm before compression.

4.13 Clearances

Minimum electrical clearances between the phases and phase to earth shall not be less than the values given below:

Voltage	Medium	Phase to phase, mm	Phase to earth, mm
11kV	Air	255	320
400V	Air	75	55

The clearances shall be maintained by fixing the bimetallic connectors in position.


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4.14 Accessories

The following accessories shall be provided with each transformer.

- ☐ Lower oil filter and drain valve
- ☐ Liquid level gauge
- ☐ Lifting Lug
- ☐ Name plate
- ☐ Tank grounding terminal connector suitable for grounding cable Pressure relief device of explosion vent type for 25 kVA and higher ratings

4.15 Rating and Terminal Marking Plate

Each transformer shall be provided with a non-detachable rating and terminal marking plate of weather proof material, preferably of brass fitted in a visible position mentioning the following information:

- ☐ Guaranteed No Load Loss and Load loss
- ☐ Details of rating (rated output, voltage, phases, frequency etc.)
- ☐ Cooling
- ☐ Connection and vector diagram
- ☐ Weights (Total, weight of core, weight of winding and weight of oil)
- ☐ Name of manufacturer and year of manufacture
- ☐ Standards of manufacture
- ☐ Physical dimension of the transformer
- ☐ Any other relevant information

The face of the transformer body shall display the words "Property of Nepal Electricity Authority" on all four sides written in indelible paint.

5 Tests

Tests shall be performed in accordance with these specifications in line with the relevant IEC standards.

5.1 Type Tests

The Bidder shall submit, along with the Bid, type test reports (detail) on the following tests performed on identical units on each ratings of the transformer

- ☐ Temperature rise tests
- ☐ Dielectric Type Tests (Impulse Voltage Tests and Separate source AC withstand voltage test)

If the type test report for identical unit of transformer is not available, the type test report of similar type transformer may be considered acceptable during bid evaluation, provided that the bidder shall upon award of the Contract and prior to mass production of transformer, undertake to carry out type test on identical unit of each type (and rating) of transformer from an independent laboratory accredited by International Accreditation Corporation (ILAC) or International Accreditation Forum (IAF) or other reputed Accreditation Agencies acceptable to Nepal Electricity Authority in the presence of representative appointed by NEA at no extra cost to the NEA.

In this case, for purpose of evaluation, the values of no-load and load losses shall be considered from the values guaranteed by the bidder.

5.2 Routine Tests

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The routine tests shall be performed on each unit of transformer by the manufacturer as per the IEC before dispatch and submit the test-reports to the Employer. The bidders are required to furnish the testing facilities available at the manufacturer's premises for conducting the test

5.3 Tests to be witnessed by the Employer

To ensure about the quality of transformers, the following acceptance tests shall be carried out:

- (i) If the type test report for identical unit of transformer is not available as mentioned above during bid evaluation, the bidder shall upon award of the Contract and prior to mass production of transformer, shall carry out type test on identical unit of each capacity of transformer in one of the testing laboratories as mentioned above in the presence of representative appointed by Nepal Electricity Authority at no extra cost to NEA.
- (ii) Stage Inspection will be done when the raw material is received, and the assembly is in progress in the shop floor. After the main raw-materials i.e. core and winding materials and tanks are arranged and transformers are taken for production on shop floor and 20-25% under each lot of assembly has been completed, the supplier shall intimate NEA, so that an inspecting officer for carrying out such inspection could be deputed, as far as possible within fifteen days from the date of intimation. During the stage inspection, a few assembled cores shall be dismantled to ensure that the CRGO laminations used are of superior quality. During this stage inspection the Manufacturer shall provide the inspectors documentary evidence such as purchase order, bill of lading, delivery receipt, factory test certificate and type test report (from the independent laboratory accredited by International Accreditation Corporation (ILAC) or International Accreditation Forum (IAF) or other reputed Accreditation Agencies) of the core and winding materials to be used specifically for the manufacturing of Transformers under the subjected contract.
- (iii) Pre-dispatch factory acceptance tests will be carried out at finished stage i.e. transformers are fully assembled and are ready for dispatch. As and when the transformers are ready for dispatch, an offer intimating about the readiness of transformers for pre dispatch inspection for carrying out routine tests shall be sent by the manufacturer along with Routine Test Certificates as specified in Clause 5.2. The Pre-dispatch factory acceptance tests as per IEC shall be conducted on at least two (2) percent of the transformers to be supplied. In addition to above, the Employer's representative(s) shall also witness the temperature-rise test for each type (and rating) of transformer on at least one unit of each type (and rating) of transformer to be procured. The sample for routine and additional tests shall be selected by the Employer's representative(s) from the complete-lot ready for dispatch. The above mentioned tests shall be carried out in the premises of the Manufacturer.
- (iv) The Contractor shall carry-out [which the Employer's representative(s) shall witness] the following tests in a laboratory owned or nominated by the Employer after delivery in Nepal. a) Temperature rise test on at least one transformer of each rating.

b) No Load Loss and Load Loss test on hundred (100) percent of transformer

The sample shall be selected by the Employer's representative(s) from the completed lot of delivered transformers. **Cost for such tests shall be quoted in the Price Schedule and shall be paid by the Contractor/Manufacturer.**

6. Evaluation

- 6.1 The transformer no-load and load losses shall not exceed the following prescribed values. If the guaranteed no load and load losses exceed the prescribed values below, the offer shall be rejected.

S.N.	Transformer Rating	No Load Loss (W)	Load Loss (W)
1	11/0.4 kV, 100 kVA, 3-Phase	220	1210
2	11/0.4 kV, 200 kVA, 3-Phase	365	2100
3	11/0.4 kV, 300 kVA, 3-Phase	550	3000

6.2 Capitalization of Losses

The transformer losses shall be capitalized as follows:

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Value of No Load Loss = US\$ 4684.00 per kW

Value of Load Loss = US\$ 1180.00 per kW

Loss associated with cooling fan = US\$ 393.00 per kW

6.3 Penalty for Excessive losses:

During testing as per 5.3 above, if it is found that the actual measured losses are more than the values guaranteed by the bidder (provided that they are within the limit specified in Clause 6.1 above), a penalty shall be recovered from the bidder at double the loss capitalization rates arrived at clause 6.2 above. For fraction of a kW, proportionate penalty will be recovered.

- 6.4 For the purpose of this Specification type tests are defined as tests performed on similar transformers of the same general arrangements, same ratings and same mechanical and electrical characteristics.
- 6.5 If at any stage it is established that the type test report submitted by the bidder is not satisfactory, discrepant or ambiguous, the NEA reserves the right to ask the bidder/supplier to conduct the type test on the rating/s of transformers chosen by the NEA in presence of their representative to reputed national/international testing laboratory prior to its mass production and/or dispatch. The costs involved in organizing and conducting such tests shall be borne by the bidder/supplier.

7. Bid Documentation

7.1 The Bidder shall furnish with the Bid, the following documentation:

- Copy of the IEC standards governing fabrication and testing of the transformers.
- Certified copies of type tests carried out for each rating as required by the governing IEC standard and the specifications.
- Certified outline drawings for each kVA rating showing dimensions, arrangements, and locations of all parts.
- A clause-by-clause commentary on the specification, specifying compliance or deviations, if any.

GUARANTEED TECHNICAL PARTICULARS

(To be completed separately for each transformer rating)

(To be completed by the Bidder/Manufacturer)

Item: Distribution Transformer

S.N.	Description	Unit	NEA Requirement	To be filled by Bidder/Manufacturer
1	Manufacturer			
	Country of Origin			
2	Year of manufacturing experience			
3	Model No.			
4	Applicable Standards			
5	Winding material:			
6	Primary Winding BIL	kV		
7	Primary Bushing BIL	kV		
8	Accessories listed below furnished?			
8.1	Lower oil filter valve	Yes/No	Yes	
8.2	Liquid level gauge	Yes/No	Yes	
8.3	Lifting lugs	Yes/No	Yes	
8.4	Hand hole	Yes/No	Yes	
8.5	Tank earthing terminal	Yes/No	Yes	
8.6	Overload protection	Yes/No	Yes	
	If yes, details attached?	Yes/No	Yes	
9	Testing facilities available (mention name of the test equipment/facility below)			
9.1	Applied voltage test			

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9.2	Induced voltage test			
9.3	No load loss and excitation current test			
9.4	Impedance voltage and load loss tests			
9.5	Resistance measurement			
9.6	Ratio tests			
9.7	Polarity and phase relation tests			
9.8	Leakage tests			
9.9	Insulation resistance tests			
10	Design Information			
10.1	Rated kVA (IEC rating)	kVA		
10.2	Number of phases	Number	3	
10.3	Frequency, Hz	Hz	50	
10.4	Voltage ratio at no-load	V/V	11000/400	
10.5	Winding connections		Dyn11	
10.6	Type of core sheet			
10.7	Magnetizing current at normal ratio:			
	in HV side	A		
	in LV side	A		
10.8	Maximum flux density in core iron at normal voltage and frequency based on the net section of iron:			
	in Cores	T	1.6	
	in Yokes	T	1.6	
10.9	Type of winding:			
	HV winding			
	LV winding			
10.10	Maximum current density in winding at rated power:			
	in HV winding	A/mm ²	2.5	
	in LV winding	A/mm ²	2.5	
10.11	Type of insulation used for			
	HV winding			
	LV winding			
10.12	No-load loss at normal voltage ratio and 75°C	W		
S.N.	Description	Unit	NEA Requirement	To be filled by Bidder/Manufacturer
10.13	Load loss at rated current and at 75°C	W		
10.14	Regulation at 75°C and rated power as a percentage of normal voltage			
	at power factor =1	%		
	at power factor =0.8	%		
10.15	Impedance voltage at 75°C and rated power			
	at normal tapping	%	7	
	at -5% tapping	%		
	at +5% tapping	%		
10.16	Efficiency			
	at 1 p.f and 125% of rated current	%		
	at 1 p.f and 110% of rated current	%		
	at 1 p.f and 100% of rated current	%		
	at 1 p.f and 75% of rated current	%		
	at 1 p.f and 50% of rated current	%		
	at 1 p.f and 25% of rated current	%		
10.17	Temperature rise at rated kVA by thermometer in oil	°C		


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10.18	Temperature rise at rated kVA by resistance of windings	°C		
10.19	Permissible overload			
10.20	Transformer insulating oil specification			
10.21	Total volume of insulating oil at 20°C	L		
10.22	Effective expansion capacity of conservator.	L		
11	Approximate weight and dimensions			
11.1	Weight of transformer core	kg		
11.2	Weight of transformer windings	kg		
11.3	Weight of transformer tank and fittings	kg		
11.4	Weight of Oil	kg		
11.5	Total weight of transformer	kg		
11.6	Thickness of tank sides	mm		
11.7	Thickness of tank bottom	mm		
11.8	Thickness of radiator	mm		
11.9	Approximate dimensions including fittings			
11.9.1	Overall length	mm		
11.9.2	Overall width	mm		
11.9.3	Overall height	mm		
12	Delivery of equipment following award of contract and approval of drawing	months		
13	ISO 9001 holder (including design)	yes/no	yes	
13.1	ISO 9001 certificate submitted	yes/no	yes	
14	Type test certificate submitted	yes/no	yes	
14.1	Submitted for the required ratings	yes/no		
14.2	Type test certified by			
15	User's certificate submitted	yes/no	yes	
16	Has exported to third country	yes/no	yes	
17	Copies of relevant standards attached	yes/no	yes	
18	Outline Drawings and associated GA attached	yes/no	yes	

Signed by.....

Designation.....

As Representative for.....

Place..... Date.....

Seal of Bidder/Manufacturer


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Transformer Platforms

1. Scope

- 1.1 This specification covers the fabrication and supply of transformer platforms used in overhead power line construction.

2. Material

- 2.1 The transformer platform shall be fabricated from hot-rolled channels, angles and steel members.
- 2.2 The steel channels and angles for transformer platform shall be fabricated in accordance with Indian Standards IS: 226 and IS: 808 or any revision thereof or other equivalent national or international standard provided that ensure at least equal or better quality to the standard mentioned above will also be acceptable. The minimum tensile strength of the steel shall be 4200 kg/cm².

3. Description

- 3.1 The platform shall be fabricated out of galvanized steel members without any welded joints and field assembled by bolting.
- 3.2 The platform will support the transformer above the ground and will be supported by two-pole structures of tubular steel or pre-stressed concrete (PSC) poles. Transformers will be bolted to the platform at four (4) points. Provision should be made for the mounting of transformers of different physical dimensions and ratings up to 300 kVA.
- 3.3 The platform shall be designed by the supplier and fabricated, in general, in accordance with the conceptual configuration provided by the Employer. The design shall provide support for a transformer of a minimum of 1500 kg in weight with a minimum safety factor of 2.0. The Platform shall be stiff and shall be capable of withstanding horizontal forces and an overturning moment due to seismic effects on a transformer with center of gravity 0.5 meter above its base and seismic horizontal acceleration of 0.4g. The platform shall be stiff and shall not visibly deflect under static loading.
- 3.4 The platform shall be supplied disassembled, complete with all required members and fastenings. Packing may be made by banding structural members. Fastenings shall be separately packed. Structural members shall be clearly identified for ease of assembly in accordance with the assembly drawing furnished by the supplier.
- 3.5 The platform shall be suitable for fixing to support tubular poles of 100 to 200 mm diameter, and PSC poles of rectangular section with 250 to 350 mm in width and 140 to 180 mm depth.

4. Galvanizing

- 4.1 All ferrous parts of transformer platform shall be galvanized with minimum thickness of 90 microns after fabrication in accordance with IS: 2629 or any revision thereof or other equivalent national or international standard provided that ensure at least equal or better quality to the standard mentioned above will also be acceptable.

5. Tests

- 5.1 Apart from the tests indicated herein in the referenced standards, the transformer platform shall undergo following tests:
- Visual Inspection;
 - Verification of Dimensions;

6. Quality Assurance Program

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Along with the Bid the Bidder shall furnish quality assurance program of the manufacturer which includes the Quality System and the Quality Plans, which shall include, among others, information to meet the following requirement, failing which the Bid shall be liable for rejection.

- i. The structure of the organization;
- ii. The duties and responsibilities assigned to staff ensuring quality of works;
- iii. The system for purchasing, taking delivery and verification of materials;
- iv. The system for ensuring quality of workmanship;
- v. The quality assurance arrangement shall conform to relevant requirements of ISO9001;
- vi. Statement giving list of important raw materials, names of manufacturer for the raw materials, list of standards according to which the raw materials are tested, list of test normally carried out on raw materials;
- vii. List of manufacturing facilities available;
- viii. List of areas in manufacturing process, where stage inspections are normally carried out for quality control and details of such tests and inspections;
- ix. List of testing equipment available with the manufacturer for final testing of equipment specified and the test plant limitation, if any the type, special, acceptance and routine tests specified in the relevant standards.

7. Bid Documentation

7.1 A preliminary design of the platform shall be submitted with the Bid. Data to be supplied with the preliminary design shall be:

- a) Steel classification proposed to be used and the characteristics thereof;
- b) Two copies of Preliminary detail drawings of the proposed platform;
- c) Data regarding:
 - i) Vertical and horizontal loading on poles, ii) Resultant safety factor, iii) Resultant deflection,
 - iv) Resultant percent of allowable tension, compression, and shear limits for the steel selected and associated fastening,
 - v) Moments on pole due to seismic effects on the platform and transformers.

7.2 A clause-by-clause commentary on specification, specifying compliance and deviations, if any.

7.3 All data, drawings, catalogues and other technical documents shall be bound separately from the Bid documents.

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GUARANTEED TECHNICAL PARTICULARS

(To be completed by the Bidder/Manufacturer)

Item: Transformer Platform

S.N.	Description	Unit	NEA Requirement	To be filled by Bidder/Manufacturer
1	Manufacturer			
2	Preliminary details drawing furnished?	Yes/No	Yes	
3	Steel Classification/ Characteristics furnished?	Yes/No	Yes	
4	Governing Standard for galvanization		IS: 2629 or ISO 1461	
5	Thickness of Galvanization		Min. 90 micron	
6	Vertical Load on pole			
7	Resultant Safety Factor			
8	Resultant Deflection at design load	mm		
9	% of allowable tension			
10	% of allowable compression			
11	% of allowable shear limits			

Signed by.....
Designation..... As
Representative for.....
Place.....
..... Date.....
Seal of Bidder/Manufacturer

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Surge Arrester

1. SCOPE

This specification covers the general requirements of the design, manufacture, testing, supply and delivery of Surge Arrester of Gapless Metal-Oxide type commonly installed on overhead 11kV power lines of the Nepal Electricity Authority.

2. System Parameters

a)	Nominal Voltage	11kV
b)	System Highest Voltage	12kV
c)	System frequency	50Hz
d)	No. of Phases	3
e)	Neutral Earthing	Effective
f)	System fault current	20kA rms

3. Service Condition

a)	Ambient temperature	-5 to 55 deg. C
b)	Annual average ambient temperature	30 deg. C
c)	Maximum relative humidity	99%
d)	Environmental condition	Humid Tropical climate
e)	Operational altitude	Up to 3000m above msl
f)	Isokeraunic (Thunder day) level	90 days
g)	Solar Radiation	1.6kW/m ²

4. Applicable Standards

The equipment and components supplied shall be in accordance with the latest editions of the standards specified below and amendments thereof and the NEA Specifications specified hereafter.

a)	IEC 60099-4 Part 4 Surge Arresters	Metal-oxide surge arresters without gaps for a.c. systems
b)	IEC 60099-5 Part 5	Selection and application recommendations
c)	IEC 61109	Composite insulator for a.c. over headlines with a nominal voltage greater than 1000V - Definitions, test methods and acceptance criteria
d)	IEC 60507	Artificial pollution tests on high voltage insulators to be used on a.c. Systems

5. Technical Parameters

5.1 Minimum Technical Requirements

S.N.	Description	Unit	Required ratings/features
1	Voltage rating	kV	9
2	Nominal system voltage	kV	11
3	Maximum system voltage	kV	12
4	System frequency	Hz	50
5	Nominal discharge current	kA	10
6	Type of Housing Insulator		Polymeric
7	Creepage distance (terminal to base)	mm	390
8	Minimum power-frequency withstand Voltage		
8.1	Wet	kV	50
8.2	Dry	kV	70
9	Impulse withstand (1.2/50 μ sec) Voltage	kV (Peak)	95
10	Maximum discharge (residual) voltage at 10kA lightning impulse current	kV (Peak)	29
11	Steep current residual voltage	kV (Peak)	32

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12	Line Discharge Class		1
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13	Energy absorption Capability with (4/10 wave)	kJ/kV	Not less than 3.2
14	Pressure relief class		B
15	High current		for 0.2s 20 kA
16	Low current		for 0.5s 0.8 kA
17	One Second TOV withstand capability	kV	>1.15x12

5.2 Power Frequency Voltage vs Time Characteristics

The manufacturer shall provide the power frequency voltage vs time characteristics, preheated to 60°C with no prior energy and with prior energy (specified by the manufacturer) in order to verify the TOV capability of the Arrester.

If a particular manufacturer is unable to meet the TOV condition of 1.15Ur (rated voltage of the Arrester) for 1 sec. duration, has the option of offering of an Arrester of a higher rating.

6. BASIC FEATURES

6.1 Design

The Surge Arresters shall be designed for outdoor service conditions stipulated above. They will be connected between phase and earth to protect distribution transformers and switchgear. It shall be complete with the following:

- Clamps suitable to receive Copper/Aluminum (Line) Conductors from 4 mm-16mm
- The mounting clamps suitable for bracket mounting on a structure made out of 100x50x6mm Channel Iron.

6.2 Manufacture

The Surge Arrester shall be of the non-linear metal-oxide resister type without spark gaps and the non-linear metal-oxide resister shall be housed in a hermetically sealed insulator casing to prevent ingress of moisture.

6.3 Insulator Details

The housing insulator of the surge arrester shall be of polymeric type and the insulator sheds shall be designed to minimize trapping of contamination.

The complete arrester shall withstand a 1000h salt fog test at continuous voltage as described in IEC 61109/IEC 60507. Additional cycle tests as described in IEC 61109 shall also be passed satisfactorily.

6.4 Moisture Sealing

The manufacturing procedure shall include an effective leak test and the manufacturers shall carry out the Special Thermal Stability Test as specified in IEC 60099-4.

6.5 Partial Discharge

Each surge arrester shall be tested to prove absence of partial discharge contact noise as specified in IEC 60099-4.

6.6 Arrester Disconnecter

The Surge Arrester shall have a device for disconnecting it from the system in the event of arrester failure to prevent a persistent fault in the system and it shall give a visible indication when the arrester has failed. The arrester disconnecter shall be tested as per IEC 60099-1.

6.7 Insulating Bracket

A robust insulating bracket together with suitable mounting clamps to mount the Surge Arrester to 100x50x6mm Channel Iron Cross Arms shall be supplied with the Surge

Arrester. The power frequency withstand voltage of the insulating bracket shall not be less than 20kV.

7. ADDITIONAL REQUIREMENTS

7.1 Rating Plate Markings

The following ratings and data of the arresters shall be provided and it shall be weather proof


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and corrosion proof. The plate shall be positioned at the bottom flange base and visible from the ground level.

- a) Number and year of the standard adopted
- b) Rated voltage / frequency
- c) Continuous operating voltage
- d) Arrester type and discharge class
- e) Nominal discharge current
- f) Manufacturer's identification
- g) Year of manufacture (h) Serial number (i) Contract No.

7.2 Packing

Each set of Surge Arrester shall be packed in a suitable box. Number of these boxes shall be held together in a firm position and measures shall be taken to avoid damage against jerks and collision between adjacent units during transportation.

Each packing shall contain a copy of installation instruction in English Language. The voltage rating, manufacturer's name/identification, Country of Origin, and the quantity shall be clearly marked on each packing.

8. INSPECTION AND TESTING

8.1 Acceptance Test

The successful Bidder shall make necessary arrangements for pre-shipment inspection and tests by the nominated NEA Inspectors to carry out in his presence the necessary Sample/Acceptance tests conforming to the relevant IEC on equipment and materials offered. Routine test report for all the items shall be furnished for the observation of the Inspector.

The acceptance tests as per IEC shall be witnessed by the NEA Inspector.

- a) Power frequency reference voltage test (b) Partial discharge test.
- (c) Lightning Impulse Residual voltage test.
- (d) Thermal Stability test

8.2 Routine Test

The Routine Tests shall be carried out on all the arresters as per the relevant IEC and the test report shall be made available for the observation of the NEA Inspector at the time of inspection.

- a) Power frequency reference voltage test.
- b) Residual voltage tests.
- c) Partial discharge test.
- d) Leakage test

9. BID DOCUMENTATION

9.1 The following shall be furnished with the offer.

- a) Product Catalogues/Technical literature describing the constructional features, materials used for components, operational feature of the equipment, indicating the model number etc.


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- b) Energy withstand capability & a description of the test carried out to measure the same.
- c) Power frequency withstand voltage versus time characteristic curve covering the time range from 0.1 sec. to 24 minutes.
- d) Dimensional drawings of the bracket mounting base, live conductor clamps, earth lead and automatic earth disconnecting device and overall dimensional drawing.
 - (e) Drawing of name plate to scale incorporating the particulars called for.
 - (f) Completed Schedule of Guaranteed Technical Particulars
- (g) A copy of the Manufacturer's ISO 9001 Certificate conforming to design and manufacture
- (h) Type Test Certificates: The Type Test Certificates shall be from an Accredited Independent Testing Authority acceptable to the Purchaser.
- (i) Copy of the Governing Standards
- (j) Technical Literature in English Language on installation, operation and maintenance with necessary circuit diagrams and drawings.

9.2 Type Test Certificates

Following Type Test certificates conforming to IEC 60099-4, IEC 60507 and IEC 61109 shall also be submitted with the offer.

- a) Insulation withstand test,
- b) Residual voltage tests,
- c) Long duration current impulse
- d) Operation duty test
- e) Tests of arrester disconnector,
- f) Partial discharge test,
- g) Seal leakage test,
- h) Tracking & erosion test for polymeric insulation

Test Certificates shall clearly identify the equipment concerned showing the manufacturer's identity, Type, Model and Serial Number of the equipment tested. Type Test Report shall include a complete drawings and the model/type of the offered Arrester. Type Test Report shall be from a recognized accredited independent testing authority acceptable to the purchaser.


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GUARANTEED TECHNICAL PARTICULARS

(To be filled by the Bidder/Manufacturer)

Item: Surge Arresters

S.N.	Description	Unit	NEA Requirement	To be filled by Bidder/Manufacturer
1	Manufacturer			
	Country of Origin			
	Year of manufacturing experience			
2	Model No.			
3	Applicable Standards		IEC	
4	Lightning arrester type		Gapless metal oxide	
5	Line Discharge Class		1	
6	Pressure relief class		B	
7	Type of Housing Insulator		Polymeric	
8	Voltage rating	kV	9	
9	Nominal system voltage	kV	11	
10	Maximum system voltage	kV	12	
11	System frequency	Hz	50	
12	Nominal discharge current	kA	10	
13	Creepage distance (terminal to base)	mm	390	
14	Minimum power-frequency withstand Voltage			
14.1	Wet	kV	50	
14.2	Dry	kV	70	
15	Impulse withstand (1.2/50 μ sec) Voltage	kV (Peak)	95	
16	Maximum discharge (residual) voltage at 10kA lighting impulse current	kV (Peak)	29	
17	Steep current residual voltage	kV (Peak)	32	
18	High current		for 0.2s 20 kA	
19	Low current		for 0.5s 0.8 kA	
20	One Second TOV withstand capability	kV	>1.15x12	
21	Energy absorption Capability with (4/10 wave)	kJ/kV	Not less than 3.2	
22	Ground lead disconnecter provided?	Yes/No	Yes	
23	Delivery of equipment following award of contract and approval of drawing	months		
24	ISO 9001 holder (including design)	yes/no	yes	
S.N.	Description	Unit	NEA Requirement	To be filled by Bidder/Manufacturer
24.1	ISO 9001 certificate submitted	yes/no	yes	
25	Type test certificate submitted	yes/no	yes	
25.1	Submitted for the required ratings	yes/no		
25.2	Type test certified by			
26	User's certificate submitted	yes/no	yes	
27	Has exported to third country	yes/no	yes	
28	Copies of relevant standards attached	yes/no	yes	
29	Outline Drawings and associated GA attached	yes/no	yes	

Signed by..... Designation.....

As Representative for.....

Place.....

Date..... Seal of Bidder/Manufacturer.....

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Distribution Cutout (Drop-Out Fuses)

1 SCOPE

This Specification covers the general requirements of the design, manufacture, testing, supply and delivery of drop out fuse complete with fuse carriers and mounting brackets commonly used on the primary side of 11 kV distribution transformers as protective device.

2. System Parameters

a)	Nominal Voltage	11kV
b)	System Highest Voltage	12kV
c)	System frequency	50Hz
d)	No. of Phases	3
e)	Neutral Earthing	Effective
f)	System fault current	20kA rms

3. Service Condition

a)	Ambient temperature	-5 to 55 deg. C
b)	Annual average ambient temperature	30 deg. C
c)	Maximum relative humidity	99%
d)	Environmental condition	Humid Tropical climate
e)	Operational altitude	Up to 3000m above msl
f)	Isokeraunic (Thunder day) level	90 days
g)	Solar Radiation	1.6kW/m ²

4. Applicable Standards

The equipment and components supplied shall be in accordance with the latest editions of the standards specified below and amendments thereof and the NEA Specifications specified hereafter.

a)	IEC 60282-2	H.V. Fuses - Expulsion and similar fuses
b)	IEC 60071-1	Insulation co-ordination.- Part I Definitions, principles and rules
c)	IEC 60071-2	Insulation co-ordination - Part 2 - Application guide
d)	IEC 60273	Characteristic of indoor & outdoor post insulators for systems with nominal voltages greater than 1000V
e)	IEC 60694	Common Specifications for high-voltage switchgear & control gear standards
f)	IEC 60060-2	High-voltage test techniques -Part 2 Measuring systems

5. Technical Parameters

5.1 Minimum Technical Requirements

S.N.	Description	Unit	Required ratings/features
1	Rated Voltage	kV	12
2	Rated Frequency	Hz	50
3	Rated Continuous Current	A	100
4	Dry Impulse withstand voltage (peak)		
4.1	Across isolating distance of the fuse base	kV	85
4.2	To earth and between poles	kV	75
5	Power Frequency withstand voltage (Wet 1min)		
5.1	Across isolating distance of the fuse base	kV	32
5.2	To earth and between poles	kV	28
6	Minimum power frequency withstand voltage		
6.1	Dry	kV	35
6.2	Wet	kV	30

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7	Mounting Angle (to vertical plane)	deg	~15-20
8	Interrupting Rating		
8.1	Symmetrical Interrupting rating (min) rms	kA	8.0
8.2	Asymmetrical Interrupting rating (min) rms	kA	9.6
8.3	X/R ratio		4.0
9	Interrupting capacity	kA	10
10	Temperature Rise Limit (In air)		
10.1	Copper contacts silver faced	deg. C	40
10.2	Terminals	deg C	30

6. BASIC FEATURES

6.1 Design

The Dropout Fuse shall be of Class A as per IEC 60282-2. It shall be suitable for use in outdoor circuits under tropical conditions. The Dropout Fuse shall be complying with the minimum technical requirements stipulated above.

6.2 Manufacture

- The Dropout Fuse shall be designed with a solid core, bird proof, one-piece Porcelain Insulator and should robust enough to withstand shocks due to frequent operations. The fuse carrier shall drop-out immediately following the blowing of the fuse.
- Dropout Fuse within the same voltage class shall be so designed that fuse carrier together with mounting assembly shall be dimensionally compatible to facilitate the interchange of fuse carriers of the cutouts of corresponding rating.
- The Dropout fuse shall be able to mount on a single channel iron cross arm (100mm x 50mm x 6mm) at an angle of 15 to 20 degrees to the vertical. The whole unit shall be complete with long mounting bracket, bolts, nuts & washers.
- Fuse carrier shall be made of high strength fiberglass filament wound tube or suitable insulating material and it shall be protected from weather and environment by ultraviolet resistant coating. Inside liner of the fuse tube shall be constructed of a synthetic arc quenching material.
- Copper Arc Shortening rod shall be attached to the cap of the fuse tube to obtain higher interrupting rating. A removable button head type fuse link having M6x1 thread shall be able to fix to the arc shortening tube.
- The installation and removal of the fuse carrier shall be facilitated by inserting the operating rod into a lifting eye at the hinge end (lower) of the fuse carrier when it is in the dropped out position. An operating lever eye shall be provided at the top of the carrier to facilitate a downward pull by the operating rod to release the latch incorporated in the stationary upper contact
- All castings such as upper and lower moving and fixed contacts, clamp type terminals, toggle mechanism shall be of phosphor bronze, silicon bronze, aluminum bronze or Silverplated brass.

6.3 Stationary and Movable Contacts

- The Stationary and Movable Contact surfaces shall be silver plated to minimize the contact resistance.
- The upper stationary contact assembly shall be provided with a safety latch to prevent the fuse carrier from dropping due to vibration and The upper contacts shall be protected from any airborne contaminants.
- A back up spring made out of stainless steel or phosphor bronze shall be provided to ensure constant pressure between the upper stationary contact and the upper movable contact of the fuse carrier.
- The lower stationary contact support and the fuse carrier shall be machined at the swiveling or axle point to enable the fuse carrier with the fuse link to be correctly guided into the latching position by an operating rod. The hinge at the stationary contact shall be so designed to prevent the dropping off of the fuse carrier in the drop-out position, due to shock and vibration.

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- e) A suitable guiding arrangement shall be provided in the upper contact to ensure easy engagement of the fuse carrier.
- f) The Asymmetrical breaking current ratings shall be permanently marked on the upper metal part.

6.4 Terminals

- a) The upper and lower terminals shall be of Bi-metallic type, suitable to accommodate Copper/Aluminum Conductors of Sizes from 5mm to 14mm diameter.
- b) The upper terminal shall be positioned to receive the conductor from either side or upward direction while the lower terminal shall be able to receive the conductor from either side or downward direction.
- c) The maximum temperature rise for contacts (movable and stationary) shall not be more than 40°C and, for terminals the temperature rise shall not be more than 30°C.

6.5 Galvanizing

All iron and steel parts such as mounting and support brackets, bolts and nuts, washers etc. shall be galvanized after processes such as sawing, shearing, drilling, punching, filling, bending and machining are completed. Galvanizing shall be the hot-dip process to comply with the standard ISO 1461.

7. ADDITIONAL REQUIREMENTS

7.1 Rating Plate Markings

The ratings and data of the Dropout Fuse shall be provided in the rating plate, which shall be weather and corrosion proof. The main rating plate near the supporting bracket of the insulator base shall carry the following information: a) Number and year of the Standard adopted

- b) Rated voltage/Rated maximum current
- c) Class designation/Manufacturer's name or trademark,
- d) Asymmetrical current rating/Symmetrical current rating/X/R Ratio.
- e) Year of manufacture
- f) Contract No.

The following information shall be marked on the fuse carrier. a)

Manufacturer's name or trademark

- b) Rated Voltage/Rated frequency
- c) Rated maximum current
- d) Rated breaking capacity (Asymmetrical/Symmetrical current rating & X/R Ratio).

7.2 Packing

The pre-assembled dropout fuse unit (Dropout Fuse Base, Fuse Carrier and Mounting Bracket) shall be packed in a suitable hardboard box and the rated voltage of the unit shall be clearly marked on the box. Spare fuse carrier shall be supplied in suitable hardboard boxes, the quantity and the voltage rating applicable shall be clearly marked on the boxes.

8. INSPECTION AND TESTING

8.1 Acceptance Test

The successful Bidder shall make necessary arrangements for pre-shipment inspection and tests by the nominated NEA Inspectors to carry out in his presence the necessary Sample/Acceptance tests conforming to the relevant IEC on equipment and materials offered. Routine test report for all the items shall be furnished for the observation of the Inspector.

The acceptance tests as per IEC shall be witnessed by the NEA Inspector.

- a) Dimensional Verification
- b) Dielectric tests

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- c) Mechanical Tests
- d) Measurement of resistance of fuse-links

9. BID DOCUMENTATION

9.1 The following shall be furnished with the offer.

- a) Product Catalogues/Technical literature describing the constructional features, materials used for components, operational feature of the equipment, indicating the model number etc.
- b) Energy withstand capability & a description of the test carried out to measure the same.
- c) Power frequency withstand voltage versus time characteristic curve covering the time range from 0.1 sec. to 24 minutes.
- d) Dimensional drawings of the bracket mounting base, live conductor clamps, earth lead and automatic earth disconnecting device and overall dimensional drawing.
- e) Drawing of name plate to scale incorporating the particulars called for.
- f) Completed Schedule of Guaranteed Technical Particulars
- g) A copy of the Manufacturer's ISO 9001 Certificate conforming to design and manufacture
- h) Type Test Certificates. The Type Test Certificates shall be from an Accredited Independent Testing Authority acceptable to the Purchaser.
- i) Copy of the Governing Standards
- j) Technical Literature in English Language on installation, operation and maintenance with necessary circuit diagrams and drawings.

9.2 Type Test Certificates

Following Type Test certificates conforming to IEC 60282-2, IEC 60060 at a reference frequency of 50 Hz. where applicable shall also be submitted with the offer. a)

Dielectric Tests

- b) Temperature Rise Tests
- c) Artificial Pollution Tests
- d) Mechanical Tests
- e) Breaking Tests
- f) Interrupting Tests
- g) Beam Strength of Porcelain Base

Test Certificates shall clearly identify the equipment concerned showing the manufacturer's identity, Type, Model and Serial Number of the equipment tested. Type Test Report shall include a complete drawings and the model/type of the offered Arrester. Type Test Report shall be from a recognized accredited independent testing authority acceptable to the purchaser.


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GUARANTEED TECHNICAL PARTICULARS

(To be filled in by the Bidder/Manufacturer)

Item: Distribution Cutout (Drop Out Fuse)

S.N.	Description	Unit	NEA Requirement	To be filled by Bidder
1	Manufacturer			
	Country of Origin			
2	Year of manufacturing experience			
3	Model offered			
4	Applicable standard		IEC	
5	Rated Voltage	kV	12	
6	Rated Frequency	Hz	50	
7	Rated Continuous Current	A	100	
8	Dry Impulse withstand voltage (peak)			
8.1	Across isolating distance of the fuse base	kV	85	
8.2	To earth and between poles	kV	75	
9	Power Frequency withstand voltage (Wet 1min)			
9.1	Across isolating distance of the fuse base	kV	32	
9.2	To earth and between poles	kV	28	
10	Minimum power frequency withstand voltage			
11.1	Dry	kV	35	
11.2	Wet	kV	30	
12	Interrupting Rating			
12.1	Symmetrical Interrupting rating (min) rms	kA	8.0	
12.2	Asymmetrical Interrupting rating (min) rms	kA	9.6	
12.3	X/R ratio		4.0	
13	Temperature Rise Limit (In air)			
13.1	Copper contacts silver faced	deg.C	65	
13.2	Terminals	deg.C	50	
14	Mounting Angle (to vertical plane)	deg	~15-20	
15	Interrupting capacity	kA	10	
16	Clamp type terminals for copper/ aluminium cable 25150 mm ² size ?	Yes/No	Yes	
17	Steel mounting bracket provided?	Yes/No	Yes	
18	All the features are as mentioned in the specifications ?	Yes/No	Yes	
19	Delivery of equipment following award of contract and approval of drawing	months		
20	ISO 9001 holder (including design)	yes/no	yes	
20.1	ISO 9001 certificate submitted	yes/no	yes	
21	Type test certificate submitted	yes/no	yes	
21.1	Submitted for the required ratings	yes/no		
21.2	Type test certified by			
22	User's certificate submitted	yes/no	yes	
23	Has exported to third country	yes/no	yes	
24	Copies of relevant standards attached	yes/no	yes	
25	Outline Drawings and associated GA attached	yes/no	yes	

Signed by.....

Designation.....

As Representative for.....

Place..... Date.....

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Fuse Link

1. Scope

This Specification covers the supply of button head fuse links commonly used in the protection of distribution transformers with the Distribution Cutouts above.

2. Description

The button-head fuse link shall be fabricated in full compliance with the relevant IEC, or latest revision thereof or any other international standards that ensures at least a substantially equal quality to the standard mentioned above, will also be acceptable.

The fuse link shall have fast characteristics and shall be suitable for protection of distribution transformers. The fuse link shall be supplied in accordance with the type and ratings shown in the bid package.

3. Tests

The distribution cutout and surge arrester shall be tested in accordance with the relevant provisions of the governing standard.

4. Bid Documentation

The Bidder shall furnish copies of governing standards for fabrication and testing of fuse links

The Bidder shall furnish copies of catalogue of fuse links.

The Bidder shall furnish a clause-by-clause commentary on specification, specifying compliance and deviations, if any.

The Bidder shall also furnish with the Bid copies of the following data with respect to the fuse links furnished:

- a) Time-Current (TC) characteristic curves at 30°C, including minimum melting time and total clearing time.
- b) Preloading adjustment factors or curves.
- c) Ambient temperature adjustment factors or curve

All data, drawings, catalogues and other technical documents shall be bound separately from the Bid documents


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GUARANTEED TECHNICAL PARTICULARS

(To be filled in by the Bidder/Manufacturer)

Item: Fuse Link

S.N.	Description	Unit	NEA Requirement	To be filled by Bidder
1	Manufacturer			
2	Country of Origin			
3	Model offered			
4	Governing Standard			
5	Minimum melting time			
6	Total clearing time			
7	Is the fuse link suitable to the Distribution Cutout supplied?	Yes/No	Yes	
8	Time Curve attached ?	Yes/No	Yes	
9	Preload adjustment data attached?	Yes/No	Yes	
10	All the features are as mentioned in the specifications ?	Yes/No	Yes	
11	Certification		ISO 9001 (including design)	
12	Copy of notarized ISO certificated attached	Yes/No	Yes	
13	Copy of Governing Standards attached?	Yes/No	Yes	
14	Copy of certified type test attached?	Yes/No	Yes	
15	Ambient temperature adjustment data attached?	Yes/No	Yes	

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Grounding Rods, Clamps and Conductor

1. Scope

This Specification covers the fabrication and supply of galvanized steel ground rods, clamps and galvanized stranded steel grounding conductor for use in the neutral and body grounding for use in distribution transformers and overhead power line construction.

2. Description

2.1 Ground Rod

The ground rod shall be made of high carbon, open-hearth steel so as to achieve maximum strength. It shall be hot dip galvanized. The ground rod shall be 19mm in diameter and 4,000 mm in overall length. The driven end of the ground rod shall have a truncated cone point. The cone point shall be approximately 13mm long, measured along the axis of the ground rod. The driving head of the ground rod shall have an approximate 3 mm, 45-degree chamfer. The manufacturing process shall assure that ground rod does not bend when driven into hard soils.

2.2 Ground Rod Clamp

The ground rod clamp shall be heavy duty forged steel clamp provided with a hex head cup point set screw of high strength steel with machine-cut threads. It shall be so manufactured that it gives low resistance connection. The ground rod clamp shall be galvanized. The clamp shall suitably accommodate and clamp a 19 mm. ground rod and a stranded grounding conductor.

2.2 Ground Wire

The conductor shall be 7-wire stranded conductor and shall conform to the characteristics as specified herein. Stranded conductor shall be galvanized.

S.N.	Description	Unit	Required ratings/features
1	Diameter of Wire	SWG	7/12
2	Diameter of Single Strand	mm	2.67
3	Direction of Lay		Right
4	Weight	kg/km	299
5	Short time fusing current	kA	12
6	Resistivity	□□cm	15

2.3 Galvanizing

The galvanization of ground rod, clamp and grounding conductor shall be in accordance with ISO 1461 or any revision thereof or other equivalent national or international standard provided that ensure at least equal or better quality to the standard mentioned above will also be acceptable. The minimum thickness of galvanization shall be 90 microns.

3. Applicable Standards

The equipment and components supplied shall be in accordance with the relevant IEC standards, or latest revision thereof or any other international standards and the NEA Specifications specified herein.

4. Tests

Grounds rods and clamps shall undergo type and routine tests in accordance with the relevant governing standards.

5. BID DOCUMENTATION

The following shall be furnished with the offer.

- Product Catalogues/Technical literature describing the constructional features, materials used for components, etc.
- Completed Schedule of Guaranteed Technical Particulars
- A copy of the Manufacturer's ISO 9001 Certificate conforming to design and manufacture

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- (d) Type Test Certificates. The Type Test Certificates shall be from an Accredited Independent Testing Authority acceptable to the Purchaser.
- (e) Copy of the Governing Standards
- (f) Technical Literature in English Language on installation, operation and maintenance with necessary circuit diagrams and drawings.

GUARANTEED TECHNICAL PARTICULARS

(To be filled in by the Bidder/Manufacturer)

Item: Ground Rods and Clamps

S.N.	Description	Unit	NEA Requirement	To be filled by Bidder/Manufacturer
1	Manufacturer			
2	Country of Origin			
3	Model offered			
4	Governing Standard for manufacturing and testing			
5	Governing Standard for galvanization		ISO 1461	
6	Material Grade Used for Ground Rod			
7	Dimensions of Ground Rod			
8.1	Length	mm	4000	
9.2	Diameter	mm	19	
10	Material Grade Used for Ground Rod Clamp			
11	Dimensions of Ground Rod Clamp	mm		
12	Material Description furnished	Yes/No	Yes	
13	All the features are as mentioned in the specifications ?	Yes/No	Yes	
14	Certification	Yes/No	ISO 9001 (Including design)	
15	Copy of notarized ISO Certificate attached?	Yes/No	Yes	
16	Copies of Standard attached ?	Yes/No	Yes	
17	Copy of certified type test attached ?	Yes/No	Yes	

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GUARANTEED TECHNICAL PARTICULARS

(To be filled in by the Bidder/Manufacturer)

Item: Grounding Conductor

S.N.	Description	Unit	NEA Requirement	To be filled by Bidder
1	Manufacturer			
2	Country of Origin			
3	Model offered			
4	Governing Standard for manufacturing and testing			
5	Governing Standard for galvanization		ISO 1461	
6	Diameter of Wire	SWG	7/12	
7	Diameter of single wire	mm	2.67	
8	Cross Section	sq.mm.		
9	Short time fusing current	kA	12	
10	Weight	kg/km	299	
11	Resistivity of Wire		15	
12	Resistance at 20 deg. C	ohms/km		
13	Direction of Lay			
14	All the features are as mentioned in the specifications ?	Yes/No	Yes	
15	Certification		ISO 9001 (Including design)	
16	Copy of notarized ISO Certificate attached?	Yes/No	Yes	
17	Copies of Standard attached ?	Yes/No	Yes	
18	Copy of certified type test attached ?	Yes/No	Yes	

Signed by.....

Designation..... As

Representative for.....

Place.....

..... Date.....

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Distribution Panel Board

1. Scope

This Specification covers the design, fabrication, testing and supply of Distribution Panel Boards to be used in the Low Voltage Overhead Distribution system of the Nepal Electricity Authority (NEA) to provide overload and short circuit protection for Distribution lines up to Customer Distribution Panel.

2. Description

The panel board shall be pole-mounted and used in conjunction with pole-mounted distribution transformers to house moulded case circuit breaker (MCCB) feeding 400/230 Volt circuits.

The panel board shall be rectangular in shape with an entrance door in the front of the panel board. The panel board shall be equipped with interior standoffs suitable for mounting MCCB and for supporting cables. The panel board will be fixed to the pole by exterior mounting brackets attached to the back of the panel board. Details of these components shall be as specified in the following text.

The panel board shall be fabricated to prevent ingress of moisture due to rainfall and dripping. The panel board shall be provided with means for natural ventilation.

2.1 Material

The panel board case and door shall be fabricated out of steel sheet of minimum 2 mm. in thickness and pole mounting brackets shall be fabricated out of mild steel flat of 6 mm. in thickness. The interior standoffs shall be fabricated of steel sheet of sufficient thickness to support installed circuit breaker and cables without lateral movements.

2.3 Construction

The panel board case and all interior and exterior attachment shall be spot-welded. All welding shall be of the highest quality. The panel boards shall be formed and welded square and all attachments to the interior and exterior surfaces shall be welded square and perpendicular to the panel attached.

The panel board shall be so constructed as to be water tight from blowing of free-falling rain. There shall be no apertures in the panel board case other than those provided for the entrance door, cable fittings, or ventilation. The top extension and bottom shall be so formed to provide a drip edge and prevent water from flowing on the respective under-surfaces.

All individual pieces of metal shall be edge finished prior to assembly to provide surfaces and edges which are free from sharp points and edges. After welding in place, all welds shall be finished to smooth condition.

2.4 Panel board Front

The front panel shall be fabricated as a separate piece containing the panel board door and doorframe. The front shall be attached to the panel board housing by suitable bolting arrangements to provide a watertight and dust tight seal at the perimeter.

The door shall be equipped with a gasketed removable door, door-handle lock, and suitable hinges. The door and panel frame shall be so fabricated to provide an integrated structure which is warp-resistant and which will maintain dust-tight and watertight seal. Gasketing material shall be heat-resistant and shall retain its resilience over time to precluded degradation of dust-tight and watertight properties.

The insertable (and removable) door handle shall provide a door a locking function. The handle shall be insulated.

The door hinge may be continuous type or separate hinge units. However, the type of hinge furnished must accommodate, and not degrade, the dust-tight and watertight characteristics

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2.5 MCCB Standoffs

The standoffs shall be shaped and dimensioned to accommodate the MCCBs as required by Bid Packages. The standoffs shall be precisely located.

2.6 Cable Standoffs

The cable standoffs shall be properly shaped and dimensioned. The standoff shall have the metal edges contoured and smoothed to prevent abrasion of applied cable serving. The standoff shall be located within the panel board to make allowance for cable bending radii and the location of other components.

2.7 Bus bars

The neutral and phase bus bars shall consist of copper bus bar insulated from the panel board by 600 V porcelain insulators. The copper bus bar shall be of proper size (ampere capacity) and properly dimensioned. The bus bars shall be located within the panel board to provide adequate clearance for the installation and correct functioning of all items.

If it is required to drill or penetrate the panel board back to install 600 V insulators, the outside of the panel board shall be permanently sealed over the attachment to retain water-tightness.

2.8 Cable Entrance Fittings and Knockouts

Knockouts for cable entrance fittings (bushings) shall be provided in the bottom of the panel board. All necessary cable entrance fittings shall be supplied for proper connection of all circuits to fulfil the requirement of the Bid Package. The fittings shall be designed to be suitable for exposed cables entering the panel board from below and shall secure the cable with inserts to prevent lateral and longitudinal movement of the cables.

The fittings shall be threaded multi-piece construction which when installed securely locks the fittings to the panel board. The fittings may be of metal or polymer material. Metal fittings shall be galvanized or plated as appropriate. The fitting inserts may be single or multi pieces and shall be of material sufficiently elastic and resilient to securely grip the PVC cable sheath without damage. The fitting components shall enable capturing of the inserts to preclude insert creep and fallout due to clamping pressure.

2.9 Ventilation

The panel board shall be provided with apertures for natural draft ventilation in the panel board bottom and in the top overhang. The ventilation apertures shall be covered with bronze screen materials of a mesh sufficiently to preclude passage of small insects. The edges of the bronze screening shall be surely fastened to the panel board by means of soldering or epoxy adhesive. The mesh shall be protected during panel board fittings to preclude clogging of mesh openings by finished materials.

2.10 Pole Mounting Bracket

The panel board shall be provided with two (2) pole mounting brackets. The size of poles will be confirmed by the purchaser before manufacturing.

2.11 Grounding Stud

The panel board shall be provided with a brass grounding stud located in an approved location. The grounding stud shall be fitted to the panel board to insure low resistivity and water tightness of the installation. The grounding stud shall be complete with pressure washer, lock washer, and nuts.

2.12 Finish

After fabrication, the panel board shall be thoroughly cleaned of all dirt, grease, mill scale, and weld slag on all interior and exterior surfaces and all surfaces of all component. After thorough cleaning of panel board one (1) coat of red oxide metal priming paint and two (2) finish coats of paint color shall be thoroughly applied. The

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paint color shall be of light grey (RAL 7032). The finish coats shall be of oil based or epoxy paint. Alternatively, powder coating of panel board may also be acceptable.

The bronzed screen ventilation holes, working surfaces of door hinge and door lock, and outside face of grounding stud shall be free from all finishing materials.

3. Bid Documentation

The following shall be furnished with the offer.

- (a) The Bidder shall furnish fabrication drawings showing all views, section, and dimensions of individual components and assembled panel board.
- (b) The Bidder shall furnish complete description of all materials to be used, including cable entrance fittings and finishing materials.
- (c) The Bidder shall furnish a clause-by-clause commentary on specification, specifying compliance and deviations, if any.
- (d) All data, drawings, catalogues and other technical documents shall be bound separately from the Bid documents.
- (e) Completed Schedule of Guaranteed Technical Particulars
- (f) A copy of the Manufacturer's ISO 9001 Certificate conforming to design and manufacture
- (g) Technical Literature in English Language on installation, operation and maintenance with necessary circuit diagrams and drawings.


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GUARANTEED TECHNICAL PARTICULARS

(To be filled in by the Bidder/Manufacturer

Item: Distribution Panel Board

S.N.	Description	Unit	NEA Requirement	To be filled by Bidder/Manufacturer
1	Manufacturer			
	Country of Origin			
2	Year of manufacturing experience			
3	Model offered			
4	Governing Standard for fabrication, manufacturing and testing			
5	Governing Standard for Materials Used			
6	Description of cable entrance fittings attached?	Yes/No	Yes	
7	Description of all materials attached?	Yes/No	Yes	
8	Copy of Fabrication Drawings Attached?	Yes/No	Yes	
9	All the features are as mentioned in the specifications ?	Yes/No	Yes	
10	Delivery of equipment following award of contract and approval of drawing	months		
11	ISO 9001 holder (including design)	yes/no	yes	
11.1	ISO 9001 certificate submitted	yes/no	yes	
12	Type test certificate submitted	yes/no	yes	
12.1	Submitted for the required ratings	yes/no		
12.2	Type test certified by			
13	User's certificate submitted	yes/no	yes	
14	Has exported to third country	yes/no	yes	
15	Copies of relevant standards attached	yes/no	yes	
16	Outline Drawings and associated GA attached	yes/no	yes	

Signed by.....

Designation.....

As Representative for.....

Place..... Date.....

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Moulded-Case Circuit Breakers (MCCB)

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1. **Scope**

This specification covers the design, manufacture and testing of Moulded Case Circuit Breakers (MCCB) used with Distribution Panel Board in the Low Voltage Overhead Distribution system of the Nepal Electricity Authority (NEA) to provide overload and short circuit protection for Distribution lines up to Customer Distribution Panel.

2. **System Parameters**

a)	Nominal Voltage	400/230V, 3 Phase and Neutral
b)	System Highest Voltage	440/250V, 3 Phase and Neutral
c)	System frequency	50Hz
d)	Method of Earthing	Solidly earthed neutral
e)	System fault current	25kA

3. **Service Condition**

a)	Ambient temperature	-5 to 55 deg. C
b)	Annual average ambient temperature	30 deg. C
c)	Maximum relative humidity	99%
d)	Environmental condition	Humid Tropical climate
e)	Operational altitude	Up to 3000m above msl
f)	Isokeraunic (Thunder day) level	90 days
g)	Solar Radiation	1.6kW/m ²

4. **Applicable Standards**

The equipment and components supplied shall be in accordance with the latest editions of the standards IEC 60947 and amendments thereof and the NEA Specifications specified hereafter.

5. **Technical Parameters**

5.1 **Minimum Technical Requirements**

S.N.	Description	Unit	Requirements
1	No. of Poles		3
2	Rated frequency	Hz	50
3	Rated operational voltage (Ue)	V	400/230
4	Rated insulation voltage (Ui)	V	750
5	Impulse withstand voltage (Uimp)	kV	8
6	Continuous Current Rating (In)	A	80, 160, 250, 320, 500
7	Ultimate Short Circuit Breaking Capacity (Icu) (up to 100 A)	kA	25
8	Ultimate Short Circuit Breaking Capacity (Icu) (above 100 A)	kA	50
9	Operating Short Circuit Breaking Capacity (Ics)		50 % of Icu
10	Utilization Category		A
11	Rated duty		uninterrupted
12	Trip device		Thermal adjustable magnetic
13	Rated current adjustment		(0.8-1)In
14	Instant opening current adjustment		10 x In
15	Mechanical Life Operation		>15000
16	Electrical Life Operation		>10000
17	Line load reversibility features		Yes
18	Interrupting Capability		(IEC category P2)

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19	Thermal Rating declared at 50 deg C		Yes
20	Operating Range		-5 to 55 deg. C
21	Creepage distance suitable for		Pollution Degree 3 and suitable for isolation
22	Suitable for isolation		Yes
23	Trip Characteristics		inverse time and instantaneous
24	Universal Accessory Fitting		Yes
25	External Accessory		Rotary Operating Handle (Extended for >200A) Suitable Extended Terminals Phase Barriers Mounting Screws


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6. BASIC FEATURES

6.1 Design

The circuit breakers shall be of three poles with moulded case design, suitable for operation at a maximum relative humidity of 99% and at maximum ambient temperature of 55 deg. C. The maximum permissible temperature- rise of various components of the breaker shall not exceed the values stipulated in IEC 60947.

The MCCB shall be completely enclosed in a moulded case and shall be factory sealed. The case shall be moulded from insulated material possessing high thermal stability and good mechanical strength, able to withstand robust use without fracture or permanent distortion.

The MCCB shall have a quick make, quick break, over current switching mechanism that is mechanically trip-free for simultaneous tripping of all poles. Tripping due to overload or short circuit shall be clearly indicated by the position of the handle. The ON and OFF positions shall be clearly marked on the breaker case.

The case should be stamped with the letters "NEA" for the purpose of identification. The Moulded Case Circuit Breaker shall be of surface mounting type and shall be suitable for mounting in an enclosure for outdoor application. It shall be possible to reverse feed the breaker without any reduction in performance.

6.2 Construction

6.2.1 Operation Mechanism

The circuit breaker shall be provided with trip free features for manual ON-OFF operation.

The operating mechanism shall be quick make and break type, with the speed of operation independent of the operator, and mechanically trip free from the operating handle so as to prevent the contacts from being held closed against short circuit and overload conditions.

The operating mechanism shall be constructed to operate all poles of the breaker simultaneously during, opening, closing and tripping conditions.

The breaker shall be operated by a toggle, which shall clearly indicate the 3 positions ON, OFF and TRIPPED.

The breaker shall have current-limiting function which works according to the opposite magnetic force principle.

The MCCB shall be of inverse time and instantaneous trip type. The trip device shall be of thermal-magnetic type.

6.2.2 Contacts

The MCCB shall be of the uninterrupted duty type and the contacts shall be of Silver alloy or Silver faced Copper having high current carrying capacity with good arc resistance property.

6.2.3 Overload Release

Each pole of the MCCB shall be provided with bimetallic Thermal Element type of overload protection with the tripping time decreasing with increasing tripping current characteristic (inverse time delay).

6.2.4 Short Circuit Release

An electromagnetic element type instantaneous short circuit protection shall be fitted in each pole assembly affecting immediate tripping of the circuit breaker if the current exceeds the breaking ratings.

6.2.6 Terminal

The terminals of the breaker shall be suitable for front connection of cables and insulated phase barriers shall be provided for all poles. All breaker terminals, compression terminals, stacking spacers, and bolting shall be compatible with Aluminum conductors to avoid bimetallic reaction.

6.2.7 Mounting Bolts

The circuit breakers shall be suitable for mounting in outdoor distribution panels and each breaker shall be furnished complete with one (1) set of bolt fastenings, complete with nuts and lock washers of the correct diameter for the mounting hole and of a length equal to the depth of the MCCB body plus approximately two (2) centimeters.

7. Additional Requirement

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7.1 Rating Plate Markings

Each Circuit Breaker shall be marked in a durable manner with the following data as stipulated in IEC 60947 and shall be visible and legible when the circuit breaker is installed.

- (a) Rated current
- (b) Suitability for isolation, with symbol
- (c) Indication of the open and closed positions

Ultimate breaking capacity (Icu) for various values of the rated operational voltage (Ue) shall be recorded on the device.

The following data should be marked externally on the breaker and they need not visible when the breaker is installed.

- (a) Manufactures identification (Name or Trade Mark)
- (b) Type designation or serial number
- (c) Number and Year of the standard adopted
- (d) Utilization category
- (e) Rated operational Voltage and Frequency
- (f) Rated service short-circuit breaking capacity
- (g) Rated ultimate short-circuit breaking capacity
- (h) Rated short-time withstand current/duration

7.2 Packing and Transportation

The MCCB shall be suitably packed in biodegradable material (cardboard boxes) to prevent damage during transport, handling and storing.

All relevant drawings, technical literature, product catalogue, hand-books etc. required for installation, operation and maintenance of the equipment shall be supplied with the equipment. Routine test report shall also be supplied with the equipment.

7.3 Storing

The moulded case circuit breakers of different current ratings shall be stored according to the serial number and rating in batches of 100 separately so as to select breakers for acceptance inspection and testing by random sampling method.

8. Inspection and Testing

8.1 Routine Tests

The following routine tests as per IEC 60947 shall be carried out on all the MCCB and routine test report shall be made available for the observation of the inspector at the time of inspection.

- (a) Mechanical operation tests
- (b) Dielectric Tests
- (c) Verification of the calibration of releases
- (d) Temperature rise test

8.2 Inspection

The successful Bidder shall make necessary arrangements for pre-shipment inspection by Inspecting engineers sent by the NEA or by an authority acceptable to the NEA to carry out the necessary acceptance tests of the equipment offered.

8.3 Acceptance/Sample Tests

The following Tests as per IEC 60947 shall be witnessed by the inspecting Engineers.

- (a) Mechanical operation tests
- (b) Dielectric Tests
- (c) Verification of the calibration of releases
- (d) Temperature rise test

8.4 Selection of Test Samples

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The number of moulded case circuit breakers to be selected by random sampling method for acceptance inspection and testing shall be as indicated below.

S. N.	No. of units	No. of samples to be selected
1	Less than 100	5
2	100-500	15
3	500-1000	50
4	1000-1500	100
5	Above 1500	150

9. Bid Documentation

9.1 The following shall be furnished with the offer.

- Catalogues describing the equipment and indicating the model number and the literature describing the operational features of the equipment.
-
- Constructional features, materials used for components and relevant technical literature and complete dimensional drawings.
- Completed Schedule of Guaranteed Technical Particulars.
- Quality Assurance Certificate conforming to ISO 9001
- The Characteristics
- The tripping time-current characteristics curves covering both thermal and magnetic current settings for each type of circuit breaker offered.
- If over-current and instantaneous releases are of static type, then the manufacture shall furnish evidence that the components used are tropicalised, (suitable for the climatic conditions stipulated in Clause 3.0 above) and the field tests on the equipment have been satisfactory.
- Discriminating table indicating proper coordinating shall be submitted.
-

9.2 Type Test Certificates

Following Type Test certificates for each rating of MCCBs shall also be submitted with the offer.

- Verification of constructional requirements
- Verification of temperature-rise
- Verification of dielectric-properties
- Verification of making and breaking capacities
- Verification of short-circuit breaking and making capacities
- Verification of operating limits
- Verification of operational performance
- Verification of degree of protection of enclosed equipment

The Type Test Certificates referred to above shall be issued from the reputed independent Testing Authority acceptable to NEA.

Test Certificates, Performance Curves and Tables etc., of the Type Test performed shall conform to the standard specified, at a reference frequency of 50 Hz where applicable. The Test Certificates should clearly identify the equipment concerned, showing the manufacturer's identity, Type No. and basic technical parameters.

GUARANTEED TECHNICAL PARTICULARS

(To be filled in by the Bidder/Manufacturer)

Item: Moulded Case Circuit Breaker

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S.N.	Description	Unit	NEA Requirement	To be filled by Bidder/Manufacturer
1	Manufacturer			
	Country of Origin			
2	Year of manufacturing experience			
3	Model offered			
4	Governing Standard for manufacturing and testing		IEC 60947	
5	No. of Poles		3	
6	Rated frequency	Hz	50	
7	Rated operational voltage (Ue)	V	400/230	
8	Rated insulation voltage (Ui)	V	750	
9	Impulse withstand voltage (Uimp)	kV	8	
10	Continuous Current Rating (In)	A		
11	Ultimate Short Circuit Breaking Capacity (Icu) (up to 100 A)	kA	25	
12	Ultimate Short Circuit Breaking Capacity (Icu) (above 100 A)	kA	50	
13	Operating Short Circuit Breaking Capacity (Ics)		50 % of Icu	
14	Utilization Category		A	
15	Rated duty		uninterrupted	
16	Trip device		Thermal adjustable magnetic	
17	Rated current adjustment		(0.8-1)In	
18	Instant opening current adjustment		10 x In	
19	Mechanical Life Operation		>15000	
20	Electrical Life Operation		>10000	
21	Line load reversibility features	Yes/No	Yes	
22	Interrupting Capability		(IEC category P2)	
23	Thermal Rating declared at 50 deg C	Yes/No	Yes	
24	Operating Range		-5 to 55 deg. C	
25	Creepage distance suitable for		Pollution Degree 3 and suitable for isolation	
26	Suitable for isolation		Yes	
27	Trip Characteristics		inverse time and instantaneous	
28	Contacts Type			
29	Universal Accessory Fitting	Yes/No	Yes	
30	External Accessory provided			
31	Dimensions (lxbxh)	mm		
32	Weight	kg		
33	Type of Mounting Arrangement			
34	All the features are as mentioned in the specifications ?	Yes/No	Yes	
35	Copies of time - current characteristic trip curves for each breaker rating attached?	Yes/No	Yes	
36	Copies of outline drawings attached?	Yes/No	Yes	
37	Delivery of equipment following award of contract and approval of drawing	months		
38	ISO 9001 holder (including design)	yes/no	yes	
38.1	ISO 9001 certificate submitted	yes/no	yes	
39	Type test certificate submitted	yes/no	yes	
39.1	Submitted for the required ratings	yes/no		
39.2	Type test certified by			
40	User's certificate submitted	yes/no	yes	


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41	Has exported to third country	yes/no	yes	
42	Copies of relevant standards attached	yes/no	yes	

Signed by.....

Designation.....

As Representative for.....

Place..... Date.....

Seal of Bidder/Manufacturer


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Pre-Stressed Concrete (PSC) Pole

1. Scope

These specifications apply to design, manufacture, and testing of rectangular pre-stressed concrete poles for use in electrical distribution.

2. Description

The pre-stressed concrete pole shall be designed and fabricated in full compliance with IS: 1678-1978, or latest revision thereof or any other national or international standards that ensures at least equal or better quality to the standard mentioned above, will also be acceptable.

3. Load

The working loads of various pole categories are as per the design parameters. The design ultimate strength shall be calculated using a safety factor of 2.5. Pole Attributes are listed in the design parameters.

4. Materials

4.1 Cement

Cement to be used in the manufacture of pre-stressed concrete poles shall be ordinary for rapid hardening Portland cement confirming to IS: 269-1976 (Specification for ordinary and low heat Portland cement) or IS: 8041 E-1978 (Specification for rapid hardening Portland cement).

4.2 Aggregates

Aggregates to be used for the manufacture of pre-stressed concrete poles shall confirm to IS:383 (Specification for coarse and fine aggregates from natural sources for concrete) The nominal maximum sizes of aggregates shall in no case exceed 12 mm.

4.3 Water

Water should be free from chlorides, sulphates, other salts and organic matter. Potable water will be generally suitable.

4.4 Admixture

Admixture should not contain Calcium Chloride or other chlorides and salts which are likely to promote corrosion of pre-stressing steel. The admixture shall conform to IS: 9103.

4.5 Pre-stressing Steel

The pre-stressing steel wires should confirm to the IS 1785 OR IS 6003. The plain wire should be of 4 mm in diameter with a guaranteed ultimate strength of 175 kg/mm². The strands shall be made from cold-drawn non-alloy steel (high carbon content) wires. The seven-wire strand consists of a group of wires arranged in stranded formation and shall have the following properties. The seven-wire strands shall confirm to IS:6006-1983, or latest revision thereof or any other equivalent national or international standards.

Geometrical Properties:

Type of material:	Seven-wire strand
Nominal diameter of strand	7.9 mm (7/2.6mm)
Nominal cross-sectional area of strands	37.4 mm ²

Mechanical Properties:

Nominal mass of strand:	64.50 kN
Minimum breaking load:	294 g/m
0.2% proof load	54.70 kN

Long Term Behavior:

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Maximum relaxation after 1000 h of operation at initial load equivalent to 60%, 70% and 80% of breaking load shall not be higher than 1.0%, 2.5% and 4.5% respectively.

4.6 **Concrete Mix**

Concrete mix shall be designed to the requirements laid down for controlled concrete (also called design mix concrete) in IS: 1343-1980 (Code of practice for pre-stressed concrete) and IS: 456 – 1978 (Code of practice for plain and reinforced concrete).

5. **Design**

The poles shall be as per following design parameters and the dimensions shall be shown in Drawing.

Design Parameters:

Concrete mix:	M40
Minimum diameter of pre-stressing wire:	Refer Table 2
Working Load:	Refer Table 1
Depth of Plantation:	Refer Table 2
Point of Application of Load	Refer Table 2

- 5.1 The minimum strength of concrete in the pole shall meet the requirements laid down in IS:13431960 and IS:456-1964 or in any other equivalent national or international standards.
- 5.2 The pre-stressing strands shall be accurately positioned and satisfactorily protected against the formation of rust or other corrosion prior to the placement of the concrete. All pre-stressing strands shall be free from loose rust, dirt, grease, oil and other lubricants or substance that might impair their bond with the concrete.
- 5.3 The cement employed shall be the Ordinary Portland Cement (OPC), which shall conform to the chemical and physical requirements as set forth in IS 269, or any other equivalent national or international standards.
- 5.4 The amount of concrete cover on the outside of the pre-stressed reinforcement shall be not less than 20 mm.
- 5.5 Concrete shall be compacted by spinning, vibrating, shocking or other suitable mechanical means. Hand compacting shall not be permitted.
- 5.6 The concrete shall be covered with a layer of sacking, canvass, Hessian or similar absorbent material and kept constantly wet up to the time when the strength of concrete is at least equal to the minimum strength of concrete at transfer of pre-stress. Thereafter, the pole may be removed from the mould and watered at intervals to prevent surface cracking of the unit the interval should depend on the atmospheric humidity and temperature. The pre-stressing wires shall be detensioned only after the concrete has attained the specified strength at transfer (i.e. 200 or 210 kg/cm² as applicable). The cubes cast for the purpose of determining the strength at transfer should be cured, as far as possible, under condition similar to those under which the poles are cured. The transfer stage shall be determined based on the daily tests carried out on concrete cubes till the specified strength indicated above is reached. Thereafter the test on concrete shall be carried out as detailed in IS: 1343(code of practice for pre-stressed concrete). The manufacture shall supply, when required by the owner or his representative, result of compressive test conducted in accordance with IS: 456 (Code of practice for plain and

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reinforced concrete) on concrete cubes made from the concrete used for the poles. If the manufacture so desired, the manufacture shall supply cubes for test purpose and such cubes shall be tested in accordance with IS: 456 (Code of practice for plain and reinforced concrete).

- 5.7 The pole shall include cast-in holes. Typical hole patterns are shown in the drawings. Hole patterns must be confirmed with the NEA prior to manufacture.
- 5.8 All poles shall be unpolished but free of roughness, chips, excess cements, and other surface irregularities. All poles shall present a straight and symmetrical appearance after erection. The corners of all the poles shall be rounded so that they do not present a dangerously sharp edge, which could cause tearing or excessive wearing of safety belts.
- 5.9 All poles shall be provided with lifting hooks at two points for loading and unloading of poles.

Table 1

Working Load

S.N.	Pole Length (m)	Design Load (kgf)
1	11	350
2	9	200

Table 2 Pole Attributes				
S.N.	Description	Unit	9m PSC Pole	11m PSC Pole
1	Standard		IS 1678	IS 1678
2	Length of PSC Pole	m	9	11
3	Size	mm	300*150*140	400*180*150
4	Approximate Weight	kg	680	1150
5	Working Load	kgf	200	350
6	Ultimate Load	kgf	500	875
7	Concrete Grade		M40	M40
8	Pre-stressing Wire			
8.1	Diameter	mm	7.9 mm (7/2.6mm)	7.9 mm (7/2.6mm)
8.2	Standard		IS 1785	IS 1785

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9	Factor of Safety		2.5	2.5
10	No of tensioned wire		6	8
11	No of stirrups (6mm MS)		12	12
12	Depth of Plantation	m	1.5	1.8
13	Point of Application of load from pole top	m	0.6	0.6

6. Tests

Definition of various types of loads:

Working load = Expected Load

Design Working Load = Expected Load x Factor of Safety (FOS)

Ultimate Transverse Load (UTL) = Load when applied at specified point of the pole, the failure occurs.

Minimum Ultimate Transverse Load (MUTL) = Load when applied at specified point of the pole, the first crack appears.

Design Transverse Load (DTL) = Design Working Load

Design Ultimate Transverse Load (DUTL) = Design load at the transverse direction at which the first crack expected to appear (given by the Designer after calculation)

The **Design Ultimate Transverse Load (DUTL)** is less or equal to Ultimate Transverse Load

6.1 Transverse Strength Test

The pole shall be rigidly supported at the butt end for a distance equal to the specified planting depth. The load shall be applied at a point specified in Table 2 from the top of the pole and shall be steadily and gradually increased to the design transverse load until the occurrence of the first crack. The deflection is then measured. Prior to the application of the design transverse load there shall be no crack.

The load shall then be reduced to zero and increased gradually to a load equal to the first crack load plus 10% of the minimum ultimate transverse load, and held for 2 minutes. This procedure shall be repeated until the load reaches the value of 80% of the minimum ultimate transverse load and thereafter increased by 5% of the minimum ultimate transverse load until failure. Each time the load is applied, it shall be held for 2 minutes. The ultimate transverse load shall not be less than the design ultimate transverse load.

6.2 Measurement of Cover

The cover shall be measured at 3 points, one within 1.8m from the butt end of the pole, second within 0.6m from the top and the third at the intermediate point. The mean


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value of the measured cover should not differ by more than ± 1 mm from the specified value, and the individual value should not differ by more than ± 3 mm from the specified value.

6.3 The number of poles selected for testing and their conformity criteria shall be as follows:

Lot Size	Sample Size	Permissible No. of Defective Samples	No. of Poles for Transverse Strength Test
Up to 100	10	1	2
101 to 200	15	1	3
201 to 300	20	2	4
301 to 500	25	3	5

6.4 All the poles selected in 5.3 shall be tested for overall length, cross-section and up-rightness. The tolerance shall be ± 15 mm on overall length, ± 3 mm on cross-sectional dimensions, and 0.5% on uprightness.

6.5 The number of poles which do not satisfy the requirements of overall strength, cross-section and uprightness shall not exceed the number given in 5.3. If the number of such poles exceeds the corresponding number, all poles in the lot shall be tested for requirements, and those not satisfying the requirements shall be rejected.

6.6 All the poles tested for transverse strength test shall satisfy the requirements of the test. If one or more poles fail, twice the number of poles originally tested shall be selected from those already selected and subjected to test. If there is no failure among these poles, the lot shall be considered to have satisfied the requirements of the test.

7. Marking

The poles shall be cleanly and indelibly marked with the following:

- Month and year of manufacture, at approximately 3m from the butt end;
- Specified working load in kg, at approximately 3m from the butt end; and
- The design lifting point.
- The pole should be marked with the Identification of the Project/Contract at approximately 5m from the butt end.

8. Bid Documentation

8.1 The Bidder shall furnish following documents together with Bid;

- Two (2) clear copies of the standards, governing fabrication and testing of pre-stressed concrete poles and two (2) clear copies of other standards indicated in the specifications.
- Two (2) clear copies of detailed design and drawings of each type of pole.

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- c. Two (2) clear certified copies of all tests performed on similar poles of same sizes and similar working loads.
- d. A clause-by-clause commentary on specification, specifying compliance and deviations, if any.

8.2 The Bidder shall provide the following details:

- a. Pole dimensions in cross-section and pole taper;
- b. Location and size of pre-stressing strands;
- c. Hole locations;
- d. Design ground line;
- e. Marking of the lifting point;
- g) Minimum ultimate transverse load;
- h) Transverse load at first crack
- i) Concrete design mix and cement specification
- j) Specifications of the pre-stressing strands, their tensile strength and sizes

GUARANTEED TECHNICAL PARTICULARS

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(To be completed by Bidder/Manufacturer)

Item: PSC Poles

S.N.	Description	Unit	NEA Requirement	11 m PSC Pole	9 m PSC Pole
1	Manufacturer				
	Country of Origin				
2	Years of Manufacturing Experience				
3	Governing Standard		IS 1678		
4	Length of PSC Pole				
5	Approximate Weight of the Pole				
6	Dimensions				
6.1	Top Width				
S.N.	Description	Unit	NEA Requirement	11 m PSC Pole	9 m PSC Pole
6.2	Bottom Width				
6.3	Pole Thickness				
7	Working Load				
8	Ultimate Load				
9	Concrete Grade		M40		
10	Pre-Stressing wire				
10.1	Governing Standard		IS 1785		
10.2	Diameter		7.9 mm (7/2.6mm)		
11	No. of Tensioned Wire				
12	No. of Stirrups		12		
13	Cement specifications				
13.1	Make				
13.2	Grade				
13.3	Is Nepal Standard Certified?	yes/no	yes		
14	Concrete quantity per pole				
15	Steel quantity per pole				

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16	Delivery of equipment following award of contract and approval of drawing	months			
17	ISO 9001 holder (including design)	yes/no	yes		
17.1	ISO 9001 certificate submitted	yes/no	yes		
18	Type test certificate submitted	yes/no	yes		
18.1	Submitted for the required ratings	yes/no			
18.2	Type test certified by				
19	User's certificate submitted	yes/no	yes		
20	Has exported to third country	yes/no	yes		
21	Copies of relevant standards attached	yes/no	yes		
22	Outline Drawings and associated GA attached	yes/no	yes		

Signed by.....

Designation.....

As Representative for.....

Place..... Date.....

Seal of Bidder/Manufacturer

Steel Lattice Towers

1. Scope:

- 1.1 The specification covers the design, fabrication, testing, supply and erection of steel Lattice Towers complete set as per the design data provided in the specification.
- 1.2 The towers shall be self-supporting, hot dip galvanized, latticed steel type & designed to carry the line conductors with necessary insulators, earth wires and all fittings under all loading conditions.
- 1.3 The tower shall be fully galvanized using mild steel or/and high tensile steel sections as specified in the Specifications. Bolts and nuts with spring washer are to be used for connections.

2. Material:

IS Steel Sections of tested quality of conformity with IS: 2062:2011 grade E250 (Designated Yield Strength. 250 MPa) and/ or grade E350 (Designated Yield Strength 350 MPa) are to be used in towers, extensions, stubs and stub setting templates. For Snow Zone towers MS & HT Steel Sections shall conform to E250 Grade-C & E350 Grade-C respectively. The Contractor can use other equivalent grade of structural steel angle sections and plates conforming to latest International Standards viz BSEN 10025.

However, use of steel grade having designated yield strength more than that of EN 10025 grade S355 JR/JO (designated yield strength 355 MPa) is not permitted, unless otherwise indicated in this specification.

The material of towers must be galvanized steel conforming to BS; 4360 Gr-43A or equivalent standard.

3. Design:

- 3.1 The towers are intended to be used for very long spans which cannot be crossed by normal poles arrangement like valley and river crossings etc. The angle towers shall be proposed. These Towers shall be developed as per the site requirement. Additional weight of tower due to strengthening shall be paid on pro-rata basis derived from the quoted price and final weight of the standard (+/- 0) tower after successful testing.
- 3.2 Design Criteria

Towers shall be designed based on spans and clearances as per as per the standards and requirements and loading conditions as per the site.

3.3 Design Temperatures

The following temperature range for the conductors and ground wires shall be adopted for line

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- i) Minimum Temperature : 0 deg.C
- ii) Every day temperature of conductor : 32 deg.C
- iii) Max. temperature of
 - a) Conductor : 80 deg.C
 - b) Earthwire exposed to sun : 53 deg.C

3.4 The following data must be incorporated in the design of the Towers. A detail design and drawing of tower and that of the foundation must be submitted to the Employer for prior approval. The exact site requirements shall be identified during the pre-construction survey and approval of SDS and route.

S.N.	Description	Data
1	Factor of safety	2
2	Design span or normal ruling span of Towers	Minimum 400m
3	Wind span and weight span of Conductor	1.5 times of span
4	Minimum ground clearance from the bottom conductor	7m
5	Wind zone	4
6	Circuit on Towers	Single or double
7	Angle of Deviation	As per site condition
8	Phase to Phase clearance Horizontal Vertical	2.7m 1.75m
9	Disc insulator	As necessary
10	Conductor	ACSR-DOG or WOLF

3.5 Thickness of Members

The minimum thickness of angle sections used in the design of towers, unless otherwise specified elsewhere in this Specification, shall be kept not less than the following values:

- a) Main corner leg members including the earthwire peak and main cross arm : 5 MM
- b) For all other members : 4 mm

3.6 Vibration Dampers

Each tower set should be provided with the vibration dampers suitable

3.7 SLENDERNESS RATIO

Slenderness ratio for members shall be computed in accordance with the relevant standards. The following maximum limit of the slenderness ratio i.e. the ratio of unsupported length of the section in any plane to the appropriate radius of gyration will be adopted:

VALUE OF KL/R

- a) For main corner leg members including the corner members of earthwire peak and the lower corner members of the cross-arms : 120
- b) For other members having calculated stresses : 200
- c) For redundant members : 250
- d) For members having tensile stress only : 375

3.8 Earthing

Each tower should be provided with earthing set complete. The earthing set is 2-inch diameter galvanized pipe of length 3 meters with suitable connector and wire of sufficient length to connect to the Tower footing.


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GUARANTEED TECHNICAL PARTICULARS

(To be completed by Bidder/Manufacturer)

Item: Steel Lattice Towers

S.N.	Description	Unit	NEA Requirement	To be filled by Bidder
1	Manufacturer			
	Country of Origin			
	Years of Manufacturing Experience			
2	Governing Standard for Steel			
3	Are the poles fully Galvanized?	Yes/No	Yes	
4	Governing Standard for Galvanization		EN ISO 1461 or IS:4736 or an equivalent international standard	
5	Overall Length	m		
6	Design Working Load	kg		
7	Factor of Safety			
8	Minimum Breaking Load	kg		
S.N.	Description	Unit	NEA Requirement	To be filled by Bidder
9	Overall Height	m		
10	Center to center between 2 tower legs	M		
11	Tower width at Ground Level	M		
12	Maximum width of tower(Foundation width per leg)	M		
13	Complete Earthing set as per specification provided	yes/no	yes	
14	Delivery of equipment following award of contract and approval of drawing	months		
15	ISO 9001 holder (including design)	yes/no	yes	
15.1	ISO 9001 certificate submitted	yes/no	yes	
16	Type test certificate submitted	yes/no	yes	
16.1	Submitted for the required ratings	yes/no		
16.2	Type test certified by			
17	User's certificate submitted	yes/no	yes	
18	Has exported to third country	yes/no	yes	
19	Copies of relevant standards attached	yes/no	yes	
20	Outline Drawings and associated GA attached	yes/no	yes	

Signed by.....

Designation.....

As Representative for.....

Place..... Date.....

Seal of Bidder/Manufacturer

Handwritten signature
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Pole Accessories (Cross Arms and Braces)

1. Scope

This Specification covers the fabrication and supply of galvanized overhead power line accessories commonly used in overhead power line construction of 33kV and 11kV System.

The items used are

- steel cross-arms and bracing members - pole clamps
- steel bolts and nuts.

2. Material and Description

2.1 Steel Cross Arms and Bracing Angles & Flats

The steel cross-arms and bracing angles and flats shall be fabricated from hot-rolled channels and angles.

The steel channels, angles and flats shall be fabricated and tested in accordance with Indian Standards IS: 226-1975 and IS-808-1964 or any revision thereof or other equivalent national or international standard provided that ensure at least equal or better quality to the standard mentioned above will also be acceptable. The minimum tensile strength of the steel shall be 4200 kg/cm².

The steel cross-arms and bracing angles shall be of sizes shown in the Table 1: Cross-arms, bracing angles and flats, contained herein.

Conceptual hole pattern and size of holes on cross-arm channels are shown in appropriate drawings herein, however, the Supplier must confirm with the Project the locations and sizes of holes prior to the manufacture.

The surface of the steel shall be flat after drilling or (punching) and free of dimpling or imperfections. The hole edges shall be broken by reaming. The holes shall be full dimension after galvanizing and no minus tolerance of specified hole size will be accepted.

The steel cross-arm and bracing angles & flats shall be furnished reasonably smooth on all surfaces and free of burrs or sharp projections.

The brace shall have a minimum tensile strength of 3182 kg at the bolt-hole and bolt slot.

The brace shall be capable of being bent 10 degrees at the bolt hole or slot and 140 degrees at any point between hole and slot without cracking of the base metal on the outside of bent portion.

2.2 Pole Clamps

The pole clamp shall be fabricated out of hot-rolled steel flat.

The steel flat for pole clamp shall be fabricated and tested in accordance with IS: 226-1975, and IS-1731-1971 or any revision thereof or other equivalent national or international standard provided that ensure at least equal or better quality to the standard mentioned above will also be acceptable. The minimum tensile strength of the steel shall be 4200 kg/cm².

Outline details of pole clamps are to be approved by the Employer. Dimensions may be changed to comply with the final pole sizes selected. Therefore, the dimensions must be confirmed with the Employer prior to manufacture.

The fittings shall be free of burrs, splinters, splits, sharp points and edges, which may damage conductors or show evidence of poor workmanship.

The surface of the steel shall be flat after drilling or (punching) and free of dimpling or imperfections. The hole edges shall be broken by reaming. The holes shall be full dimension after galvanizing and no minus tolerance of specified hole size will be accepted.

The pole clamps shall have a minimum tensile strength of 3182 kg at the bolt-hole and bolt slot.

2.3 Steel Bolts and Nuts

The bolts and nuts shall be manufactured and tested in accordance with IS: 1363 (Part I)-1984 or the latest version thereof or any other national or international standards that

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Bolts and nuts shall be furnished in the types, strength, diameters and lengths as specified and required for fixing the cross-arms, bracing angle & flats and pole clamps. However, the dimensions and length of threading of bolt must be confirmed with the Project prior to manufacture.

Thread forms shall be consistent with all material/items listed herein and shall not strip or slip under sustained tensile loading equal to the design tensile strength of the threaded material item.

3 Galvanizing

The pole accessories shall be galvanized with minimum thickness of 90 microns after fabrication in accordance with IS: 2629-1985 or any revision thereof or other equivalent national or international standard provided that ensure at least equal or better quality to the standard mentioned above will also be acceptable. Spring washers shall be electro galvanized.

4. Tests

Apart from the tests indicated herein in the referenced standards, the pole accessories shall undergo following tests: - Visual Inspection;

- Verification of Dimensions;
- Verification of Galvanization thickness

5. Quality Assurance Program

Along with the Bid the Bidder shall furnish quality assurance program of the manufacturer which includes the Quality System and the Quality Plans, which shall include, among others, information to meet the following requirement, failing which the Bid shall be liable for rejection. i. The structure of the organization;

- ii. The duties and responsibilities assigned to staff ensuring quality of works;
- iii. The system for purchasing, taking delivery and verification of materials;
- iv. The system for ensuring quality of workmanship;
- v. The quality assurance arrangement shall conform to relevant requirements of ISO 9000;
- vi. Statement giving list of important raw materials, names of manufacturer for the raw materials, list of standards according to which the raw materials are tested, list of test normally carried out on raw materials;
- vii. List of manufacturing facilities available;
- viii. List of areas in manufacturing process, where stage inspections are normally carried out for quality control and details of such tests and inspections;
- ix. List of testing equipment available with the manufacturer for final testing of equipment specified and the test plant limitation, if any, vis-à-vis the type, special, acceptance and routine tests specified in the relevant standards.

6. Bid Documentation

- 7.1 The Bidder shall provide with the Bid two (2) clear copies of the governing standards for fabrication and testing of channels and angles and two (2) clear copies of all other relevant standards referenced therein.
- 7.2 The Bidder shall provide a complete description, catalogue and certified dimensional drawings of all channels and angles.
- 7.3 A clause-by-clause commentary on specification, specifying compliance and deviations, if any.
- 7.4 All data, drawings, catalogues and other technical documents shall be bound separately from the Bid documents.

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Table 1: Steel Cross-arm Channels and Angle Braces

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S.No.	Description	Type	Dimension in mm
1	33kV Line Single Pole		
1.1	Cross Arm Pole Top	ISMC 100	300
1.2	Cross Arm Standard	ISMC 100	1900
1.3	Brace	Flat	40x6x760
2	33kV Line H Pole		
2.1	Cross Arm Standard	ISMC 100	3300
2.2	Bracing angle	ISA	50x50x6x2872
2.3	Bracing angle	ISA	50x50x6x2416
3	11kV Line Single Pole		
3.1	Cross Arm Pole Top	ISMC 100	300
3.2	Cross Arm Standard	ISMC 100	1200
3.3	Brace	Flat	40x6x660
4	11kV Line H Pole		
4.1	Cross Arm Standard	ISMC 100	2390
4.2	Bracing angle	ISA	50x50x6x2723
4.3	Bracing angle	ISA	50x50x6x2071
5	11kV Line Offset		
5.1	Cross Arm	ISMC 100	1700
5.2	Brace	Flat	40x6x877


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Agricultural Pole , Wire & Transformer Installation Works Within shahidnagar Municipality Under Procurement of Works (NCB)- 1S2E Procedure

GUARANTEED TECHNICAL PARTICULARS

(To be completed separately for each items)

(To be completed by the Bidder/Manufacturer)

Item: Cross-arm and bracing angle & flats Item: Pole
Clamps

Item: Steel Bolts and Nuts

S.N.	Description	Unit	NEA Requirement	To be filled by Bidder/Manufacturer
1	Manufacturer			
2	Country of Origin			
3	Years of Manufacturing Experience			
4	Governing Standard		IS: 226-1975 and IS808-1964	
5	Governing Standard for galvanizing			
6	Steel Classification			
7	Minimum tensile strength of steel	kg/cm2.	4200	
8	Is the cross arm and angles fabricated from hot-rolled steel sections?	Yes/No	Yes	
9	Delivery of equipment following award of contract and approval of drawing	months		
10	ISO 9001 holder (including design)	yes/no	yes	
10.1	ISO 9001 certificate submitted	yes/no	yes	
11	Type test certificate submitted	yes/no	yes	
11.1	Submitted for the required ratings	yes/no		
11.2	Type test certified by			
12	User's certificate submitted	yes/no	yes	
13	Has exported to third country	yes/no	yes	
14	Copies of relevant standards attached	yes/no	yes	
15	Outline Drawings and associated GA attached	yes/no	yes	

Signed by.....

Designation..... As Representative

for..... Place.....

Date.....

Seal of Bidder/Manufacturer

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Parallel Groove (PG) Clamps

1. Scope

- 1.1 This Specification covers design fabrication testing and supply of universal parallel groove (PG) clamps and fittings commonly used in overhead electric power lines.

2. Description

- 2.1 The PG clamp shall be designed and manufactured to achieve full compatibility between clamps and conductors and produce uniform and electrically efficient connections between conductors for the class of connection intended.
- 2.2 The manufacturer of PG Clamp must have been accredited with ISO 9001 with design and manufacturing quality certification.
- 2.3 The PG clamp is intended to be used for ACSR to ACSR conductor.
- 2.4 The body of PG clamp shall be made of aluminum alloy from a permanent mould process and hardware consisting of nuts, bolts and washer shall be made of hot dip galvanized steel. The PG clamps shall have sufficient mass and contact area to provide the thermal capacity required for load cycling and fault current. The clamps shall be designed to provide the distributed current density necessary to prevent hot spots, and current carrying rating of the conductors for which they are designated. PG clamp shall have oxide inhibiting compound and contact aid.
- 2.5 The clamps shall be manufactured to accommodate ACSR conductors as shown in Table 1.
- 2.6 The grooves on the clamps shall be open-edged on two (2) edges for easy installation over a run conductor and insertion of tap conductor.
- 2.7 The clamp shall be tested in accordance with the relevant ANSI standard or other equivalent national or international standard specifying the performance requirement for the electrical and mechanical characteristics of clamps. The clamps shall conform to all testing requirements of that standard for the classes of clamps considered.
- 2.8 Each clamp shall be marked with the type and size of conductor, which will correctly fit each groove.

3. Tests

The PG clamps shall undergo type and routine tests in accordance with the relevant governing standard.

4. Quality Assurance Program

Along with the Bid the Bidder shall furnish quality assurance program of the manufacturer which includes the Quality System and the Quality Plans, which shall include, among others, information to meet the following requirement, failing which the Bid shall be liable for rejection. i. The structure of the organization; ii. The duties and responsibilities assigned to staff ensuring quality of works; iii. The system for purchasing, taking delivery and verification of materials; iv. The system for ensuring quality of workmanship; v. The quality assurance arrangement shall conform to relevant requirements of ISO9000; vi. Statement giving list of important raw materials, names of manufacturer for the raw materials, list of standards according to which the raw materials are tested, list of test normally carried out on raw materials;

- vii. List of manufacturing facilities available;
- viii. List of areas in manufacturing process, where stage inspections are normally carried out for quality control and details of such tests and inspections;
- ix. List of testing equipment available with the manufacturer for final testing of equipment specified and the test plant limitation, if any, vis-à-vis the type, special, acceptance and routine tests specified in the relevant standards.

5. Bid Documentation

- 5.1 The Bidder shall provide with the Bid two (2) clear copies of the governing standards for fabrication and testing of PG clamp.
- 5.2 The Bidder shall provide a complete description, and catalogue/drawing of PG clamp.
- 5.3 The Bidder shall provide certified type test results of PG clamp as required by governing standards.

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- Agricultural Pole, Wire & Transformer Installation Works Within Shahidnagar Municipality Under Procurement of Works (NCB)- 1S2E Procedure*
- 5.4 A clause-by-clause commentary on specification, specifying compliance and deviations, if any.
- 5.5 All data, drawings, catalogues and other technical documents shall be bound separately from the Bid documents.

GUARANTEED TECHNICAL PARTICULARS

(To be completed by the Bidder/Manufacturer)

Item: Parallel Groove (PG) Clamps

S.N.	Description	Unit	NEA Requirement	To be Filled by Bidder/Manufacturer
1	Manufacturer			
2	Country of Origin			
3	Years of Manufacturing Experience			
4	Governing Standard			
5	Type/Model No.			
6.1	Main Conductor		DOG	
6.2	Branch Conductor		DOG	
7	Current Rating	A	400	
8	Type of Connection			
9	Construction			
9.1	Body Material			
9.2	Screw Material			
10.1	Bolts size	mm		
10.2	Tightening torque	Nm		
11.1	Size	mm		
11.2	weight	Kg		
12	Markings			
13	Delivery of equipment following award of contract and approval of drawing	months		
14	ISO 9001 holder (including design)	yes/no	yes	
14.1	ISO 9001 certificate submitted	yes/no	yes	
15	Type test certificate submitted	yes/no	yes	
15.1	Submitted for the required ratings	yes/no		
15.2	Type test certified by			
16	User's certificate submitted	yes/no	yes	
17	Has exported to third country	yes/no	yes	
18	Copies of relevant standards attached	yes/no	yes	
19	Outline Drawings and associated GA attached	yes/no	yes	

Signed by.....
 Designation..... As
 Representative for.....
 Place.....
 Date.....
 Seal of Bidder/Manufacturer

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Porcelain Insulators and Fittings

1. Scope

This Specification covers the Type Test, fabrication and supply of pin insulators, disc insulators stay insulators, disc insulator fittings and insulator pins as herein specified for use on overhead power line construction.

2. General

1.1 General Requirements of Insulators

Insulators shall be fabricated and tested in accordance with the Standards referenced for each type of insulator or equivalent standards.

The Type Test shall be conducted in the recognized laboratory.

Porcelain shall be sound, free from defects, thoroughly vitrified and smoothly glazed. The glaze shall be brown in color. The glaze shall cover all exposed parts of the insulators.

The design of insulators shall be such that stresses due to expansion and contraction in any part of the insulator shall not lead to deterioration. The porcelain shall not engage directly with hard metal.

The cement used in construction of insulators shall not give rise to chemical reaction with metal fittings and its thickness shall be as uniform as possible.

The insulators should be manufactured in automatic temperature-controlled kilns to obtain uniform baking and better electrical and mechanical properties.

The preferred make of disc, pin and stay insulators and fittings are Allied Ceramics Pvt. Ltd., BHEL, Aditya Birla Insulators Ltd., Hindustan Chemicals Ltd. or equivalent reputed.

1.2 General Requirements of Disc Insulators fittings

The disc insulator fittings shall be designed, manufactured and tested in accordance with IS: 2486 or any other national or international standards that ensures at least equal or better quality to the standard mentioned above, will also be acceptable.

The disc insulator fittings shall be supplied with ball and socket couplings and twisted straps. The insulator fittings shall conform to the shape and dimension as per the governing standards

Disc insulator fittings like ball and socket, nuts and bolts shall be made of hot rolled steel and the twisted cross arm strap shall be made of MS sheet metal. Cotter bolts and U-bolts shall be of galvanized steel. Cotter pins shall be of stainless steel.

All forgings and castings shall be of good finish and free from flaws and other defects. The edges on the outside of fittings, such as the ball socket and holes, shall be rounded. The nominal dimensions of the ball and socket, ball eye and twisted cross arm straps, shall be as per the governing standards.

All ferrous fittings and the parts other than those of stainless steel, shall be hot dip galvanized as per IS: 2629 or equivalent international standards.

1.3 General Requirements of Insulator Pins

The insulator pins specified herein shall be fabricated from hot rolled steel. The pin shall be a single piece obtained preferably by the process of forging. It shall not be made by jointing, welding, shrink fitting or any other processes from more than one piece of material. It shall be of good finish free from flaws and other defects. The finish

of the collar shall be such that a sharp angle between the collar and the shank is avoided.

All ferrous pins, nuts and washers except those made of stainless steel shall be hot dip galvanized. The threads of nuts shall be cut after galvanizing and shall be well oiled and greased. The galvanizing shall conform to IS 2629-1985 or equivalent national or international standard.

All insulator pins shall be reasonably smooth on all surfaces and free of sharp projections.

3. Specific Requirements

3.1. Pin Insulator

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The pin insulator shall be manufactured and tested in accordance with IS: 731 and IS:3188 or the latest version thereof or any other national or international standards that ensures at least equal or better quality to the standard mentioned above, will also be acceptable. The lead thread shall be compatible with the insulator pin specified in these documents.

The pin insulator shall have following ratings and features:

S.N.	Description	Unit	11 kV pin insulator
1	Highest system voltage	kV	12
2	Rated voltage	kV	11
3	Creepage distance (minimum)	mm	265
4	Wet power frequency withstand voltage	kV	35
5	Impulse withstand voltage	kV	75
6	Puncture power frequency voltage (minimum)	kV	105
7	Visible discharge voltage (Effective)	kV	9
8	Cantilever strength	kN	5
9	GI pin head		Small

3.2. Disc Insulator

The disc insulator shall be manufactured and tested in accordance with IS: 731 or latest version thereof or any other national or international standards that ensures at least equal or better quality to the standard mentioned above, will also be acceptable.

The disc insulator shall be ball and socket fitting type. The disc insulator shall have the following ratings and features:

S.N.	Description	Unit	Value
1	Highest system Voltage	kV	12
2	Rated Voltage	kV	11
3	Porcelain Diameter (minimum)	mm	255
4	Spacing	mm	145
5	Creepage Distance (minimum)	mm	320
6	Power Frequency Puncture withstand Voltage		1.3 x Actual dry flashover voltage
7	Wet Power Frequency Withstand Voltage	kV	35
8	Impulse Withstand Voltage	kV	75
9	Puncture Power Frequency Voltage (minimum)	kV	105
10	Visible Discharge Voltage	kV	9

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11	Mechanical Strength	kN	45
12	Ball and Socket Size		16 mm B
13	Applicable Standard for Special Characteristics		IS: 3188

3.3. Stay Insulator

The stay insulator shall be manufactured and tested in accordance with IS: 5300 or latest version thereof or any other national or international standards that ensures at least equal or better quality to the standard mentioned above, will also be acceptable. The stay insulator shall have the following ratings and features:

S.N.	Description	Unit	Stay Insulator for 11 kV and 400V Line
1	IS Designation		A
2	Length	mm	90
3	Diameter	Mm	65
4	Cable Hole Diameter	mm	16
5	Creepage Distance (minimum)	mm	41
6	Minimum failing load	kN	44
7	Power Frequency Withstand Voltage		
7.1	Dry	kV	18
7.2	Wet	kV	8

3.4. Insulator Pins

The insulator pins to be supplied shall conform to IS: 2486 or equivalent international standards and to the shape and dimensions shown in the drawings contained in this specification. The insulator pin shall be furnished with a spring steel split lock washer and nut assembled on the insulator pin. The ratings and features of the insulator pins shall be as follows:

S.N.	Description	Unit	Required ratings/features For 11 kV
1	Head type		Small S165P
2	Total length	mm	315
3	Stalk length	mm	165
4	Shank length	mm	150
5	Minimum failing load	kN	5
6	Applicable standard		IS: 2486 or equivalent international standard.

The insulator pins shall be compatible with the insulators specified above.

3.5. Disc Insulator Fittings

Disc insulator fittings like Ball and socket, nuts, bolts shall be made of hot rolled steel and the twisted cross arm strap shall be made of MS sheet metal. Cotter bolts and U-bolts shall be of galvanized steel. Cotter pins shall be of stainless steel.

All forgings and castings shall be of good finish and free from flaws and other defects. The edges on the outside of fittings, such as the ball socket and holes, shall be rounded. The nominal dimensions of the ball and socket, ball eye and twisted cross arm straps, are given in Drawings. The ultimate strength of the fittings shall not be less than 41 KN.

All ferrous fittings and the parts other than those of stainless steel, shall be hot dip galvanized as per IS: 2629-1985 or equal internationally recognized standards.

4. Marking

Each insulator shall be legibly and indelibly marked to show the

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following:

- a) Name or trademark of manufacturer.
- b) Year of manufacture.
- c) Minimum failing load in Newton
- d) Name of Employer

Markings on porcelain shall be printed and shall be applied before firing.

5. Tests

The insulators and fittings shall comply with the type tests and routine tests as per relevant governing standards.

6. BID DOCUMENTATION

The Bidder shall provide with the Bid two (2) clear copies of the governing standards for fabrication and testing of pin insulator and insulator pin and two (2) clear copies of all other relevant standards referenced therein.

The Bidder shall provide certified type test results of pin insulator and insulators pin as required by governing standards.

The Bidder shall provide standard catalogue and certified dimensional drawings of pin insulator and insulator pins.

A clause-by-clause commentary on specification, specifying compliance and deviations, if any.

All data, drawings, catalogues and other technical documents shall be bound separately from the Bid documents.

GUARANTEED TECHNICAL PARTICULARS

(To be completed by the Bidder/Manufacturer)

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Item: Pin Insulator

S.N.	Description	Unit	NEA Requirement	To be filled by Bidder/Manufacturer
1	Manufacturer			
2	Country of Origin			
3	Years of Manufacturing Experience			
4	Model No.			
5	Governing Standards		IS: 731; IS:3188	
6	Marking as per specifications	Yes/No	Yes	
7	Highest system voltage	kV	12	
8	Rated voltage	kV	11	
9	Creepage distance (minimum)	mm	265	
10	Wet power frequency withstand voltage	kV	35	
11	Impulse withstand voltage	kV	75	
12	Puncture power frequency voltage (minimum)	kV	105	
13	Visible discharge voltage (Effective)	kV	9	
14	Cantilever strength	kN	5	
15	GI pin head		Small	
16	Delivery of equipment following award of contract and approval of drawing	months		
17	ISO 9001 holder (including design)	yes/no	yes	
17.1	ISO 9001 certificate submitted	yes/no	yes	
18	Type test certificate submitted	yes/no	yes	
18.1	Submitted for the required ratings	yes/no		
18.2	Type test certified by			
19	User's certificate submitted	yes/no	yes	
20	Has exported to third country	yes/no	yes	
21	Copies of relevant standards attached	yes/no	yes	
22	Outline Drawings and associated GA attached	yes/no	yes	

Signed by.....

Designation.....

As Representative for.....

Place..... Date.....

Seal of Bidder/Manufacturer

GUARANTEED TECHNICAL PARTICULARS

(To be completed by the Bidder/Manufacturer)

Item: 11 kV Disc Insulator

S.N.	Description	Unit	NEA Requirement	To be filled by Bidder
1	Manufacturer			
2	Country of Origin			
3	Years of Manufacturing Experience			
4	Model No.			
5	Governing Standards		IS: 731-1971	
6	Marking as per specifications	Yes/No	Yes	
7	Highest system Voltage	kV	12	
8	Rated Voltage	kV	11	
9	Porcelain Diameter (minimum)	mm	255	

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S.N.	Description	Unit	NEA Requirement	To be filled by Bidder
10	Spacing	mm	145	
11	Creepage Distance (minimum)	mm	320	
12	Power Frequency Puncture withstand Voltage		1.3 x Actual dry flashover voltage	
13	Wet Power Frequency Withstand Voltage	kV	35	
14	Impulse Withstand Voltage	kV	75	
15	Puncture Power Frequency Voltage (minimum)	kV	105	
16	Visible Discharge Voltage	kV	9	
17	Mechanical Strength	kN	45	
18	Ball and Socket Size		16 mm B	
19	Applicable Standard for Special Characteristics		IS: 3188-1980	
20	Delivery of equipment following award of contract and approval of drawing	months		
21	ISO 9001 holder (including design)	yes/no	yes	
21.1	ISO 9001 certificate submitted	yes/no	yes	
22	Type test certificate submitted	yes/no	yes	
22.1	Submitted for the required ratings	yes/no		
22.2	Type test certified by			
23	User's certificate submitted	yes/no	yes	
24	Has exported to third country	yes/no	yes	
25	Copies of relevant standards attached	yes/no	yes	
26	Outline Drawings and associated GA attached	yes/no	yes	

Signed by.....

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Place..... Date.....

Seal of Bidder/Manufacturer

GUARANTEED TECHNICAL PARTICULARS

(To be completed by the Bidder/Manufacturer)

Item: Stay Insulator

S.N.	Description	Unit	Stay Insulator for 11 kV and 400 V Line	
			NEA Requirement	To be filled by Bidder/Manufacturer
1	Manufacturer			
2	Country of Origin			
3	Years of Manufacturing Experience			
4	Model No.			
5	Governing Standard		IS: 5300-1969	
6	Marking as per specification?	Yes/No	Yes	
7	IS Designation		A	
8	Length	mm	90	
9	Diameter	Mm	65	
10	Cable Hole Diameter	mm	16	
11	Creepage Distance (minimum)	mm	41	
12	Minimum failing load	kN	44	
13	Power Frequency Withstand Voltage			
13.1	Dry	kV	18	
13.2	Wet	kV	8	

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Agricultural Pole , Wire & Transformer Installation Works Within shahidnagar Municipality Under Procurement of Works (NCB)- 1S2E Procedure

14	Delivery of equipment following award of contract and approval of drawing	months		
15	ISO 9001 holder (including design)	yes/no	yes	
15.1	ISO 9001 certificate submitted	yes/no	yes	
16	Type test certificate submitted	yes/no	yes	
17.1	Submitted for the required ratings	yes/no		
17.2	Type test certified by			
18	User's certificate submitted	yes/no	yes	
19	Has exported to third country	yes/no	yes	
20	Copies of relevant standards attached	yes/no	yes	
21	Outline Drawings and associated GA attached	yes/no	yes	

Signed by.....

Designation.....

As Representative for.....

Place..... Date.....

Seal of Bidder/Manufacturer

Signature
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GUARANTEED TECHNICAL PARTICULARS

(To be completed by the Bidder/Manufacturer)

Item: Disc Insulator Fittings

S.N.	Description	Unit	NEA Requirement	To be filled by Bidder/Manufacturer
1	Manufacturer			
2	Country of Origin			
3	Years of Manufacturing Experience			
4	Model No.			
5	Governing Standard		IS: 2486	
6	Steel Classification		As per specification	
7	Ferrous parts are galvanized As per IS 2629 – 1985?	Yes/No	Yes	
8	Thickness of Galvanization	micron		
9	Cotter Pins are Stainless Steel?	Yes/No	Yes	
10	Ultimate Strength of Fittings	kN		
11	Delivery of equipment following award of contract and approval of drawing	months		
12.1	ISO 9001 holder (including design)	yes/no	yes	
12.2	ISO 9001 certificate submitted	yes/no	yes	
13.1	Type test certificate submitted	yes/no	Yes	
13.2	Submitted for the required ratings	yes/no		
13.3	Type test certified by			
14	User's certificate submitted	yes/no	Yes	
15	Has exported to third country	yes/no	Yes	
16	Copies of relevant standards attached	yes/no	Yes	
17	Outline Drawings and associated GA attached	yes/no	yes	

Signed by.....

Designation.....

As Representative for.....

Place..... Date.....

Seal of Bidder/Manufacturer

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Agricultural Pole , Wire & Transformer Installation Works Within shahidnagar Municipality Under Procurement of Works (NCB)- 1S2E Procedure

GUARANTEED TECHNICAL PARTICULARS

(To be completed by the Bidder/Manufacturer)

Item: Insulator Pins

S.N.	Description	Unit	11 kV Insulator Pin	
			NEA Requirement	To be filled by Bidder/Manufacturer
1	Manufacturer			
2	Country of Origin			
3	Years of Manufacturing Experience			
4	Model No.			
5	Governing Standard		IS: 2486	
6	Type of steel used		Hot rolled steel	
7	Head type		Small S165P	
8	Total length	mm	315	
9	Stalk length	mm	165	
10	Shank length	mm	150	
11	Minimum failing load	kN	5	
12	Delivery of equipment following award of contract and approval of drawing	months		
13.1	ISO 9001 holder (including design)	yes/no		
13.2	ISO 9001 certificate submitted	yes/no		
14.1	Type test certificate submitted	yes/no		
S.N.	Description	Unit	11 kV Insulator Pin	
			NEA Requirement	To be filled by Bidder/Manufacturer
14.2	Submitted for the required ratings	yes/no		
14.3	Type test certified by			
15	User's certificate submitted	yes/no		
16	Has exported to third country	yes/no		
17	Copies of relevant standards attached	yes/no		
18	Outline Drawings and associated GA attached	yes/no		

Signed by.....

Designation.....

As Representative for.....

Place..... Date.....

Seal of Bidder/Manufacturer

Signature
प्रमुख प्रशासकिय अधिकृत



Preformed Wire Products

1. Scope

This Specification covers the fabrication and supply of pin insulator ties and wire strand grips for stay set commonly used in overhead power line construction.

2. Requirements

The design of the preformed wire products specified herein shall be appropriate for the optimum combination of conductor strand diameter, inside diameter, rod diameter, pitch diameter, number of pitch lengths, direction of lay, and raw materials of the specific application.

The preformed wire product shall be so designed to grip the designated surface evenly, with evenly-spaced gaps, and shall not bridge the gripped surface due to excessive number of strands in the grip or tie.

All pin insulator ties shall be suitable for use on the ACSR conductors "DOG"100 mm².

3. Pin Insulator Top Tie

The top tie shall be designed for use with C-Neck Pin insulators specified in SPECIFICATION: SP3.1.1 (IS: 731-971) and ACSR bare conductors shown in Table 1. However, details of neck diameter and other details of the pin insulator shall be provided before manufacturing of ties.

The tie shall be manufactured of aluminum-clad steel wire. It shall be furnished with a semi conductive-rubber tie pad so as to protect insulator against abrasion. The top tie shall be right-hand lay. Applied length of tie shall not be less than 800 mm.

The tie shall be color-coded for conductor size and insulator head-style. The tie shall have an, identification tag attached showing manufacturer's catalog number and applicable conductor identification.

4. Double-Support Top Tie

The double-support top tie shall be designed for use with C-Neck Pin insulators specified in SPECIFICATION: SP3.1.1 (IS: 731-971) and ACSR bare conductors shown in Table

However, details of neck diameter and other details of the pin insulator shall be provided before manufacturing of ties.

The tie shall be manufactured of aluminum-clad steel wire. It shall be furnished with a semi conductive-rubber tie pad so as to protect insulator against abrasion. The top tie shall be right-hand lay. Applied length of tie shall not be less than 800 mm.

The tie shall be color-coded for conductor size and insulator head-style. The tie shall have an identification tag attached showing manufacturer's catalog number and applicable conductor identification.

5. Pin Insulator Side Tie

The side tie shall be designed for use with C-Neck Pin insulators specified in SPECIFICATION: SP3.1.1 (IS: 731-971) and ACSR bare conductors shown in Table

However, details of neck diameter and other details of the pin insulator shall be provided before manufacturing of ties.

The tie shall be manufactured of aluminum-clad steel wire. It shall be furnished with a semi conductive-rubber tie pad so as to protect insulator against abrasion. The top tie shall be right-hand lay. Applied length of tie shall not be less than 800 mm.

The side tie shall be color-coded for conductor size and insulator head-style. The side tie shall have an identification tag attached showing manufacturer's catalog number and applicable conductor identification.

6. Double Side Tie

The double side tie shall be designed for use with C-Neck Pin insulators specified in SPECIFICATION: SP3.1.1 (IS: 731-971) and ACSR bare conductors shown in Table

1. However, details of neck diameter and other details of the pin insulator shall be provided before manufacturing of ties.

The tie shall be manufactured of aluminium-clad steel wire. It shall be furnished with a semi conductive-rubber tie pad so as to protect insulator against abrasion. The top tie shall be righthand lay. Applied length of tie shall not

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Agricultural Pole , Wire & Transformer Installation Works Within shahidnagar Municipality Under Procurement of Works (NCB)- 1S2E Procedure
be less than 800 mm.

The double side tie shall be color-coded for insulator neck size and crossover point and for insulator identification. The double side tie shall have an identification tag attached showing manufacturer's catalogue number and applicable conductor identification.

7. Steel Wire Strand Grip for Stay Set

The steel wire strand grip shall be designed for use with thimble eye or double eye stay rod and tightner fabricated in accordance SPECIFICATION: SP3.2.1, stay wire fabricated in accordance with SPECIFICATION: SP3.2.2 (B.S. 183 1972/(1983)) and stay insulator fabricated in accordance with SPECIFICATION: SP3.1.1 (IS:5300-1969).

The steel wire strand grip shall be furnished for strand size and grade in accordance with Table 2.

The steel wire strand grip shall be manufactured of a galvanized steel wire in cabled loop form with long and short legs. The grip shall have a left-hand lay. Galvanizing shall be equivalent to Class C zinc coating per ASTM A-475.

The steel wire strand grip shall be color-coded for strand size and length and shall have one (1) or two (2) crossover marks for different diameter fittings. An identification tag shall be attached showing the manufacturer's catalogue number and applicable strand size.

8. Tests

The performs shall undergo type and routine tests in accordance with the relevant governing standard.

9. Quality Assurance Program

Along with the Bid the Bidder shall furnish quality assurance program of the manufacturer which includes the Quality System and the Quality Plans, which shall include, among others, information to meet the following requirement, failing which the Bid shall be liable for rejection. i. The structure of the organization; ii. The duties and responsibilities assigned to staff ensuring quality of works; iii. The system for purchasing, taking delivery and verification of materials; iv. The system for ensuring quality of workmanship; v. The quality assurance arrangement shall conform to relevant requirements of ISO9000; vi. Statement giving list of important raw materials, names of manufacturer for the raw materials, list of standards according to which the raw materials are tested, list of test normally carried out on raw materials;

- vii. List of manufacturing facilities available;
- viii. List of areas in manufacturing process, where stage inspections are normally carried out for quality control and details of such tests and inspections;
- ix. List of testing equipment available with the manufacturer for final testing of equipment specified and the test plant limitation, if any, vis-à-vis the type, special, acceptance and routine tests specified in the relevant standards.

10. Bid Documentation

The Bidder shall provide with the Bid two (2) clear copies of the governing standards for fabrication and testing of preformed wire products and two (2) clear copies of all other relevant standards referenced therein.

The Bidder shall provide certified type test results of preformed wire products as required by governing standards.

The Bidder shall provide complete description, and catalogue of preformed wire products.

A clause-by-clause commentary on specification, specifying compliance and deviations, if any.

All data, drawings, catalogues and other technical documents shall be bound separately from the Bid documents.

TABLE 1 INSULATOR TIES

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Tie Application	Identification Tag and Color Code					
	100 sq. mm. "Dog"		50 sq. mm. "Rabbit"		30 sq. mm. "Weasel"	
Top Tie	TT-1	Red	TT-2	Yellow	TT-3	Blue
Double Support Top Tie	DTT-1	Red	DTT-2	Yellow	DTT-3	Blue
Side Tie	ST-1	Green	ST-2	Black	ST-3	Pink
Double Side Tie	DST-1	Green	DST-2	Black	DST-3	Pink

Note: All designations shown are used for product identification for the purpose of this IFB.

TABLE 2
STEEL WIRE STRANDED GRIPS

Tie Application for Strand Size	Identification Tag and Color Code	
7/8 SWG	GS-1	Red
7/12 SWG	GS-2	Blue

Note: All designations shown are used for product identification for the purpose of this IFB.

GUARANTEED TECHNICAL PARTICULARS

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(To be completed by the Bidder/Manufacturer)

Item: Preformed Wire Products

S.N.	Description	Unit	NEA Requirement	To be filled by Bidder
1	Manufacturer			
2	Country of Origin			
3	Years of Manufacturing Experience			
4	Model No.			
5	Governing Standards			
6	Pin Insulator Tie			
6.1	Material Description furnished?	yes/no	yes	
6.2	Aluminum clad steel wire			
6.3	Bidder Certifies that all items offered are suitable for use with ACSR "DOG" and "RABBIT" conductors?	yes/no	yes	
6.4	Bidder Certifies that all items offered are suitable for use with insulators specified in specifications?	yes/no	yes	
6.5	Holding Rating of Top tie for "DOG"	kg		
6.6	Holding Rating of Double support Top tie for "DOG"	kg		
6.7	Holding Rating of Side tie for "DOG"	kg		
6.8	Holding Rating of Double support Side tie for "DOG"	kg		
6.9	Holding Rating of Top tie for "RABBIT"	kg		
6.10	Holding Rating of Double support Top tie for "RABBIT"	kg		
6.11	Holding Rating of Side tie for "RABBIT"	kg		
6.12	Holding Rating of Double support Side tie for "RABBIT"	kg		
7	Steel Wire Strand Grip			
7.1	Material Description furnished?	yes/no	yes	
7.2	Bidder Certifies that steel strand grip offered is suitable for use with insulator; stay set and stay wire specified in specifications?	yes/no	yes	
7.3	Holding Rating of Grip for 7/8 SWG	kg		
7.4	Holding Rating of Grip for 7/8 SWG	kg		
8	Delivery of equipment following award of contract and approval of drawing	months		
9	ISO 9001 holder (including design)	yes/no	yes	
9.1	ISO 9001 certificate submitted	yes/no	yes	
10	Type test certificate submitted	yes/no	yes	
10.1	Submitted for the required ratings	yes/no		
10.2	Type test certified by			
S.N.	Description	Unit	NEA Requirement	To be filled by Bidder
11	User's certificate submitted	yes/no	yes	
12	Has exported to third country	yes/no	yes	
13	Copies of relevant standards attached	yes/no	yes	
14	Outline Drawings and associated GA attached	yes/no	yes	

Signed by.....

Designation.....

As Representative for.....

Place..... Date.....

Seal of Bidder/Manufacturer

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Stay Sets

1. Scope

This Specification covers the fabrication and supply of adjustable threaded, galvanized, ferrous, stay sets and nuts for use in overhead line construction.

2. Description

- 2.1 The stay set shall consist of mild steel; galvanized stay rod; stay tightener or adjustable head complete with stay plate a thimble of suitable dimensions
- 2.2 The stay rod shall be fabricated of mild steel of minimum tensile strength of 4200 kg/sq.cm. The other technical features and dimensions are given in table attached herewith.
- 2.3 The stay tightener shall be made of mild steel of minimum ultimate tensile strength of 42,000kg/sq.cm. The thimbles shall be made of 1.219mm (18 SWG) GI sheet, and shall be suitable for terminating steel stay wire with a preformed grip.
- 2.4 The stay plate shall be square type MS plate of dimensions as mentioned in Table herewith. The plate shall have a matching hole at the center to fit the end of the stay rod.

3. Fabrication

- 3.1 The stay rod and nut shall be fabricated to the shape and dimensions shown in table attached herewith.
- 3.2 The thread form at the threaded end of the rod, and that of the accompanying nut, shall be optional with the supplier. However, it shall be the responsibility of the Supplier to supply the stay rod with a thread form that shall sustain the rated loads specified in table without creep or stripping over the full life of the rod material at specified diameter.
- 3.3 After fabrication, the stay rod and nut shall be hot-dip zinc galvanized in accordance with IS 2629-1985, latest edition, or to an equivalent hot-dip galvanizing standard which produces equal or superior result.
- 3.4 After galvanizing, the nut and rod threading shall be such that the nut may be run the full length of the thread without the use of tools.

4. Tests

- 4.1 Apart from the tests indicated in the relevant referenced standard of steel , the stay set shall undergo following tests:

-Visual Inspection.

-Verification of dimensioned.

-Tensile strength: The stay set assemblies shall withstand a minimum tensile loads specified in Table 1.

-Bend test: The stay rod shall be bend-tested over a mandrel of 19 mm millimeter through an angle of 90 degrees at any point in the un-threaded section of the rod without fracture of the steel. Temperature of the test shall be 68 degrees Fahrenheit (22.5 deg Celsius).

5. Bid Documentation

- 5.1 The Bidder shall furnish with the Bid a complete description of the stay sets proposed to be supplied including, but not limited to, steel classification of base metal, detailed drawings showing shape, dimensions, and threading certified type test results as required by paragraph 4 herein, the identity of the proposed manufacturer, and manufacturers catalogue number, plus catalogue cuts. The technical data furnished shall be bound separately from the Bid Document.

Table 1 : Ratings and Features of Stay Sets

Signature
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S.N.	Description	Unit	Stay Sets for 11 kV and 0.4 kV line
1	Length of stay rod	m	1.8
2	Diameter of stay rod	mm	16

3	Ultimate tensile strength of stay rod and turn-buckle	kg/cm ²	4200
4	Minimum breaking load	kg	6,433
5	Length of threaded portion	mm	300
6	Thimble shape		Suitable for 7/12 mm stay wire
7	Thimble section		18 SWG min.
8	Stay plate section	mmxmmxmm	300x300x6
9	Eyebolt length	mm	300
10	Eyebolt diameter	mm	16


 प्रमुख प्रशासकिय अधिकृत



GUARANTEED TECHNICAL PARTICULARS
(To be completed by Bidder/Manufacturer)

Item: Stay set for 11 kV and 0.4 kV Line

S.N.	Description	Unit	NEA Requirement	To be filled by Bidder/Manufacturer
1	Manufacturer			
	Country of Origin			
	Years of Manufacturing Experience			
	Model No.			
3	Governing Standards			
6	Marking as per specifications	Yes/No	Yes	
7	Length of stay rod	m	1.8	
8	Diameter of stay rod	mm	16	
9	Ultimate tensile strength of stay rod and turn-buckle	kg/cm ²	4200	
10	Minimum breaking load	kg	6,433	
11	Length of threaded portion	mm	300	
12	Thimble shape		Suitable for 7/12 mm stay wire	
13	Thimble section		18 SWG min.	
14	Stay plate section	mm	300x300x6	
15	Eyebolt length	mm	300	
16	Eyebolt diameter	mm	16	
17	Delivery of equipment following award of contract and approval of drawing	months		
18	ISO 9001 holder (including design)	yes/no		
18.1	ISO 9001 certificate submitted	yes/no		
19	User's certificate submitted	yes/no		
20	Has exported to third country	yes/no		
21	Copies of relevant standards attached	yes/no		
22	Outline Drawings and associated GA attached	yes/no		

Signed by.....
Designation..... As
Representative for.....
Place.....
..... Date.....
Seal of Bidder/Manufacturer

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Stay Wire

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1. Scope

This Specification covers the fabrication and supply of zinc-coated steel wire for use in overhead power line as stay wire ropes for line supports (poles).

2. Description of Strands

The steel strand shall be fabricated in accordance with IS 2141 or an equivalent international standard. The steel wire strand shall have a left-hand lay. The steel wires shall have no joint throughout the whole length. Strands shall be uniform and shall have no defects such as cracks, dust encapsulation or crevices. Further details are given in Table herein.

3. Packing

The steel wire strand shall be furnished in reels holding minimum of 100 kg. Each reel shall have a weather-resistant tag securely attached showing the length, nominal diameter, number of individual wires, grade of the strand, and the class of zinc coating.

4. Bid Documentation

4.1 The Bidder shall furnish the following technical data with the Bid:

- If the material to be offered is to be manufactured in accordance with the specified B.S. standard, full technical data for the material and the identification of the manufacturer.
- If the material offered to be manufactured in accordance with an equivalent standard, two (2) clear copies of that standard shall be furnished in addition to the data required in (a) above.

All technical data furnished shall be bound separately from the Bids.

5. Tests

The testing of individual wires and complete conductor shall be in accordance with the nominated standards.

Table: Ratings and Features of stay wire

S.N.	Description	Unit	Stay Wire for 11 kV and 0.4 kV Line
1	Steel Wire Size	(Nos of wire/SWG)	7/12
2	No. of Wire	Nos	7
3	Diameter of Each wire	mm	2.64
4	Strand Diameter (Overall)	mm	7.8
5	Overall Cross Sectional Area	mm ²	44.19
6	Steel Quality		Gr.700
7	Minimum Tensile Strength of Steel	N/mm ²	700
8	Min. Breaking load of single wire	kN	3.71
9	Min. Breaking load of strand	kN	26
10	Approximate Weight	kg/km	300
11	Minimum weight of Wire in each reel	kg	100
12	Left hand Lay	Yes/No	Yes
13	Minimum Thickness of Zinc Coating	g/m ²	230

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GUARANTEED TECHNICAL PARTICULARS

(To be completed by Bidder/Manufacturer)

Item: Stay Wire for 11 kV and 0.4 kV Line

S.N.	Description	Unit	NEA Requirement	To be filled by Bidder/Manufacturer
1	Manufacturer			
	Country of Origin			
	Years of Manufacturing Experience			
2	Applicable Standard		IS 2141	
3	Governing Standard for galvanization		IS 4826	
4	Steel Wire Size	(Nos of wire/SWG)	7/12	
S.N.	Description	Unit	NEA Requirement	To be filled by Bidder/Manufacturer
5	No. of Wire	Nos	7	
6	Diameter of Each wire	mm	2.64	
7	Strand Diameter (Overall)	mm	7.8	
8	Overall Cross Sectional Area	mm ²	37.15	
9	Steel Quality		Gr.700	
10	Minimum Tensile Strength of Steel	N/mm ²	700	
11	Ultimate Tensile Strength	N/mm ²		
12	Min. Breaking load of single wire	kN	3.71	
13	Min. Breaking load of strand	kN	26	
14	Approximate Weight	kg/km	300	
15	Minimum weight of Wire in each reel	kg	100	
16	Left hand Lay	Yes/No	Yes	
17	Minimum Weight of Zinc Coating	g/m ²		
18	Delivery of equipment following award of contract and approval of drawing	months		
19	ISO 9001 holder (including design)	yes/no		
19.1	ISO 9001 certificate submitted	yes/no		
20	Type test certificate submitted	yes/no		
21.1	Submitted for the required ratings	yes/no		
21.2	Type test certified by			
23	User's certificate submitted	yes/no		
24	Has exported to third country	yes/no		
25	Copies of relevant standards attached	yes/no		
26	Outline Drawings and associated GA attached	yes/no		

Signed by.....

Designation.....

As Representative for.....

Place..... Date.....

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11 kV Air Break Switch

1 SCOPE

This specification provides for manufacture, testing at works and delivery for supply of 11 kV AB

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Agricultural Pole, Wire & Transformer Installation Works Within shahidnagar Municipality Under Procurement of Works (NCB)- 1S2E Procedure
switches. The 11 kV AB switches shall conform to IS: 9920 (Part-I to IV)

2 AB SWITCHES

- 3 The 11KV Air Break Switches are required with two poles in each phase. The AB Switches shall be supplied complete with phase coupling shaft, operating rod and operating handle. It shall be manually gang operated and vertically break and horizontal mounting type.

The AB Switch shall be designed for a normal current rating of 400 Amps and for continuous service at the system voltage specified as under: 11 KV AB Switch: 11KV + 10% continuous 50 C/s solidly grounded earthed neutral system. The length of break in the air shall not be less than 400 mm for 11KV AB Switches.

The 11KV AB Switches are required with post insulators. The AB switches should be suitable for mounting on the structure. The mounting structure will be arranged by the purchaser separately. However, the AB Switches shall be supplied with base channel for mounting on the structure which will be provided by the purchaser. The phase to phase spacing shall be 750mm in case of 11KV AB Switches.

1 POST INSULATORS

The post insulators should conform to the latest applicable Indian standards IS: 2544. Creepage distance should be adequate for highly polluted outdoor atmosphere in open atmosphere. The porcelain used for manufacture of AB Switches should be homogeneous and free from flaws or imperfections that might affect the mechanical dielectric quality. They shall be thoroughly vitrified, tough and impervious to moisture. The glazing of the porcelain shall be of uniform brown in color, free from blisters, burns and other similar defects. Insulators of the same rating and type shall be interchangeable. The porcelain and metal parts shall be assembled in such a manner that any thermal expansion differential between the metal and porcelain parts through the range of temperature variation shall not loose the parts or create undue internal stresses which may affect the electrical or mechanical strength. Cap and base of the insulators shall be interchangeable with each other. The cap and base shall be properly cemented with insulators to give perfect grip. Excess cementing must be avoided.

The bidder shall in variably enclose with the offer, the type test certificate and other relevant technical guaranteed particulars of insulators offered by them. Please note that AB Switches without type test certificates will not be accepted.

2Each 11kV Post Insulators should have technical particulars as detailed below:

S.N.	Particular	Value
1	Nominal system voltage KV (rms)	11
2	Highest system voltage KV (rms.)	12
3	Dry Power Frequency one minute withstand voltage (rms) in kV	35
4	Wet Power frequency one minute withstand voltage (rms) in kV	35
5	Power Frequency puncture KV (rms) voltage	1.3 times the actual dry flashover voltage
6	Impulse withstand voltage KV (Peak)	75
7	Visible discharge voltage KV (rms)	9
8	Creepage distance in mm (minimum)	320

- 3 The rated insulation level of the AB Switches shall not be lower than the values specified below:

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S.N.	Standard declared Voltage	Rated voltage of the AB switch	Standard impulse withstand voltage (positive & negative polarity Isolating distance		One Minute power frequency withstand voltage KV (rms)	
			Across the Isolating distance	To earth & between poles	Across the Isolating distance	To earth & between poles
1	11KV	12kV	85kV	75kV	32kV	28 kV


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4 TEMPERATURE RISE:

The maximum temperature attained by any part of the equipment when in service at site under continuous full load conditions and exposed to the direct rays of Sun shall not exceed 45 degree above ambient.

5 MAIN CONTACTS:

AB Switches shall have heavy duty self-aligning type contacts made of hard drawn electrolytic copper/brass. The various parts should be accordingly finished to ensure inter changeability of similar components. The moving contacts of the switch shall be made from hard drawn electrolytic copper brass. This contact shall have dimensions as per drawing attached so as to withstand safely the highest short-circuit currents and over voltage that may be encountered during service. The surface of the contact shall be rounded smooth and silver-plated. In nut shell the male and female contact assemblies shall ensure.

- Electro-dynamic withstands ability during short circuits without any risk of repulsion of contacts.
- Thermal withstands ability during short circuits.
- Constant contact pressure even when the lower parts of the insulator stacks are subjected to tensile stresses due to linear expansion of connected bus bar of flexible conductors either because of temperature variations or strong winds. Wiping action during closing and opening.
- Fault alignment assuring closing of the switch without minute adjustments

6 CONNECTORS:

The connectors shall be made of hard drawn electrolytic copper or brass suitable for DOG/RABBIT ACSR conductor for both 11KV AB Switches. The connector should be 4 - bolt type.

7 OPERATING MECHANISM:

All AB Switches shall have separate independent manual operation. They should be provided with ON/OFF indicators and padlocking arrangements for locking in both the end positions to avoid unintentional operation. The isolating distances should also be visible for the AB Switches.

The AB Switch will be supplied with following accessories:

S.N.	Item	Size of 11 kV AB Switch
1	Operating Rod (GI dia)	Length 5.50 meter, dia 25 mm
2	Phase coupling square rod (GI)	Length 1800 mm, Size 25x25 mm
3	Hot dip galvanized Operating handle (GI)	1 No.

The AB Switches shall be capable to resist any chance of opening out when in closed position. The operating mechanism should be of robust constructions, easy to operate by single person and to be located conveniently for local operation in the switchyard. The GI

pipe shall conform to ISS: 1239-68 and the vertical down rod should be provided with adequate joint in the mid section to avoid bending or buckling. Additional leverage should be provided to maintain mechanical force with minimum efforts. All iron parts should be hot dip galvanized. All brass parts should be silver Plated and all nuts and bolts should be hot dip galvanized

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Agricultural Pole, Wire & Transformer Installation Works Within shahidnagar Municipality Under Procurement of Works (NCB)- 1S2E Procedure

8 ARCING HORNS:

It shall be simple and replaceable type. They should be capable of interrupting line charging current. They shall be of first make and after break type.

9 BUSH:

The design and construction of bush shall embody all the features required to withstand climatic conditions specified so as to ensure dependable and effective operations specified even after long periods of inaction of these Air Break Switches. They shall be made from highly polished Bronze metal with adequate provision for periodic lubrication through nipples and vent.

10 DESIGN, MATERIALS AND WORKMANSHIP:

The successful tenderers shall assume full responsibility for co-ordination and adequate design. All materials used in the construction of the equipment shall be of the appropriate class, well finished and of approved design and material. All similar parts should be accurately finished and interchangeable.

Special attention shall be paid to tropical treatment to all the equipment, as it will be subjected during service to extremely severe exposure to atmospheric moisture and to long period of high ambient temperature. All current carrying parts shall be of non-ferrous metal or alloys and shall be designed to limit sharp points/edges and similar sharp faces. The firm should submit the following type test certificate along with the certified copy of the drawing. The type test should not be older than 5 years from the date of opening of tender.

1. Test to prove capability of rated peak short circuit current and the rated short time current. The rated short time current should correspond to minimum of 10kA and the peak short circuit current should correspond to minimum of 25kA.
2. Lightning impulse voltage test with positive & negative polarity.
3. Power Frequency voltage dry test and wet test.
4. Temperature rise test.
5. Mill volt drop tests.

12. Dimension of 11 kV AB Switches in (Max.) Tolerance 5%.

S.N.	Particular	11KV AB Switch
1	MS Channel	450x75x40
2	Creepage distance of Post Insulator	320mm (Min)
3	Highest of Port shell	254 mm
4	Fixed contact assembly	
	i) Base	165x36x8
	ii) Contact	70x30x6
	iii) GI cover	110X44
5	Spring	6nos
6	Moving contract assemble	
a	Base Assembly	135x25x8
b	Moving	180x25x9
c	Bush	Bronze Metal
d	Thickness of Grooves	7

13 CONNECTORS:

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The bidder should provide AB Switches with terminal connectors, set of insulators, mechanical inter works and arcing horns sets. The base channel for the mounting of AB Switches shall also be included in the scope of AB Switches. The operating mechanisms together with down pipe operating handle etc. are also included in the scope of supply.

14. ROUTINE TEST CERTIFICATE: -

The Routine test certificate should invariably be submitted in duplicate of each lot offered for inspection as per IS: 9920 (part-I to IV). The offers received without Routine test certificate shall not be entertained.

15 ACCEPTANCE TEST: -

At the time of inspection following test shall be carried out: -

- Physical verification and measurement of dimension.
- Power frequency high voltage test.
- Temperature rise test.
- Mechanical endurance test / operation test.
- Milli volt drop test.
- Galvanising test

16 NAME PLATE: -

The name plate in the following design shall be fixed on each AB Switch.

- Name of supplier :
- Name of purchaser :
- Rating :
- Serial number of unit :

The size of name plate shall be 2" x 1" for 11 KV AB Switch.

GUARANTEED TECHNICAL PARTICULARS

(To be completed by Bidder/Manufacturer)

Item: 11 kV Air Break Switch

SNo	Particular	NEA Requirement	To be filled by Bidder/Manufacturer
1	Manufacturer		
2	Country of Origin		
3	Years of Manufacturing Experience		
4	Type		
5	Applicable Standard		
6	Maximum permission continuous service voltage (KV)	12 kV	
7	Length of the Break/Phase (Min.)	400 mm	
8	Phase to Phase Spacing	750 mm	
9	Power Frequency withstand test voltage for		
SNo	Particular	NEA Requirement	To be filled by Bidder/Manufacturer

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	completely assembled switches		
9.1	Against ground		
9.1.1	Dry KV	28 kV	
9.1.2	Wet KV	28 kV	
9.2	Across open contact		
9.2.1	Dry KV	32 kV	
9.2.2	Wet KV	32 kV	
9.3	Between Phases		
9.3.1	Dry KV	28 kV	
9.3.2	Wet KV	28 kV	
10	Impulse withstand test voltage of completely assembled switch without arcing horns with 1.2/50 micro second impulse wave KV (Peak)	85 kV	
11	100% impulse flashover voltage of completely assembled switch with arcing horns with 1.2/50 micro second impulse wave KV (Peak)	85 kV	
12	Particulars of the main contacts i.e. fixed contacts and moving contacts		
12.1	Type	Spring loaded fixed & knife type moving contacts	
12.2	Material	Hard drawn electrolytic copper alloy	
12.3	Surface Treatment & Thickness of Silver Coating	Silver plated of thickness of 5 micron	
12.4	Contact Pressure	25 kg	
13	Continuous Current Rating, Amps	400 A	
14	Short Time Current Rating KA (rms) min. for 1 sec	16 kA	
15	Rated Peak Short Circuit Current (KA Peak)	25 kA	
16	No. of operations which the switch can withstand without deterioration of contacts	2000	
17	Type of Mounting	Horizontal up right mounting	
18	Type & Material used in connector	Brass/ Bronze strips	
19	Location and Type of Bushing	Bush bearing at rotating insulator	
20	Particulars of Post Insulators		
20.1	Make	To be indicated	
20.2	Type	11 KV Post insulator type	
20.3	Strength	10 kN	
20.4	Weight	5 kg /unit	
20.5	No. of units per stack	one	
20.6	Height of stack	254 mm	
20.7	Creepage distance mm	320 mm	
20.8	One Minute Power Frequency Dry withstand voltage KV (rms)	65 kV	
20.9	Power Frequency Flashover voltage KV (rms)	70 kV	
20.10	Impulse flashover voltage KV (Peak)	85 kV	
20.11	Impulse withstand voltage KV (Peak)	80 kV (peak)	
20.12	Puncture voltage (KV)	105 kV	
21	Delivery of equipment following award of contract and approval of drawing	months	


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22.1	ISO 9001 holder (including design)	yes/no	
22.3	ISO 9001 certificate submitted	yes/no	
23.1	Type test certificate submitted	yes/no	
23.2	Submitted for the required ratings	yes/no	
23.3	Type test certified by		
24	User's certificate submitted	yes/no	
25	Has exported to third country	yes/no	
26	Copies of relevant standards attached	yes/no	
27	Outline Drawings and associated GA attached	yes/no	

Signed by.....
 Designation..... As
 Representative for.....
 Place.....
 Date.....
 Seal of Bidder/Manufacturer

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XPLE HT Cable

1.1 Scope

This specification covers the design, manufacture, factory test, supply, delivery, type test, construction, of single core, aluminum conductor, single core cross-linked polyethylene (XLPE) insulated Power Cables to be used for underground line at 33 kV and 11 kV Voltage level including all its accessories required.

The equipment and installation works specified in this Section shall conform to the latest edition of the appropriate IEC specifications and/or other recognized international standards

The XLPE power cable shall be manufactured and tested in accordance with IEC 60502-2 or the latest version thereof or other equivalent international standards that ensures at least a substantially equal quality to the standard mentioned above.

2. General Requirements

- 2.1 The cable shall be cross-linked polyethylene insulated, PVC separation sheathed, steel armored and PVC outer sheathed.
- 2.2 The conductor shall consist of compact round stranded aluminum wires. They shall comply with the latest IEC standard or any other national or international standards that ensure at least a substantially equal quality to the standard mentioned above will also be acceptable. The maximum conductor temperature shall be 90 deg. C.
- 2 The insulation shall be of XLPE compound with the minimum thickness as specified. The make of XLPE compound shall be from reputed manufacturers like DOW Chemicals (USA), Hanwha Chemical (Korea), Borealis AG (Austria) or Equivalent reputed make.
- 2.1 Each conductor shall be wrapped with a layer of semi-conducting tape or free stripping extrusion as a conductor (strand) screen. The conductor shall be insulated by cross-linked polyethylene material (XLPE). The XLPE layer shall be surrounded by insulation screen of semiconducting tape or free stripping extrusion. Above the insulation screen a metallic screen of plain copper tape shall be provided. All three conductors shall be assembled together with fillers and bound with a tape, which shall be again warped in PVC inner covering.
- 2.2 The armor shall be of hard drawn round aluminum wires for mechanical protection of the cable. The size of armor shall be as specified in the relevant Standards.
- 2.3 The outer covering of the cable shall be black PVC suitable for the operating temperature of cable and shall meet the requirements of the IEC Standard or any other national or international standards.
- 2.4 The minimum thickness of insulation at any point shall not fall below the as guaranteed value. Negative tolerances are not allowed for the thickness of insulation.
- 2.5 The minimum thickness of separation sheath or outer sheath at any point shall not fall below the nominal value.
- 2.6 The supplied cable shall be longitudinal water tight. For this purpose, a layer of suitable water swellable absorbent tape shall be provided over insulation screen.
- 2.7 Rating and features of the cables to be furnished shall be as per the requirements.
- 2.8 The outer covering of the cable shall be embossed with the name/brand of the manufacturer, type designation, Voltage grade, cable size, year of manufacture, name of the Purchaser, type of insulation at the spacing of each 2 meters. Every meters of outer covering of the cable shall also be embossed with length of the cable.

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3. Specific Requirements

3.1 Small cut piece lengths of cables will not be accepted. Cables up to 500 meters in length or as approved by Employer/Employer's Representative shall be of one length shipped in a drum of adequate size. For higher quantities, multiple lengths/drums may be shipped subject to the approval of Employer/Employer's Representative.

TABLE 1: Rating and Features

SN	Description	11 kV Line
1	Rated voltage, phase to phase (U ₀)	11 kV
2	Highest voltage of three-phase system (U _m)	12 kV
3	Rated lightning impulse withstand voltage	75 kVp
4	Rated power-frequency short duration withstand voltage for one minute	28 kV
5	Insulation	
5.1	Material of Insulation	XLPE
5.2	Thickness of Insulation (minimum)	3.4 mm
6	Conductor	
6.1	Type of Conductor	EC grade aluminum
6.2	Stranded Conductor	yes
7	Number of Cores	
8	Maximum Initial conductor Temperature during operation	< 90 deg. C
9	Maximum Final Conductor Temperature during short circuit	< 250 deg. C

4. TESTS

(a) Type Tests

The Type Test from the recognized laboratory shall be conducted.

(b) Routine Tests (Factory Acceptance Tests)

The following tests shall be carried out at the manufacturer's plant before shipment as far as applicable for each type of conductors and cables:

- Appearance check
- Conductor resistance measurement
- Capacitance measurement
- Insulation resistance measurement
- A.C. withstand voltage
- A.C. long duration withstand voltage
- Impulse withstand voltage
- A.C. long duration breakdown voltage
- Impulse break-down voltage
- Dielectric loss tangent

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xi) Temperature-voltage characteristic

xii) Dimension

- Conductor outermost diameter
- Insulation thickness
- Sheath thickness
- Over-sheath thickness
- Thickness of each tape
- Interval of tape lapping
- Total diameter

xiii) Bending withstand characteristic

xiv) Over-sheath, tensile strength

xv) - do. - , thermal aging

xvi) - do. - , oil-proof

xvii) - do. - , non-inflammability

xviii) - do. - , thermal deformation

xix) - do. - , hardness

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5. Packaging

The conductor shall be supplied in non-returnable drums/reels. The drum/reel shall be made of steel suitably protected against corrosion. Protective external lagging of sufficient thickness shall be provided and fitted closely on the reels. Binder consisting of steel straps shall be provided over the external laggings. The drum shall be new and sufficiently rugged in construction to withstand ocean shipping, road transport, several loading and unloading, storage in tropics, hauling and field erection of cables without distortion or disintegration. Each reel of conductor furnished shall contain only one (1) length of cable.

All reel shall be legibly marked in paint with the following information:

- a) Voltage grade of Cable
- b) Size of cable
- c) Type of Conductor
- d) Type of insulation
- e) Length in meters
- f) Net weight of cable

6. Drawings, Data & Manuals

The following information shall be furnished along with the Tender.

- (a) Manufacturer's leaflets giving constructional details, dimensions and characteristics of different cables.
- (b) Current rating of cables including de-rating factor due to grouping, ambient temperature and type of various installation.
- (c) Write-up with sketches illustrating the manufacturer's recommendation for splicing, jointing and termination of different types of cables.
- (d) Type test report of power cables. The Bidder shall clearly describe the type and routine tests to be performed on cables.
- (e) Drum length for each of cable.

Cable Termination and Joint Kits

1. Scope:

This specification covers the design, manufacture, factory test, supply and delivery of cable termination and joint kits for single core, aluminum conductor, XLPE insulated armored power cable used in underground 33 kV and 11 kV distribution system.

2. Description:

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- 2.1 All high voltage terminations and jointing kits shall be standard quality type. They shall be factory engineered kits containing all the necessary components to reinstate the cable insulation, metallic shielding of each core, together with the reinstatement of the sheath, of the cable being terminated.
- 2.2 The heat shrinkable termination and joint kit shall be manufactured and tested in accordance latest version of IEC, or any other national or international standard that ensures at least a substantially equal quality to the standard mentioned above will also be acceptable.
- 2.3 The manufacturer of the termination and joint kit (Indoor, outdoor and straight-through) must have been accredited with ISO 9001 quality certification.
- 2.4 The entire termination and joint kit shall be environmentally sealed and capable of preventing the ingress of external moisture and contamination.
- 2.5 Kits shall contain sufficient cleaning solvents and cleaning clothes for the proper making of the joint or termination.
- 2.6 Voltage stress relief shall be provided and this may be inherent in the heat recoverable polymeric material.
- 2.7 The terminating or jointing materials shall not be subjected to storage limitations such as controlled temperature or humidity restrictions, nor have self-life limitations.

3. Other Requirements

- 3.1 The outdoor termination kits shall be suitable for terminating the cable at steel cross arm complete with brackets, terminals, saddles and all necessary materials for fixing the termination. The heat shrinkable termination kit to be supplied and installed under this scope of work shall be capable enough to cope with all the weather change. Terminations that do not require manually built stress relief cones or field pouring compound are preferred.
- 3.2 The straight through joint kit shall be suitable for jointing single core of cables. The termination kits shall include all necessary components to join two alike cables sections together directly buried. Kits that do not require manually built stress relief cones or field pouring of compound are preferred.
- 3.3 Each of the above terminations and joint kits shall be complete in every respect and include clear, detailed instructions in English illustrating steps by step procedure in preparing the cable and applying the termination compounds.
- 3.4 Cross bond or suitable design of earthing shall be employed so that shielding of both sides of each joint shall be connected to the shielding of the other phase, so as to suppress the induced voltage. Necessary materials for such appropriate earthing shall be provided by the Contractor.
- 3.5 The minimum creepage distance of outdoor terminal/sealing-ends shall be as required for heavily polluted atmospheres in line with the appropriate IEC Standard.
- 3.6 Terminating and jointing kit shall be in a separate package, a list of materials indicating quantities and weights and an instruction sheet shall be included in the package.

3.6 Accessories shall match the cable test ratings in all respects. The supplied termination and joint kits shall be of suitable for the cables mentioned in Price Schedule

4. Testing

The routine tests of the kits shall be done at manufacturer's plant in accordance with IEC or other equivalent national or international standards including following tests.

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- Appearance Test
- Construction Test
- High Voltage Test

5. Bid Documentation

1. The Bidder shall provide with the Bid two (2) clear copies of the manufacturer governing Standard of the termination and joints and kits two (2) clear copies of all other relevant standards referenced herein.
2. The Bidder shall provide certified type test results of the termination and joint kits as required by governing standards.
3. The Bidder shall provide complete description, catalogue and drawings of the termination and joint kits.
4. A clause-by-clause commentary on specification, specifying compliance and deviation, if any.
5. All data, drawing, catalogue and other technical documents supplied shall be bound separately from the Bid Document.

GUARANTEED TECHNICAL PARTICULARS

(To be completed by the Bidder/Manufacturer)

Item: Power Cable (XLPE)

S.N.	Description	Unit	11 kV Line	
			NEA Req.	To be Filled by Bidder/Manufacturer
1	Manufacturer			
	Country of Origin			
	Years of Manufacturing Experience			
2	Applicable standard			
3	Cable Type Designation			
4	Rated Voltage	kV		
4.1	Maximum System Voltage	kV	12	
4.2	Rated Voltage between conductor and screen	kV		
4.3	Rated Voltage between two conductors	kV		
4.4	Power Frequency Withstand Voltage	kV	28	
4.5	Impulse Withstand Voltage (BIL)	kV	75	
5	Conductor			
5.1	Conductor Material		EC grade AL	
5.2	Cross section of the Conductor	sq. mm.		
5.3	Is Conductor Stranded?	(Yes/No)	yes	
5.4	Stranded Conductor			
	i) Number of strands in each core			
	ii) Size of strand	Sq. mm.		
	iii) Maximum DC Resistance at 20 deg. C	Ohm/km		

	iv) Class of Stranding			
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6	Number of Cores			
7	Insulation			
7.1	Insulation material and Type Designation		XLPE	
7.2	XLPE Compound make			
7.3	Minimum thickness of insulation	mm	3.4	
7.4	Minimum volume resistivity at 27 deg. C, 70 deg. C and 90 deg. C	Ohm-cm		
8	Sheath			
8.1	Material for inner sheath, type of sheathing and Type Designation			
8.2	Minimum thickness of inner sheath	mm		
8.3	Material for outer sheath, type of sheathing and Type Designation			
8.4	Minimum thickness of outer sheath	mm		
9	Armor			
9.1	Material			
9.2	Shape			
9.3	Dimension	mm		
10	Conductor Screen			
10.1	Material			
10.2	Thickness	mm		
11	Insulation Screen			
11.1	Material			
11.2	Thickness	mm		
12	Metallic Layer/Screen			
12.1	Type			
12.2	Material			
12.3	Thickness	mm		
13.1	Overall Diameter of the Cable	mm		
13.2	Geometric Mean Radius (GMR) of the Cable/Conductor	mm		
14	Minimum Bending Radius	mm		
15	Insulation Resistance at 27 deg. C	Ohm/km		
16	Capacitive Reactance	Ohm/km		
17	Inductive Reactance	Ohm/km		
18	Conductor Temperature rise during			
18.1	Normal Operation	deg. C	90	
18.2	Short Circuit	deg. C	250	
19	Continuous Current Carrying Capacity			
19.1	Continuous Current Carrying Capacity in air and Corresponding assumptions/Conditions of installation	A		
19.2	Continuous Current Carrying Capacity under ambient temperature	A		
19.3	Continuous Current Carrying Capacity under Cable laid in Covered cable trenches	A		
19.4	Continuous Current Carrying Capacity under 36 Cables per tray touching each other in Covered cable trenches	A		
19.5	Continuous Current Carrying Capacity under ambient temperature for Cable laid in ground	A		
20	Short circuit current			


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20.1	Short circuit current for 0.1 sec	kA		
20.2	Short circuit current for 1.0 sec (minimum kA)	kA		
20.3	Short circuit current for armor 1.0 sec	kA		
	(minimum kA)			
21.1	Minimum tensile strength of insulation	kg/sq. cm		
21.2	Minimum elongation at break	%		
22.1	Minimum tensile strength of sheath	kg/sq. cm		
22.2	Minimum elongation at break	%		
23.1	Minimum tensile strength of armor	kg/sq. cm		
23.2	Minimum elongation at break	%		
24.1	Weight of Cable per km	kg/km		
24.2	Standard length of Cable per drum	m	min. 500m	
24.3	Net weight of cable in drum	kg		
25	Method of Core identification			
25.1	For Cables up to Five Cores			
25.2	For Cable with more than Five Cores			
26	Details of Anti Termite Covering			
27	Fire Retardant	yes/no	yes	
28	Moisture Resistant	yes/no	yes	
29	Longitudinal water tight	yes/no	yes	
30	Details of Marking on Outer Sheath			
31	Please indicate in YES or NO whether the following tests have been carried out			
31.1	Ageing Test	yes/no	yes	
31.2	Loss of Mass Test	yes/no	yes	
31.3	Cold Impact Test	yes/no	yes	
31.4	Heat Shock Test	yes/no	yes	
31.5	Fire Retardant Test	yes/no	yes	
32	ISO 9001 holder (including design)	yes/no	yes	
32.1	ISO 9001 certificate submitted	yes/no	yes	
33	Type test certificate submitted	yes/no	yes	
33.1	Submitted for the required ratings	yes/no		
33.2	Type test certified by			
34	User's certificate submitted	yes/no	yes	
35	Has exported to third country	yes/no	yes	
36	Copies of relevant standards attached	yes/no	yes	
37	Outline Drawings and associated GA attached	yes/no	yes	

Signed by.....

Designation.....

As Representative for.....


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Place..... Date.....
Seal of Bidder/Manufacturer

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GUARANTEED TECHNICAL PARTICULARS

(To be completed by the Bidder/Manufacturer)

Item: Outdoor Termination Kit and Straight Through Joints (XLPE)

S.N.	Description	Unit	11 kV Line	
			NEA Req.	To be Filled by Bidder/Manufacturer
1	Manufacturer			
2	Country of Origin			
3	Years of Manufacturing Experience			
4	Applicable standard			
5	Type			
6	Insulation level			
7	Maximum design voltage			
8	Impulse withstand voltage(BIL)			
9	Fire resistance treated	yes/no	yes	
10	Smoke resistance treated	yes/no	yes	
11	Stress relief performed	yes/no	yes	
12	Installation Instruction attached	yes/no	yes	
13	List of Installation Accessories Supplied			
14	ISO 9001 holder (including design)	yes/no	yes	
14.1	ISO 9001 certificate submitted	yes/no	yes	
15	Type test certificate submitted	yes/no	yes	
15.1	Submitted for the required ratings	yes/no		
15.2	Type test certified by			
16	User's certificate submitted	yes/no	yes	
17	Has exported to third country	yes/no	yes	
18	Copies of relevant standards attached	yes/no	yes	
19	Outline Drawings and associated GA attached	yes/no	yes	

Signed by.....

Designation.....

As Representative for.....

Place..... Date.....

Seal of Bidder/Manufacturer

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Covered Conductor

1. Scope

This Specification covers the general requirements of design, manufacture and testing of XLPE covered aluminum alloy conductor for 11kV overhead distribution system.

2. Description

- 2.1 The conductor shall be of multi-strand round compacted hard drawn aluminum alloy conforming to AS 3675 with latest revision thereof or any recognized international standards that ensures at least a substantially equal quality to the standard mentioned above. The Conductor wires shall not have any joints except for those made on the base wire.
- 2.2 The covering insulating material shall be of track resistant UV stabilized (weather resistant). The make of XLPE compound shall be from reputed manufacturers like DOW Chemicals (USA), Hanwha Chemical (Korea), Borealis AG (Austria) or Equivalent reputed make. The average thickness of the covering insulation shall not be less than that stipulated in the Technical Requirements. The hardness of the covering XLPE shall be such that it should not get damaged by the kite string and shall be suitable for fixing insulation piercing Arc Protectors. The covering shall be fully pressure extruded and dry cured so as to provide a uniform thickness throughout the length of the conductor.
- 2.3 Suitable water blocking material shall be incorporated between the conductor and the covering during the extrusion process to prevent the ingress of water along the conductor. The water blocking material shall be of contrasting colour to that of the conductor. The water blocking material shall not affect the inter-strand conduction and also not affect the adhesion between the conductor and the XLPE cover. Water blocking material shall be stable at maximum operating temperature of 80°C and full technical particulars with regard to the above shall be furnished with the offer.
- 2.4 The following types of covered conductors shall be supplied:

A) Nominal conductor area mm² – 120
i) Number of strands Nos. - 7 ii) Diameter of the wire mm - 4.75 iii) Nominal conductor diameter mm - 14.5 iv) Max. linear resistance at 200C Ohms/km - 0.239

B) Covering Insulation
i) Minimum average thickness of XLPE covering mm - 2.0 ii) Minimum thickness of XLPE covering at any point - 1.7 iii) Maximum thickness of XLPE covering at any point - 2.5

C) Covered Conductor
i) Minimum breaking strength of conductor (kN) – 27.1
ii) Short time current rating/1sec. (kA) – 11.0
iii) Conductor Operating Temperatures (Max.)
0
1) Continuous operation C - 80
0
2) Emergency operation C - 100
0
3) Short circuit operation (5 sec) C - 210

iv) Covered conductor overall diameter range mm - 19.3 to 21.9

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3. Packaging

3.1 The finished covered conductors shall be delivered in continuous lengths of 500 ± 5 meters and the ends of the covered conductors shall be effectively sealed with heat shrinkable cap to prevent ingress of moisture. The conductor shall be wound to the drum with the lowest number at the inner end of the drum. They shall be supplied on non-returnable steel drums capable of withstanding all normal transportation and handling. Protective external lagging of sufficient thickness shall be provided and fitted closely on the drums. Binder consisting of steel straps shall be provided over the external laggings. The drums shall be new and sufficiently sturdy in construction to withstand ocean shipping, road transport, several loading and unloading, storage in tropics, hauling and field erection of conductor without distortion or disintegration.

3.2 Each reel of the conductors furnished shall contain only one (1) length of conductor.

3.3 All reels shall be legibly marked in paint with the following information:

- a) Size of conductor
- b) Type of conductor
- c) Length in meters
- d) Net weight of conductor
- e) Direction of rolling

3.4 The standard length of the completed covered conductor in each reel shall be as per the table below:

Conductor Size (sq. mm):	120
Normal Length of the Conductor (m):	500

4. Tests

4.1 Routine Tests

The manufactured conductor shall be tested in full compliance with the governing standard including following routine tests:

Test on wire before stranding

- i) Wire diameter
- ii) Ultimate tensile strength
- iii) Wrapping test
- iv) Resistivity test

Test on finished covered conductor

- i) Inter-strand conductivity test
- ii) Thickness of covering
- iii) Static water blocking test
- iv) Stripping test
- v) Spark test

4.2 Type Tests

The Bidder shall submit the type test reports along with the Bid. The Covered Conductors shall be type tested conforming to AS 3675 of 1993 or revisions thereof, or IEC Standard or UK ESI or NFC and certified copies of the type test certificates shall be furnished with the bid. The test shall have been carried out in internationally recognized independent testing authority. The employer also reserves the right to have tests carried out at his own cost by an independent agency, whenever there is a dispute regarding the quality of supply. The cable shall be subjected to the following type tests:

- a) Tests on wire before stranding
- b) Tests on covering material
- c) Tests on finished covered conductor

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The Type Test Certificates furnished shall be from a recognized independent testing authority acceptable to the purchaser.

5. Bid Documentation

- 5.1 The Bidder shall provide with the Bid two (2) clear copies of the governing standards for fabrication and testing of the covered conductor and two (2) clear copies of all other relevant standards referenced therein.
- 5.2 The Bidder shall provide certified type test results of the types of covered conductor as required by governing standards.
- 5.3 The Bidder shall also furnish the Certificate of Compliance at the time of the shipment of each lot of conductor, or as required by the appropriate section of the equivalent international standard.
- 5.4 A clause-by-clause commentary on specification, specifying compliance and deviations, if any.
- 5.5 All data, drawings, catalogues and other technical documents shall be bound separately from the Bid documents.

GUARANTEED TECHNICAL PARTICULARS

(To be completed by Bidder/Manufacturer)

Item: Covered Conductor

S.N.	DESCRIPTION	UNIT	NEA REQ.	To be Filled by Bidder/Manufacturer
1	Manufacturer			
	Country of Origin			
	Years of Manufacturing Experience			
2	Applicable standard		AS/NZ or Equivalent	
3	Cable Type Designation			
4	Rated Voltage	kV		
4.1	Maximum System Voltage	kV		
4.2	Power Frequency Withstand Voltage	kV		
4.3	Impulse Withstand Voltage (BIL)	kV		
5	Conductor			
5.1	Conductor Material		AL	
5.2	Alloy Type/Grade			
5.3	Cross section of the Conductor	sq. mm.	120 sq.mm.	
5.4	Is Conductor Stranded?	(Yes/No)		
5.5	Stranded Conductor			
	v) Number of strands in each core			
	vi) Size of strand	Sq. mm.		
	vii) Maximum DC Resistance at 20 deg. C	Ohm/km		
	viii) Class of Stranding			
6	Number of Cores		One	
7	Covering Insulation			
7.1	Insulation material and Type Designation		XLPE	
7.2	Minimum average thickness of XLPE covering	mm		
7.3	Minimum thickness of XLPE covering at any point	mm		

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7.4	Maximum thickness of XLPE covering at any point	mm		
7.5	Tolerance on the measured value of thickness	%		
7.6	Minimum volume resistivity at 27 deg. C, 70 deg. C and 90 deg. C	Ohm-cm		
	Water Blocking Material			
8	Sheath			
8.1	Material for sheath, type of sheathing and Type Designation			
8.2	Thickness of sheath and tolerance on measured value	mm, %		
13.1	Overall Diameter of the Cable	mm		
13.2	Tolerance on diameter	%		
13.3	Geometric Mean Radius (GMR) of the Cable/Conductor	mm		
14	Minimum Bending Radius	mm		
15	Insulation Resistance at 27 deg. C	Ohm/km		
16	Capacitive Reactance	Ohm/km		
17	Inductive Reactance	Ohm/km		
18	Conductor Temperature rise during			
18.1	Normal Operation	deg. C		
18.2	Short Circuit	deg. C		
19	Continuous Current Carrying Capacity	A		
20	Short circuit current			
20.1	Short circuit current for 0.1 sec	kA		
20.2	Short circuit current for 1.0 sec (minimum kA)	kA		
21.1	Minimum tensile strength of insulation	kg/sq. cm		
21.2	Minimum elongation at break	%		
22.1	Minimum breaking strength of conductor	kg/sq. cm		
22.2	Minimum elongation at break	%		
23.1	Minimum tensile strength of armor	kg/sq. cm		
23.2	Minimum elongation at break	%		
24.1	Weight of Cable per km	kg/km		
24.2	Standard length of Cable per drum	m		
24.3	Tolerance on length of cable per drum	%		
24.4	Net weight of cable in drum	kg		
25	Please indicate in YES or NO whether the following tests have been carried out			
25.1	Ageing Test	Yes/No	Yes	


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25.2	Loss of Mass Test	Yes/No	Yes	
25.3	Cold Impact Test	Yes/No	Yes	
25.4	Heat Shock Test	Yes/No	Yes	
25.5	LV and Tertiary Winding	Yes/No	Yes	
25.6	Oxygen index test and temperature index test	Yes/No	Yes	


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25.7	Fire Retardant Test	Yes/No	Yes	
26	Delivery of equipment following award of contract and approval of drawing	months		
27	ISO 9001 holder (including design)	yes/no	yes	
27.1	ISO 9001 certificate submitted	yes/no	yes	
28	Type test certificate submitted	yes/no	yes	
29.1	Submitted for the required ratings	yes/no		
29.2	Type test certified by			
30	User's certificate submitted	yes/no	yes	
31	Has exported to third country	yes/no	yes	
32	Copies of relevant standards attached	yes/no	yes	
33	Outline Drawings and associated GA attached	yes/no	yes	

Signed by.....

Designation.....

As Representative for.....

Place..... Date.....

Seal of Bidder/Manufacturer

Fitting for Covered Conductors

1. Scope

This Specification covers the fabrication and supply of fittings and associated apparatus for with HV AAC XLPE covered conductors.

2. Description

- 2.1 The fittings, hardware and equipment shall be fabricated in accordance with International recognized standards such as BS/EN, NFC for Fittings and Associated Apparatus that ensures at least a substantially equal quality to the standard mentioned above, will also be acceptable. The fitting and accessories shall be suitable for 11 kV nominal voltage applications.
- 2.2 The Covered Conductor hardware manufacturing company shall have been accredited with ISO 9001 quality certification (including design for covered conductor accessories).
- 2.3 The fittings shall be for use in conjunction with XLPE covered conductor of 120 sq. mm and 80 sq.mm. nominal cross-sectional areas.
- 2.4 Contractor shall get approval of all drawings and hardware sample from Purchaser before starting the fabrication of all hardware.

3. Power Arc Devices

Power arc devices are used as an arcing protection device for covered conductors.

4. Pin insulator for covered conductor



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The Pin insulators should be porcelain type and specially designed to be used with covered conductors. There shall be a plastic sleeve in the top-groove of the insulator to enable pulling of conductor without using pulleys. The conductor can be tied to the top-groove or to the neck.



4. Tension insulator for covered conductor

The tension insulators should be porcelain type and specially designed to be used with covered conductors.

5. Horizontal and Terminal Cross-Arm for covered conductor

The horizontal and terminal cross-arms including braces and accessories should be hot dipped galvanized steel specially designed for use with covered conductors for 11 kV distribution lines. The strength and loading of lines and material grade of steel shall be similar to the other overhead 11 kV distribution lines but of suitable for covered conductors.

7. Dead End Clamps/ Anchor Clamps

The covered conductors shall be suitable to be tensioned using the tension insulator string with bolted/wedge type tension clamp. The bolted type covered conductor tension clamps are made of aluminum alloy and suitable for fixing to pin of the ball and socket type disc insulators. The purpose of terminating covered conductors over the covering fitting shall include, but are not limited to the cone, bolted or wedge type clamp and preformed helical fittings. The fittings shall be able to withstand the specific minimum failure load (SMFL) and shall not damage the covering and shall be designed to prevent the ingress of moisture during service.

8. Preformed Ties/ Composite Ties

Preformed ties/ Composite ties shall be used for attaching 120 sq mm and 80 sq.mm. AAC XLPE covered conductors to pin insulators either for straight line position or angle position. The ties for MV covered conductor shall be composite prefabricated type with a white rigid PVC rod covered by a black resistive conductive layer, no metal parts are allowed. Ties shall be used without removing the sheath of covered conductors. They shall combine the necessary mechanical holding function with protection of the conductor sheath from long term deterioration caused by electrical stress. The electrical integrity of covered conductor/ insulator system shall be maintained. The bidder shall furnish the climate ageing test report for 1000 hrs, failing which the bid shall be liable for rejection.

9. Mid Span Full Tension Joints

Mid span full tension joints are intended to ensure mechanical and electrical connection between two lengths of same cross section of bare conductors.

Each mid-span full tension joint comprises one aluminum alloy sleeve and a galvanized steel sleeve allowing the hexagonal compression on conductor core and one water tightened system heat shrinkable cover to prevent the penetration of water into the covered conductor.

Mid-span full tension joints shall be used for 120 sq. mm. and 80 sq.mm. XLPE AAC covered conductor. The Mid-span full tension joints shall be hexagonal compression type. These joints guarantee mechanical and electrical features at least equivalent to those of the conductor on which they are installed.

When in use, no conductor failure shall appear next to the mid-span full tension joints and no conductor slip shall appear at tensile load below the nominal breaking load value of the conductor.

10. Heat Shrinkable Cable End Cap

The insulated end cable cap shall be suitable for effectively sealing the end terminal of the covered conductors and shall have wet flashover voltage not less than 11 kV.


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The cap shall be heat shrinkable type and the inner diameter of the cap shall be such that it shall tightly fit to the covered conductors to prevent entry of moisture.

11. Insulation piercing connectors

These insulation-piercing connectors are intended to connect two covered conductors with the same or different cross section between them. The main conductor should be stretched or not. The tap connector shall be a bridge constituted by a not stretched linking covered conductor. The insulation piercing connector shall not have losable components that are liable to be lost during installation. The housing shall be made entirely of mechanical and resistant plastic insulation material and no metallic part outside the housing is acceptable except for the tightening system. The housing shall be an integral part of the connector.

The number and the length of the teeth shall be adequate enough to penetrate the relevant covered conductor insulation to establish proper contact without any contract resistance and without the need to strip the covered conductor insulation. To achieve the required water tightness a special rubber seal be provide around the teeth of the present connector. The bolts and washers shall be of corrosion resistant type. The piercing of insulation shall be simultaneous on main and tap conductor when tightening the bolts. Two different types of piercing connectors are used in covered conductor which shall be supplied with two bolts.

Main covered conductor to tap covered conductor with capacity from 50 to 120 sq mm both side

Main bare aluminum conductor to tap covered conductor with capacity main capacity 50 to 120 sq mm bare aluminum and tap covered conductor 50 to 120 sq mm.

12. Tests

12.1 Type test

The bidder shall submit the type test report along with the Bid. The report shall be issued by a recognized independent testing authority. The tests shall comply with relevant IEC/NF C Standard or the governing standard. The Employer also reserves the right to have tests carried out at his own cost by and independent agency, whenever there is a dispute regarding the quality of supply. In respect of the following fittings, the test shall include, but not limited to the following:

Dead End clamps:

- Mechanical test ○ Tensile (high tension) test on bracket
 - Tensile on anchoring clamps
- Climate ageing test
 - voltage test
 - mechanical strength test
- Voltage test
- Corrosion test
- Dynamic test at low temperature
- Endurance test under mechanical and thermal stresses ○

slippage checking test ○ voltage test

Insulation piercing connectors:

- Current carrying capacity test of the connector
- Temperature rise and over current test ○ Initial temperature



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test ○ Over current test ○ Final temperature test


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- Electrical ageing test
- Climate ageing test
- Corrosion test
- Installation test at low temperature
- Mechanical test
 - Electrical continuity test
 - Mechanical tightening test
 - Mechanical strength of tap

- ☐ Electrical heat cycle test
- ☐ Voltage and water tightness test

Mid Span Full Tension Joint:

- Mechanical test ○ Crimping ability test ○ Tensile test
- Voltage and water tightness test
- Climate ageing test
- Corrosion test
- Electrical ageing test
- Endurance test under mechanical and thermal stresses

Tests for fittings and hardware shall be conducted in accordance with the NF C and IEC Standard or equivalent international standards including voltage and water tightness test wherever applicable.

12.2 Routine tests

Each batch of fittings shall be subjected to routine tests while manufacturing to confirm to the specified standard.

13. Quality Assurance Program

Along with the Bid the Bidder shall furnish quality assurance program of the manufacturer which includes the Quality System and the Quality Plans, which shall include, among others, information to meet the following requirement, failing which the Bid shall be liable for rejection. i. The structure of the organization; ii. The duties and responsibilities assigned to staff ensuring quality of works; iii. The system for purchasing, taking delivery and verification of materials; iv. The system for ensuring quality of workmanship;

- v. The quality assurance arrangement shall conform to relevant requirements of ISO9001;
- 2008
- vi. Statement giving list of important raw materials, names of manufacturer for the raw materials, list of standards according to which the raw materials are tested, list of test normally carried out on raw materials;
- vii. List of manufacturing facilities available;
- viii. List of areas in manufacturing process, where stage inspections are normally carried out for quality control and details of such tests and inspections;
- ix. List of testing equipment available with the manufacturer for final testing of equipment specified and the test plant limitation, if any, vis-à-vis the type, special, acceptance and routine tests specified in the relevant standards.

14. Bid Documentation

- 14.1 The Bidder shall furnish with the Bid two (2) clear copies of the Standard governing fabrication and testing of the fittings and accessories for LV ABC and two (2) clear copies of all other relevant standards referenced therein.
- 14.2 The Bidder shall furnish two (2) sets of complete description, catalogue, dimensional drawings showing general construction and size of all fittings and accessories.
- 14.3 The Bidder shall furnish two (2) clear certified copies of type test report for Dead end clamp/Anchor clamp, mid span full tension joints and IPCs, failing which the bid shall be liable for rejection.
- 14.4 A clause-by-clause commentary on specification, specifying compliance and deviations, if any.
- 14.5 All technical data, drawings, catalogues and other technical documents shall be bound separately from the bid documents. Drawings for Dead end clamp/Anchor clamp, mid span full tension joints and IPCs must be submitted failing which the bid shall be liable for rejection.
- 14.6 The NEA may ask to furnish the type test report for other accessories from the substantially responsive bidders.
- 14.7 The Bidder shall furnish the sample of accessories such as Composite Ties and IPCs along with the bid, failing which the bid shall be liable for rejection.

Aerial Bundled Conductor (ABC)

1. Scope

This Specification covers the design, manufacture, factory test and supply of 0.6/1 kV crosslinked polyethylene (XLPE) insulated with insulated neutral messenger conductor selfsupporting aerial bundled conductors (ABC) for use in the construction of 400/230V, 3-phase, 4wire distribution network of Nepal Electricity Authority.

2. System Parameters

a)	Nominal Voltage	400/230V
b)	System Highest Voltage	1kV
c)	System frequency	50Hz
d)	No. of Phases	3
e)	Neutral Earthing	Effective
f)	System fault current	20kA rms

3. Service Condition

a)	Ambient temperature	-5 to 55 deg. C
b)	Annual average ambient temperature	30 deg. C
c)	Maximum relative humidity	99%
d)	Environmental condition	Humid Tropical climate
e)	Operational altitude	Up to 1000m above msl
f)	Isokeraunic (Thunder day) level	90 days
g)	Solar Radiation	1.6kW/m2
h)	Wind Zone	Zone 4

4. Applicable Standards

The equipment and components supplied shall be in accordance with the latest editions of the standards specified below and amendments thereof or any international equivalent standards and the NEA Specifications specified hereafter.

a)	BS 7870-5	Polymeric Insulated aerial bundled conductors (ABC) of rated voltage 0.6/1kV for overhead distribution
b)	IS 14225	Aerial Bundled Cables – for working voltages up to and including 1100V



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The Bidder may propose alternative standards, provided it is demonstrated that they give a degree of quality and performance equivalent to or better than the referenced standards. The purchaser shall adjudge whether to accept or reject any standards.

The Bidder shall furnish a copy of the alternative standard proposed along with his bid. If the alternative standard is in a language other than English, an English translation shall be submitted with the standard. In case of conflict the order of the precedence shall be (1) IEC standards, (2) ISO standards, (3) European or British Standards, (4) Indian Standards, (5) Other alternative standards.

This list is not to be considered exhaustive and reference to a particular standard or recommendation in this specification does not relieve the Contractor or the necessity of providing the goods complying with other relevant standards or recommendation.

5. Technical Parameters

5.1 Minimum Technical Requirements

S.N.	Description	Unit	Requirements
1	Rated Voltage	kV	
2	Maximum System Voltage	kV	
3	Rated Voltage between two conductors	kV	
4	Power Frequency withstand voltage	kV	
5	Number of Cores		4
6	Phase Conductor		3
6.1	Material Type		EC Grade Al.
S.N.	Description	Unit	Requirements
6.2	No. and Diameter of Strand	No/mm.	7/
7	Messenger Conductor		
7.1	Material Type		AAAC
7.2	No. and Diameter of Strand	No/mm.	7/
8	Insulation Material		XLPE
9	Conductor Temperature Rise during Normal Operation	deg. C	90
10	Conductor Temperature Rise during Short Circuit	deg. C	250
11	Direction of Lay		Right Hand
12	Standard Length of Cable Per drum	m	Min. 500

5.2 Requirements of size

The required size of cable shall be:
4x50 mm²

6. Basic Features

6.1 Design

The Aerial Bundled Conductor shall conform in all respects to highest standards of engineering, design, workmanship, this specification and the latest revisions of relevant standards at the time of offer and the Purchaser shall have the power to reject any work or material, which, in his judgment is not in full accordance therewith.

6.2 Conductors

The phase conductor shall be of multi-strand round aluminum of compacted circular crosssection conforming to IEC or equivalent international standards. The neutral messenger conductor shall be of multi-strand round compact aluminum alloy conforming to IEC. The conductors shall be insulated by extruded black & UV stabilized cross-linked polyethylene (XLPE) material. The make of XLPE compound shall be from reputed manufacturers like DOW Chemicals (USA), Hanwha Chemical (Korea), Borealis AG (Austria) or Equivalent reputed make.

The complete cable shall consist of four insulated conductors stranded together, and the direction of lay shall be right-hand. The type of construction shall cause the tensile load to be shared equally between conductors. The properties of the aluminum wires (Tensile strength & Resistivity) before stranding shall be as per relevant standards. No joints are allowed in the conductor except those made on the base rod or wire before first drawing within the standard length.

6.3 Insulation

The Aerial Bunched Cables shall be insulated with extruded cross-linked polyethylene (XLPE) material. The voltage class and the insulation wall thickness shall be determined in accordance with applicable standards.

The insulating material shall be black and suitable to resist ultra violet radiation, salt laden sprays, chemical pollution, ageing effects, abrasion and mechanical shocks and mechanical and electrical stress at temperature up to 90 deg. C in normal operation and 250 deg. C under short circuit conditions. The carbon black content in the XLPE insulation shall be as per the applicable standards.

6.4 Phase Identification & Marking

The identification of the conductors shall be provided by means of ribbing on the external surface of the insulation. R, Y and B phase conductors shall have one, two, and three ribs respectively. Space between the ribs in R, Y and B phases shall be 5 mm. Ribs shall be in rounded form. The neutral messenger conductor shall have four ribs.

Each individual conductor comprising the bundle shall be embossed with the following at the spacing of five meters. The embossing should be very clear and easily visible to naked eye. The height of the printed lettering shall be not less than 20% of the overall diameter of the conductor. Every meter of outer covering of the cable shall also be embossed with length of the cable.

- ☐ Applicable Standards
- ☐ Name/Identification of the manufacturer,
- ☐ Name of the Purchaser 'Nepal Electricity Authority'
- ☐ Year of Manufacture '20XX'
- ☐ Designation of Conductor Type/Cross Section
- ☐ Rated Voltage Class
- ☐ Type of Insulation 'XLPE'
- ☐ Back up conductor identification: conductors with one, two and three projections shall be marked 'R', 'Y' and 'B' respectively. The conductor with no projection shall be marked 'N'.

7. Additional Requirements

7.1 Packaging

All conductors shall be furnished on non-returnable steel drums capable of withstanding all normal transportation and handling. Protective external lagging of sufficient thickness shall be provided and fitted closely on the drums. Binder consisting of steel straps shall be provided over the external laggings. The drums shall be new and sufficiently sturdy in construction to withstand ocean shipping, road transport, several loading and unloading, storage in tropics, hauling and field erection of conductor without distortion or disintegration.

Before dispatch, the ends of the bundled conductors shall be sealed to prevent moisture ingress during transportation and storage. Both ends of every length of the



assembled bundle shall be temporarily bound in such a manner as to prevent cores from separating. Each reel of the conductors furnished shall contain only one (1) length of conductor. The minimum length of each drum shall be minimum of 500m. All drums shall be legibly marked in paint with the following information:

- (i) Manufacturer's Name and Trademark (if any)
- (ii) Drum Number or identification number
- (iii) Type of conductor
- (iv) Size of conductor
- (v) Voltage Grade
- (vi) Length in meters
- (vii) Gross Weight
- (viii) Net weight of conductor
- (ix) Direction of rolling

8. INSPECTION AND TESTING

8.1 Acceptance Test

The successful Bidder shall make necessary arrangements for pre-shipment inspection and tests by the nominated NEA Inspectors to carry out in his presence the necessary Sample/Acceptance tests conforming to the relevant governing standards on the completed cables offered.

8.2 Routine Test

The Routine Tests shall be carried out on the completed cables at the manufacturer's plant in accordance with the governing standards. The test reports shall be made available for the observation of the NEA Inspector at the time of inspection.

9. BID DOCUMENTATION

9.1 The following shall be furnished with the offer.

- (a) Complete description, catalogue, drawings showing general construction and size of the cables including dimensional drawing of cable drum for each type of ABC.
- (b) Completed Schedule of Guaranteed Technical Particulars
- (c) A copy of the Manufacturer's ISO 9001 Certificate conforming to design and manufacture
- (d) Type Test Certificates: The Type Test Certificates shall be from an Accredited Independent Testing Authority acceptable to the Purchaser.
- (e) Copy of the Governing Standards
- (f) Technical Literature in English Language on installation, operation and maintenance with necessary diagrams and drawings.

9.2 Type Test Certificates

The material offered shall be fully type tested by an independent accredited testing laboratory acceptable to the Employer. The bidder shall submit the type test reports along with the offer. The tests shall comply with relevant Standards. The Employer also reserves the right to have tests carried out by an independent agency, whenever there is a dispute regarding the quality of supply. The Aerial bundled Cable shall be subjected to the following type tests:

- (a) Tensile test
- (b) Wrapping test
- (c) Conductor resistance test
- (d) Test for thickness of insulation
- (e) Tensile strength and elongation at break of insulation
- (f) Physical tests for XLPE insulation

- (g) Ageing in air oven
- (h) Shrinkage test
- (i) Hot deformation
- (j) Loss of mass in air oven
- (k) Heat shock test
- (l) Thermal stability
- (m) Test for bleeding and blooming of pigment
- (n) Insulation resistance test
- (o) High voltage test including water immersion test
- (p) High voltage test at room temperature
- (q) Flammability test
- (r) Resistance test at each phase/neutral of the conductor at 20 deg. C
- (s) Breaking load test (to be made on the finished conductors) (for messenger only)
- (t) Elongation test (for messenger only)

GUARANTEED TECHNICAL PARTICULARS

(To be filled by the Bidder/Manufacturer)

Item: Aerial Bundled Conductor

S.N.	Description	Unit	4x95mm ²	4x70mm ²
1	Manufacturer			
	Country of Origin			
2	Years of Manufacturing Experience			
3	Applicable standard			
4	Cable Type Designation			
5	Rated Voltage	kV		
6	Maximum System Voltage	kV		
7	Rated Voltage between two conductors	kV		
8	Power Frequency withstand voltage	kV		
9	Number of Cores			
10	Phase Conductor			
10.1	Material Type			
10.2	Min. Cross Section Area	sq.mm.		
10.3	No. and Diameter of Strand	No/mm.		
10.4	Overall Diameter			
10.5	Max. DC resistance at 20 deg. C	Ohm/km		
11	Messenger			
11.1	Material Type		AAAC	AAAC
11.2	Min. Cross Section Area	sq.mm.	95	70
11.3	No. and Diameter of Strand	No/mm.		
11.4	Overall Diameter	mm		
11.5	Max. DC resistance at 20 deg. C	Ohm/km		
S.N.	Description	Unit	4x95mm ²	4x70mm ²
11.6	Minimum Breaking Load	kN		
12	Overall Diameter of Bundled Conductor	mm		
12	Insulation Material			
12.1	Min. Thickness of Insulation	mm		



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12.2	Max. Volume resistivity of Insulation at 27 deg. C			
13	Conductor Temperature Rise during Normal Operation	deg. C		
14	Conductor Temperature Rise during Short Circuit	deg. C		
15	Continuous Current Carrying Capacity in air & corresponding assumptions/conditions of installation	A		
16	Short Circuit Current for 0.1 sec	A		
17	Short Circuit Current for 1.0 sec	A		
18	Tensile Strength of Insulation	kN		
19	Min. elongation at break (insulation)	%		
20	Direction of Lay			
21	Weight of Cable	kg/km		
22	Standard Length of Cable Per drum	m		
23	Net Weight of Cable per Drum	kg		
24	Core Identification and marking			
25	Delivery of equipment following award of contract and approval of drawing	months		
26	ISO 9001 holder (including design)	yes/no		
26.1	ISO 9001 certificate submitted	yes/no		
27	Type test certificate submitted	yes/no		
27.1	Submitted for the required ratings	yes/no		
27.2	Type test certified by			
28	User's certificate submitted	yes/no		
29	Has exported to third country	yes/no		
30	Copies of relevant standards attached	yes/no		
31	Outline Drawings and associated GA attached	yes/no		

Signed by..... Designation.....

As Representative for.....

Place..... Date.....

Seal of Bidder/Manufacturer

Fitting for Aerial Bundled Conductor (ABC Fittings)

1. Scope

This Specification covers the fabrication and supply of fittings and associated apparatus for with LV aerial bundled conductors (ABC).

2. Description

- 2.1 The fittings, hardware and equipment shall be fabricated in accordance with International recognized standards such as IEC, NFC for Fittings and Associated Apparatus for use with LV ABC of latest revision, and all referenced standards therein,



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or latest revision thereof or other recognized international standards that ensures at least a substantially equal quality to the standard mentioned above, will also be acceptable.

- 2.2 The ABC Cable hardware manufacturing company shall have been accredited with ISO 9001 quality certification (including design for LV ABC accessories).
- 2.3 The preferable make of the AB Cable Accessories are Sicamex, Ensto, Raychemrpg, 3M or equivalent international reputed make.
- 2.4 The fittings shall be for use in conjunction with insulated neutral messenger 3-core phase, and 1-core neutral messenger ABC of 95 sq. mm, 70 sq.mm., 50 sq. mm. and 25 sq.mm. nominal cross-sectional areas.
- 2.5 Contractor shall get approval of all drawings and hardware sample from Purchaser before starting the fabrication of all hardware.

3.1 Anchor clamp with bracket:

The clamps should be designed to anchor insulated messenger of ABC. The clamp should consist of an aluminum alloy corrosion resistant body, bail of stainless steel and self-adjusting plastic wedges which shall anchor/hold the neutral messenger without damaging the insulation.

The clamp should be installed properly with no losable part. It shall conform to the standard NFC33-041 or equivalent other international standards. The clamp body should be made of corrosion resistant aluminum alloy, bail should be of stainless steel to prevent from corrosion & climatic variations, a plastic saddle should be installed on the flexible bail to limit abrasion with hook/bracket and wedges should be of weather and UV resistant polymer. It should be fixed with pole by eye hook/bracket. Bracket should be made of corrosion resistant aluminum alloy. Ultimate Tensile Strength of the clamp should not be less than 12 KN for 50/70 sq.mm insulated messenger wire / 8 KN for 25/35 sq.mm insulated messenger wire. Slip load of the clamp should not be less than 5KN for 50/70 sq.mm insulated messenger & 3KN for 25/35 sq.mm insulated messenger wire. Design as per furnished drawing.

3.2 Suspension clamps with bracket:

The clamp should be designed to hang LV-ABC with insulated neutral messengers. The neutral messengers should be fixed by an adjustable grip device. A movable link should allow longitudinal and transversal movement of the clamp body.

The suspension clamp range to accommodate messenger shall be 25-95mm². The clamp should be installed properly with no losable parts. The clamp shall conform to the standard NFC33-040 or other equivalent international standards. The clamp and movable link made of weather and UV resistant thermoplastic polymer should provide additional insulation between the cable and the pole. The clamps and the movable links should be made of weather and UV resistant thermoplastic polymer. Clamps should be fixed with pole by eye hook/bracket. Bracket should be made of corrosion resistant aluminum alloy. The Suspension Clamp & the bracket will be preferably delivered together in order to minimize abrasion between two materials. Ultimate Tensile Strength of the clamp should not be less than 12 KN for 25-95 sq.mm insulated messenger wire. Maximum Allowable load of the clamp should not be less than 12 KN for 25-95 sq.mm insulated messenger wire. Slip load of the clamp should not be less than 300N for 25-95 sq.mm insulated messenger wire. The clamp should sustain to maximum angle of deviation of 60 degrees of the conductors. Design as per furnished drawing.

3.3. Insulated cable end caps

The insulated cable end caps shall be made of weather and age resistant insulating material and shall have wet flashover voltage not less than 6 kV. The cap shall be heat



shrinkable type or without heat shrinkable and shall be coated internally with a suitable sealant. The caps shall be suitable for supplied sizes of ABC.

3.4. Insulated insulation piercing connectors (IPC)

The insulated insulation piercing connector (or the connector for short) shall be suitable for using with aluminum ABC and concentric cables. It shall be made of high quality, weather, heat and age resistant insulating material having wet flashover voltage not less than 6 kV. It shall be watertight and suitable for making connections to the live lines. The piercing of main line and the tapping shall be done simultaneously. The design of the connectors shall be such that its removal is possible even after breaking of the shear head. The connector shall be provided with end cap for tapping end. The IPCs for the network application (Type A) shall be preferably of two bolt type and service application (Type B) shall be preferably of single bolt type. The IPCs for the network application shall withstand at least 5 kA fault current for 1s without damage. The connector shall be suitable for following cables.

<u>Type</u>	<u>Main</u>	<u>Tapping</u>
Type A	50-120 sq. mm, ABC	50-120 sq. mm, ABC
Type B	50-120 sq. mm, ABC	6-25 sq. mm, ABC/ concentric cable

3.5. Core separators (pairs)

The core separators shall essentially comprise two wedges to facilitate the installation of connectors on tensioned ABC cable. The two separators shall be joined together with a nylon cord. The two separators, which shall be made from wither hardwood or rigid plastic, shall be so shaped as to be capable of being positively locked in position.

3.6. Jointing sleeves

The joint should be Pre-Insulated for Phases, neutral messengers and Street Lighting conductors. Sleeve should be made of Aluminum, insulated with an anti UV black thermoplastic tube hermetically sealed two ends with 2 flexible rings to prevent water penetration. The sleeves shall be water tight with wet flashover voltage not less than 6kV upon installation.

3.7. Stainless Steel Strap and Buckle

The stainless steel strap shall be of 20x0.7mm size and be supplied in a roll of 50m. The breaking strength of the strap shall be at least 0.95 kN/mm²

3.8. Stainless Steel Strap Binding Tool

The strap binding tool shall be of ratchet type to be operated by the lines men by hand while working on the poles.

4. Tests

4.1 Type tests

The bidder shall submit the type test report along with the Bid. The report shall be issued by a recognized independent testing authority. The tests shall comply with relevant IEC Standard or the governing standard. The Employer also reserves the right to have tests carried out at his own cost by and independent agency, whenever there is a dispute regarding the quality of supply. In respect of the



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following fittings, the test shall include, but not limited to the following:



Anchor clamps:

- Mechanical test ○ Tensile (high tension) test on bracket ○
Tensile on anchoring clamps
- Climate ageing test ○ voltage test ○ mechanical strength test
- Voltage test
- Corrosion test
- Dynamic test at low temperature
- Endurance test under mechanical and thermal stresses ○
slippage checking test ○ voltage test

Suspension clamps:

- Mechanical test ○ Tensile test on bracket ○
Tensile test on sub-assembly
- Slip test on the clamp
- Voltage test ○
on the supports
- on sub-assembly
- Mechanical strength test
- Climate ageing test
- Corrosion test
- Endurance test under mechanical and thermal stresses ○
slippage checking test ○ voltage test

Insulation piercing connectors:

- Current carrying capacity test of the connector
- Temperature rise and over current test ○ Initial temperature test ○ Over current test ○ Final temperature test
- Electrical ageing test
- Climate ageing test
- Corrosion test
- Installation test at low temperature
- Mechanical test
 - Electrical continuity test
 - Mechanical tightening test
 - Mechanical strength of tap
- Electrical heat cycle test
- Voltage and watertightness test

Tests for fittings and hardware shall be conducted in accordance with the NF C and IEC Standard or equivalent international standards including voltage and water tightness test wherever applicable.

4.2 Routine tests

Each batch of fittings shall be subjected to routine tests while manufacturing to confirm to the specified



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standard.



5. Quality Assurance Program

Along with the Bid the Bidder shall furnish quality assurance program of the manufacturer which includes the Quality System and the Quality Plans, which shall include, among others, information to meet the following requirement, failing which the Bid shall be liable for rejection.

- i. The structure of the organization; ii. The duties and responsibilities assigned to staff ensuring quality of works; iii. The system for purchasing, taking delivery and verification of materials; iv. The system for ensuring quality of workmanship;
- v. The quality assurance arrangement shall conform to relevant requirements of ISO9001;
- 2008 vi. Statement giving list of important raw materials, names of manufacturer for the raw materials, list of standards according to which the raw materials are tested, list of test normally carried out on raw materials;
- vii. List of manufacturing facilities available;
- viii. List of areas in manufacturing process, where stage inspections are normally carried out for quality control and details of such tests and inspections;
- ix. List of testing equipment available with the manufacturer for final testing of equipment specified and the test plant limitation, if any, vis-à-vis the type, special, acceptance and routine tests specified in the relevant standards.

6. Bid Documentation

- 6.1 The Bidder shall furnish with the Bid two (2) clear copies of the Standard governing fabrication and testing of the fittings and accessories for LV ABC and two (2) clear copies of all other relevant standards referenced therein.
- 6.2 The Bidder shall furnish two (2) sets of complete description, catalogue, dimensional drawings showing general construction and size of all fittings and accessories.
- 6.3 The Bidder shall furnish two (2) clear certified copies of type test report for Anchor clamp, Suspension clamp and IPCs failing which the bid shall be liable for rejection.
- 6.4 A clause-by-clause commentary on specification, specifying compliance and deviations, if any.
- 6.5 All technical data, drawings, catalogues and other technical documents shall be bound separately from the bid documents. Drawings for Suspension clamp with bracket, Anchor clamp with bracket, Jointing sleeves and IPCs must be submitted failing which the bid shall be liable for rejection.
- 6.6 The NEA may ask to furnish the type test report for other accessories from the substantially responsive bidders.
- 6.7 The Bidder shall furnish the sample of accessories such as Type A IPCs along with the bid, failing which the bid shall be liable for rejection.

LT Power Cable (PVC)

1. Scope

This Specification covers the design, manufacture, factory test and supply of 1.1 kV grade PVC



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insulated multicore power cables. The cables will be used for the purpose of 400V use of Nepal Electricity Authority.

2. **Rated Voltage**

The rated voltage of the cables shall be 1100V

3. **Service Condition**

a)	Ambient temperature	-5 to 55 deg. C
b)	Annual average ambient temperature	30 deg. C
c)	Maximum relative humidity	99%
d)	Environmental condition	Humid Tropical climate
e)	Operational altitude	Up to 1000m above msl
f)	Isokeraunic (Thunder day) level	90 days
g)	Solar Radiation	1.6kW/m2
h)	Wind Zone	Zone 4

4. **Applicable Standards**

The equipment and components supplied shall be in accordance with the latest editions of the standards specified below and amendments thereof or any international equivalent standards and the NEA Specifications specified hereafter.

a)	IS 1554	Specification for PVC Insulated heavy duty Electric cables for working voltages upto & including 1100 V
b)	IS 8130	Specification for conductors for insulated electric cables and flexible cords

The Bidder may propose alternative standards, provided it is demonstrated that they give a degree of quality and performance equivalent to or better than the referenced standards. The purchaser shall adjudge whether to accept or reject any standards.

The Bidder shall furnish a copy of the alternative standard proposed along with his bid. If the alternative standard is in a language other than English, an English translation shall be submitted with the standard. In case of conflict the order of the precedence shall be (1) IEC standards, (2) ISO standards, (3) European or British Standards, (4) Indian Standards, (5) Other alternative standards.

This list is not to be considered exhaustive and reference to a particular standard or recommendation in this specification does not relieve the Contractor or the necessity of providing the goods complying with other relevant standards or recommendation.

5. **Technical Parameters**

5.1 **Minimum Technical Requirements**

S.N.	Description	Unit	Requirements
1	Rated Voltage	kV	
2	Maximum System Voltage	kV	
3	Rated Voltage between two conductors	kV	
4	Power Frequency withstand voltage	kV	
5	Number of Cores		4
6	Phase Conductor		3
7	Insulation Material		PVC
8	Conductor		EC Grade Al.
9	Minimum Number of Strand		
10	Nominal Thickness of Insulation		
11	Minimum Thickness of inner sheath		
12	Type and dimensions of armor		
13	Minimum thickness of outer sheath		
S.N.	Description	Unit	Requirements



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14	Conductor Temperature Rise during Normal Operation	deg. C	70
15	Conductor Temperature Rise during Short Circuit	deg. C	160
16	Direction of Lay		Right Hand
17	Standard Length of Cable Per drum	m	Min. 500

5.2 Requirements of size

The required size of PVC insulated, aluminum Conductor, armored cable shall be: 4x400 mm², 4x300 and 4x150mm²

6. Basic Features

6.1 Design

The power cable shall conform in all respects to highest standards of engineering, design, workmanship, this specification and the latest revisions of relevant standards at the time of offer and the Purchaser shall have the power to reject any work or material, which, in his judgment is not in full accordance therewith.

6.2 Conductors

The conductor shall be of multi-strand round aluminum of compacted circular cross-section conforming to IEC or equivalent international standards. The conductor shall be clean and reasonably uniform in size and shape and its surface shall be free from sharp edges.

6.3 Insulation

The conductor shall be provided with PVC insulation applied by extrusion. Type of insulation shall be A for general purpose PVC.

6.4 Laying up of Cores

In twin, three & multi core cables, the cores shall be laid up together with a suitable lay, the outermost layer shall have right hand lay and the successive layer shall be laid with opposite lay.

6.5 Inner Sheath

The laid up cores shall be provided with Inner Sheath applied by extrusion. It shall be ensured that the shape of Cable is as circular as possible. Inner sheath shall be so applied that it fits closely on the laid up cores and it shall be possible to remove it without damaging the insulation.

6.6 Armour

The armour wires/strips shall be applied as closely as practicable. A binder tape may be provided on the armour.

6.7 Outer Sheath

The outer sheath shall be applied by extrusion over the armouring. The colour of outer sheath is black unless otherwise specified. Thickness of outer sheath should be as per IS: 1554.

7 Cable Identification and Marking

The following shall be embossed on the outer sheath of the cable throughout the length of cable at 1.0 meter spacing. The embossing should be very clear and easily visible to naked eye. The height of the printed lettering shall be not less than 20% of the overall diameter of the conductor. Sequential length shall be marked on the outer sheath of the cable throughout the length by Printing in each meter length interval.



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- ☐ Applicable Standards
- ☐ Name/Identification of the manufacturer,
- ☐ Name of the Purchaser 'Nepal Electricity Authority'
- ☐ Voltage Grade of Cable



- ☐ Type of Insulation, material of conductor
- ☐ Number of Cores and nominal cross sectional area of conductor
- ☐ Cable Code
- ☐ Year and Month of Manufacture

Each phase of the core shall be identified with the color Red, Yellow, Blue and Black on the inner sheath.

8 Packaging

All conductors shall be furnished on non-returnable steel drums capable of withstanding all normal transportation and handling. Protective external lagging of sufficient thickness shall be provided and fitted closely on the drums. Binder consisting of steel straps shall be provided over the external laggings. The drums shall be new and sufficiently sturdy in construction to withstand ocean shipping, road transport, several loading and unloading, storage in tropics, hauling and field erection of conductor without distortion or disintegration.

Each reel of the conductors furnished shall contain only one (1) length of conductor. The minimum length of each drum shall be minimum of 500m. All drums shall be legibly marked in paint with the following information:

- (i) Manufacturer's Name and Trademark (if any)
- (ii) Drum Number or identification number
- (iii) Type of conductor
- (iv) Size of conductor
- (v) Voltage Grade
- (vi) Length in meters
- (vii) Gross Weight
- (viii) Net weight of conductor
- (ix) Direction of rolling

8. INSPECTION AND TESTING

8.1 Acceptance Test

The successful Bidder shall make necessary arrangements for pre-shipment inspection and tests by the nominated NEA Inspectors to carry out in his presence the necessary Sample/Acceptance tests conforming to the relevant governing standards on the completed cables offered.

8.2 Routine Test

The Routine Tests shall be carried out on the completed cables at the manufacturer's plant in accordance with the governing standards. The test reports shall be made available for the observation of the NEA Inspector at the time of inspection.

9. BID DOCUMENTATION

9.1 The following shall be furnished with the offer.

- (a) Complete description, catalogue, drawings showing general construction and size of the cables including dimensional drawing of cable drum for each type of cable.
- (b) Completed Schedule of Guaranteed Technical Particulars
- (c) A copy of the Manufacturer's ISO 9001 Certificate conforming to design and manufacture
- (d) Type Test Certificates: The Type Test Certificates shall be from an Accredited Independent Testing Authority acceptable to the Purchaser.



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- (e) Copy of the Governing Standards
- (f) Technical Literature in English Language on installation, operation and maintenance with necessary diagrams and drawings.



9.2 Type Test Certificates

The material offered shall be fully type tested by an independent accredited testing laboratory acceptable to the Employer. The bidder shall submit the type test reports along with the offer. The tests shall comply with relevant Standards. The Employer also reserves the right to have tests carried out by an independent agency, whenever there is a dispute regarding the quality of supply.

GUARANTEED TECHNICAL PARTICULARS

(To be filled by the Bidder/Manufacturer)

Item: LT Power Cable

S.N.	Description	Unit	NEA Requirement	To be filled by Bidder/Manufacturer
1	Manufacturer			
	Country of Origin			
2	Years of Manufacturing Experience			
3	Applicable standard			
4	Cable Type Designation			
5	Rated Voltage	kV		
6	Maximum System Voltage	kV		
7	Rated Voltage between two conductors	kV		
8	Power Frequency withstand voltage	kV		
9	Number of Cores			
10	Conductor			
10.1	Material Type			
10.2	Min. Cross Section Area	sq.mm.		
10.3	No. and Diameter of Strand	No/mm.		
10.4	Overall Diameter			
10.5	Max. DC resistance at 20 deg. C	Ohm/km		
11	Insulation			
11.1	Material			
11.2	Nominal Thickness of Insulation			
12	Inner Sheath			
12.1	Material			
12.2	Minimum Thickness of inner sheath			
13	Armour			
13.1	Armouring Material			
13.2	Nominal dimensions of armour			
13.3	Max. DC resistance of armour at 20 deg. C			
14	Outer Sheath			
14.1	Material			
14.2	Minimum thickness of outer sheath			
15	Overall diameter of the cable			
16	Method of Core identification			
17	Maximum operating Temperature of conductor	deg. C	70	
18	Conductor Temperature Rise during Short Circuit	deg. C	160	



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19	Continuous Current Carrying Capacity in air & corresponding assumptions/conditions of installation	A		
20	Short Circuit Current for 0.1 sec	A		
21	Short Circuit Current for 1.0 sec	A		
22	Tensile Strength of Insulation	kN		
23	Min. elongation at break (insulation)	%		
24	Direction of Lay			
25	Weight of Cable	kg/km		
26	Standard Length of Cable Per drum	m		
27	Net Weight of Cable per Drum	kg		
28	Core Identification and marking			
29	Delivery of equipment following award of contract and approval of drawing	months		
30	ISO 9001 holder (including design)	yes/no		
30.1	ISO 9001 certificate submitted	yes/no		
31	Type test certificate submitted	yes/no		
31.1	Submitted for the required ratings	yes/no		
31.2	Type test certified by			
32	User's certificate submitted	yes/no		
33	Has exported to third country	yes/no		
34	Copies of relevant standards attached	yes/no		
35	Outline Drawings and associated GA attached	yes/no		

Signed by..... Designation.....

As Representative for

Place..... Date.....

Seal of Bidder/Manufacturer



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SECTION – 3
INSPECTION, TESTING AND COMMISSIONING
FOR
LINE AND DISTRIBUTION TRANSFORMER CONSTRUCTION WORKS



1. Scope of work

The whole of the Works supplied under the Contract shall be subject to inspections and tests by the Employer or their Representatives during manufacture, erection and after completion. The inspections and tests shall include, but not be limited to, the requirements of this section of the Specifications.

The Contractor shall provide all costs, appliances, apparatus, supervision, labor and services necessary to carry out all tests, unless specifically stated otherwise.

The Contractor shall furnish the detailed schedule of his commissioning line at least one month prior to the scheduled date. The schedule shall include the commissioning procedures, testing sequences and details of special testing equipment, tests and commissioning record formats, information about relevant standards etc.

The scope of the commissioning program includes the site testing and putting into successful operation of all the line sections.

2. Objectives

The objectives of commissioning work, prior to the successful energization of lines at full voltage and connection to the system, are the following:

- Confirm the integrity (correctness) of installation.
- Confirm the integrity of insulation, connections and phasing.
- Ensure proof of equipment characteristics.
- Review workmanship.
- Confirm the correct implementation of the design.
- Check equipment ratings.

3. QUALITY ASSURANCE, INSPECTION AND TESTING

To assure that the supply and services under the scope of this Contract whether manufactured or performed within the Contractor's works or at his subcontractor's premises or at the Site or at any other place of work, are in accordance with the Specifications, the Contractor shall adopt suitable quality assurance program to control such activities at all points necessary. Such program shall be outlined by the Contractor and shall be finally accepted by the Employer after discussions before the award of the Contract. A quality assurance program of the Contractor shall generally cover, but not be limited to the following:

- (a) His organization structure for the management and implementation of the proposed quality assurance program.
- (b) Documentation control system.
- (c) Qualification data for bidder's key personnel.
- (d) The procedure for purchases of materials, parts, components, and selection of sub-contractors' services including vendor analysis, source inspection, incoming raw materials inspection, and verification of materials purchases.
- (e) System for shop manufacturing including process controls and fabrication and assembly controls.
- (f) Control of non-conforming items and system for corrective actions.
- (g) Control of calibration and testing of measuring and testing equipment.
- (h) Inspection and test procedure for manufacture.



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(i) System for indication and appraisal of inspection status.



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- (j) System for quality audits.
- (k) System for authorizing release of manufactured products to the Employer.
- (l) System for maintenance of records.
- (m) System for handling storage and delivery.
- (n) A quality plan detailing out the specific quality control procedure adopting for controlling the quality characteristics relevant to each item of supply.

The quality plan shall be mutually discussed and approved by the Employer after incorporating necessary corrections by the Contractor as may be required. - Quality Assurance Documents

The Contractor shall be required to submit all the Quality Assurance Documents as stipulated in the Quality Plan at the time of Employer's inspection of material/equipment.

The Employer, through his duly authorized representatives, reserves the right to carry out Quality Audit and Quality Surveillance of the systems and the procedures of the Contractor's and the subcontractor's Quality Management and Control Activities. - Inspection, Testing and Inspection Certificates

The provisions of the clauses on Test and Inspection of the General Conditions of Contract and Special Conditions of Contract shall be applicable to the supply and erection portions of the Works. The Employer shall have the right to re-inspect at his expenses, any material though it would have been previously inspected and approved by him at the Contractor's works before, and if, after the same are inspected at Site following the latter, material is found defective, then the Contractor shall bear the cost of this inspection and reinstatement according to specification.

4. Tests at Manufacturers Works

4.1 General

Where no specific test is specified, then the various items of materials and equipment shall be tested in accordance with the relevant Standards. Where no appropriate standard is available, tests shall be carried out in accordance with the maker's standard practice, which shall be subject to the Employer's approval.

At least fourteen days' prior notice, in writing or by tele-fax, shall be given to the Employer of the readiness of the plant for test or inspection and every facility shall be provided by the Contractor and sub-Contractor (s) to enable the Employer or their Representative to carry out the inspections and witness the tests. This includes progress, test rig and packing inspections also.

Inspection of equipment will not be carried out unless the Employer has approved copies of the relevant sub-orders, drawings and test procedures. No equipment shall be packed, prepared for shipment, or dismantled for the purpose of packing for shipment, unless it has been satisfactorily inspected, or inspection has been waived by the Employer.

Functional electrical and mechanical tests shall be carried out on the completed plant after assembly in the Works. The extent and method of recording the results shall be agreed by the Employer in sufficient time to enable the tests to be satisfactorily witnessed or to make any changes to the proposed program of tests. All instruments and apparatus used in the performance of the tests shall be subject to the approval of the Employer and, if required by the Employer, shall be calibrated to an agreed standard at a laboratory of national standing to be nominated by the Contractor and approved by the Employer. The costs of carrying out such calibration shall be borne by the Contractor in all cases.

The costs of making/performing any test shall be borne by the Contractor. This shall apply to tests



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After receiving the prior information about the completion of manufacturing at the factory, the

Employer will depute his personnel to the manufacturer's factory to witness the fabrication, assembly and testing of any or all parts of major equipment. The costs of such visits shall be borne by the Employer. If any additional Tests are required or the listed below visit is insufficient, the manufacturer/contractor shall bear the cost required for visit by the Employer/Employer's representative. The number of the Employer's personnel and equipment to be witnessed will be as listed below. The duration of such visits shall be minimum of three days to maximum of seven days as per inspection/testing requirements.

33 & 11 kV Line and Distribution Transformer		
S.N	Equipment	No. of visit and person
1	Distribution Transformer	2 persons, 2 visit
2	XLPE Power Cable and Accessories	1 person, 1 visit
3	ACSR Conductor and Accessories (PG Clamp & Compression Joints)	1 person, 2 visit
4	AB Cable and & Accessories	1 persons, 2 visit
5	Covered Conductor & Accessories	1 persons, 2 visit
6	Steel Tubular Pole	1 person, 2 visit
7	Insulators and Insulator Fittings	1 person, 2 visit
8	DO, LA, Air Break Switch	1 person, 1 visit
9	MCCB with Box	1 person, 1 visit
10	Transformer Platform	1 person, 1 visit
	Pole Accessories (Channel, Angle, Braces) and Stay Wire and Stay Set	1 person, 1 visit

During the visit of Manufacturer's premises by the Employer/Employer's representative, all tests shall be duly completed by the manufacturer with the witness of Employer/Employer's representative. "Factory Acceptance Test" reports shall be duly signed and if the results are satisfactory, the dispatch clearance instructions shall be provided by the Employer/Employer's representative.

4.2 Test Certificates

Within 30 days of the completion of any test, triplicate sets of all principal test records, test certificates and performance curves shall be supplied to the Employer.



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These test records, certificates and performance curves shall be supplied for all tests, whether or not they have been witnessed by the Employer or his representative. The information given on such test certificates and curves shall be sufficient to identify the material or equipment to which the certificate refers and should also bear the Contract



reference title. Specified requirements shall be shown on each certificate for comparison with actual test results.

When all equipment has been tested, test certificates of all factory and site tests shall be compiled by the Contractor into volumes and bound in an approved form complete with index. Two copies of each volume shall be supplied to the Consultant and two copies to the Employer.

4.3 Type Tests

Type tests are required to prove the general design of the equipment and the Contractor may submit certificates of such design tests, which have been carried out on identical equipment. Notwithstanding any provision in relevant Standards, the Employer shall have the right to accept such certificates in line of the specified type tests or to reject them.

The type tests prescribed shall be carried out at the Contractor's cost in all cases, where either such certificates are not available or are rejected by the Employer.

5. Responsibilities

To ensure that the test jurisdiction and transfer of responsibilities is regulated by strict safety and handover procedures, the Contractor agrees the interface with the Employer to establish and implement handover procedures consistent with the terms of these Specifications.

The Employer shall retain full jurisdiction over all commissioning activities, which may affect the operation of the existing system. In these circumstances and when so requested, shall provide technical advices and assistances.

The Contractor shall be responsible for technical guidance and assistance in establishing the scope and method of tests, witnessing of the testing, assessment of results, and re-negotiation of the changes in test schedules which may be necessary as a result of other circumstances, such as delays in the delivery, possible equipment failures.

6. Safety Procedures

The Contractor shall share the responsibility for safety procedures with the Employer. The Contractor shall establish and implement a work permit and tagging system and associated safety procedures (subject to the review of Employer) for all equipment, systems and areas not covered by the Employer's safety procedures.

The Employer will assume responsibility for the establishment and implementation of tagging, safety and work permit procedures for the protection of personnel and equipment, as soon as equipment and systems are connected to or are energizeable from the existing system.

7. Training of the Employer's Staff

The Contractor shall plan for the Employer's staffs' participation, either continuously or on a regularly recurring basis, in the commissioning work and:

Allow the Employer's staffs to become familiar with the operating and maintenance aspects of the new equipment supplied by him,

Maintain a continuing assessment with the Employer of the precautions required in or possible consequences of, initial energization of equipment, Allow for the above two necessary objectives in the preparation of schedules.



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The Contractor shall station at site, at least, one technical expert for a minimum of six months continuously after commissioning to rectify any problems, as well as train the Employer's attending staffs. If required, the length of his stay shall be extended as per requirement, which shall be at the Employer's discretion.



8. Commissioning Staff

The Contractor shall provide commissioning personnel including skilled and unskilled labor as required. Submit a list with names, experience and proposed duration of the stay of key personnel on site, consistent with the construction schedule, along with the commissioning program.

Ensure that only staffs assigned to commissioning fulfills that duty for the duration of the assignment. Ensure that commissioning staffs have authorization, and the competence, to undertake minor repairs or to make temporary redesigns and to reconnect systems to meet the specified system performance to preclude delays in energization and putting into commercial service of any part of the works.

9. Test Equipment

The Contractor shall ensure that all instruments, tools and other equipment required for testing and commissioning are available on site, ensure that the test equipment is of satisfactory quality and condition and, where necessary, is calibrated by an approved authority or standard.

Make arrangements for the provision of power supplies for testing with necessary vector configuration, voltage and current rating.

10. COMMISSIONING PROGRAM

Prepare a commissioning program for approval by the Employer and for incorporation into the Project master construction program. Allocate adequate time in this program to permit full commissioning of all components.

Carry out all testing during normal working hours as far as practicable. Tests, which involve existing apparatus and system outages, may be carried out outside normal working hours. Give the Employer sufficient notice to allow for the necessary outage arrangements to be made in conformity with the testing program.

Note that no tests listed in the agreed program will be waived except upon the instructions or consent of the Employer in writing.

10.1 Test Procedures

The following basic tests, in addition to others, shall be carried out:

- Measurement of insulation resistance.
- AC withstand voltage test

10.2 Requirements for Field Tests

The field tests shall be carried out in presence of Employer under the following conditions:

- AC withstand test voltages for conductors and outdoor equipment shall be normal operation voltage of the transmission line and, withstand voltage test shall be carried out for ten (10) minutes by the normal voltage mentioned above. The field tests shall be carried out by the Contractor after adjustment of all the equipment have been completed.
- Expandable and lead wires and other materials required for the field tests shall be arranged by the Contractor. The Contractor shall be responsible for providing



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all measuring instruments, test equipment and tools required for the tests.



- Preparation of the test record sheets and test reports shall be the responsibility of the Contractor and the results of the field tests shall be submitted by the Contractor for Employer's approval.

Measurement of insulation resistance of the equipment shall be performed by at least 1000 V megger.

After completion of the measurement of insulation resistance mentioned above, ac withstand voltage test shall be performed by the normal operation voltage of the existing power system in accordance with the following procedure:

- 11 and 33 kV Main Circuit: The 11 kV and 33 kV circuit breakers and disconnecting switches, except for circuit breakers receiving power for the test from the existing power system through a transmission line, shall be closed, succeeding, normal operation voltage shall be charged on the equipment and bus conductors for ten (10) minutes for ac withstand voltage test. The indication value of meters mounted on the board during the ac withstand voltage test shall be recorded on the test record sheets prepared by the Contractor.

Submit test procedures, consisting of detailed test methods and samples of the related test record forms, for all equipment to be tested, to the Employer for approval along with the commissioning program. Strictly adhere to these procedures for the commissioning tests.

10.3 Records

Maintain an up-to-date record of all commissioning activities on site.

Record the results of the tests clearly on forms and formats approved by the Employer and with clear references to the equipment and items tested, so that the record can be used as the basis for maintenance tests, in future. Submit the required number of site test records to the Employer as soon as possible after completion of the tests.

Record the details of the test equipment and instruments used in the test sheets, in those cases where the instrument or equipment characteristics can have a bearing on the test results.

10.4 “As-Built” Drawings

Keep an ongoing record of all changes on a master set of drawings. Produce and supply a minimum of five complete sets of marked-up “As Constructed/As-Built” drawings before leaving the Site. Correct and re-issue the original drawings as soon as possible as per this specification.

10.5 Test Methods

Carry out all necessary tests for commissioning the sub-transmission and distribution line. The contractor must strictly adhere to the methods of testing approved by the Employer.

(a) Particular Constraints and Special Tests

The Contractor shall be prepared to cooperate with any special tests requested by the Empl



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.

Drawings

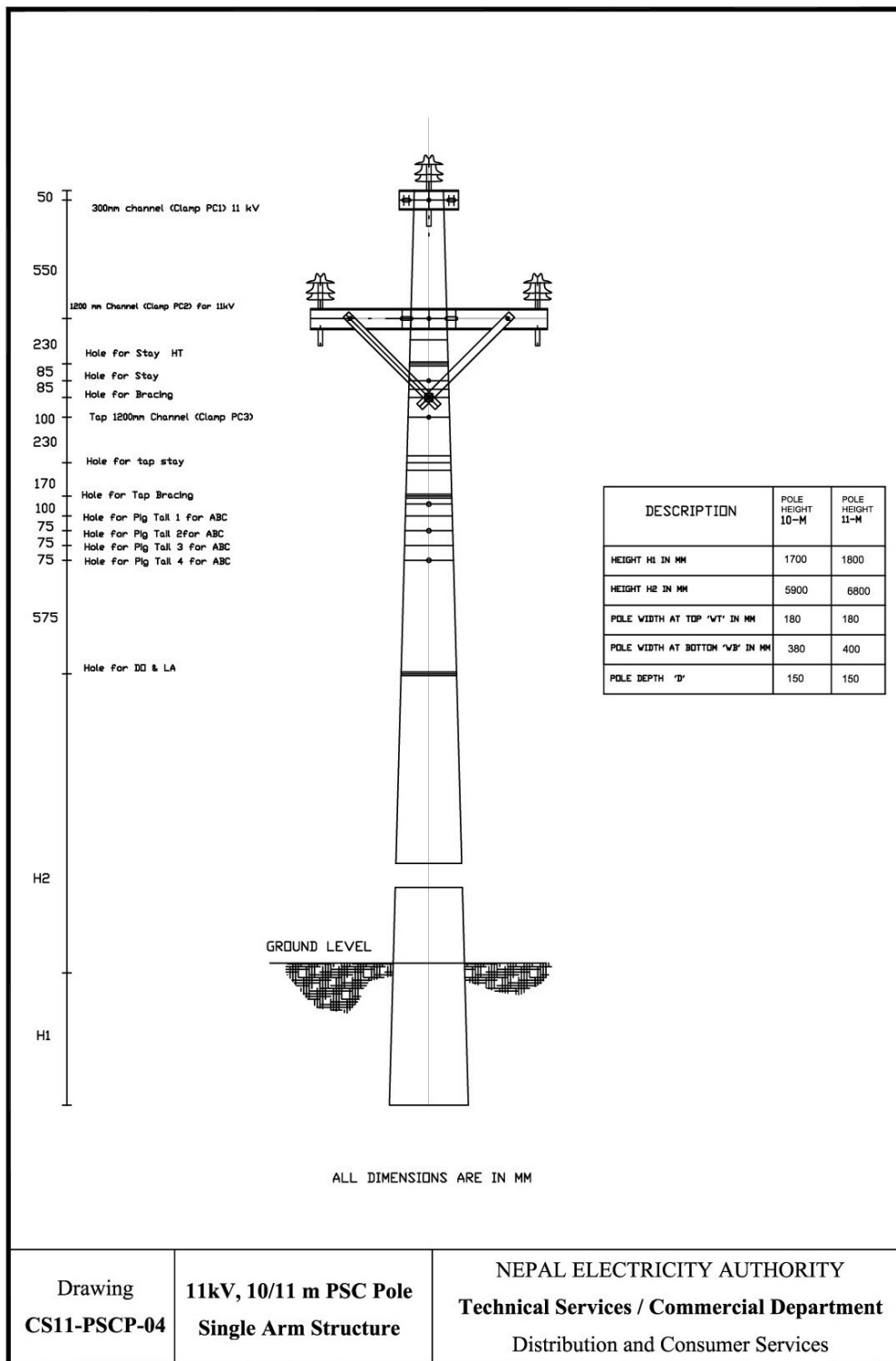
Note:



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.

[Insert Drawings]

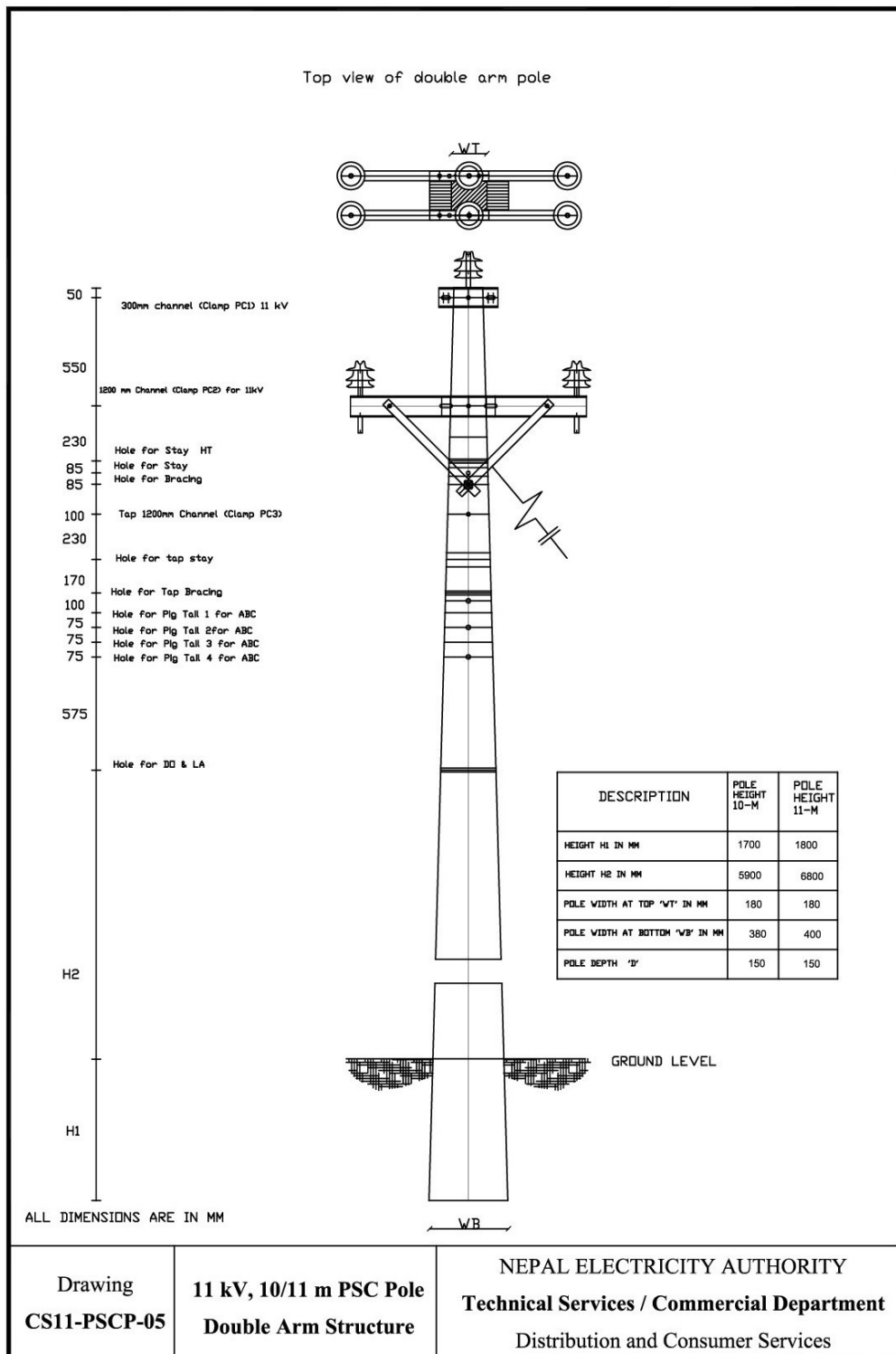
SECTION – 4 DRAWINGS FOR LINE AND DISTRIBUTION TRANSFORMER CONSTRUCTION WORKS



				Refer Drawing No: CS11-PSCP-04
S.No.	QTY.	UNIT	MATERIAL	
1	3	NOS	PIN INSULATOR	
2	3	NOS	INSULATOR PIN	
3	3	NOS	PREFORM PIN TIES (TOP TIES)	
4	1	NOS	STEEL CROSSARM CHANNEL (100x 50x6.4x300) mm.	
5	1	SET	POLE CLAMP WITH NUT,BOLT AND WASHERS (PC1)	
6	1	NOS	STEEL CROSSARM CHANNEL (100x 50x6.4x1200) mm.	
7	1	SET	POLE CLAMP WITH NUT,BOLT AND WASHERS (PC2)	
8	2	NOS	FLAT CROSSARM BRACE(40x 6.0x660) mm	
9	2	SET	BOLTS WITH SUITABLE NUTS AND WASHERS (12 x51) mm for BRACE	
10	1	SET	BOLTS WITH SUITABLE NUTS AND WASHERS (16 x203) mm for BRACE	
11	1	NOS	PSC POLE 10 m /11m	
CONSTRUCTION STANDARDS 11 kV SINGLE ARM STRUCTURE (SA) PSC POLE				NEPAL ELECTRICITY AUTHORITY Technical Service/ Commercial Department Distribution and Consumer Services



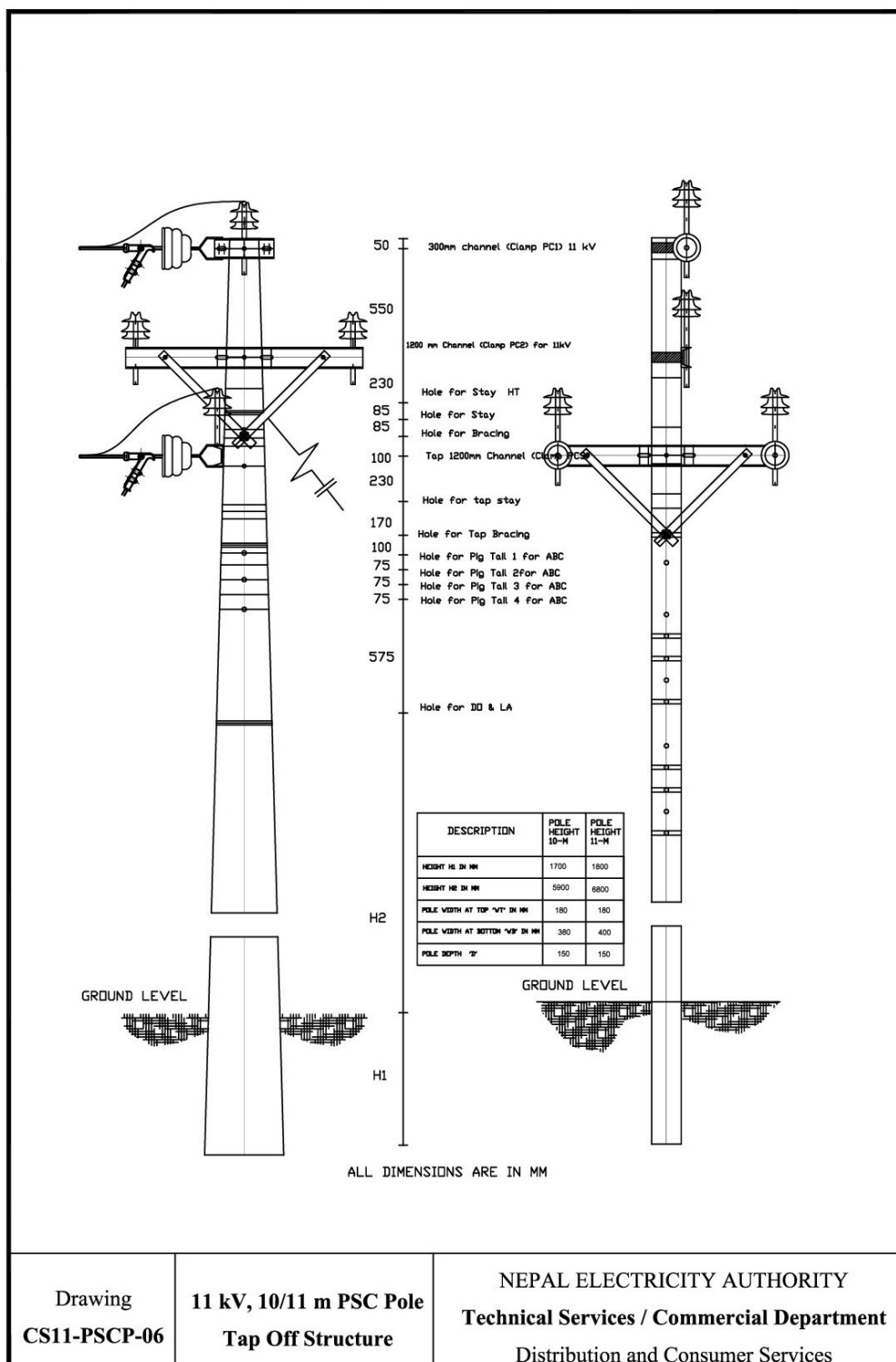
Agricultural Pole , Wire & Transformer Installation Works Within shahidnagar Municipality Under Procurement of Works (NCB)- 1S2E Procedure





Agricultural Pole , Wire & Transformer Installation Works Within shahidnagar Municipality Under Procurement of Works (NCB)- 1S2E Procedure

Refer Drawing No: CS11-PSCP-05			
S.No.	QTY.	UNIT	MATERIAL
1	6	NOS	PIN INSULATOR
2	6	NOS	INSULATOR PIN
3	6	NOS	PREFORM PIN TIES (TOP TIES)
4	2	NOS	STEEL CROSSARM CHANNEL (100 x 50 x 6.4 x 300) mm.
5	2	NOS	STEEL CROSSARM CHANNEL (100 x 50 x 6.4 x 1200) mm.
6	4	NOS	FLAT CROSSARM BRACE (40x 6.0 x 660) mm
7	4	SET	BOLTS WITH SUITABLE NUTS AND WASHERS (12 x 51) mm
8	1	SET	BOLTS WITH SUITABLE NUTS AND WASHERS (16 x 203) mm
9	4	SET	DOUBLE ARMING BOLTS WITH NUTS AND WASHERS(16 x 305) mm
10	1	LOT	HT STAY SET (AS REQUIRED)
11	1	NOS	PSC POLE 10 m / 11m
CONSTRUCTION STANDARDS		NEPAL ELECTRICITY AUTHORITY	
11 kV DOUBLE ARM STRUCTURE (DA)		Technical Service/ Commercial Department	
PSC POLE		Distribution and Consumer Services	

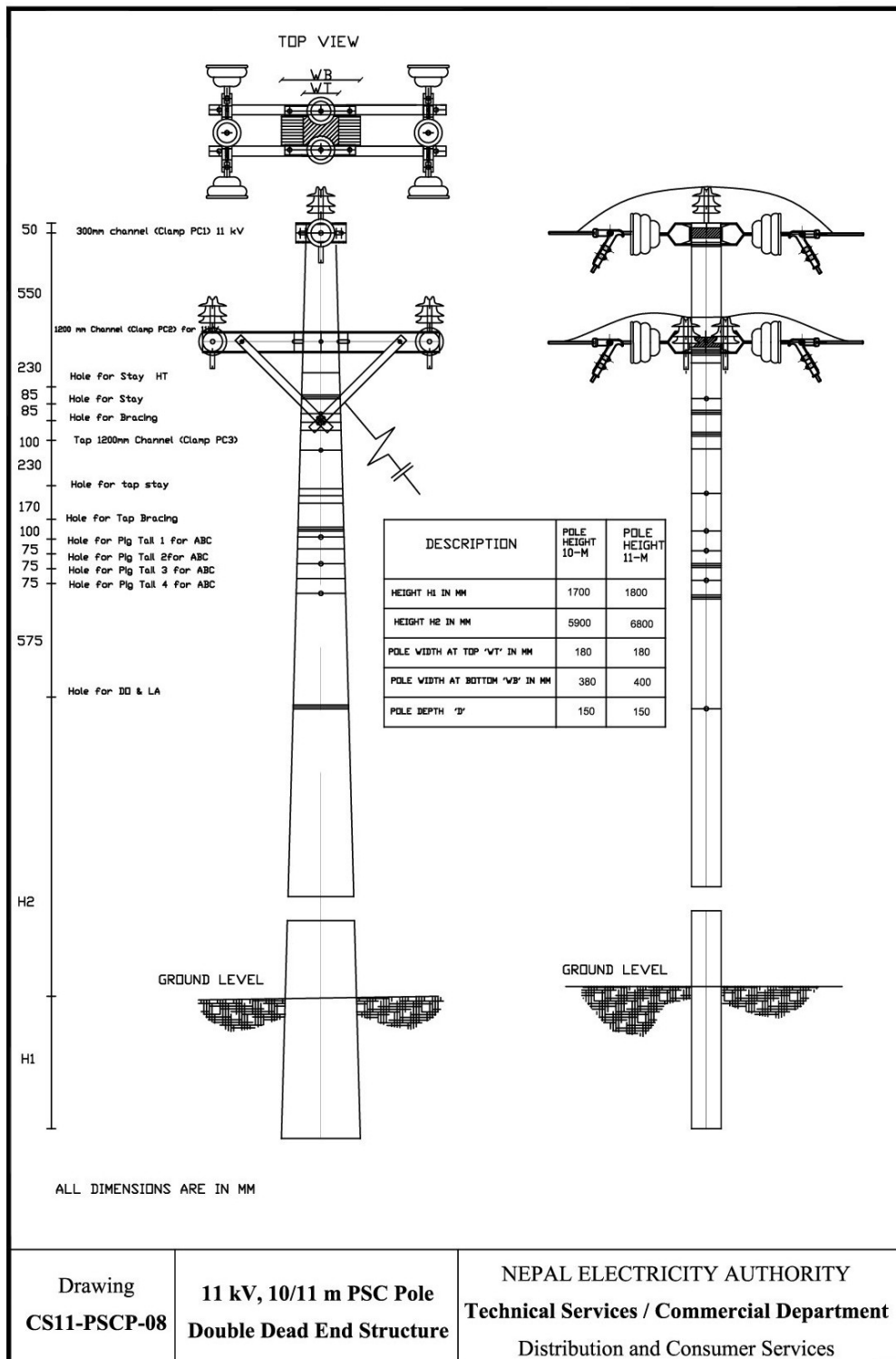




Agricultural Pole , Wire & Transformer Installation Works Within shahidnagar Municipality Under Procurement of Works (NCB)- 1S2E Procedure

Refer Drawing No: CS11-PSCP-06			
S.No.	QTY.	UNIT	MATERIAL
1	5	NOS	PIN INSULATOR
2	5	NOS	INSULATOR PIN
3	5	NOS	PREFORM PIN TIES (TOP TIES)
4	3	SET	DISC INSULATOR
5	3	SET	BRACK STRAP
6	3	SET	TENSION SET WITH BALL AND SOCKET EYE
7	6	NOS	PG CLAMP
8	1	NOS	STEEL CROSSARM CHANNEL (100x 50x 6.4 x 300) mm.
9	1	SET	POLE CLAMP WITH NUT,BOLT AND WASHERS (PC1)
10	2	NOS	STEEL CROSSARM CHANNEL (100 x 50 x 6.4 x 1200) mm.
11	1	SET	POLE CLAMP WITH NUT,BOLT AND WASHERS (PC2)
12	1	SET	POLE CLAMP WITH NUT,BOLT AND WASHERS (PC3)
13	4	NOS	FLAT CROSSARM BRACE (40x 6.0 x 660) mm
14	4	SET	BOLTS WITH SUITABLE NUTS AND WASHERS (12 x 51) mm
15	1	SET	BOLTS WITH SUITABLE NUTS AND WASHERS (16 x 203) mm
16	1	SET	BOLTS WITH SUITABLE NUTS AND WASHERS (16 x 305) mm
17	1	LOT	HT STAY SET (TYPE AS REQUIRED)
18	1	NOS	PSC POLE 10 m / 11 m
CONSTRUCTION STANDARDS		NEPAL ELECTRICITY AUTHORITY	
11 kV TAP OFF STRUCTURE (TO)		Technical Service/ Commercial Department	
PSC POLE		Distribution and Consumer Services	

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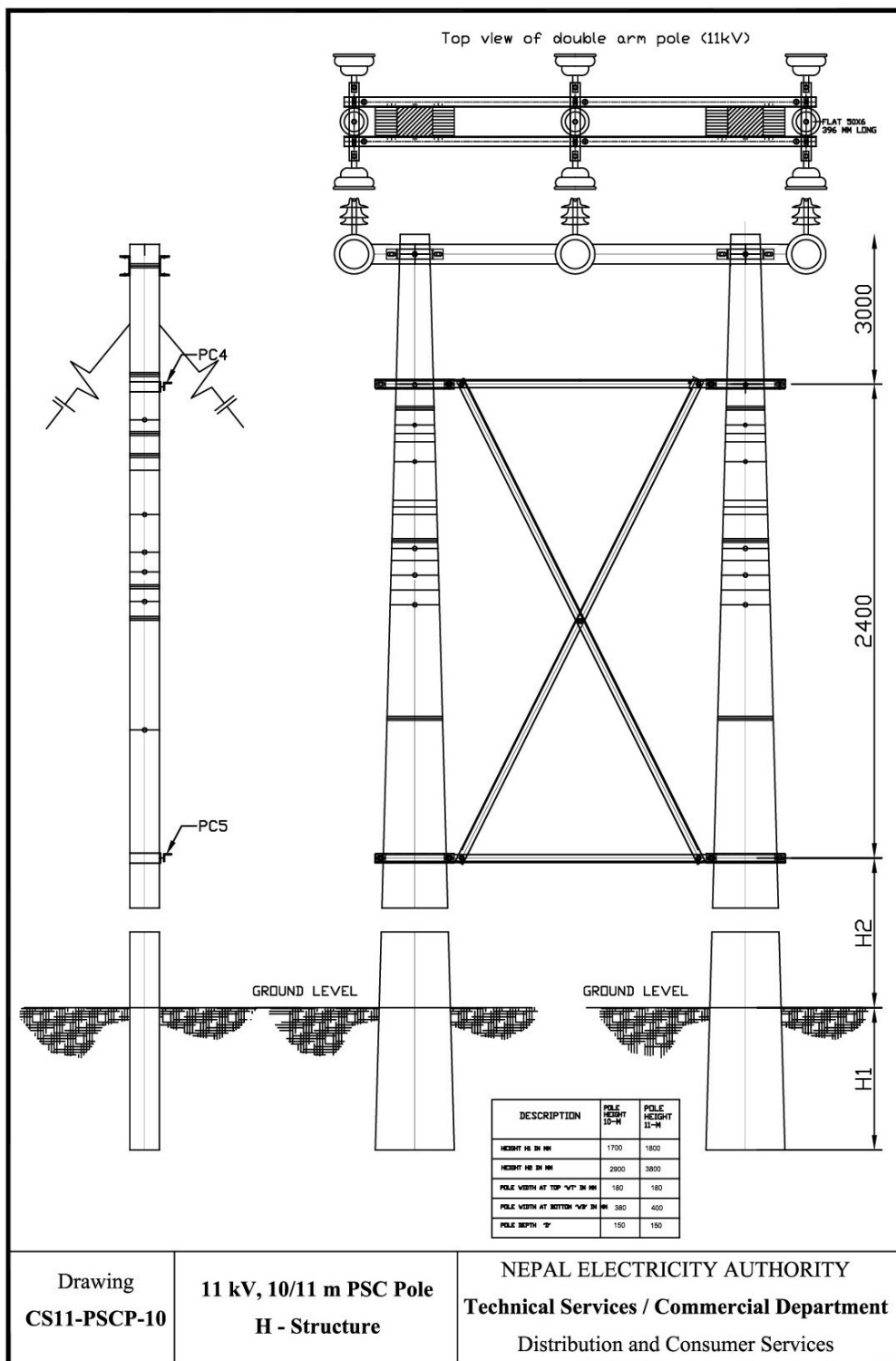




Agricultural Pole , Wire & Transformer Installation Works Within shahidnagar Municipality Under Procurement of Works (NCB)- 1S2E Procedure

Refer Drawing No: CS11-PSCP-08			
S.No.	QTY.	UNIT	MATERIAL
1	4	NOS	PIN INSULATOR
2	4	NOS	INSULATOR PIN
3	4	NOS	PREFORM PIN TIES (TOP TIES)
4	6	NOS	DISC INSULATOR
5	6	SET	BRACK STRAP
6	6	SET	TENSION SET WITH BALL AND SOCKET EYE
7	6	NOS	PG CLAMP
8	2	NOS	STEEL CROSSARM CHANNEL (100x 50x 6.4 x 300) mm.
9	2	NOS	STEEL CROSSARM CHANNEL (100 x 50 x 6.4 x 1200) mm.
10	4	NOS	FLAT CROSSARM BRACE (40x 6.0 x 660) mm
11	12	SET	BOLTS WITH SUITABLE NUTS AND WASHERS (12 x 51) mm
12	1	SET	BOLTS WITH SUITABLE NUTS AND WASHERS (16 x 203) mm
13	4	SET	DOUBLE ARMING BOLTS WITH SUITABLE NUTS AND WASHERS (16 x305) mm
14	4	NOS	STRAP FOR INSULATOR STRING (50 x 6 x 396) mm
15	1	LOT	HT STAY SET (TYPE AS REQUIRED)
16	1	NOS	PSC POLE 10 m / 11 m

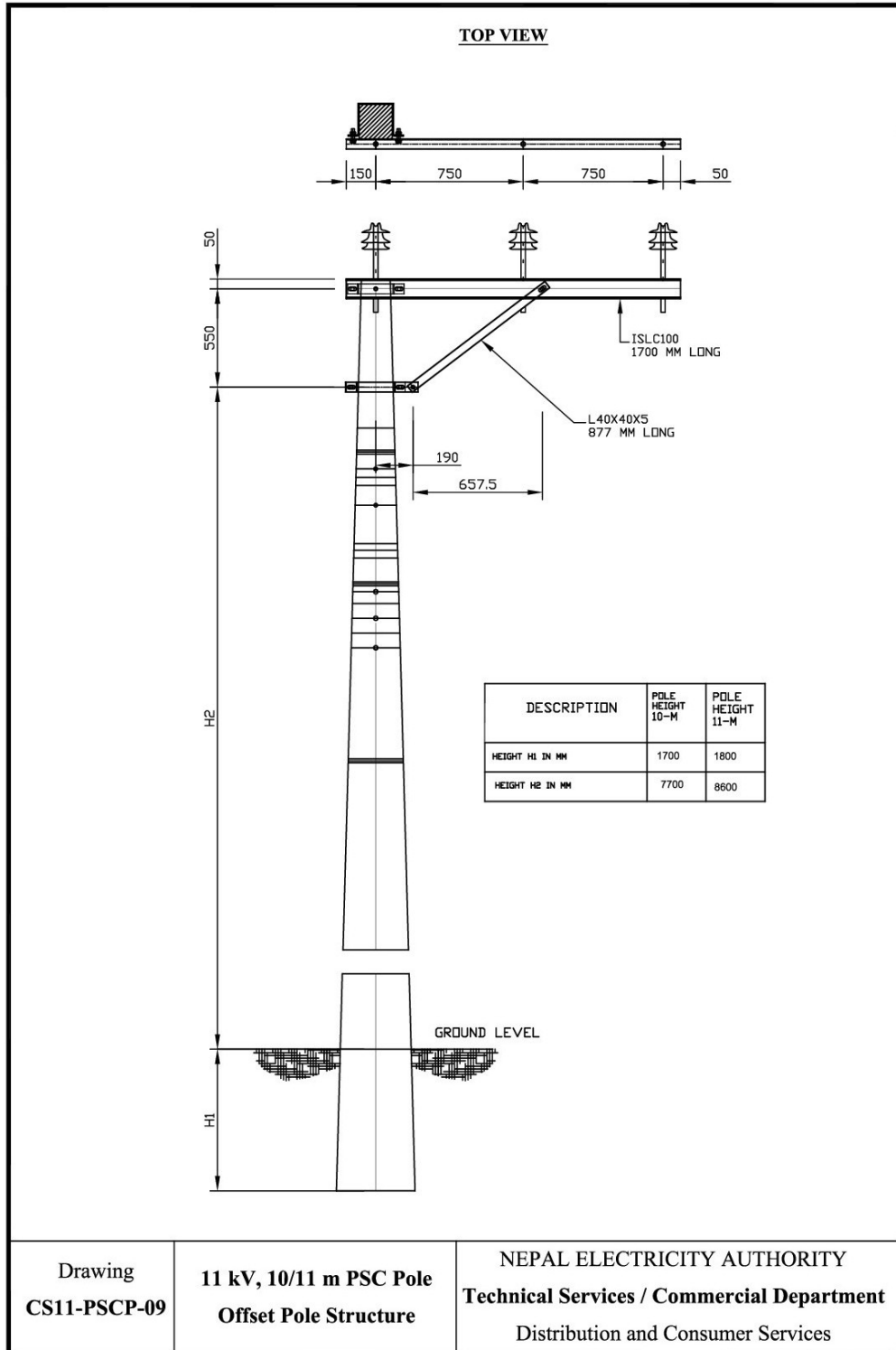
CONSTRUCTION STANDARDS 11 kV DOUBLE DEAD END STRUCTURE (DDE) PSC POLE	NEPAL ELECTRICITY AUTHORITY Technical Service/ Commercial Department Distribution and Consumer Services
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Agricultural Pole , Wire & Transformer Installation Works Within shahidnagar Municipality Under Procurement of Works (NCB)- 1S2E Procedure

Refer Drawing No: CS11-PSCP-10			
S.No.	QTY.	UNIT	MATERIAL
1	3	NOS	PIN INSULATOR
2	3	NOS	INSULATOR PIN
3	3	NOS	PREFORM PIN TIES (TOP TIES)
4	6	NOS	DISC INSULATOR
5	6	SET	BRACK STRAP
6	6	SET	TENSION SET WITH BALL AND SOCKET EYE
7	6	NOS	PG CLAMP
8	2	NOS	STEEL CROSSARM CHANNEL (100x 50x 6.4 x 2390) mm.
9	2	NOS	BRACING ANGLE (40 x 40 x 5 x 2071) mm.
10	2	NOS	CROSSARM BRACING ANGLE (40 x 40 x 5.0 x 2723) mm
11	17	SET	BOLTS WITH SUITABLE NUTS AND WASHERS (12 x 51) mm
12	2	SET	POLE CLAMP WITH NUT,BOLT AND WASHERS (PC4)
13	2	SET	POLE CLAMP WITH NUT,BOLT AND WASHERS (PC5)
14	4	SET	DOUBLE ARMING BOLTS WITH SUITABLE NUTS AND WASHERS (16 x305) mm
15	6	NOS	STRAP FOR INSULATOR STRING (50 x 6 x 396) mm
16	5	SET	HT STAY SET (TYPE AS REQUIRED)
17	2	NOS	PSC POLE 10 m / 11 m
CONSTRUCTION STANDARDS		NEPAL ELECTRICITY AUTHORITY	
11 kV H- STRUCTURE (HS)		Technical Service/ Commercial Department	
PSC POLE		Distribution and Consumer Services	

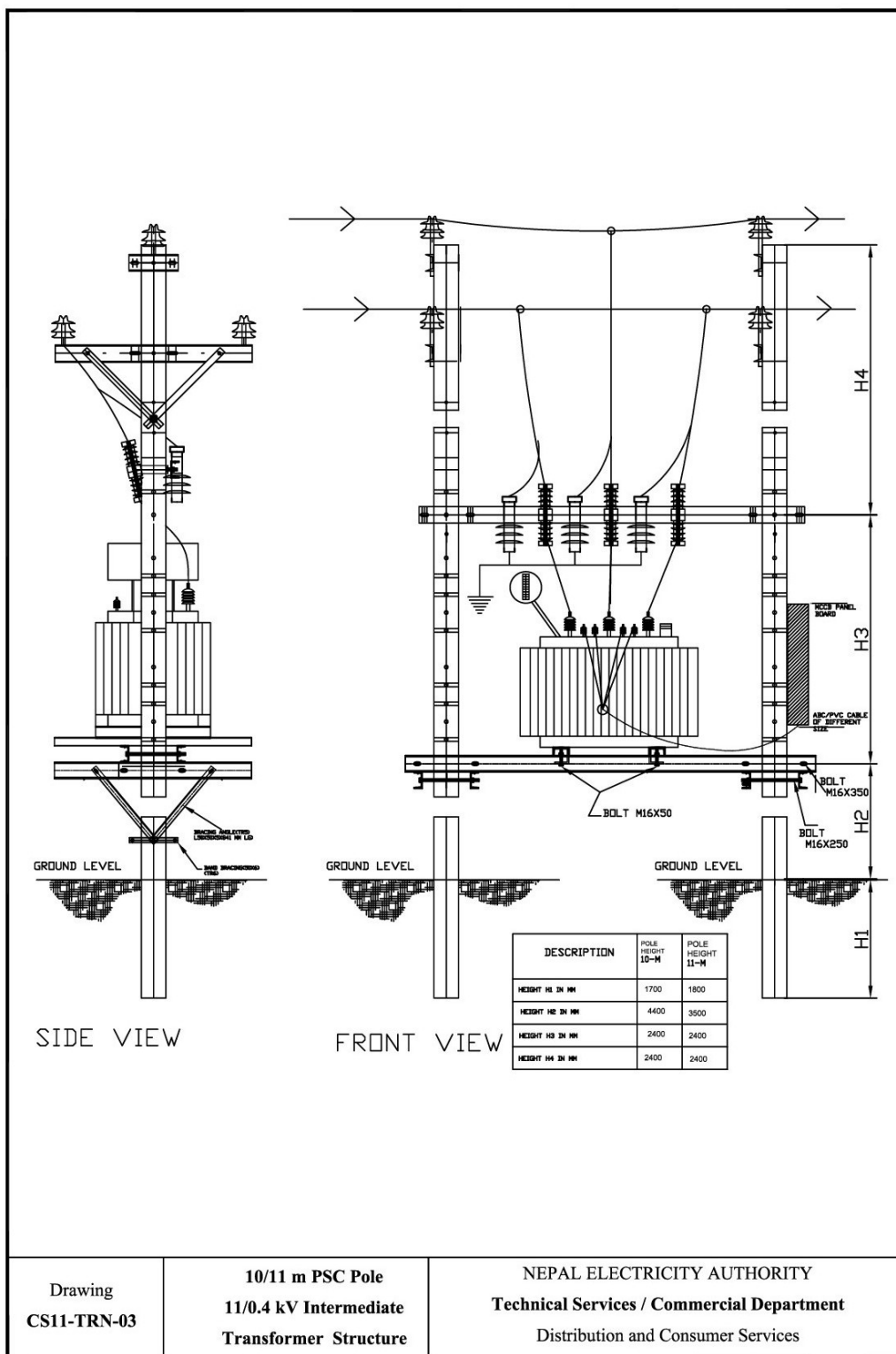




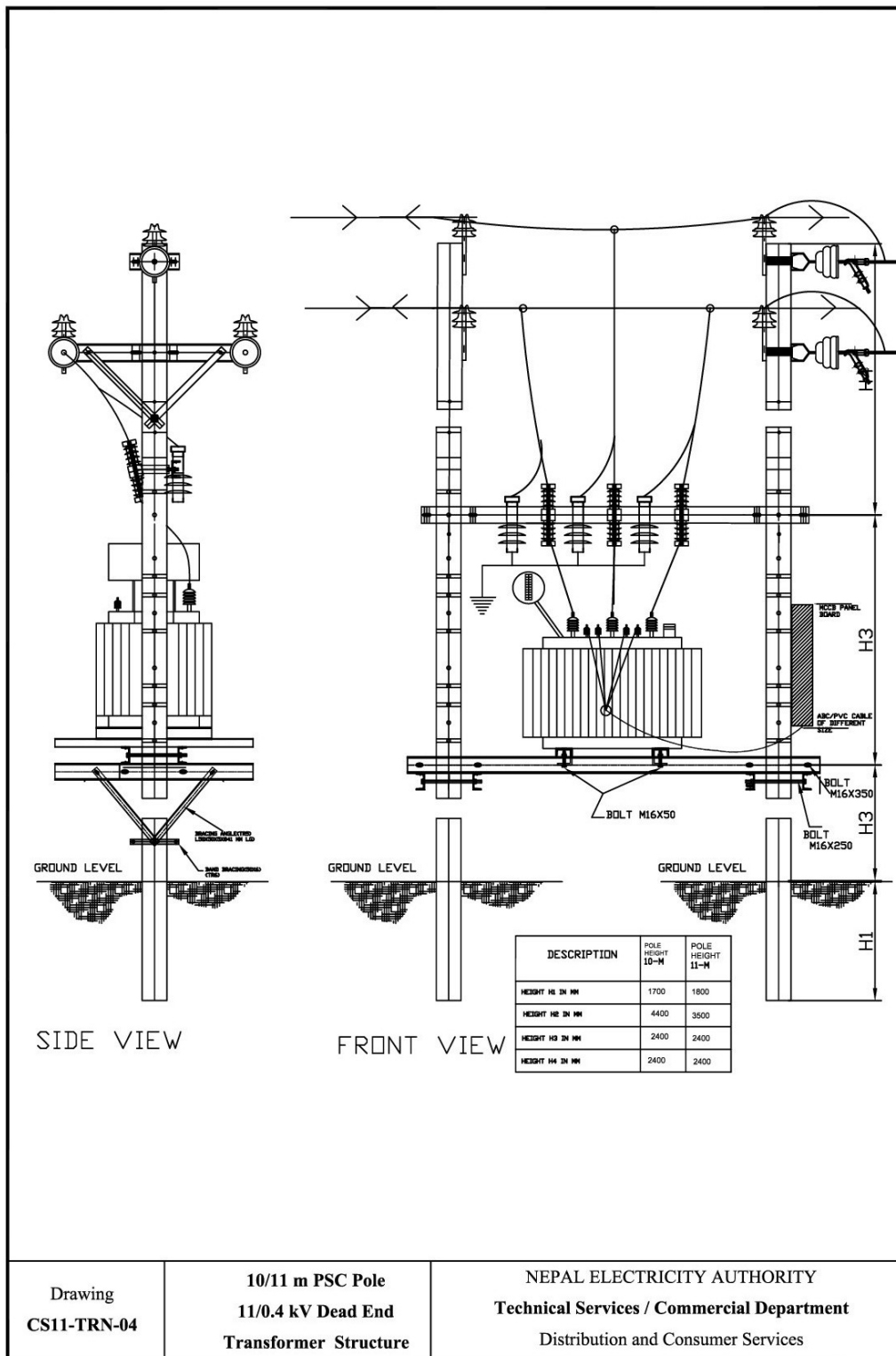
Agricultural Pole , Wire & Transformer Installation Works Within shahidnagar Municipality Under Procurement of Works (NCB)- 1S2E Procedure

Refer Drawing No: CS11-PSCP-09			
S.No.	QTY.	UNIT	MATERIAL
1	3	NOS	PIN INSULATOR
2	3	NOS	INSULATOR PIN
3	3	NOS	PREFORM PIN TIES (TOP TIES)
4	1	NOS	STEEL CROSSARM CHANNEL (100 x 50 x 6.4 x 1700) mm.
5	1	SET	POLE CLAMP WITH NUT,BOLT AND WASHERS (PC1)
6	1	SET	POLE CLAMP WITH NUT,BOLT AND WASHERS (PC2)
7	1	NOS	BRACING CROSSARM ANGLE (40 x 40 x 5 x 877) mm.
8	2	SET	BOLTS WITH SUITABLE NUTS AND WASHERS (12 x 51) mm
9	1	NOS	PSC POLE 10 m / 11m
CONSTRUCTION STANDARDS		NEPAL ELECTRICITY AUTHORITY	
11 kV OFFSET STRUCTURE		Technical Service/ Commercial Department	
PSC POLE		Distribution and Consumer Services	

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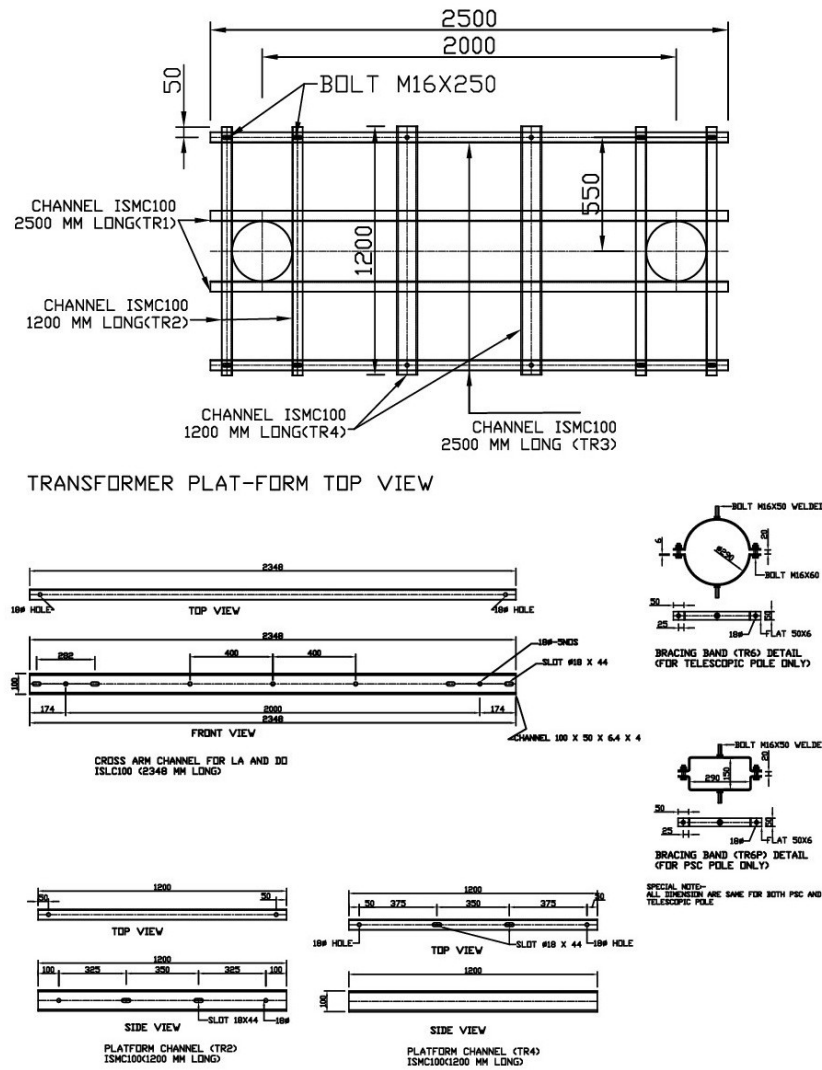


Refer Drawing No: CS 11 -TRN-01 AND 03			
S.No.	QTY.	UNIT	MATERIAL
1	6	NOS	PIN INSULATOR WITH PIN AND NUTS/WASHER
2	2	NOS	STEEL CROSSARM CHANNEL (100 x 50 x 6.4 x300) mm.
3	2	NOS	STEEL CROSSARM CHANNEL (100 x 50 x 6.4 x 1200) mm.
4	1	NO	STEEL CROSSARM CHANNEL FOR DO / LA (100 x 50 x 6.4 x2348) mm.
5	1	SET	TRANSFORMER PLATFORM (REFER CS LV-)
6	3	NOS	9 kV SURGE ARRESTOR WITH FITTING ARRANGMENTS
7	3	NOS	11 kV DISTRIBUTION CUTOOUT WITH SUITABLE FUSE HOLDERS
8	2	SET	POLE CLAMP WITH NUTS AND BOLTS (TC1)
9	4	SET	POLE CLAMP WITH NUTS AND BOLTS (TC2)
10	2	SET	POLE CLAMP WITH NUTS AND BOLTS (TC7)
11	4	NOS	ANGLE CROSS ARM(50 x 50 x 5 x 841) mm
12	4	SET	BOLTS WITH SUITABLE NUTS AND WASHERS (12 x 51) mm
13	2	SET	EARTHING SET (WITH GROUND RODS AND ACCESSORIES)
14	1	SET	LV CONNECTOR TYPE AS REQUIRED
15	1	SET	MCCB WITH PANEL BOARD
16	6	SET	PREFORM ED PIN INSULATORS
17	18	M	ABC OR PVC CABLE OF REQUIRED RATING
18	10	M	ACSR CONDUCTOR
19	3	SET	PG CLAMP
20	2	NOS	TELESCOPIC / PSC POLE
CONSTRUCTION STANDARDS 11/0.4 kV TRANSFORMER STRUCTURE TELESCOPIC/PSC POLE (INTERMEDIATE)		NEPAL ELECTRICITY AUTHORITY Technical Service/ Commercial Department Distribution and Consumer Services	



Refer Drawing No: CS 11 -TRN-02 AND 04			
S.No.	QTY.	UNIT	MATERIAL
1	6	NOS	PIN INSULATOR WITH PIN AND NUTS/WASHER
2	2	NOS	STEEL CROSSARM CHANNEL (100 x 50 x 6.4 x300) mm.
3	2	NOS	STEEL CROSSARM CHANNEL (100 x 50 x 6.4 x 1200) mm.
4	1	NO	STEEL CROSSARM CHANNEL FOR DO / LA (100 x 50 x 6.4 x2348) mm.
5	1	SET	TRANSFORMER PLATFORM (REFER CS LV-)
6	3	NOS	9 kV SURGE ARRESTOR WITH FITTING ARRANGMENTS
7	3	NOS	11 kV DISTRIBUTION CUTOUT WITH SUITABLE FUSE HOLDERS
8	2	SET	POLE CLAMP WITH NUTS AND BOLTS (TC1)
9	2	SET	POLE CLAMP WITH NUTS AND BOLTS (TC2)
10	2	SET	POLE CLAMP WITH NUTS AND BOLTS (TC7)
11	4	NOS	ANGLE CROSS ARM(50 x 50 x 5 x 841) mm
12	4	SET	BOLTS WITH SUITABLE NUTS AND WASHERS (12 x 51) mm
13	2	SET	EARTHING SET (WITH GROUND RODS AND ACCESSORIES)
14	1	SET	LV CONNECTOR TYPE AS REQUIRED
15	1	SET	MCCB WITH PANEL BOARD
16	6	SET	PREFORM ED PIN INSULATORS
17	18	M	ABC OR PVC CABLE OF REQUIRED RATING
18	10	M	ACSR CONDUCTOR
19	6	SET	DISC INSULATOR
20	6	SET	TENSION SET
21	6	SET	BACK STRAP
22	3	SET	PG CLAMP
23	2	NOS	TELESCOPIC / PSC POLE

CONSTRUCTION STANDARDS 11/0.4 kV TRANSFORMER STRUCTURE(DEAD END) TELESCOPIC/PSC POLE	NEPAL ELECTRICITY AUTHORITY Technical Service/ Commercial Department Distribution and Consumer Services
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Drawing
CS11-TRN-06

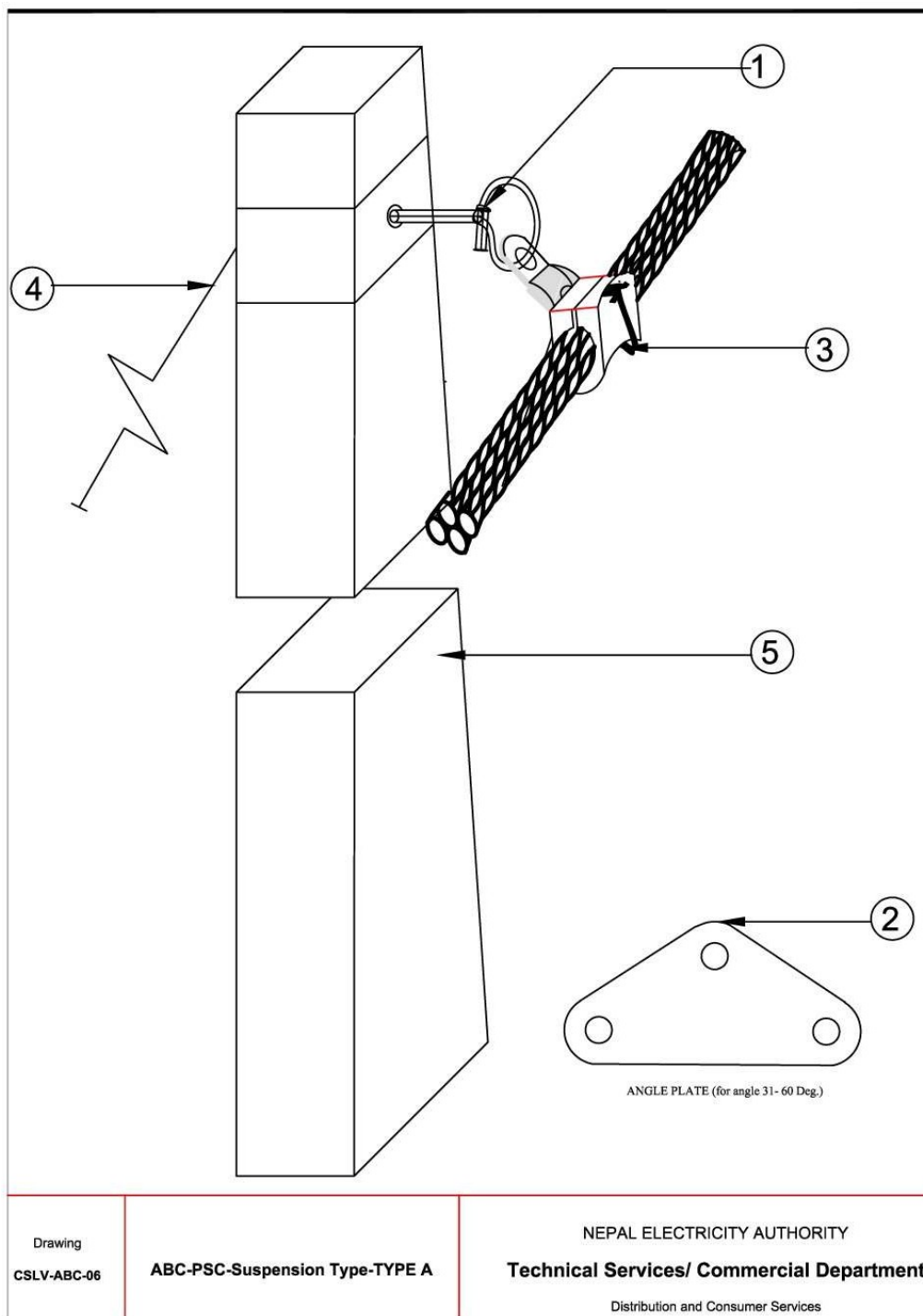
Transformer Platform and
Accessories

NEPAL ELECTRICITY AUTHORITY
Technical Services / Commercial Department
Distribution and Consumer Services



Agricultural Pole , Wire & Transformer Installation Works Within shahidnagar Municipality Under Procurement of Works (NCB)- 1S2E Procedure

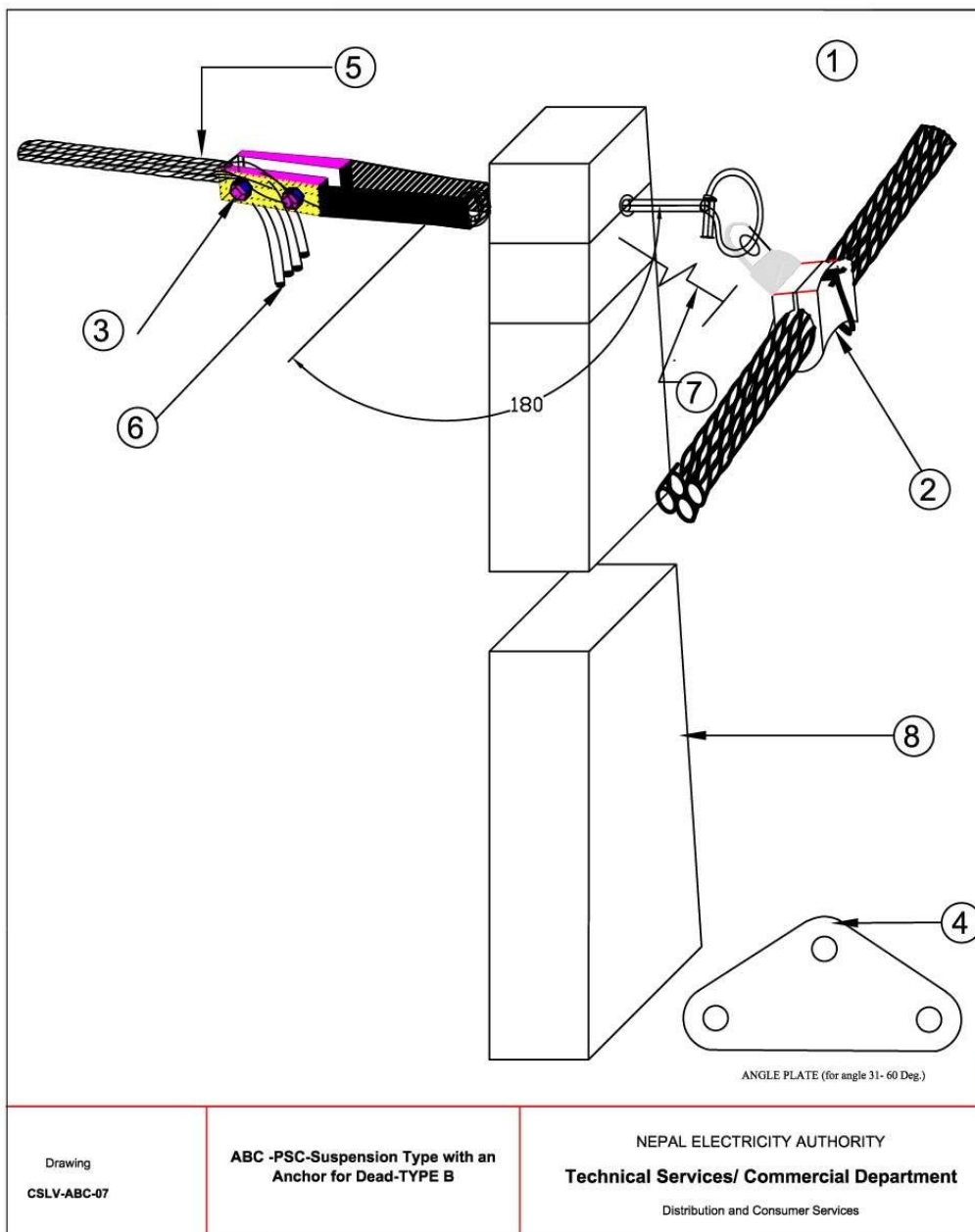
Refer Drawing No: CS11-TRN-06				
S.No.	QTY.	UNIT	MATERIAL	
1	1	NO	CHANNEL FOR DO / LA (100 x 50 x 6.4 x 2348) mm	
2	2	NOS	PLATFORM CHANNEL TR1 (100 x 50 x 7.5 x 1200) mm	
3	4	NOS	PLATFORM CHANNEL TR2 (100 x 50 x 7.5 x 2500) mm	
4	2	NOS	PLATFORM CHANNEL TR3 (100 x 50 x 7.5 x 2500) mm	
5	2	NOS	PLATFORM CHANNEL TR4 (100 x 50 x 7.5 x 1200) mm	
6	8	NOS	BRACING ANGLE TR5 (50 x 50 x 5 x 841) mm	
7	2	SET	BRACING BRAND TR6 WITH 2-M16 x60 BOLTS, 2-M16 x50 BOLTS , 8- M16 NUT, 8-M16 WASHER	
8	24	SET	M16 x50 BOLTS WITH 2-M16 NUT AND 2-M16 WASHER	
9	4	SET	M16 x250 BOLTS WITH 2-M16 NUT AND 2-M16 WASHER	
10	8	SET	M16 x350 BOLTS WITH 2-M16 NUT AND 2-M16 WASHER	
11	1	NO	PSC POLE	
CONSTRUCTION STANDARDS TRANSFORMER PLATE PSC POLE			NEPAL ELECTRICITY AUTHORITY Technical Service/ Commercial Department Distribution and Consumer Services	





Agricultural Pole , Wire & Transformer Installation Works Within shahidnagar Municipality Under Procurement of Works (NCB)- 1S2E Procedure

				Refer Drawing No: CSLV-ABC- 06
0 ⁰ TO 30 ⁰				
S.No.	QTY.	UNIT	MATERIAL	
1	1	SET	PIGTAIL WITH HEXAGONAL NUTS AND WASHERS (16 * 203) mm	
2	0	No.	ANGLE PLATE	
3	1	SET	SUSPENSION CLAMP	
4	1	No.	LT STAY SET (TYPE AS REQUIRED)	
5	1	No.	POLE PSC 8 m / 9 m	
31 ⁰ TO 60 ⁰				
S.No.	QTY.	UNIT	MATERIAL	
1	1	SET	PIGTAIL WITH HEXAGONAL NUTS AND WASHERS (16 * 203) mm	
2	1	No.	ANGLE PLATE	
3	1	SET	SUSPENSION CLAMP	
4	1	No.	LT STAY SET (TYPE AS REQUIRED)	
5	1	No.	POLE PSC 8 m / 9 m	
CONSTRUCTION STANDARDS			NEPAL ELECTRICITY AUTHORITY	
LV TYPE-A (SUSPENSION TYPE)			Technical Service/ Commercial Department	
PSC POLE			Distribution and Consumer Services	

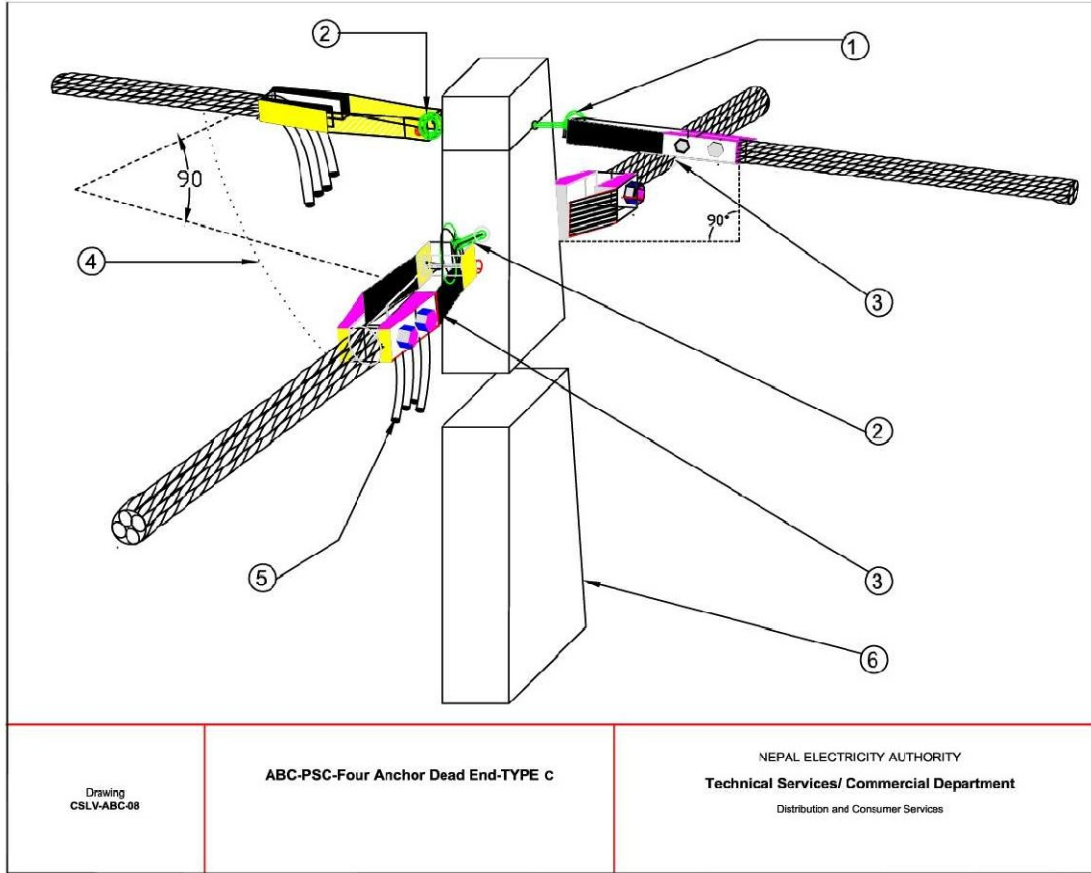




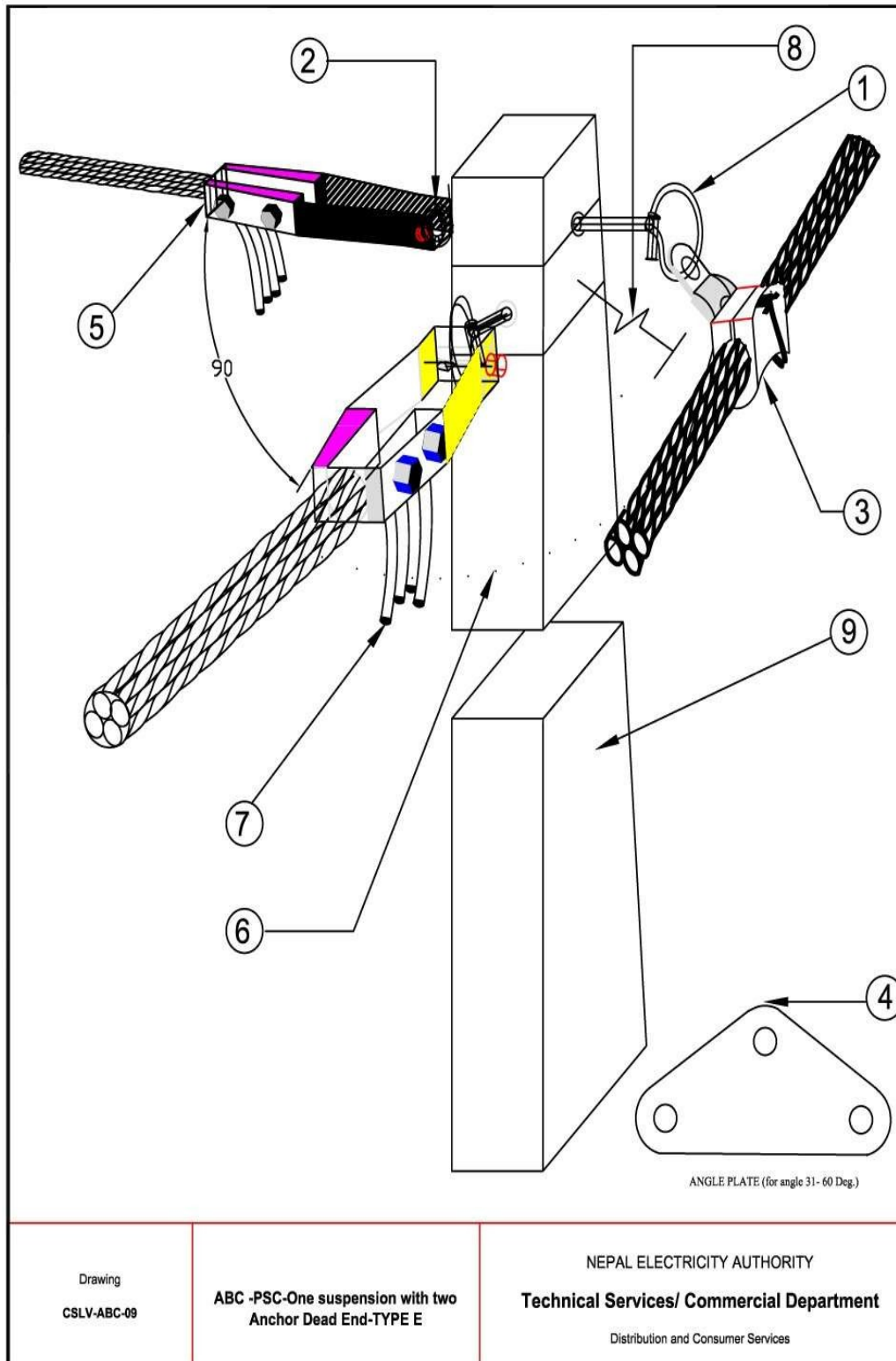
Agricultural Pole , Wire & Transformer Installation Works Within shahidnagar Municipality Under Procurement of Works (NCB)- 1S2E Procedure

				Refer Drawing No: CSLV-ABC- 07
0 ⁰ TO 30 ⁰				
S.No.	QTY.	UNIT	MATERIAL	
1	2	SET	PIGTAIL WITH HEXAGONAL NUTS AND WASHERS (16 * 203) mm	
2	1	SET	SUSPENSION CLAMP	
3	1	SET	ANCHOR CLAMP WITH NUTS AND BOLTS	
4	0	NO.	ANGLE PLATE	
5	8	NOS	INSULATED PIERCING CONNECTOR	
6	4	NOS	INSULATED CABLE CAP	
7	1	NO.	LT STAY SET (TYPE AS REQUIRED)	
8	1	NO.	POLE PSC 8 m / 9 m	
31 ⁰ TO 60 ⁰				
S.No.	QTY.	UNIT	MATERIAL	
1	2	SET	PIGTAIL WITH HEXAGONAL NUTS AND WASHERS (16 * 203) mm	
2	1	SET	SUSPENSION CLAMP	
3	1	SET	ANCHOR CLAMP WITH NUTS AND BOLTS	
4	1	NO.	ANGLE PLATE	
5	8	NOS	INSULATED PIERCING CONNECTOR	
6	4	NOS	INSULATED CABLE CAP	
7	1	NO.	LT STAY SET (TYPE AS REQUIRED)	
8	1	NO.	POLE PSC 8 m / 9 m	
CONSTRUCTION STANDARDS LV TYPE-B (SUSPENSION WITH AN ANCHOR FOR DEAD) PSC POLE				NEPAL ELECTRICITY AUTHORITY Technical Service/ Commercial Department Distribution and Consumer Services

Agricultural Pole , Wire & Transformer Installation Works Within shahidnagar Municipality Under Procurement of Works (NCB)- 1S2E Procedure



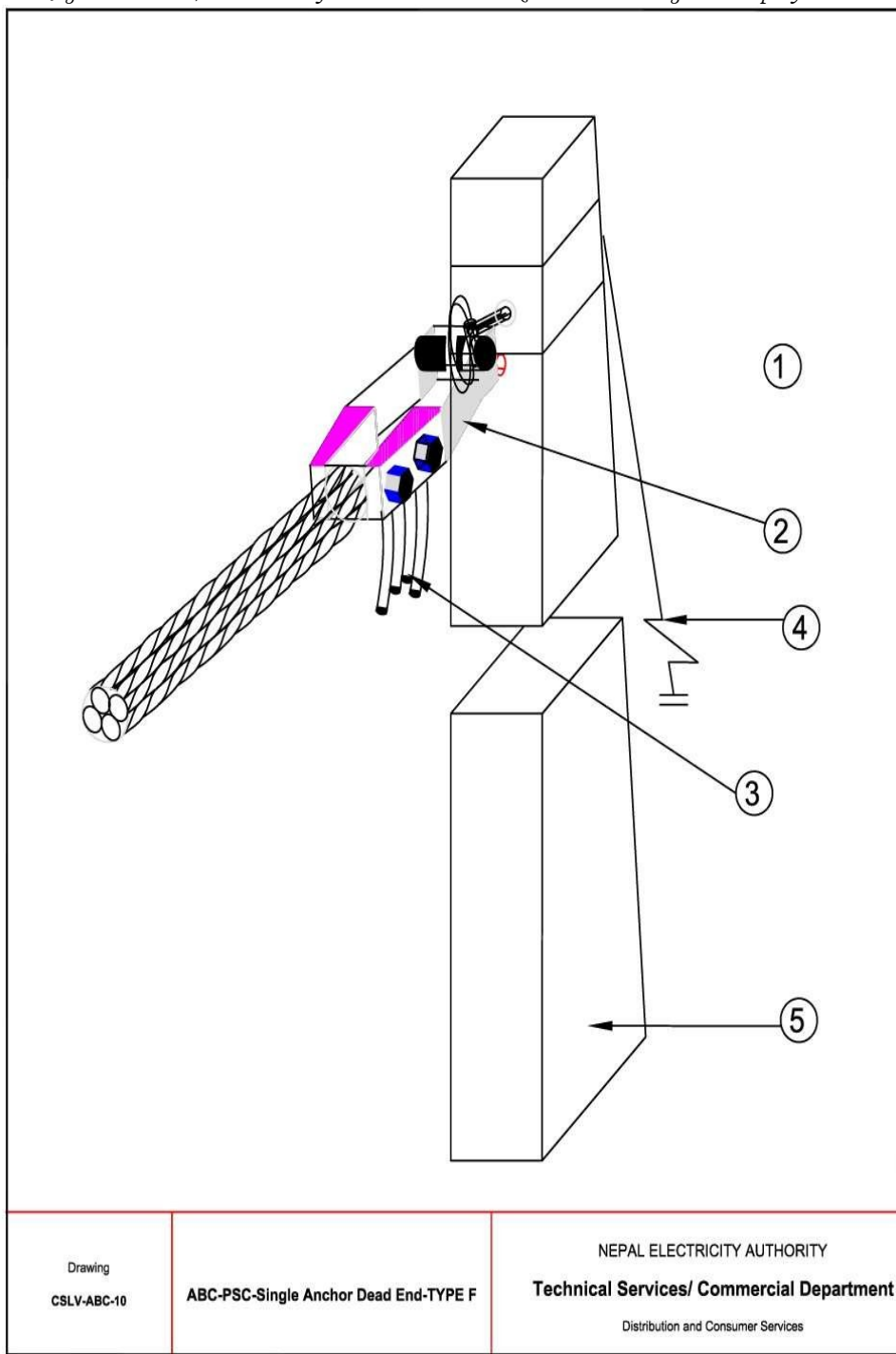
Refer Drawing No: CSLV-ABC-08					
	S.No.	QTY.	UNIT	MATERIAL	
	1	2	SET	POLE CLAMP WITH NUT,BOLT AND WASHERS	
	2	2	No.	EYE NUT	
	3	4	SET	ANCHOR CLAMP WITH NUTS AND BOLTS	
	4	16	NOS	INSULATED PIERCING CONNECTOR	
	5	16	NOS	INSULATED CABLE CAP	
	6	1	No.	POLE PSC 8 m / 9 m	
CONSTRUCTION STANDARDS LV TYPE-C (FOUR ANCHOR DEAD END) PSC POLE				NEPAL ELECTRICITY AUTHORITY Technical Service/ Commercial Department Distribution and Consumer Services	





Agricultural Pole , Wire & Transformer Installation Works Within shahidnagar Municipality Under Procurement of Works (NCB)- 1S2E Procedure

				Refer Drawing No: CSLV-ABC-09
S.No.	QTY.	UNIT	MATERIAL	
1	2	SET	PIGTAIL WITH HEXAGONAL NUTS AND WASHERS (16 * 203) mm	
2	2	No.	EYE NUT	
3	1	SET	SUSPENSION CLAMP	
4	1	NO.	ANGLE PLATE	
5	2	SET	ANCHOR CLAMP WITH NUTS AND BOLTS	
6	16	NOS	INSULATED PIERCING CONNECTOR	
7	8	NOS	INSULATED CABLE CAP	
8	1	No.	LT STAY SET (TYPE AS REQUIRED)	
9	1	No.	POLE PSC 8 m / 9 m	
CONSTRUCTION STANDARDS LV TYPE-E (ONE SUSPENSION WITH TWO ANCHOR DEAD) PSC POLE				NEPAL ELECTRICITY AUTHORITY Technical Service/ Commercial Department Distribution and Consumer Services





Agricultural Pole , Wire & Transformer Installation Works Within shahidnagar Municipality Under Procurement of Works (NCB)- 1S2E Procedure

				Refer Drawing No: CSLV-ABC-10
S.No.	QTY.	UNIT	MATERIAL	
1	1	SET	PIGTAIL WITH FABRICATED EYE	
2	1	SET	ANCHOR CLAMP WITH NUTS AND BOLTS	
3	4	NOS	INSULATED CABLE CAP	
4	1	No.	LT STAY SET (TYPE AS REQUIRED)	
5	1	No.	POLE PSC 8 m / 9 m	
CONSTRUCTION STANDARDS LV TYPE-F (SINGLE ANCHOR DEAD END) PSC POLE				NEPAL ELECTRICITY AUTHORITY Technical Service/ Commercial Department Distribution and Consumer Services



Agricultural Pole , Wire & Transformer Installation Works Within shahidnagar Municipality Under Procurement of Works (NCB)- 1S2E Procedure

Supplementary Information

[insert supplementary information if any]



Agricultural Pole , Wire & Transformer Installation Works Within shahidnagar Municipality Under Procurement of Works (NCB)- LS2E Procedure

Personnel Requirements

Using Form PER-1 and PER-2 in Section IV (Bidding Forms), the Bidder must demonstrate it has personnel that meet the following requirements:

SN.	Position	Required No.	Academic Qualification <i>[When position demands]</i>	Total Work Experience [Years]	Experience in Similar Works [years]
1.	Engineer	1	B.Tech/BE in Electrical	5	3
2.	Sub-Engineer	1	Diploma in Electrical Engineering or Equivalent	3	2
3.					
4.					
5.					



Agricultural Pole , Wire & Transformer Installation Works Within shahidnagar Municipality Under Procurement of Works (NCB)- 1S2E Procedure

Equipment Requirements

Using Form EQU in Section IV (Bidding Forms), the Bidder must demonstrate it has the key equipment listed below:

No.	Equipment Type and Characteristics	Min. Number Requirement
1.	Truck Mounted Crane	1 Set
2.	Stringing Tools & safety Equipments	2 set
3.		
4.		
5.		



Section VII: Bill of Quantities⁹

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;*

⁹In lump sum contracts, delete “Bill of Quantities” and replace with “Schedule of Activities” throughout this section.



Agricultural Pole, Wire & Transformer Installation Works Within shaheednagar Municipality Under Procurement of Works (NCB)- 1S2E Procedure

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

Preamble

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

Work Items

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

Day work Schedule

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

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

Provisional Sums

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.

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.

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.



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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



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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 basic 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.



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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.



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BILL OF QUANTITIES

Item No.	Description of Works	Unit	Quantity	Bidder's Rate (NPR)		Amount (NPR)	Remarks
				In Figure	In Words		
A	Provisional Sum						
1.1	NOTICE BOARD : Providing & Erection of a Notice Board of Size 4'X6' as per the instruction of site Engineer.	Job	1.00	7,500.00	Seven Thousands Five Hundred Only	7,500.00	
1.2	LAB TEST : Lab test Provision for Materials .	Job	1.00	80,000.00	Eighty Thousands Only	80,000.00	
1.3	NEA CHARGES : NEA service charge , Shut down charge , inspection, commissioning & testing Charges & others's NEA charge etc all complete .	PS	1.00	900,000.00	Nine Lakh Only	900,000.00	
1.4	INSURANCE : Insurance of works, plants, materials, loss and damage to equipments, Contractor's workmen and employees and third party insurance against damage to other persons and property.	PS	1.00	200,000.00	Two Lakh Only	200,000.00	
1.5	MOTOR BIKE : Supply , Delivery & Handover One no. 155 CC New Branded Motor Bike for site supervision staff with all req. accessories & registration to the Shahidnagar municipality . (As Per Actual Cost.) .	PS	1.00	450,000.00	Four Lakh Fifty Thousands Only	450,000.00	
	Sub Total of Provisional Sum =					16,37,500.00	
B.	MATERIALS						
1	11m PSC pole (NEA Standard)	Nos	244.00				
2	9m PSC pole (NEA Standard)	Nos	1,263.00				
3	50.0 sq.mm 4c ABC Cable (NEA Standard)	km	45.50				
4	55.0 sq.mm XLPE Cover conductor (NEA Standard)	km	30.03				
5	Distribution Transformer (100 KVA 11/0.4 KV 3 Phase) (NEA Standard)	Nos	14.00				



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6	channel (100*50*50*7.5*5*300) / (wt. as per MC 100)	Nos	244.00				
7	channel (100*50*50*7.5*5*600) / (wt. as per MC 100)	Nos	56.00				
8	channel (100*50*50*7.5*5*1200) / (wt. as per MC 100)	Nos	244.00				
9	channel (100*50*50*7.5*5*2390) / (wt. as per MC 100)	Nos	74.00				
10	Bracing arm(pattl) (6*50*50*100*660) / (wt. as per MC 100)	Nos	488.00				
11	Stay set	set	295.00				
12	Stay wire	kg	1,475.00				
13	Stay insulator	Nos	295.00				
14	11 kv Disconnecting switch	Set	9.00				
15	11 kv Droup out fuse	Nos	42.00				
16	11 kv Lighting Arrester	set	42.00				
17	11kv Pin Insulator with spendal	Nos	732.00				
18	11 kv Disc Insulator with graffer	Nos	120.00				
19	Earthing rod copper	Nos	42.00				
20	Earthing wire copper	kg	77.00				
21	50 sq.mm Cable connector	Nos	290.00				
22	Ht XLPE Cover conductor connector	Nos	206.00				
23	suspension clamp	Nos	1,327.00				
24	Anchor clamp	Nos	250.00				
25	PSC Pole clamp	Nos	506.00				



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26	PG Clamp	Nos	42.00				
27	Cable Shoe	Nos	42.00				
28	Nut bolts 12 inch	kg	56.00				
29	Nut bolts 6/8 inch	kg	100.00				
30	Nut bolts 3 inch	kg	122.00				
31	200/5 Amp LTCT	Nos	42.00				
32	TOD Meter Box	Nos	14.00				
33	10 core Cable	Meters	28.00				
34	TOD Meter including All Charges	Nos	14.00				
	<u>Sub-Total cost of Materials (B) =</u>						-
C	LABOUR COST:-						
1	Erection of 11 Mtr PSC including transportation from office store to site	Nos	244.00				
2	Stringing of 55 sq.MM XLPE Covered Conductor HT 3 Wired including tree branches cutting along the route with transportation from office store to Construction site.	KM	9.72				
3	Erection of PSC Pole 9 Mtr including transportation from office store to site.	Nos	1,263.00				
4	Stringing of 50.0 sq.mm 4c ABC Cable including tree branches cutting along the route with transportation .	KM	44.17				
6	Stay set installation including transportation from office store to site.	Set	295.00				
7	Instalation of 100 kva Transformer including tree branches cutting along the route with transportation etc all complete with required all accessories.	set	14.00				
8	Installation of TOD Meter	Set	14.00				



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	<u>Sub-Total cost of Labours (C)=</u>					
	<u>Sub-Total cost of Materials & Labours (B + C) =</u>					
	<u>Vat Amount of Materials & Labours(B + C) @13% =</u>					
	<u>Grand Total Cost with Vat & PS=</u>					



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Part III: CONDITIONS OF CONTRACT AND CONTRACT FORMS



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Section VIII: General Conditions of Contract

***Shahidnagar Municipality
Office of The Municipal Executive
Yadukuha, Dhanusha***

***Agricultural Pole, Wire & Transformer Installation
Works within Shahidnagar Municipality***



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Contract Identification No.: **SNM/NCB/WORKS/02/2083-84**

General Conditions of Contract

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

A.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
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	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 in 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:



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	(a) Contract Agreement, (b) Letter of Acceptance, (c) Letters of Technical Bid and Price 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 X. 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.



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	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



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	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



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	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 subcontractors, 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. 13.4 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. 13.5 The contractor shall provide the Employer with details of the payments made to the subcontractors, material suppliers, equipment suppliers, service providers, or other persons or entities engaged under GCC 13.1 and/or GCC 13.2. 13.6 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



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	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



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	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	23.1 The contractor shall be responsible for the design of permanent works as



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contractor and Approval by the Project Manager	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.



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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 the arbitration procedures in accordance with law of Nepal at the place within the territory of Nepal given in the SCC .
B1. Staff and Labor	



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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.
B.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 Date	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 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 (if any) remain valid. The contractor shall submit Performance Security, Advanced Payment Guarantee (if any) and Insurance Policy documents, as required with extended validity, within fifteen (15) days of receiving the Letter of Extension of Intended Completion Date from the Employer. 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 GCC 35.2, the Contractor shall pay a 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	37.1 The Project Manager may instruct the Contractor to delay the start or progress of any activity within the Works.



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Manager	
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 Warning	39.1 The Contractor shall warn the Project Manager at the earliest opportunity of 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.



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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 the Contract Price	45.1 In the case of a Unit Rate contract: (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.



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	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 a 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 a 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



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	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



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	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 ¹⁰ : 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:

¹⁰ 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



	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;¹¹ 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 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

¹¹ 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.



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	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 “R₁” is the present price of the construction material (Source of indices shall be those listed in the Bidding forms) “R₀” 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 the Contractor 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:



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	(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 a separate bank account maintained for the contract in two equal installments by the date stated in the SCC, against provision by the Contractor of an unconditional bank guarantee from Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law in Nepal in a form acceptable to the Employer in amounts equal to the advance payment. The guarantee shall remain effective until the advance payment has been repaid, but the amount of the guarantee shall be



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	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 is 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 35.5, 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 X (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. However, any additional performance security required as per ITB 35.5 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 Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law in Nepal.
59. Dayworks	59.1 If applicable, the Dayworks rates in the Contractor's Bid shall be used for small additional amounts of work only when the Project Manager has



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	given written instructions in advance for additional work to be paid for in that way. 59.2 All work to be paid for as Dayworks 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 Dayworks subject to obtaining signed Dayworks forms.
60. Cost of Repairs	60.1 Loss or damage to the Works or Materials to be incorporated in the Works 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



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	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 Minimize Delay	63.1 Each Party shall at all times use all reasonable endeavors to minimize any 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 subparagraphs (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	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



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Subcontractor	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



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	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	71.1 If "as built" Drawings and/or operating and maintenance manuals are required,



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and Maintenance Manuals	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.If the Contractor fails to submit Performance Security, Advanced Payment Guarantee (if any) and Insurance Policy documents even after the time



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	period indicated in 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. 72.6 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.



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	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 additional 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 Section V of the bidding document 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.



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80. Project Manager'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,



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	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 concerned Local Government 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 .
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



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	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.,



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Section IX: 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.

***Shahidnagar Municipality
Office of The Municipal Executive
Yadukuha, Dhanusha***

***Agricultural Pole, Wire & Transformer Installation
Works within Shahidnagar Municipality***

Contract Identification No.: ***SNM/NCB/WORKS/02/2083-84***



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Special Conditions of Contract

A. General	
GCC 1.1 (p)	The Employer is <i>Shahidnagar Municipality , Office of the Municipal Executive , Yadukuha , Dhanusha.</i>
GCC 1.1 (u)	The Intended Completion Date for the whole of the Works shall be: <i>2085/03/15</i> <i>[If different dates are specified for completion of the Works by section("sectional completion" or milestones), these dates should be listed here]</i>
GCC 1.1(bb) & GCC10.1	The Project Manager is CAO The Project Manager and Engineer are synonyms.
GCC 1.1 (ee)	The Site is located at <i>Shahidnagar Municipality , Ward 01 to 09 , Dhanusha.</i>
GCC 1.1 (hh)	The Start Date shall be : BS: 2083/08/29
GCC 1.1 (ll)	The Works consist of : Agricultural Pole,Wire & Transformer Installation Works within Shahidnagar Municipality
GCC 2.2	Sectional Completions are: <i>NA</i>
GCC 2.3(i)	The following documents also form part of the Contract : <i>NA</i>
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 " <i>may</i> " delegate any of his duties and responsibilities.
GCC 12.1 (a)	The agreed electronic transmission shall be.... <i>[Insert E-mail or any other such means of Employer] and</i> <i>[Insert E-mail or any other such means of Contractor.]</i>
GCC 13.1	<u>For GoN Funded:</u> Maximum percentage of subcontracting permitted is 25% of the total contract amount (without VAT but including PS).



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	Nature of Works that agreed to be subcontracted and Details of Sub-Contractors: 1. 2. 1)
GCC 14.1	Schedule of other contractors: <i>NA</i>
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: <i>as per the provision of Nepal Insurance Authority.</i> 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: <i>as per the provision of Nepal Insurance Authority.</i> 5.The minimum cover for loss of or damage to other property is: NRs 10,00,000.00 with unlimited number of occurrences. 6.The maximum deductible for insurance of other property is: <i>as per the provision of Nepal Insurance Authority.</i> 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: NRs 10,00,000.00 with an unlimited number of occurrences.
GCC 20.1	Site Investigation Reports are : <i>NA</i>
GCC 23.1	The following shall be designed by the Contractor : <i>NA</i>
GCC 24.2	<i>As per the Prevailing OHS Policy, Guideline and/or Operating Manual.</i>
GCC 26.1	The Site Possession Date(s) shall be: 7 days after signing the contract.
GCC 30.1	The place of arbitration shall be: NEPCA , Kathmandu.
C. Time Control	
GCC 34.1	The Contractor shall submit for approval a Program for the Works within 15 days from the date of the Letter of Acceptance.



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GCC 34.3	The period between Program updates is 30 days. The amount to be withheld for late submission of an updated Program is NRs 5000.00
D. Quality Control	
GCC 42.1	The Defects Liability Period is: 365 days .
E. Cost Control	
GCC 49.1	Prevailing Interest Rate : NA
GCC 53.1	The Contract “is” subject to price adjustment, and the following information regarding coefficients “does” 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: For GoN Funded: /25 %/ percentage of the initial Contract Amount (without VAT but including PS) For DP Funded: Not Applicable
GCC 54.1	The proportion of payments retained is: For GoN Funded: 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 Bonus for the whole of the Works is 0.05 Percent per day of final contract price (without VAT but including PS). The maximum amount of Bonus for the whole of the Works is /5 %/ of the final Contract Price (without VAT but including PS).
GCC 57.1	the Advance Payments shall be: 20% (without VAT but including PS) and shall be paid in two equal installments and to the Contractor. i) The first installment [10%] upon submission of an unconditional bank guarantee from Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Laws.



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	ii)The second installment [10%] after Employer's satisfaction on procurement of essential construction materials and mobilization of manpower and equipment in site upon an unconditional bank guarantee from Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law along with submission of insurance policy.
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 40% 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% of the Bid.
G. Finishing the Contract	
GCC 71.1	The date by which operating and maintenance manuals are required is; NA
GCC 71.2	The date by which “as built” drawings are required is: 30 days after completion of the project. The amount to be withheld for failing to produce “as built” drawings and/or Operating and maintenance manuals is: NRs 1,00,000.00
GCC 72.3 (i)	The maximum number of days is: 200
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; 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;



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Section X: 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.



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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 Data/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.***



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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 of contract price 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:



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Contract Agreement

THIS AGREEMENT made theday of.....between..... name of the Employer(hereinafter “the Employer”), of the one part, andname of the Contractor(hereinafter “the Contractor”), of the other part:

WHEREAS the Employer desires that the Works known as name of the Contractshould be executed by the Contractor, and has accepted a 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 Letters of Technical and Price Bid;
 - (c) the Addenda Nos *Insert addenda numbers if any*
 - (d) the Special Conditions of Contract;
 - (e) the List of Eligible Countries that was specified in Section V of the bidding document,
 - (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 [For GoN funded project]
 - (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



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

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



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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.

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[Signature]
प्रमुख प्रशासकीय अधिकृत



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** 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.*



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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 reference number of the contract]** dated **[date]** with you, 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, 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 **[date]** day of ... **[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:

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[Signature]
प्रमुख प्रशासकीय अधिकारी



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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 intended 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 and amount in words]* 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 day of, ...², and any demand for payment under it must be received by us at the office indicated above on or before that date.

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.



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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.

Annex-1

Table of Price Adjustment Data [SCC 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 [SCC 53.6]



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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.